J. LOES POUWELS

THE GROUP PROCESS OF BULLYING: developmental, methodological & social-cognitive perspectives

The Group Process of Bullying:
Developmental, Methodological, and
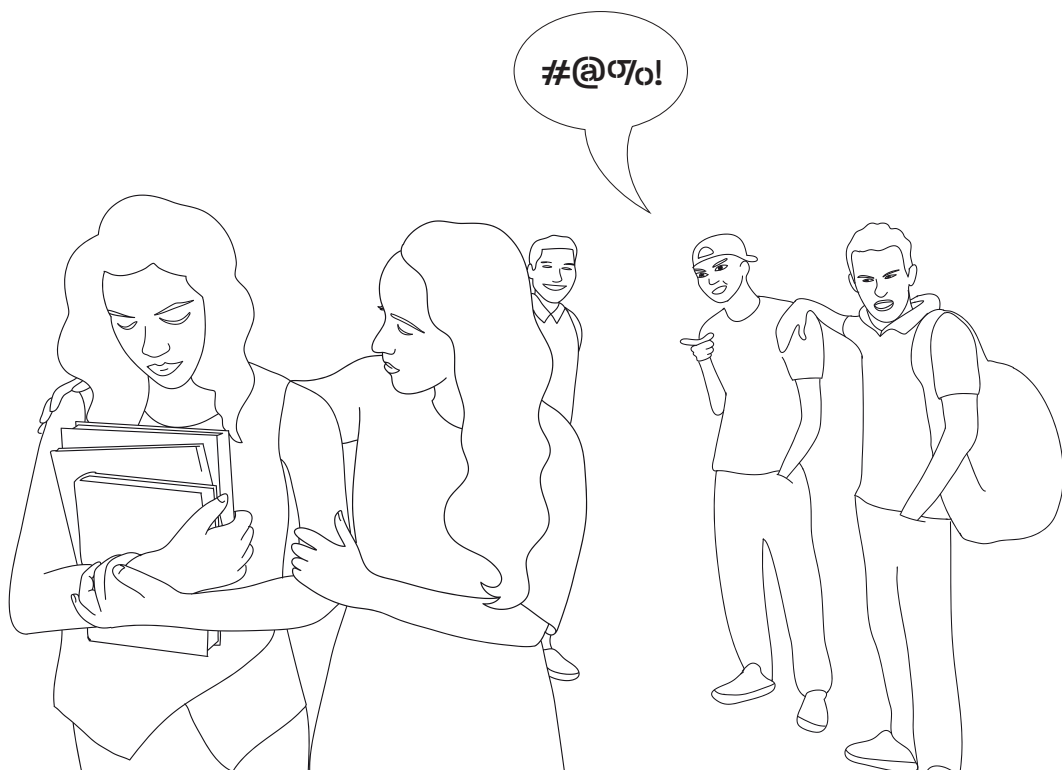Social-Cognitive Perspectives

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TABLE OF CONTENTS

01

General Introduction

Imagine that you are entering a secondary school canteen during lunch time. In the canteen you see Sarah, a 16 year old girl, who likes to join the table where her classmates are having lunch together. Anna, one of Sarah's classmates, is not happy about Sarah joining, because Sarah is not that popular among her classmates. Anna therefore takes the initiative to switch tables, and she says to Sarah that she does not like to spend lunch with her as she is 'not sociable'. The other classmates switch with Anna to the other table, and some of them start to join Anna in calling Sarah names. Other classmates, by laughing at Sarah, reinforce Anna to continue her bullying behavior. Another group of classmates sits at another table, but they stay out of the incident. Sarah is excluded. She is not able to defend herself and she feels sad. Fortunately, one classmate stands up for Sarah and tells Anna that her behavior is not acceptable.

This is an everyday example of bullying, in which one or more individuals (the bullies) repeatedly attack, humiliate, or exclude another person (the victim) who has difficulties to defend herself (Salmivalli, 2010). Three main characteristics distinguish bullying from aggression. First, bullying is intentional, that is, it is goal directed behavior. For instance, youths may bully others because they want to be dominant in the group (Volk, Dane, & Marini, 2014). Second, there is a power imbalance between bullies and victims, indicating that it is difficult for victims to defend themselves. Bullies can, for example, be physically or socially more powerful than victims. Third, bullying occurs repeatedly and over a prolonged period of time.

In the situation above, in addition to Anna and Sarah (i.e., the bully and the victim) other classmates participate in different roles in the bullying process: *assistants*, who join the ringleader bully in attacking the victim; *reinforcers*, who are not actively involved in the bullying, but reinforce the bully, for example, by providing an audience and laughing at the victim; *defenders*, who actively intervene and try to stop the bullying, tell the teacher about it, or try to comfort the victim; and *outsiders*, who do not take sides with either the bully or the victim (Salmivalli, Lagerspetz, Björkqvist, Österman, & Kaukiainen, 1996). This dissertation addresses not only the victims of bullying, but places peer victimization in the broader context of the group process by examining all six bullying participant roles.

This dissertation has two parts. Part 1 focuses specifically on children's experiences of peer victimization. Part 2 focuses on all six bullying participant roles (bully, victim, assistant, reinforcer, defender, and outsider). In both parts, I am covering three themes: *measurement, development,* and *social cognitions*.

First, understanding a developmental phenomenon implies that we are able to measure it. Different methods have been used to measure youths' involvement in peer victimization and the bullying participant roles. *The first goal of this dissertation was to address the measurement of peer victimization (1.1) and the participant roles (2.1) by examining the concordance between different methods.*

Second, children's social experiences in early childhood form the basis for their social and emotional functioning later in childhood and adolescence (Hay, Payne, & Chadwick, 2004). Thus, understanding peer victimization is an important part of understanding social development. Despite the importance of early childhood functioning, little is known about the development of peer victimization and its socio-emotional adjustment from early life on. In addition, youths' motives to be involved in bullying may change over time and the power imbalance associated with bullying plays a more prominent role in adolescence than in childhood (Yeager, Fong, Lee, & Espelage, 2015). It is unknown whether these changes are reflected in the social profiles of the participant roles in adolescence, as most studies on the participant roles have focused on middle childhood and early adolescence. *Therefore, the second goal of this dissertation was to provide a developmental perspective on socio-emotional adjustment associated with peer victimization (1.2) and the bullying participant roles (2.2).*

Third, I am addressing why children behave in certain ways in bullying situations. The mechanisms underlying children's behaviors in bullying situations may be found in their social cognitions. *Therefore, the third goal of this dissertation was to address the social cognitions of victims (1.3) and the bullying participant roles (2.3).*

PART 1: PEER VICTIMIZATION

The Prevalence and Measurement of Peer Victimization

Peer victimization is a serious problem in schools, as a considerable number of students experience it. Prevalence rates from the Netherlands indicate that 7% to 16% of children (ages 9 to 11) are victimized in primary school (Fekkes, 2005; Olthof, Goossens, Vermande, van der Meulen, & Aleva, 2011; Scholte, Engels, Overbeek, de Kemp, & Haselager, 2007; Veenstra et al., 2005). In secondary school, the prevalence of victimization is about 14% (Scholte et al., 2007). A review of studies across a range of western countries showed that the prevalence of peer victimization declines from age 8 to 16 (Smith, Madsen, & Moody, 1999).

One reason for the difference in prevalence rates between studies might be the large heterogeneity of methods used to measure peer victimization (Goossens, Vermande, & van der Meulen, 2012). Self-reports are the most common measure of victimization. They measure how frequently students experienced victimization during the last months or in the past school year (Solberg & Olweus, 2003; Storch, Crisp, Roberti, Bagner, & Masia-Warner, 2005). A unique characteristic of self-reports is that they tap into students' subjective experiences of peer victimization. Peer-reports, including peer nominations and peer ratings, are another common measure of victimization (Perry, Kusel, & Perry, 1988). They measure students' reputations as a victim among their peers. With peer nominations, youths are asked to name classmates who are victimized. In addition to self- and peer-reports, there are some other methods to assess victimization that are less commonly used, such as teacher-reports (Lohre, Lydersen, Paulsen, Maehle, & Vatten, 2011).

Although each method should be measuring the phenomenon of peer victimization, correlations between these measures are often weak to moderate (Graham & Juvonen, 1998; Lohre et al., 2011; Pellegrini & Bartini, 2000a). Consequently, a substantial part of youths who feel victimized are not seen as a victim by their peers or teachers (Oldenburg et al., 2015; Oldenburg, Bosman, & Veenstra, 2016). One reason for the low overlap between self-, peer-, and teacher-reports of victimization may be that they tap into the informants' recollections of victimization over a relatively large preceding time period, from several weeks to months. As a result, these recollections may be prone to memory biases (Bolger, Davis, & Rafaeli, 2003; Nishina & Juvonen, 2005). A promising alternative approach is to measure peer victimization with a daily diary measure (Bolger et al., 2003; Nishina & Juvonen, 2005). This may yield a more accurate reflection of children's experiences of victimization during one school day.

Goal 1.1 of this dissertation was to address the measurement of peer victimization and the concordance between different measures. Specifically, I examined (a) the *concordance* of general self- and peer-reports with daily diary-reports of peer victimization, (b) whether the *stability* of victimization depends on the type of informant (self, peer, teacher, or other), and (c) how the association between victimization and *socio-emotional functioning* depends on the type of measure (self, peer, daily diary).

Peer Victimization and Socio-Emotional Functioning

The prevalence of peer victimization is alarming, as peer victimization is related to emotional problems. For example, victims often experience internalizing problems (for meta-analyses, see Cook, Williams, Guerra, Kim, & Sadek, 2010; Hawker & Boulton, 2000; Reijntjes, Kamphuis, Prinzie, & Telch, 2010), in the form of feelings and emotions

that are directed inwards, such as somatic complaints, anxiety, depressive symptoms, and withdrawn behavior (Achenbach, 1991). Peer victimization has also been related to externalizing problems (for meta-analyses, see Cook et al., 2010; Reijntjes et al., 2011), such as aggression and delinquency, which are related to emotions that are directed outwards (Achenbach, 1991).

Research has shown that there is a bi-directional longitudinal association between peer victimization and emotional functioning (Reijntjes et al., 2011; Reijntjes et al., 2010). Peer victimization may lead to subsequent internalizing and externalizing problems. The *interpersonal risk model* states that maladaptive social relationships, such as being victimized, lead to an unmet need to belong (Baumeister & Leary, 1995), which results in subsequent emotional problems (Sentse, Prinzie, & Salmivalli, 2017). This model states that internalizing and externalizing problems may also be the cause of peer victimization. Children who behave in internalizing ways tend to respond to peer provocation in submissive ways and thereby give their peers the impression that they are unable to defend themselves, making them attractive victims of bullying (Hodges, Malone, & Perry, 1997; Sentse et al., 2017). Youths with externalizing problems may irritate their peers and provoke aggression, leading to peer victimization (Kochenderfer & Ladd, 1997; Schwartz, McFadyen–Ketchum, Dodge, Pettit, & Bates, 1998).

In addition to emotional problems, victims also experience social problems, such as having few friends (Hodges, Boivin, Vitaro, & Bukowski, 1999; Scholte et al., 2009) and lacking social competence and social skills (Cook et al., 2010; Schwartz, Dodge, & Coie, 1993). Moreover, victims tend to have low peer status (Cook et al., 2010). Two types of peer status can be distinguished: social preference and perceived popularity (LaFontana & Cillessen, 1998; Parkhurst & Hopmeyer, 1998). Social preference is a measure of how well-liked youths are by their peers (Coie, Dodge, & Coppotelli, 1982; Newcomb, Bukowski, & Pattee, 1993). It is examined by asking students to nominate classmates who they like most (i.e., acceptance) and like least (i.e., rejection) (Coie et al., 1982). Perceived popularity is an indicator of reputation, power, and social dominance (LaFontana & Cillessen, 1998). It is assessed by asking students to nominate classmates who are most and least popular. Most victims are rejected and unpopular (e.g., see de Bruyn, Cillessen, & Wissink, 2010; Scholte, Burk, & Overbeek, 2013).

The emotional problems (Burk et al., 2011; Camodeca, Goossens, Terwogt, & Schuengel, 2002; L. H. Rosen et al., 2009) and social problems (Scholte et al., 2007; Smith, Talamelli, Cowie, Naylor, & Chauhan, 2004) that are related to peer victimization are stronger for

youths who are stably victimized over time than for youths who are less chronically victimized. Two basic principles may explain continuity in youths' social experiences, such as peer victimization.

First, the principle of *cumulative continuity* states that youths with maladaptive behaviors may select themselves into social environments that further reinforce these behaviors (Caspi, Elder, & Bern, 1987). As victims lack social skills and friendships, they often become friends with peers who also lack social competence and social skills (Browning, Cohen, & Warman, 2003; Hodges et al., 1997). Victims may therefore have limited positive social experiences and opportunities to develop their social skills, which continues their risk for being repeatedly victimized over time (Kochenderfer-Ladd & Wardrop, 2001; Scholte et al., 2007).

Second, the principle of *interactive continuity* states that youths develop an interaction style that triggers responses from their peers that reinforce their social position (Caspi et al., 1987). For example, when victims respond with social withdrawal or submission to the bully, they reward the bully (Kochenderfer & Ladd, 1996b; P. J. Rosen, Milich, & Harris, 2012; Schwartz, Dodge, et al., 1998). Similarly, when they respond with (reactive) aggression to bullying, they further provoke the bully. In both cases, the interaction styles of the victims increase the likelihood that they will be victimized again and hence, become chronically victimized (P. J. Rosen et al., 2012).

A Developmental Perspective on Peer Victimization and Socio-Emotional Functioning

Previous research has taught us a lot about the stability and socio-emotional correlates of peer victimization. By providing a developmental perspective on the role of early childhood functioning in peer victimization, this dissertation extends previous research in several ways. Children's functioning in early childhood forms the basis for their relationships and well-being later in life (Hay et al., 2004). Early childhood is the first time when children are together with peers in a (pre-)school context, and the first time they experience peer victimization (Kamper-DeMarco & Ostrov, 2017). Given the consequences of chronic peer victimization, it has been argued that anti-bullying programs should target young children before victimization stabilizes and may be more difficult to change (Hanish & Guerra, 2004; Rueger, Malecki, & Demaray, 2011). It is therefore especially important to understand the development of peer victimization and its correlates from early childhood on (Kamper-DeMarco & Ostrov, 2017).

The behavioral correlates of peer victimization are already relatively stable in childhood. For example, individual differences in aggression, prosocial behavior, and shyness are already present in early childhood and remain relatively stable throughout childhood and adolescence (for a review, see Hay et al., 2004). We do not know yet exactly how stable peer victimization is from a young age on. But, given the adverse effects of chronic peer victimization, a clear estimate of the stability of peer victimization is needed.

Due to the fact that previous studies mainly focused on middle childhood and early adolescence, little is known about the bi-directional associations between early childhood peer victimization and socio-emotional problems (Card & Hodges, 2008; Reijntjes et al., 2011; Reijntjes et al., 2010). As children get older, their social skills develop and their peer context changes. For example, children spend an increasing amount of time with peers (Rubin, Bukowski, & Parker, 1998), and it becomes more important to them to have a dominant position in the peer group (LaFontana & Cillessen, 2010). As a result, the emotional and social correlates of peer victimization may vary between different developmental phases (Cillessen & Lansu, 2015). For example, it has been suggested that over the course of elementary school, victimization becomes more strongly related to internalizing problems and less strongly related to externalizing problems (Boivin, Petitclerc, Feng, & Barker, 2010; Hanish & Guerra, 2004). This suggest that peer victimization in early childhood differs from victimization in adolescence in their bi-directional associations with socio-emotional functioning. Therefore, more research is warranted on the causes and consequences of peer victimization from early childhood on.

Previous studies on the bi-directional association between peer victimization and socio-emotional functioning have focused on narrow age ranges, with time intervals from several months to several years. Therefore, we do not know yet how early childhood social and emotional problems are related to subsequent peer victimization throughout childhood and adolescence. Moreover, little is known about the long-term social and emotional effects of early childhood experiences of peer victimization. In order to address these questions, a long-term developmental perspective on peer victimization and its related socio-emotional adjustment is needed (Cillessen & Lansu, 2015).

Finally, little is known about the short-term causes and consequences of daily experiences of peer victimization at school (Espinoza, Gonzales, & Fuligni, 2013; Nishina, 2012). Therefore, it is still unclear whether youths who perceive themselves as victims experience emotional problems on all days, regardless of their daily victimization

experiences, or only on days on which they feel victimized. To address the short-term associations between peer victimization and socio-emotional functioning, daily diary assessments are needed.

Goal 1.2 of this dissertation was to provide more insight into the emotional and social origins and consequences of peer victimization throughout childhood and adolescence. In order to do so, I provided a developmental perspective on peer victimization and how it is related to different types of emotional and social problems across both short-term and long-term time intervals. Specifically, I examined (a) the stability of peer victimization across early childhood, childhood, and adolescence, (b) the long-term emotional and social consequences of early childhood peer victimization, (c) the early childhood emotional risk and protective factors of subsequent experiences of peer victimization throughout middle childhood and adolescence, and (d) the emotional correlates of daily victimization episodes.

Social Cognitions of Victims of Bullying

In addition to social and emotional factors, youths' social cognitions play an important role in their peer interactions. Social cognitions guide many social behaviors, such as youths' responses to aggression and bullying (Crick & Dodge, 1994). The *social information processing model* states that youths encode and interpret social situations based on knowledge derived from past experiences (Crick & Dodge, 1994). Youths' interpretations of social situations are related to their subsequent response selection. Comparing the social cognitions of victims and non-victims may clarify the cognitive styles that play a role in the dynamics of peer victimization.

The knowledge structures of victimized children are shaped by their past victimization experiences. Accordingly, victims are more likely to attribute hostile intent to ambiguous social situations than non-victims (Camodeca & Goossens, 2005; Perren, Ettekal, & Ladd, 2013). Previous studies related children's experiences of peer victimization to general hostile attributions of intent rather than to their interpretations of bullying situations (Lansu, van Noorden, & Deutz, 2017; for a review, see van Reemst, Fischer, & Zwirs, 2016). As bullying differs from general aggression due to the power imbalance between bullies and victims, it is important to examine whether victims are also more likely to perceive bullying in ambiguous social situations. Victims' schemas of bullying may be so easily accessible that they are used in a broad range of social and non-social interactions. In order to address whether children's interpretations of social interactions are generalized to abstract non-human interactions, Goal 1.3 of this dissertation was to examine the social cognitions of victims, bullies, and bully-victims (i.e., children who are involved

in both victimization and bullying). Specifically, I examined how children's experiences of victimization and bullying were related to their perceptions of bullying in social interactions between humans, animals, and abstract figures.

PART 2: THE GROUP PROCESS OF BULLYING

The Prevalence and Measurement of the Participant Roles of Bullying

In Dutch primary schools, 6% to 14% of children are bullies, 5% to 16% are assistants or reinforcers (i.e., followers), 11% to 19% are defenders, 16% to 32% are outsiders, and 9% to 14% are victims (Goossens, Olthof, & Dekker, 2006). Most studies assessed students' participant role involvement with peer nominations. The prevalence of the participant roles depends on the criteria for assigning students to each role based on the number of nominations received for the role. Salmivalli, Lagerspetz, et al. (1996) assigned students to the participant roles based on relative criteria. Their approach has been widely implemented. Students are assigned to a role if they score high on that role compared to classmates. With this relative criterion, students can be assigned to a role if they are nominated by one or two peers only. To make sure that they are nominated by a minimum number of classmates, an additional absolute criterion could be used, based on the proportion of the maximum number of possible nominations (e.g., being nominated by at least 10% of one's peers). Goal 2.1 of this dissertation was to investigate the measurement of the participant roles. Specifically, I directly compared students who met both criteria (absolute and relative) with students who met only one criterion (relative only).

A Developmental Perspective on the Participant Roles and their Social Functioning

A qualitative shift in the group process of bullying from childhood to adolescence may affect how the participant roles are associated with social status and behavior at different ages. To begin, the maturity gap that youths experience during puberty suggests that the status profile of bullies and defenders may change with age. Youths become biologically more mature, but remain dependent on adults (Moffitt, 1993). They therefore begin to value behaviors that signal autonomy and adult-status, such as aggression and bullying (Moffitt, 1993). As a result, youths' attraction to aggressive peers increases, whereas their attraction to prosocial peers decreases (Bukowski, Sippola, & Newcomb, 2000). Therefore, it is quite likely that bullying and defending are differently related to social status in adolescence than in childhood. Indeed, Caravita, Di Blasio,

and Salmivalli (2009) found that bullying is more strongly related to popularity in early adolescence than in childhood, whereas defending is less strongly related to popularity in early adolescence than in childhood.

Another developmental change is that youths increasingly interact with members of the other sex and become romantically interested in them (Connolly, Craig, Goldberg, & Pepler, 2004; Rubin, Bukowski, & Parker, 2006); there is an increasing importance of other-sex relationships. Because they bridged the maturity gap, aggressive peers such as bullies, have a particularly high status among the opposite sex (Bukowski et al., 2000; Mayeux, 2011). Thus, the age differences in social status profiles of the participant roles may vary between same-sex peers and other-sex peers.

Related developmental shifts take place in youths' motivation to be popular and their beliefs about behavioral strategies that may lead to this popularity. The priority of popularity over other relational concerns increases from childhood to adolescence (LaFontana & Cillessen, 2010). To obtain power, a bi-strategic control strategy that combines coercive behavior (such as bullying) and prosocial behavior is effective (Hawley, 2003). Accordingly, early adolescents who bully tend to display bi-strategic control strategies (Olthof et al., 2011). Especially relational types of aggression and bullying, such as gossiping or social exclusion, become increasingly effective in adolescence to obtain a popular status in the peer group (Cillessen & Mayeux, 2004; Dawes & Xie, 2014). Relational aggression and bullying may become more effective and prevalent with age as youths' cognitive skills develop, because they require advanced social-cognitive skills (Björkqvist, Lagerspetz, & Kaukiainen, 1992; Garandeau & Cillessen, 2006; Yeager et al., 2015).

Given the increasing importance of popularity and the increasing effectiveness of relational bullying to obtain popularity, (relational) bullying may be used more frequently in adolescence than in childhood as a goal-directed behavior in order to become popular. Indeed, striving for high social status is more important for adolescent bullies than for child bullies (Sijtsema, Veenstra, Lindenberg, & Salmivalli, 2009). Popular adolescents who have an agentic goal to have social dominance and power in the peer group increase in relational aggression over time (Ojanen & Findley-Van Nostrand, 2014). This association may be unique to adolescence, as agentic goals are indirectly related to bullying via popularity in early adolescence, but not in middle childhood (Caravita & Cillessen, 2012). Moreover, popular adolescent boys who prioritize popularity seem to bully to maintain their popularity and unpopular girls who prioritize popularity bully to increase in popularity (Duffy, Penn, Nesdale, & Zimmer-Gembeck, 2017). Taken together,

these results suggest that when children transit from childhood to adolescence, social status becomes more important, and bullying is increasingly used as a goal-directed behavior to obtain or maintain this status.

Especially in adolescence, bullies may influence their peers to increase in pro-bullying behavior. Because bullies are popular in adolescence, they have power in the peer group (Vaillancourt & Hymel, 2006; Vaillancourt, Hymel, & McDougall, 2003) and influence their peers (Juvonen & Galván, 2008), who are particularly sensitive to peer acceptance and rejection (Koski, Xie, & Olson, 2015). Adolescents who want to increase in status may therefore endorse the high status bullies and reinforce or assist them (Juvonen & Galván, 2008). Moreover, adolescents who like bullies or who are attracted to them tend to increase in bullying themselves (Juvonen & Ho, 2008; Sentse, Kiuru, Veenstra, & Salmivalli, 2014).

Popular adolescent bullies may not only promote pro-bulling behavior among their peers, but they may also influence their peers' behavior towards victims. Due to their cognitive development, adolescent bullies have more enhanced perspective taking skills and a better developed theory of mind than child bullies. Adolescent bullies may therefore be better able to select socially weak targets than child bullies (Sijtsema et al., 2009; Veenstra, Lindenberg, Munniksma, & Dijkstra, 2010; Veenstra, Verlinden, Huitsing, Verhulst, & Tiemeier, 2013), which is especially effective given the low risk of retaliation when attacking a weaker member of the peer group. That is, to protect their own status, adolescents may dissociate themselves from victims, who often have a low status in the peer group. In adolescence, victims may therefore be less likely to be defended by peers than in childhood.

These developmental changes in the emulation of bullying and dissociation from victims are reflected in the finding that youths avoid bullies less and avoid victims more in adolescence than in childhood (Juvonen & Galván, 2008). This suggests that there is a larger power imbalance between bullies and victims in adolescence than in childhood. This is consistent with the finding that younger children less often mention the element of power imbalance than older children when asked to define bullying (Smith et al., 1999; Vaillancourt et al., 2008).

How are these developmental changes reflected in the prevalence and correlates of the participant roles of bullying in different age groups? Most previous studies examined the concurrent social status and behavior profiles of the participant roles in childhood. As the associations of aggression with social status, motives for bullying, and power imbalance between bullies and victims change with age, more research is needed

on the social status and behavior correlates of the participant roles in adolescence. Moreover, as most previous studies have been cross-sectional, less is known about the developmental predictors of the participant roles. Therefore, Goal 2.2 of this dissertation was to provide a developmental perspective on the group process of bullying to examine the prevalence, correlates, and precursors of the participant roles in adolescence. Specifically, this dissertation examined (a) the prevalence and social status and behavior profiles of the participant roles of bullying in middle adolescence, (b) age differences in the prevalence and profiles of the roles in childhood, early adolescence, and middle adolescence, also comparing status among same-sex and other-sex peers, and (c) developmental trajectories of social status and behavior throughout childhood and early adolescence that are related to later participant role involvement in middle adolescence.

Social Cognitions and the Bullying Participant Roles

Youths' social cognitions are an important determinant of their behavior in bullying situations. Previous studies examined how children's evaluations of bullying behavior are related to their own bullying involvement (Almeida, Correia, & Marinho, 2010; Boulton, Trueman, & Flemington, 2002; van Goethem, Scholte, & Wiers, 2010), showing that youths' involvement in bullying does not always correspond with their attitude towards bullying. Although many youths evaluate bullying negatively, only a small part of the youths act upon this attitude by defending the victims (Salmivalli & Voeten, 2004). The discrepancy between youths' attitudes and behavior may be due to the way in which evaluations of bullying were examined in previous research.

First, most studies examined attitudes towards bullying with one overall scale measuring the general concept of bullying. Such a general scale does not take into account that the evaluations of the participant roles may differ from each other. Previous research has shown that youths evaluate certain roles differently (Almeida et al., 2010; Boulton, Lloyd, Down, & Marx, 2012; Gini, Pozzoli, Borghi, & Franzoni, 2008). However, youths' evaluations of all six participant roles have not been systematically compared.

Second, previous studies have mainly examined evaluations of hypothetical peers. However, in real life, peers are not only characterized by being involved in bullying or victimization. They also have other characteristics, such as being popular, that impact how they are evaluated by their classmates. Youths' evaluations of actual peers in each participant role may therefore differ from their evaluations of hypothetical peers in each role.

Third, most studies relied on explicit self-reported evaluations of bullying, that are controlled, deliberate, and of which people are aware (Gawronski & Bodenhausen, 2006; Strack & Deutsch, 2004). In addition to explicit evaluations, implicit processes play an important role in peer relations (Lansu, Cillessen, & Bukowski, 2013; Lansu, Cillessen, & Karremans, 2012) and bullying and victimization specifically (P. J. Rosen, Milich, & Harris, 2007; van Goethem et al., 2010). Implicit evaluations are automatic, non-deliberate, and often outside of one's control (Gawronski & Bodenhausen, 2006; Strack & Deutsch, 2004). Implicit evaluations may play a major role in adolescents' initial responses to bullying (Olson & Fazio, 2009). After this primary response, youths' motivation and opportunity (e.g., cognitive resources) determine to what extent their secondary responses are influenced by their explicit evaluations of a participant role.

Goal 2.3 was to examine adolescents' social cognitions related to bullying in general and the participant roles of bullying, by examining youths' evaluations of actual and hypothetical peers in each role. Both explicit and implicit evaluations of hypothetical peers were examined.

THESIS OUTLINE

This dissertation had three goals related to peer victimization (Part 1) and the participant roles of bullying (Part 2). The first goal was to examine the measurement of peer victimization (Goal 1.1) and the bullying participant roles (Goal 2.1). The second goal was to provide a developmental perspective on socio-emotional functioning and peer victimization (Goal 1.2) and the bullying participant roles (Goal 2.2). The third goal was to address the social cognitions of victims (Goal 1.3) and the bullying participant roles (Goal 2.3). Figure 1.1 provides an overview of the longitudinal and cross-sectional associations that were examined in each development phase.

In **Chapter 2** I examined the concordance between adolescents' self-, peer-, and daily diary-reports of peer victimization. I also addressed how victimization as assessed with each method was related to self-, peer-, and daily diary-reports of internalizing problems.

In **Chapter 3** I conducted a meta-analysis to estimate the rank-order stability of peer victimization across one year centered at age 10. I also investigated how this stability estimate depends on the interval length between two consecutive data-collection waves, age of the participants, and type of informant (self, peer, teacher, other).
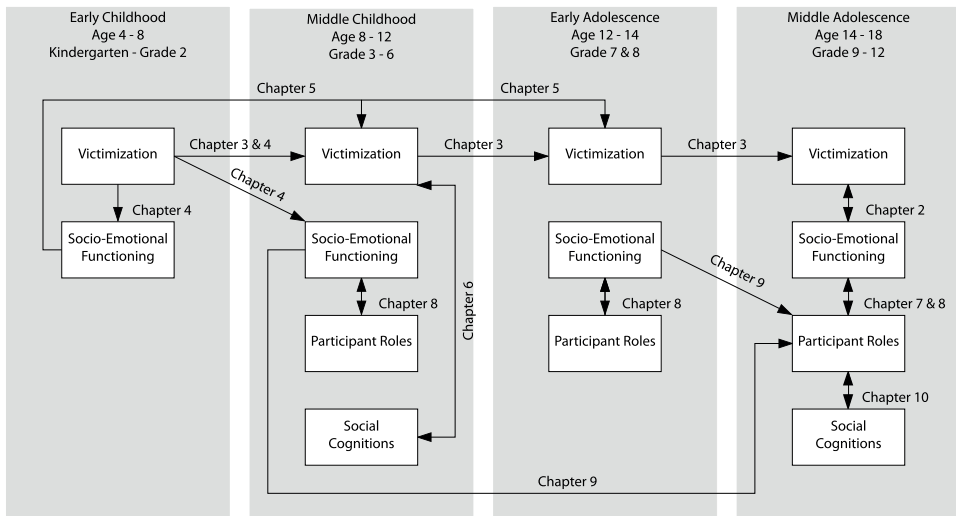
Figure 1.1. Schematic overview of the nine studies in this dissertation (Chapter 2 to 10).

In **Chapter 4** I examined the stability and bi-directional longitudinal associations of victimization and aggression across the first grades of primary school in a low-income urban area. I also examined how experiences of peer victimization and aggression in early childhood were related to concurrent and later social and emotional problems in middle childhood.

In **Chapter 5** I examined whether internalizing and externalizing behaviors in early childhood were related to children's peer victimization throughout middle childhood and adolescence. I also examined whether ego-resiliency (i.e., children's ability to adapt their impulses and emotions flexibly, but persistently and resourcefully, to social situations, Block & Block, 1980) is a protective factor in these longitudinal associations.

In **Chapter 6** I examined interpretations of bullying by bullies, victims, bully-victims, and uninvolved children and whether these interpretations generalize from social interactions between humans to more abstract non-human interactions.

In **Chapter 7** I examined the prevalence and social status and behavior profiles of the participant roles of bullying in adolescence. I also compared relative and absolute criteria for assigning adolescents to the participant roles of bullying based on peer nominations.

In **Chapter 8** I examined how the prevalence and social status profiles of the participant roles of bullying vary between different developmental periods: middle childhood, early adolescence, and middle adolescence. I also examined whether the cross-sectional age differences varied for social status among same-sex and other-sex peers.

In **Chapter 9** I identified clusters of youths based on trajectories of social status and clusters based on trajectories of social behavior across middle childhood and early adolescence. I then examined how these longitudinal clusters were associated with the participant roles of bullying in middle adolescence.

In **Chapter 10** I examined adolescents' evaluations of bullying at three levels of specificity: (a) the general concept of bullying, (b) hypothetical peers in each participant role, and (c) actual peers in each role. For the hypothetical peers, I examined both adolescents' explicit and implicit evaluations. I also examined whether adolescents' evaluations of bullying and participant roles varied by adolescents' own participant role involvement at each level of specificity.

PEER VICTIMIZATION

02

CHAPTER

Peer victimization in adolescence: Concordance between measures and associations with global and daily internalizing problems

ABSTRACT

This study aimed to shed further light on what is measured by self-, peer-, and daily diary-reports of victimization in adolescence. First, the concordance between self-, peer-, and daily diary-reports of victimization was assessed. Participants were 188 Dutch adolescents (43% male, M_{age} =16.07 years, *SD* =.84) who participated in a classroom assessment and daily diary assessment (5 consecutive school days). Peer-reports (15%) and self-reports (13%) yielded higher prevalence rates than diary-reports (3%). Second, associations of self- and peer-reported victimization with self-, peer-, and daily diary-reported internalizing problems were examined. Due to its low prevalence, diary-reported victimization could not be related to internalizing. The association of self- and peer-reported victimization with internalizing problems varied by informant (self- vs. peer-reported internalizing) and problem type (interpersonal vs. intrapersonal). Self- and peer-reported victimization were positively associated with daily internalizing affect. Results indicate that self-, peer-, and daily diary-reports tap into different aspects of victimization.

Peer victimization in adolescence: Concordance between measures and associations with global and daily internalizing problems | 29

2

Peer victimization among youths is an important concern. In western countries, 5-30% of children and adolescents are victims of bullying (Eslea et al., 2004; Stassen Berger, 2007). Adolescents are victimized when they are repeatedly and over time exposed to harmful behavior by peers. There is often a power imbalance between bullies and victims because it is difficult for victims to defend themselves (Solberg & Olweus, 2003). Peer victimization has been assessed most often with self-reports and peer nominations (Stassen Berger, 2007). Recently, daily diary assessments also have emerged as a promising method to examine victimization (Bolger et al., 2003; Espinoza, Gonzales, & Fuligni, 2013; Nishina & Juvonen, 2005; Pellegrini & Bartini, 2000a).

Although self and peer assessments should be measuring the same phenomenon, they seem to tap into different aspects of victimization (Pellegrini & Bartini, 2000a) as indicated by an often weak to moderate correlation (Graham & Juvonen, 1998; Scholte et al., 2013) and a large number of self-reported victims who are not identified as victim by their peers (Oldenburg et al., 2015). To further address this issue, this study examined the concordance of adolescents' self- and peer-reports of victimization with each other and with daily reports of victimization. In addition, we examined how self-, peer-, and daily diary-reports of victimization are related to internalizing problems. This will shed further light on what is measured by each method and how victimization as assessed with each method is related to internalizing problems in adolescence.

Self-, Peer-, and Daily Diary-Reported Victimization

Self-reports of peer victimization tap into adolescents' subjective experiences of victimization by asking them to report on the frequency of being victimized over a certain period of time (e.g., Crick & Grotpeter, 1996; Perry et al., 1988; Solberg & Olweus, 2003). Self-reports of victimization can be used on a continuous scale or as a categorization into a victim role. Adolescents are identified as victims when they report a higher frequency of victimization than the sample mean or a pre-determined threshold (e.g., once a week) (Schäfer, Werner, & Crick, 2002; Solberg & Olweus, 2003). Self-reports are based on adolescents' past experiences. Based on negative past social experiences adolescents develop an interpretation style for future social events (Crick & Dodge, 1994). Therefore, adolescents' perceptions of victimization may be biased when they have been victimized before (Camodeca & Goossens, 2005). For example, it has been found that bully-victims are likely to interpret ambiguous situations as bullying (Chapter 6: Pouwels, Scholte, van Noorden, & Cillessen, 2016). Self-reports thus may lead to an overestimation of the prevalence of victimization. However, self-reports may sometimes also underestimate victimization as some adolescents deny their victim status (see e.g., Graham & Juvonen, 1998).

Peer-reports capture adolescents' reputation in the classroom. Adolescents are asked to nominate classmates they see as victims of bullying (Perry et al., 1988). Like self-reports of victimization, peer-reports can either be used in a continuous or in a categorical way. Adolescents are classified as victim when they receive more victimization nominations than their classmates (e.g., 1 *SD* above the standardized classroom mean or being named by at least 10% of their classmates) (Ladd & Kochenderfer-Ladd, 2002). In contrast to self-reports, peer-reports are less susceptible to biased perceptions based on individual victimization experiences. Reliable scores are created by aggregating the nominations of multiple peers, which increases the reliability of peer nominations (c.f. Marks, Babcock, Cillessen, & Crick, 2013). Nevertheless, nominations may be biased by a student's general reputation in the classroom (Hymel, Wagner, & Butler, 1990; Scholte et al., 2013) that may not always be in line with a student's own experience. Peers may not be aware of all the bullying that occurs, especially when it takes on covert forms (Maunder, Harrop, & Tattersall, 2010; Schäfer et al., 2002). And peer nominations of victimization may be driven by a student's previously established victim status rather than by actual recent victimization incidents (Hymel, Wagner, et al., 1990; Scholte et al., 2013).

Daily diary assessments tap into adolescents' victimization experiences during a school day. They provide more insight into what happens during a single school day. As diary-reports are a form of self-report, some biases may apply equally to self- and diary-reports, such as biases related to interpreting ambiguous situations as bullying. Keeping the reporting interval short helps participants to accurately remember the victimization episodes that occurred. Self- and peer-reports usually ask adolescents to report the frequency of victimization over a few weeks or months. By using shorter reporting intervals, diary-reports are less prone to memory biases than self- and peer-reports (Bolger et al., 2003; Nishina & Juvonen, 2005). The downside is that diary reports are usually collected only for a few days. The victimization incidents during these few days may not represent what happens over a longer period such as a semester or year in school, because the frequency of victimization may differ from week to week. It is therefore important to combine daily diary-reports with self- and peer-reports.

Self- and Peer-Reported Victimization and Internalizing Problems

Internalizing problems are an important outcome of peer victimization in middle adolescence (e.g., Storch, Masia-Warner, Crisp, & Klein, 2005; Sweeting, Young, West, & Der, 2006). It has been shown that self- and peer-reported victims experience high levels of withdrawal, social anxiety, loneliness, and depressive symptoms, and low levels

2

of self-esteem (Hawker & Boulton, 2000; Hodges & Perry, 1999; Reijntjes et al., 2010). Like victimization, internalizing problems also have been assessed with self- and peer-reports.

Studies using the same informant for victimization and internalizing problems have shown larger effects than studies using different informants (Reijntjes et al., 2010), which may be partly due to shared common variance. Self-reported victimization may also be more strongly related to global self-reported internalizing problems than peer-reported victimization, because self-reports tap into the subjective experience of being victimized (Graham & Juvonen, 1998; Scholte et al., 2013). Like self-reports of victimization, self-report measures of internalizing problems also may be prone to memory bias (Bolger et al., 2003). Victims may overestimate their internalizing problems in global reports because of negativity bias; people have a general tendency to more easily retrieve negative than positive feelings (Rozin & Royzman, 2001). The stronger association of peer-reported victimization with peer-reported internalizing problems than with self-reported internalizing problems may be partially due to interpretation bias. Adolescents may be more likely to perceive internalizing problems in peers with a victim status than in peers with a non-victim status (Hymel, Wagner, et al., 1990).

Daily Diary-Reported Victimization and Internalizing Problems

Although the link between global victimization and internalizing problems has been demonstrated in multiple studies, self- and peer-reports cannot reveal whether victims experience these internalizing problems on all school days. Daily diary studies can clarify whether victimization is related to internalizing problems on a daily basis. In one diary study, children reported more negative emotions on days when they were victimized than on days when they were not (Morrow, Hubbard, Barhight, & Thomson, 2014; Nishina, 2012). These results are important, but the authors could not determine whether victims experienced internalizing problems only on days that they were victimized, or whether their internalizing problems had generalized to a daily basis regardless of daily victimization. Addressing this issue will help to further understand the development of the association between victimization and internalizing behaviors. From an intervention perspective it is also important to know whether internalizing problems may decrease when victimization episodes decrease, or whether victims' internalizing problems persist regardless of daily victimization experiences.

In order to examine whether victims' internalizing problems generalize to a day-to-day basis regardless of daily victimization, self-, peer-, and diary-reports of victimization should be assessed simultaneously. Espinoza and colleagues (2013) examined both global and daily victimization and found that global self-reported victimization was a

stronger predictor of daily distress than daily-reported victimization: daily experiences of victimization were not related to daily distress after controlling for adolescents' mean levels of victimization. Nishina and Juvonen (2005) also found that self-perceived victimization at the beginning of their study was related to baseline levels of (daily reported) anxiety and humiliation. These studies indicate that global levels of self-reported victimization are associated with daily negative emotions, but some aspects of this association are not yet explored.

First, previous diary studies only used self-reports of victimization, so it is unknown whether peer-reports of victimization are also related to daily affect. Therefore, the current study examined the associations of self-, peer-, and daily diary-reported victimization with self-, peer-, and daily diary-reported internalizing problems.

Second, Nishina and Juvonen (2005) examined global victimization and daily affect on the same day. Thus, both measures may have been influenced by mood on the day of the assessment. For example, it may be easier for adolescents to retrieve victimization incidents on days that they feel sad, leading to a mood-congruent bias (Kihlstrom, Eich, Sandbrand, & Tobias, 2000). Therefore, the current study increased the time interval between the self- and peer-reported assessments and the daily assessments.

Third, most previous diary studies included students living in low-income urban areas (Espinoza et al., 2013; Morrow et al., 2014; Nishina, 2012; Nishina & Juvonen, 2005). This in itself is a risk factor for the development for mental health problems because these youths often have to cope with multiple stressors (Joiner, Perez, Wagner, Berenson, & Marquina, 2001; Morales & Guerra, 2006; Peskin, Tortolero, Markham, Addy, & Baumler, 2007). The current study was conducted with a representative sample of Dutch students in which the risk for internalizing problems was not confounded with other social environmental stressors.

The Present Study

This study had two goals. The first goal was to examine the concordance between self-, peer-, and daily diary-reports of victimization. Goal 1A was to compare the prevalence of self- and peer-reported victimization with the prevalence of daily diary victimization in adolescence. As daily diary-reports are less prone to memory or reputation biases, we expected the prevalence of daily diary-reported victimization to be lower than the prevalence of self- and peer-reported victimization (Bolger et al., 2003). Goal 1B was to examine the associations and overlap between the three reports. We expected self- and peer-reported victimization to be weakly to moderately associated with each other and with daily diary-reported victimization (Espinoza et al., 2013).

Peer victimization in adolescence: Concordance between measures and associations with global and daily internalizing problems | 33

2

Our second goal was to examine the associations of self-, peer-, and daily diary-reported victimization with self-, peer-, and daily diary-reported internalizing problems. Towards this end, we distinguished self- and peer-reported internalizing problems (Goal 2A) from daily internalizing affect (Goal 2B). We controlled for gender in the analyses as girls generally experience higher levels of internalizing problems than boys (Leadbeater, Kuperminc, Blatt, & Hertzog, 1999).

Goal 2A was to examine the associations of self-, peer-, and daily diary-reported victimization with self- and peer-reported internalizing problems. In line with previous studies, we expected victimization to be positively associated with internalizing problems (Hawker & Boulton, 2000; Reijntjes et al., 2010). Like previous studies (see e.g., Hawker & Boulton, 2000), we examined different types of internalizing problems: self-reported interpersonal peer-related internalizing problems (social anxiety and peer-related loneliness), self-reported intrapersonal internalizing problems (self-esteem and depressive symptoms), and peer-reported withdrawn behavior. We expected associations to be stronger when using the same informant for victimization and internalizing problems than when using different informants.

Goal 2B was to examine the association of self-, peer-, and daily diary-reported victimization with daily internalizing affect. Diary-reports may clarify whether victimized adolescents experience internalizing problems on a day-to-day basis. In line with previous diary studies, we expected adolescents to experience more internalizing affect on days that they were victimized than on days that they were not victimized (Morrow et al., 2014; Nishina, 2012). This study extended previous studies by examining whether self- and peer-reported victims experienced more internalizing affect than non-victimized adolescents regardless of whether they were victimized on those days or not. This will provide insight in whether the negative consequences of victimization generalize to other school days. We expected that self- and peer-reported victimization would still be positively related to daily internalizing affect after controlling for adolescents' daily victimization experiences (Nishina & Juvonen, 2005).

METHOD

This study had two phases. Phase 1 was a classroom assessment of peer- and self-reported victimization, global self- and peer-reported internalizing problems, and other peer- and self-reported measures in the total sample of this study. Phase 2 was a daily diary assessment of peer victimization and internalizing affect on a subsample of the total sample.

Phase 1. Classroom Assessment

Participants and procedure

Phase 1 consisted of a 50-min computerized classroom assessment that took place as part of Wave 9 of the Nijmegen Longitudinal Study on child and adolescent social development (Chapter 7: Pouwels, Lansu, & Cillessen, 2016; van Bakel & Riksen-Walraven, 2002). Data were collected in 63 Dutch 9th to 12th grade classrooms in 24 secondary schools. The average classroom size was 26.10 students (range 13-32). In Phase 1 of the data collection, 1464 of the 1650 students in these classrooms (89%) completed all sociometric and self-reported measures. A verbal and written definition of bullying was given to the students (Solberg & Olweus, 2003). An overview of the demographic characteristics of the participants is presented in Table 2.1. For a more detailed description of the procedure of Phase 1 see Chapter 7 (Pouwels, Lansu, et al., 2016).

Table 2.1. Demographics of the Total Sample in Phase 1 and the Subsample in Phase 2

	Total Sample Phase 1 $N = 1464$	Subsample Phase 2 $N = 188$
Girls	48.6%	57.9%
M Age (*SD*)	16.40 (.80)	16.34 (.79)
School Level		
Prevocational Track Education (VMBO)	18.0%	11.6%
Intermediate Secondary Education (HAVO)	37.0%	31.7%
College Preparatory Education (VWO)	45.0%	56.7%
Ethnicity		
Caucasian	81.4%	81.7%
Moroccan	1.6%	1.2%
Turkish	1.7%	1.2%
Surinamese	1.0%	1.8%
Antillean/Aruban	1.0%	.6%
Other ethnic origin within Europe	5.7%	3.7%
Other ethnic origin outside Europe	7.3%	9.1%
Mixed ethnic origin	.4%	.6%

Note. Girls and students from higher educational levels were overrepresented in the subsample. The occurrence of self-reported victimization was 1.2 times higher in the subsample than in the larger sample. The occurrence of peer-reported victimization was 1.5 times higher in the subsample than in the larger sample.

Peer victimization in adolescence: Concordance between measures and associations with global and daily internalizing problems | 35

2

Measures

In addition to self- and peer-reported victimization, we examined two types of internalizing problems: interpersonal (peer-related) internalizing problems and intrapersonal (emotional) internalizing problems. Social anxiety and peer-reported loneliness are self-reported internalizing problems related to interpersonal experiences with peers; self-esteem and depressive symptoms are self-reported intrapersonal internalizing problems.

Self-reported victimization. Self-reported peer victimization was assessed with the victim scale of the revised Olweus Bully/Victim Questionnaire (Solberg & Olweus, 2003). This scale has 6 items that measure how often adolescents were victimized in the past school year (e.g., "In the past school year, how often were you victimized by your classmates?"). Adolescents responded on a 5-point scale (0 = never, 1 = sometimes, 2 = two or three times per month, 3 = about once a week, 4 = several times a week). The six items measured general victimization as well as the following specific forms: physical (pushing/hitting/kicking), verbal direct (calling names), verbal indirect (gossiping), relational (neglecting/excluding), and cyber victimization. Cronbach's α was .75 for the sample that participated in both phases of the study. Adolescents were classified as self-reported victim when they reported that they had been victimized at least once a week on at least one of the items (Solberg & Olweus, 2003).

Peer-reported victimization. There were peer nominations for general victimization ("Who is victimized?") and three specific forms: physical ("Who is victimized by getting pushed/hit/kicked?"), verbal indirect ("Who is victimized by having nasty things said about him/her or rumors being spread about him/her?"), and relational ("Who is victimized by being neglected or excluded?"). Adolescents could name an unlimited number of classmates (same- and other-sex); it was also possible to nominate no one. Adolescents' nominations received were counted for each item and standardized within classrooms to control for classroom size. Cronbach's α across the four standardized scores was .85. Therefore, they were averaged to one new score that was again standardized within classrooms to a final *Z*-score. Adolescents were classified as peer-reported victim when this final score was at least one standard deviation above the classroom mean ($Z \geq 1$).

Social anxiety. Social anxiety was assessed with the fear of negative evaluation and social avoidance scales of the shortened Social Anxiety Scale for Adolescents (SAS-A) (Kärnä, Voeten, Poskiparta, & Salmivalli, 2010; La Greca & Lopez, 1998). Adolescents rated how often 9 items (e.g., "I worry about what others think of me") applied to them on a 5-point scale (0 = not at all, 4 = all the time). A mean was calculated across the two scales. Cronbach's α was .89.

Peer-related loneliness. Loneliness was assessed with the peer-related loneliness scale of the Louvain Loneliness Scale for Children and Adolescents (Marcoen, Goossens, & Caes, 1987). Adolescents rated how often 12 items describing feelings and thoughts of peer-related loneliness (e.g., "I think I have fewer friends than others") applied to them on a 4-point scale (0 = never, 3 = often). Cronbach's α was .90.

Self-esteem. Self-esteem was assessed with the Rosenberg self-esteem scale (Rosenberg, 1965). This scale had 10 items (e.g., "At times I think I am not good at all") measured on a 4-point scale (1 = totally disagree, 4 = totally agree). After recoding and averaging, a higher scale score indicated higher levels of self-esteem. Cronbach's α was .90.

Depressive symptoms. Adolescents rated the 13 items of the Short Mood and Feelings Questionnaire (Angold et al., 1995) that describe depressive symptoms (e.g., "I felt miserable or unhappy") on a 3-point scale (0 = never, 1 = sometimes, 2 = always). Cronbach's α was .91.

Withdrawn behavior. Withdrawn behavior was assessed with one peer nomination ("Who do not say much or sit alone during break time?"). Adolescents could nominate an unlimited number of classmates (same-sex and other-sex) and had the option to nominate no one. Nominations received were counted for each adolescent and standardized within classrooms.

Phase 2. Daily Diary Assessment

Participants
At the end of Phase 1, a subsample of participants was recruited for Phase 2 (see Figure 2.1). Phase 2 was part of a larger study that focused not only on the victim role, but also on other bullying roles included in the Participant Role Questionnaire (Chapter 7: Pouwels, Lansu, et al., 2016; Salmivalli & Voeten, 2004). We aimed to include at least 50 adolescents for each role, including the victim role (bully, assistant, reinforcer, defender, outsider, victim). Unfortunately, fewer victims were willing to participate in the diary assessment than planned (*n* = 25). However, we still expected to have sufficient power for the analyses, as we expected the frequency of diary-reported victimization in our

Peer victimization in adolescence: Concordance between measures and associations with global and daily internalizing problems | 37

2

study to be similar to the frequencies reported in other diary studies with adolescents. These studies showed that 26% and 40% of adolescents, respectively, experienced at least one episode of victimization during one week (Espinoza et al., 2013) or two weeks (Nishina, 2012).

Sample Phase 1
N = 1477 students

Indicated interest Phase 2
examined at end of Phase 1
N = 477 students (32%)

Invited Phase 2
N = 282 students (19%)

Participation Phase 2
N = 188 students (13%)

Selection Phase 2
Phase 2 was part of a larger study in which we were interested in not only the victim role, but also in other bullying roles that were examined with the Participant Role Questionnaire (Chapter 7: Pouwels, Lansu, & Cillessen, 2016; Salmivalli & Voeten, 2004). We aimed to include at least 50 adolescents for each role (bully, assistant, reinforcer, defender, outsider, victim). For some bullying roles, more than 50 adolescents with that role were interested in participating. Among those adolescents who scored relatively high on these roles, we invited a random selection.

Figure 2.1. Recruitment of participants in Phase 2.

In Phase 2, 188 adolescents and their parents (67%) gave active consent for participation. In Table 2.1[1], the demographics of the sample of Phase 1 and the subsample of Phase 2 are compared. All analyses were conducted on the subsample that participated in both phases.

Procedure

Phase 2 took place within four months after Phase 1 ($M_{interval}$ = 1.90 months, *SD* = .64). Adolescents could choose one out of three weeks to participate. To reduce missing data, we instructed them to take special events at school into account in their week selection, such as exams and days off. Some data were collected in the Easter period (with Easter Monday as a national holiday in the Netherlands, followed by a regular school week from Tuesday through Friday) for two reasons: we wanted to keep the interval between the classroom assessment and daily diary assessment short, and we could not postpone the study further as it would have been too close to the exam period and spring vacation.

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1. A logistic regression was performed to examine the effects of social anxiety, peer-related loneliness, self-esteem, depressive symptoms, and withdrawal on the likelihood that participants participated only in Phase 1 or both in Phase 1 and Phase 2. The model was statistically significant, $\chi^2(5)$ = 20.65, *p* < .001, Nagelkerke R^2 = .03. Higher levels of social anxiety were associated with an increased likelihood of being included in the subsample. No significant effects were found for the other internalizing symptoms.

In the selected week, a link to a 10-min online questionnaire was sent at the end of five consecutive school days (Monday to Friday). Adolescents had to complete the questionnaire at home via a computer or mobile phone after school and before midnight. Reminders were sent by e-mail and a text message was sent when adolescents had not yet completed the questionnaire by 8 pm. When they forgot to fill it out on a certain day, they could not complete it later, but they received a phone call the next day to remind them of the remaining questionnaires. Across the five days, 59% of the adolescents filled out the questionnaire on all days, 31% on four days, 5% on three days, 3% on two days, and 2% on just one day. Fifty-seven students could only participate on 4 days because Easter Monday (no school) fell within their reporting week. As the aim of this study was to examine adolescents' involvement in victimization at school, data collected on other days on which they did not go to school were not included in the analyses. This resulted in 748 days of complete data for 188 participants.

Adolescents could win a raffle gift worth 500€ when they filled out all questionnaires on time. In addition, they received a 10€ voucher when they completed at least 4 of the 5 questionnaires. This compensation decreased with 2.5€ for each extra day they did not fill out the questionnaire before midnight.

Measures

The daily diary assessment was part of a larger follow-up measurement of the participant roles of bullying. Each day, adolescents first reported their daily affect. Next, they reported on witnessed and experienced victimization episodes. If participants did not report any incidents of witnessed or experienced victimization, filler questions regarding other daily experiences were presented.

Daily diary-reported victimization. On each of the five days, adolescents were asked whether they had experienced at least one episode of peer victimization. To control for missing data, we aggregated the daily reports to a proportion score that indicated the proportion of school days during one week on which victimization was experienced (Espinoza et al., 2013). Adolescents were classified as a daily diary-reported victim when they experienced victimization at least once during the week.

Daily internalizing problems. Daily internalizing problems were assessed with six items (insecure, anxious, worthless, lonely, gloomy, sad) which were partly based on previous work (F. Peeters, Berkhof, Delespaul, Rottenberg, & Nicolson, 2006; van Roekel et al., 2014). Each day, adolescents rated how much each item described their mood on that day on a 7-point scale (1 = not at all, 7 = very much). A mean score of the six items was calculated for each day. Cronbach's α ranged from .83 to .87 across days.

Peer victimization in adolescence: Concordance between measures and
associations with global and daily internalizing problems | 39

2

RESULTS

Prevalence of Self-, Peer-, and Daily Diary-Reported Peer Victimization

Goal 1A was to compare the prevalence of self- and peer-reported victimization with the prevalence of daily diary-reported victimization. Of the 188 adolescents, 25 (13%) were classified as self-reported victims and 28 (15%) as peer-reported victims. Experiencing victimization during the daily diary assessments occurred on 1% of the days on average ($SD = 4$%). In one school week (five days), five adolescents (3% of the sample) reported being victimized at least once. Specifically, four adolescents reported victimization on one out of five days and one adolescent on two out of five days.

Concordance between Self-, Peer-, and Daily Diary-Reports of Peer Victimization

Goal 1B was to examine the concordance between self-, peer-, and daily diary-reported victimization in terms of continuous and categorical scores. Table 2.2 shows the correlations between the continuous scores. The correlation between self- and peer-reported victimization was significant but small. The correlations of self- and peer-reported victimization with daily diary-reported victimization could not be reliably computed due to the low prevalence of daily diary-reported victimization. Table 2.3 shows the overlap between the categorical victim classifications according to the three methods. There was no significant overlap between being classified as self-, peer- and daily diary-reported victim[2].

Associations of Self- and Peer-Reported Victimization with Self- and Peer-Reported Internalizing Problems

Goal 2A was to examine the association of self-, peer-, and daily diary-reported victimization with self- and peer-reported internalizing problems. Because the frequency of daily diary victimization was too low, it could not be used as a predictor in the regression model. A separate regression was run predicting each self-reported interpersonal internalizing variable (social anxiety, peer-related loneliness) and each self-reported intrapersonal internalizing variable (self-esteem, depressive symptoms) from self- and peer-reported victimization, while controlling for gender. The victimization scores were log10 transformed because of positive skew.

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2. We checked whether the results were the same when we run the analyses on the subsample of students who had at least 4 days of complete data. The same pattern of findings was found for the subsample as for the total sample (results can be requested from the first author).

Table 2.2. Means, Standard Deviations, and Correlations of Main Study Variables ($N = 188$)

	M	SD	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
1. Self-reported victimization	.41	.53											
2. Peer-reported victimization	.64	1.25	.23**										
3. Social anxiety	1.55	.79	.30***	.37***									
4. Peer-related loneliness	.51	.52	.39***	.43***	-.58***								
5. Self-esteem	3.02	.54	-.25***	-.22*	-.61***	.70***							
6. Depressive symptoms	1.39	.41	.30***	.18*	-.70***	.54***	.51***						
7. Withdrawn behavior	2.25	4.22	.13	.77***	-.22**	.34**	.41***	.13					
8. Daily internalizing affect day 1	1.94	.99	.17*	.16	-.54***	.42***	.46***	.48***	.21*				
9. Daily internalizing affect day 2	1.73	.92	.26**	.17	-.55***	.49***	.45***	.48***	.18*	.63***			
10. Daily internalizing affect day 3	1.68	.94	.19*	.22*	-.45***	.40***	.36***	.39***	.17*	.53***	.68***		
11. Daily internalizing affect day 4	1.66	.89	.20*	.18*	-.49***	.41***	.39***	.42***	.15	.65***	.70***	.67***	
12. Daily internalizing affect day 5	1.60	.92	.29***	.19*	-.47***	.33**	.48***	.45***	.13	.42***	.53***	.45***	.65***

Note. * $p < .05$; ** $p < .01$; *** $p < .001$. For peer-reported victimization and withdrawn behavior, the mean number of nominations received are reported. Correlations with these variables were based on the standardized number of nominations received. The continuous self- and peer-reported victimization scores were log-transformed before computing the correlations to control for positive skew. In total, 148 participants reported on their daily affect on day 1, 161 on day 2, 155 on day 3, 151 on day 4, and 133 on day 5.

Peer victimization in adolescence: Concordance between measures and
associations with global and daily internalizing problems | 41

2

Table 2.3. Number of Adolescents Classified as Self-, Peer-, and Daily Diary-Reported Victims

		Peer-Report						Total
		No Victim			Victim			
		Daily Diary Report			Daily Diary Report			
		No Victim	Victim	Subtotal	No Victim	Victim	Subtotal	
Self-Report	No Victim	138	3	141	22	0	22	163
	Victim	19	0	19	4	2	6	25
	Total	157	3	160	26	2	28	188

Note. The overlap between self-, peer-, and daily diary reports is presented. For example, 2 adolescents who were identified as victim according to their peers were also identified as self- and daily-reported victim. In contrast, 4 adolescents who were classified as peer-reported victim were also classified as self-reported victim but not as daily diary reported victim. The assumptions for log linear analyses were not met (not all expected frequencies were larger than 5). Therefore, a Fisher's exact test was conducted for each combination of the three data sources. There were no significant associations between the self- and peer-reported victim classifications, $p = .14$, $OR = 2.02$, 95% CI = [.73,5.62], between the self- and diary-reported classifications, $p = .13$, $OR = 5.64$, 95% CI = [.74, 29.26], and between the peer- and diary-reported classifications, $p = .16$, $OR = 4.03$, 95% CI = [.64, 25.26].

Table 2.4 shows the results of the regressions. Both self- and peer-reported victimization were significantly positively associated with social anxiety and loneliness, which are interpersonal peer-related internalizing problems (see Table 2.4). Self-reported victimization was also significantly negatively associated with self-esteem and positively associated with depressive problems, which are intrapersonal (emotional) internalizing problems. Peer-reported victimization was not significantly associated with self-reported intrapersonal internalizing problems.

Another regression model examined the associations of self- and peer-reported victimization with peer-reported internalizing problems. In this model, peer-reported withdrawn behavior was predicted by self- and peer-reported victimization, again controlling for gender. Peer-reported victimization predicted higher levels of withdrawn behavior (see Table 2.4). There was no significant effect of self-reported victimization on peer-reported withdrawal.

Associations of Self- and Peer-Reported Victimization with Daily Internalizing Affect

Goal 2B was to examine the associations of self-, peer-, and daily diary-reported victimization with daily internalizing problems. Again, daily diary-reported victimization could not be used in the analyses because of its low frequency. Longitudinal multilevel analysis was conducted to examine the associations of self- and peer-reported victimization with daily internalizing affect (insecure, anxious, worthless, lonely, gloomy, and sad). A multilevel approach was used with daily internalizing affect (Level

1) nested within adolescents (Level 2) (Hox, 2002; Raudenbush, 2002). The analyses were conducted in MlwiN 2.23 (Rasbash, Charlton, Browne, Healy, & Cameron, 2011). The results are presented in Table 2.5. The intraclass correlation was .57, indicating that 57% of the variance was due to differences between adolescents and 43% due to the repeated assessments.

We tested multiple models in which the variables were entered in steps. We compared nested models with the log likelihood deviance test. Fixed effects were tested by T-tests. We controlled for the effects of gender and time (see Models 2 and 3, respectively, in Table 2.5).

Next, we added the time-invariant predictors self-reported victimization and peer-reported victimization (Model 4). There were significant positive effects of self-reported victimization, $t(184) = 2.93$, $p = .002$, and peer-reported victimization, $t(184) = 1.85$, $p = .033$, on daily internalizing affect. The final model, Model 5, showed that interactions of time with self-reported and peer-reported victimization did not significantly improve the predictions, indicating that the effects of self- and peer-reported victimization on daily internalizing affect did not change during the week.

Table 2.4. Results from Regression Analyses Predicting Self- and Peer-Reported Internalizing Problems from Self- and Peer-Reported Victimization ($N = 188$)

| | Self-reported | | | | Peer-reported |
| | Interpersonal (peer-related) | | Intrapersonal (emotional) | | Withdrawn Behavior |
	Social Anxiety	Peer-related Loneliness	Self-Esteem	Depressive Symptoms	
	β	β	β	β	β
Gender	-.25***	-.16*	.24***	-.17*	-.02
Victimization					
Self-reported	.24***	.31***	-.22**	.28***	-.05
Peer-reported	.26***	.33***	-.13	.09	.78***
R^2	.25***	.30***	.14***	.13***	.60***

Note. * $p < .05$; ** $p < .01$; *** $p < .001$. The continuous self- and peer-reported victimization scores were log-transformed to control for positive skew. Gender was dummy coded (0 = girls, 1 = boys).

Peer victimization in adolescence: Concordance between measures and associations with global and daily internalizing problems | 43

2

Table 2.5. Results from Multilevel Models Predicting Daily Internalizing Affect from Self- and Peer-Reported Victimization (N = 188)

	Parm	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
		b	*SE*	*b*	*SE*	*b*	*SE*	*b*	*SE*	*b*	*SE*	*b*	*SE*
Fixed Effects													
Initial level													
Intercept	γ_{00}	1.71***	.06	1.85***	.07	1.93***	.08	2.09***	.09	2.08***	.09	2.08***	.09
Gender	γ_{01}							-.39***	.11	-.35***	.11	-.35***	.11
Victim-Self	γ_{02}									.53**	.18	.34*	.23
Victim-Peer	γ_{03}									.26*	.14	.27*	.18
Rate of change													
Time	γ_{10}			-.07***	.02	-.08***	.02	-.08***	.02	-.08***	.02	-.08***	.02
Time x Victim-Self	γ_{12}											.08	.06
Time x Victim-Peer	γ_{13}											.00	.05
Random Effects													
Level 1													
Within-person	σ_e^2	.37	.02	.36	.02	.31	.02	.31	.02	.31	.02	.31	.02
Level 2													
Initial level	σ_{u0}^2	.49	.06	.50	.06	.70	.12	.65	.12	.64	.12	.64	.12
Rate of change	σ_{u1}^2			.02		.02	.01	.02	.01	.02	.01	.02	.01
Fit statistics													
Deviance		1714.35		1694.28		1683.92		1671.90		1657.23		1655.37	
χ^2 (df)				20.07***	(1)	10.36**	(2)	12.02***	(1)	14.67***	(2)	1.86	(2)

Note. *p < .05, ** p < .01, ***p < .001. Time was coded as day of the week and was centered at Monday. Gender was dummy coded (0 = girls, 1 = boys). The continuous self- and peer-reported victimization scores were log-transformed to control for positive skew.

DISCUSSION

Peer victimization continues to be important for well-being in adolescence (Storch, Masia-Warner, et al., 2005; Sweeting et al., 2006), but is studied less frequently at this age than at earlier ages. This study examined the measurement of peer victimization in adolescence with self, peer, and daily diary methods and their associations with internalizing problems. This study contributes to our understanding of peer victimization among adolescents and provides useful information for further studies on peer victimization in this important age group.

Prevalence of Self- Peer-, and Daily Diary-Reported Victimization in Adolescence

Goal 1A was to compare the prevalence of self- and peer-reported victimization with the prevalence of daily diary-reported victimization in adolescence. With the classification criteria used in this study, peer- and self-reported victimization (15% and 13%, respectively) were more prevalent than daily reported victimization (3%). The prevalence of self- and peer-reported victimization was consistent with previous data on victimization in middle adolescence (Nansel et al., 2001). The findings fit with the developmental trend that the prevalence of victimization decreases from early adolescence (20%-24%) to middle adolescence (6%-15%) (Nansel et al., 2001; Nylund, Bellmore, Nishina, & Graham, 2007). The prevalence of daily diary victimization in the current study, however, was much lower than in previous diary studies with adolescents.

Only 3% of the adolescents reported that they had experienced at least one episode of victimization during one week. Other studies found that 26% and 40% of adolescents, respectively, experienced at least one episode of victimization during one week (Espinoza et al., 2013) or two weeks (Nishina, 2012). These authors did not compare the prevalence of daily diary-reported victimization with the prevalence of global self- or peer-reported victimization. Therefore, we do not know whether their participants also experienced higher levels of self- and peer-reported victimization.

The prevalence of victimization in general may have been lower in our sample than in previous daily diary studies for two reasons. First, the samples of the two previous studies (Espinoza et al., 2013; Nishina, 2012) were more ethnically diverse than ours which was rather homogeneous. In a more diverse setting, the formation of subgroups may be stronger and mutual misunderstanding and exclusion more likely. Indeed, studies in both the US and the Netherlands have found higher prevalence rates of peer victimization in more diverse classrooms than in less diverse settings (Hanish & Guerra, 2000; Vervoort, Scholte, & Overbeek, 2010). The sample of our study was rather

Peer victimization in adolescence: Concordance between measures and associations with global and daily internalizing problems | 45

2

homogeneous, and this may explain a lower prevalence in this study compared to the more diverse samples of previous studies. Second, we gave adolescents a verbal and written definition of bullying for both the classroom and online assessments. Vaillancourt and colleagues (2008) have shown that adolescents reported less victimization when researchers gave them a definition of bullying than when they did not. This also may explain why the prevalence rates of victimization may have been lower in our sample than in the samples of Espinoza et al. (2013) and Nishina (2012), who did not report whether they provided their participants with a definition of bullying.

Concordance between Self-, Peer-, and Daily Diary-Reported Victimization

Goal 1B was to examine the concordance between self-, peer-, and daily diary-reports of victimization. A significant but small association between the continuous self- and peer-reported scores was found. We did not find significant overlap between being classified as self- and peer-reported victim. These results are in line with studies that found a relatively low overlap between self- and peer-reports (Graham & Juvonen, 1998; Scholte et al., 2013). In the current study, being classified as a self- or peer-reported victim was not associated with being classified as a daily diary-reported victim. Most self- and peer-identified victims were not victimized according to the diary assessment. As victimization is relatively stable in adolescence (Chapter 3: Pouwels, Souren, Lansu, & Cillessen, 2016), other explanations rather than a change in victimization status between the classroom session and the diary-report week have to be considered. On the one hand, the daily diary-reports of victimization may not have been well suited to examine victimization because the time frame was not optimal. A 1-week assessment period may have been too short to capture adolescents' victimization experiences. On the other hand, the low concordance between daily reports and self- and peer-reports may have been due to biases in the self- and peer-reports. As self- and peer-reports are retrospective, they are prone to memory and reputational biases that may lead to overestimations of victimization. The idea that self-reports of victimization are prone to memory bias is supported by Nishina and Juvonen (2005). They found that adolescents reported at the beginning of the diary assessments that they experienced 1.8 episodes of victimization in the last two weeks, while they experienced just .9 episodes of victimization during the two-week daily diary assessments.

Global Internalizing Problems Associated with Self- and Peer-Reported Victimization

Goal 2A was to assess the associations of self- and peer-reported victimization with internalizing problems. As in other studies (Reijntjes et al., 2010), victimization was associated with global measures of internalizing problems. Our study extended

previous studies that compared these reports on internalizing problems (Bouman et al., 2012; Scholte et al., 2013) by examining two types of self-reported internalizing: interpersonal (peer-related) and intrapersonal (emotional). Social anxiety and peer-reported loneliness are self-reported internalizing problems related to interpersonal experiences with peers; self-esteem and depressive symptoms are self-reported intrapersonal internalizing problems.

Self-reported victimization was positively associated with self-reported interpersonal and intrapersonal internalizing problems, but not with peer-reported internalizing problems, which may be partly due to shared common variance. These findings are in line with previous studies documenting elevated levels of self-reported internalizing problems for self-identified victims (Bouman et al., 2012; Graham & Juvonen, 1998; Scholte et al., 2013).

The association of peer-reported victimization with self-reported internalizing problems depended on the type of self-reported internalizing problems. Peer-reported victimization was associated with more self-reported peer-related internalizing problems. However, in line with previous studies, we found that peer-reported victimization was not associated with self-reported intrapersonal (emotional) internalizing problems (Bouman et al., 2012; Scholte et al., 2013). As expected, peer-reported victimization was also positively related to peer-reported internalizing problems, which may be partly due to shared common variance. Thus, the association of self-reported victimization with internalizing problems depended mainly on the informant of the internalizing problems (self vs. peer), whereas the association of peer-reported victimization and internalizing problems depended both on the informant (self vs. peer) and on the type of internalizing problems (interpersonal vs. intrapersonal).

The frequency of victimization in adolescence is lower than at younger ages (Nansel et al., 2001). However, results of previous studies (for a meta-analysis, see Reijntjes et al., 2010) and the current study indicate that when victimization does occur in adolescence, it is still associated with global levels of internalizing problems. The association of victimization with internalizing problems in adolescence is concerning, especially as anti-bullying programs are less successful at this age than in childhood (Kärnä et al., 2013; Yeager et al., 2015). This further stresses the importance of developing successful anti-bullying programs for use in adolescence. As the prevalence of daily diary victimization was low, we could not relate daily experiences of victimization to global self-reported internalizing problems. Future studies with larger samples are needed to further examine this question.

Peer victimization in adolescence: Concordance between measures and associations with global and daily internalizing problems | 47

2

Daily Internalizing Affect Associated with Self-, and Peer-Reported Victimization

Goal 2B was to examine the associations of self-, peer-, and daily diary-reported victimization with daily internalizing problems. Despite the low frequency of daily reported victimization, we still could examine the association of self- and peer-reported victimization with daily internalizing affect. In addition to global internalizing problems, self- and peer-reported victimization were also related to daily internalizing affect. Even though the frequency of daily victimization was low, self- and peer-reported victimization were related to feeling insecure, anxious, lonely, sad, somber, and worthless on a daily basis. Adolescents' daily internalizing affect thus may not only be elevated in direct response to being victimized (Espinoza et al., 2013; Nishina, 2012), but also due to repeated victimization over a longer time.

Limitations and Suggestions for Further Research and Practice

This study had some limitations. First, Morrow et al. (2014) showed that different types of victimization (e.g., physical, verbal) were uniquely related to negative daily emotions. Due to the low prevalence of victimization in this study we were not able to examine how being the victim of different types of aggression each was uniquely related to global and daily internalizing problems. Second, we could not examine longitudinal associations of self- and peer-reported victimization with daily internalizing affect. It has been found that peer victimization is both a precursor and a consequence of internalizing problems (Reijntjes et al., 2010). It is unknown whether this is also true for the association between victimization and daily internalizing problems. Further research on adolescents' self- and peer-reported victimization and daily affect at multiple time points during the school year is needed to gain insight in the longitudinal associations between global levels of victimization and daily affect. Third, being victimized at least once per week was used as a criterion to classify adolescents as self-reported victim and a relative criterion based on Z-scores was used to classify adolescents as peer-reported victim. Although they also have been used in previous studies (Ladd & Kochenderfer-Ladd, 2002; Solberg & Olweus, 2003), the prevalence of victimization may differ when other criteria are used. Fourth, in both the classroom and diary assessment, adolescents were asked to report on subtypes of victimization. However, the items that were used for self- and peer-reports were not exactly identical. Although conceptually similar, there were some small differences in the specific types of victimization that were examined. The way of asking questions also differed slightly between methods. In the self- and peer reports, we asked students directly to report on specific types of victimization. In the daily assessments, the reporting of specific types of victimization was conditional:

we first asked students whether they were victimized and if so, we asked them to report on the frequency of specific victimization types. More comparable assessments need to be used in further investigations.

The findings of this study have implications for future research and practice. This study shed light on the pros and cons of the diary assessment method for peer victimization. We found a low prevalence of daily diary victimization. The question is whether this is representative for a longer time period. To examine emotional reactivity to daily peer victimization among Dutch adolescents, future studies need to follow large samples over a long time to capture enough victimization incidents for more elaborate analyses. This will also make it possible to determine whether the associations between daily victimization and daily affect are similar across various cultural contexts such as the US and the Netherlands. Another practical limitation is that diary assessments are relatively time invasive for researchers and participants. We put a lot of effort into encouraging and reminding the adolescents to complete the diary each day. This limits the feasibility of the diaries, especially when the diaries have to be completed over a long period. In spite of these practical concerns, diary assessments do provide some unique perspectives on victimization. Therefore, from a conceptual point of view, it may be valuable to examine victimization by means of diary reports in addition to general self- and peer-reports.

Diary assessments may contribute to the evaluation of anti-bullying programs. The effects of anti-bullying programs usually have been measured with self- or peer-reports of victimization (Ttofi & Farrington, 2011). It may be valuable to add diaries as an additional evaluation tool, as they provide a unique perspective on children's victimization experiences.

Diary assessments also may be used in anti-bullying programs to give adolescents more insight in the actual prevalence of victimization (Nishina & Juvonen, 2005). There are some indications that adolescents become more accurate in estimating the frequency of victimization in global assessments after completing daily diary assessments (Nishina & Juvonen, 2005). Therefore, it may be helpful to show adolescents the discrepancy in their reported frequency of self-reported and daily diary-reported victimization.

The overlap of self- and peer-reported victimization with daily-reported victimization was low, and the associations with global internalizing problems differed in strength for self- and peer-reported victimization. This shows that each measure taps into different aspects of victimization and has its own strengths and limitations. The strength of self-reports is that they tap into the subjective experience of victimization, but a limitation is that interpretations of ambiguous situations may be biased by past experiences. A

Peer victimization in adolescence: Concordance between measures and associations with global and daily internalizing problems | 49

2

strength of peer-reports is that they rely on multiple reporters, but a limitation is that they may be affected by reputation bias. The strength of daily diary reports is that they may reduce the impact of memory bias, but the limitation is that interpretations of ambiguous situations may be influenced by past experiences, just like self-reports. As each measure taps into different aspects of victimization, its utility depends on the aspect of victimization a researcher wants to measure. For example, if one is interested in the characteristics of specific episodes of victimization, dairy reports are preferred, but if one wants to capture the subjective feeling of victimization over a longer period, self-reports are preferred. It is always valuable to combine the assessments. The more they are in line, the more reliably one can determine the occurrence of victimization.

CONCLUSION

Although 12% - 15% of the adolescents were victimized according to themselves and their peers, this was not reflected in their daily experiences of victimization. The association of self- and peer-reported victimization with internalizing problems depended both on the informant of internalizing and victimization (self vs. peer) and on the type of internalizing problems (interpersonal vs. intrapersonal). Despite the low prevalence of victimization on a daily level, both self- and peer-reported victimization were related to daily internalizing affect. These results indicate that self-, peer-, and daily diary-reports tap into different aspects of peer victimization.

03

CHAPTER

Stability of peer victimization:
A meta-analysis of longitudinal research

ABSTRACT

A meta-analysis was conducted of 77 longitudinal studies that contained at least one over-time correlation (range 1 to 36) between scores for peer victimization measured at different time points. The overall stability of self-reported peer victimization was determined at centered values (age 10, one-year interval). The effects of interval length, age, and type of informant (self, peer, teacher, other/combined) on the stability of victimization were also examined. Moderate overall stability of self-reported victimization at age 10 across a 1-year interval was found. Stability decreased across larger longitudinal intervals. Peer- and other/combined-reports of peer victimization yielded higher stability estimates than self-reports. Teacher-reports yielded stability estimates that were equal to those for self-reports. An interaction was found between age and informant type (peer vs. self), indicating a larger increase in the stability of victimization with age for peer-reports than for self-reports. Implications for further research and practice were discussed.

Peer victimization is a common problem in schools. Children and adolescents are victimized when they are exposed to harmful behavior, repeatedly and over time, and when they are unable to defend themselves (Olweus, 1994; Solberg & Olweus, 2003). It has been estimated that 9 to 32% of youths in western and non-western countries are victims of bullying (Stassen Berger, 2007). These rates are alarming, because victimization is associated with serious negative outcomes, including internalizing and externalizing problems and poor school adjustment (Hawker & Boulton, 2000; Kochenderfer & Ladd, 1996b; Reijntjes et al., 2011; Reijntjes et al., 2010).

Stable victimization is even more serious than incidental victimization. The *chronic stress model* states that children who are persistently exposed to stressful events are at greater risk than those who are temporarily exposed (Dohrenwend & Dohrenwend, 1981). In line with this model, stable victims show higher levels of internalizing problems (Burk et al., 2011; Juvonen, Nishina, & Graham, 2000; L. H. Rosen et al., 2009), reactive aggression (Camodeca et al., 2002), and social dissatisfaction (Kochenderfer-Ladd & Wardrop, 2001) than youths who are less persistently victimized.

An increasing number of longitudinal studies have examined the stability of peer victimization. The results have varied from low to high stability. For example, across studies the percentages of stable victims have ranged widely from 8 to 43% (e.g., Burk et al., 2011; Schäfer, Korn, Brodbeck, Wolke, & Schulz, 2005; Scholte et al., 2013; Sourander, Helstelä, Helenius, & Piha, 2000); a variability that may very well be due to differences in study characteristics. Given the serious consequences of peer victimization in general and stable victimization in particular, a clear estimate of the stability of victimization is needed, as well as an understanding of the study factors that influence the estimate. To address these issues, we conducted a meta-analysis of a large number of previous studies to estimate the stability of self-reported victimization centered across 1 year at age 10. We also determined to what degree the following study characteristics influence this estimate: the length of the interval between data collection waves, the source of information on victimization (peer-, teacher-, other/combined- vs. self-reports), and the age of the participants.

Mechanisms of Stable Peer Victimization

There may be different mechanisms of stable peer victimization. For some youths, victimization is stable due to the continuity of their dysfunctional social interaction patterns (Caspi et al., 1987). When children enter a new peer group, bullies initially direct their aggression to different victims (Kochenderfer & Ladd, 1996b; Perry, Perry, & Boldizar, 1990) and observe their responses. Bullies then restrict their aggression to

a smaller group of victims who react in ways that are rewarding for the bullies, such as with reactive aggression, crying, or withdrawal. These peers are then likely to continue to be victimized (Kochenderfer & Ladd, 1996b; Schwartz, Dodge, et al., 1998).

Continuity in the social environment also may contribute to the stability of victimization. The *cumulative continuity model* (Caspi et al., 1987) states that youths with maladaptive behavior tend to select environments that further reinforce their maladaptive responding. Victims are likely to become friends with other victims who also lack social skills (Browning et al., 2003; Hodges et al., 1997; Salmivalli, Huttunen, & Lagerspetz, 1997). Thus victims limit their positive experiences with peers and opportunities to develop prosocial skills. Instead, they may acquire social skill deficits, dysfunctional interaction styles, and adjustment problems which contribute to continued victimization (Kochenderfer-Ladd & Wardrop, 2001; Scholte et al., 2007).

Further, victims often are rejected in the peer group and lack friend support (Hodges & Perry, 1999). The risks associated with bullying a low-status peer are low. Therefore, bullies can easily show their dominance by continuing to bully the same low-status peers – thus also contributing to the stability of victimization.

The Effect of Interval Length on the Stability of Peer Victimization

One study factor associated with the stability of victimization may be interval length. Some studies address children's development within a school year (e.g., across 6 months); others over longer periods (e.g., across 12 to 132 months). In general, the stability of a developmental dimension is lower over longer time intervals (Wohlwill, 1973). There are different reasons why the stability of victimization also may decrease as time intervals increase. As time passes, there is more room for biological and environmental changes that contribute to variability in children's behavior. Victimization also may change over time due to fluctuations in the composition of the peer group. Children, parents, and teachers may use strategies to reduce victimization, which also impact stability (Kochenderfer-Ladd & Skinner, 2002; Troop-Gordon & Ladd, 2015). Finally, it is easier for participants to remember their answers to the previous assessment when the time interval is small (Benedict & Zgaljardic, 1998).

Indeed, the stability of victimization decreased with increasing interval length in several studies. For example, for intervals of 6, 18, and 30 months, researchers have reported respective stability coefficients (Pearson's *r*) of .46, .33, and .14 (Giesbrecht, Leadbeater, & Macdonald, 2011), and .73, .36, and .28 (Kochenderfer-Ladd & Wardrop, 2001). As the decrease of stability with increasing interval length clearly differed between studies, we examined the effect of interval length on the stability of victimization meta-analytically,

while also controlling for age and type of informant. Knowledge of this effect will help researchers to plan new data collections and school practitioners to plan student screenings (Rueger et al., 2011).

The Effect of Informant Type on the Stability of Peer Victimization

By origin, self-reports are the most common measure of victimization (Stassen Berger, 2007). In addition, peers, teachers, and occasionally parents or independent observers or combinations of those, have been used. Self-, peer-, and teacher-reports tap into different aspects of victimization and are weakly to moderately related (Graham & Juvonen, 1998; Lohre et al., 2011; Scholte et al., 2013). Self-reports tap into children's or adolescents' own subjective experiences, whereas peer- and teacher-reports are based on daily interactions and observations (Hymel, Wagner, et al., 1990). When a child has established a certain position in the classroom, peers are likely to perceive this child's behavior in ways that are consistent with it. Their reports may rely on the child's previously established status as a victim rather than on recently witnessed interactions (Hymel, Wagner, et al., 1990; Scholte et al., 2013). In contrast, self-reports have been found to change within a period of two weeks based on the number of victimization incidents a student experienced (Nishina & Juvonen, 2005). Thus, peer-reports are less influenced by daily fluctuations in victimization than self-reports, leading to higher stability estimates. Indeed, previous work has shown higher stability coefficients for peer and teacher-reports (*r*'s = .63 and .76) than for self-reports (*r* = .44) (e.g., Iyer, Kochenderfer-Ladd, Eisenberg, & Thompson, 2010). The current study also contributes to the literature by addressing the differences in the stability of peer victimization between types of informants.

The Effect of Age on the Stability of Peer Victimization

A general developmental phenomenon is that (social) constructs become more stable with increasing age (e.g., Jiang & Cillessen, 2005; Roberts & DelVecchio, 2000). Plasticity decreases when children grow up, and it has been assumed that this also applies to peer victimization (Hymel & Swearer, 2015; Kochenderfer-Ladd & Wardrop, 2001; Perry et al., 1988; Wolke, Woods, & Samara, 2009). Victimization may become more stable with age because the structure of the peer group becomes more hierarchical in adolescence (Schäfer et al., 2005) and peer status carries a higher weight than in childhood (LaFontana & Cillessen, 2010). It is easier to escape victimization in peer groups with a low hierarchical structure than in groups with a high hierarchical structure (Schäfer et al., 2005). Victims also receive less friend support in adolescence than in childhood (Rigby

& Slee, 1991) as peers risk to lose status when they support a victim. For these reasons it is more likely that victimized youths will remain victimized over time in adolescence than in childhood.

Previous studies have shown mixed evidence for a positive association between age and the stability of victimization. Some studies indeed found higher stability with age (Bellmore & Cillessen, 2006; Vaillancourt et al., 2011), but others did not (e.g., Salmivalli & Helteenvuori, 2007; Sweeting et al., 2006). Given these mixed findings, the aggregation of results across studies in our meta-analysis clarifies the degree to which the stability of peer victimization changes with age. This also informs us of when it might be most optimal to target victimization. It is important to intervene at an age before victimization becomes highly resistant to change (Hanish & Guerra, 2004; Rueger et al., 2011).

The effect of age or developmental stage on the stability of victimization may depend on the type of informant. Understanding this will be important for researchers planning a new study – it may help them to decide which informants to use given the age of the planned participants. At younger ages, social-cognitive development may impact how children perceive victimization. As bullying in early childhood is directed at many different victims, children may have difficulty distinguishing peers who are victimized incidentally versus repeatedly (Monks, Smith, & Swettenham, 2003). Perspective taking is needed to perceive victimization among peers, and it is not yet fully developed in early childhood (Marvin, Greenberg, & Mossler, 1976). Indeed, research using self- and teacher-reports has shown that some children may already be stable victims in kindergarten and first grade (Hanish et al., 2004; Kochenderfer & Ladd, 1996b; Monks et al., 2003), while peer-reports of victimization are still unstable at this time (Monks et al., 2003; Chapter 4: Pouwels & Cillessen, 2013).

As social-cognitive skills develop, children may become more accurate in detecting peer victimization and the stability of their reports may increase as a result. Adolescents may rely on their peers' reputation and status which becomes more salient at this age when the peer group is more hierarchical (Schäfer, 2005). Thus, reputational bias may play a larger role in adolescence, contributing to a higher stability of peer-reports than self-reports (Hymel, Wagner, et al., 1990).

The Present Study

This study examined the stability of peer victimization in longitudinal research by means of a quantitative meta-analysis. Stability of peer victimization can be measured in different ways. In this study, it was operationalized as the correlation between victimization scores over time. This is in line with most studies reporting on the stability

of peer victimization and meta-analytical studies on personality traits and social status (Jiang & Cillessen, 2005; Roberts & DelVecchio, 2000). The stability correlation indicates the extent to which the relative ordering of participants' victimization within the reference group is maintained over time (Caspi, Roberts, & Shiner, 2005). Stability operationalized as a correlation does not discard the possibility of individual or mean-level change (Roberts & DelVecchio, 2000).

This study had three goals. The first goal was to estimate the stability of self-reported peer victimization centered at age 10 across a one-year interval. We were interested in self-reports as youths themselves are the most common informant of peer victimization (Stassen Berger, 2007). We focused on age 10, which marks the ending of elementary school and start of early adolescence, the period when victimization is expected to crystallize (Hymel & Swearer, 2015).

Our second goal was to test whether the stability of victimization systematically differs depending on interval length, type of informant (self, peer, teacher, other/combined), and age of the participants. Our hypotheses were that stability of victimization would be negatively associated with interval length and positively with participants' age. We also expected that peer-, teacher-, and other/combined-reports of victimization would be more stable than self-reports.

Our third goal was to examine whether the association between the stability of victimization and age differs by informant, with self as the reference category (peer vs. self, teacher vs. self, other/combined vs. self). We expected a stronger positive association between age and stability for peer-reports than for self-reports. We expected peer-reports to be less stable than self-reports in early childhood but more stable than self-reports in adolescence. We did not expect that the effect of age for self-reports would differ from the effect of age for teacher- or other/combined-reports.

METHOD

Literature Search

Figure 3.1 provides a summary of the literature search. In January 2012, longitudinal studies on peer victimization were collected by means of a computerized literature search of the PsycINFO (from 1978 onward) and Web of Science (from 1991 onward) databases. All possible combinations of the keywords "*victimization*", "*harassment*", and

"*longitudinal*" with "*stability*" were used. Further, the reference list of each identified study was reviewed to look for older studies that may have been relevant. Together, this first step resulted in 1212 studies.
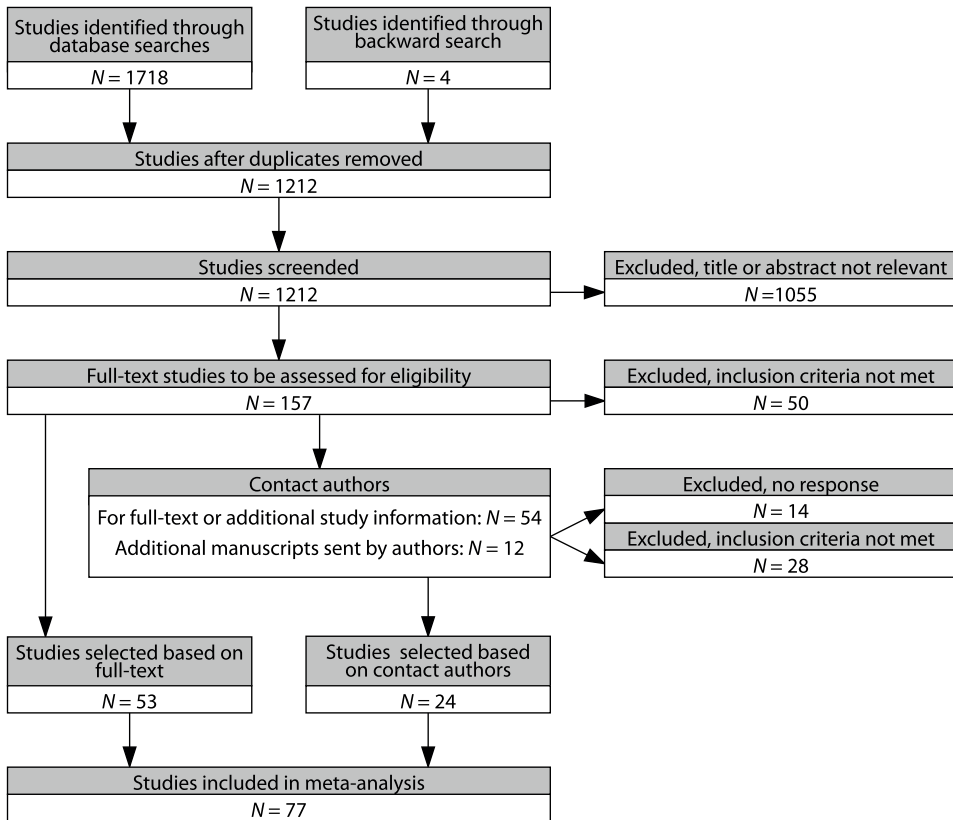
Figure 3.1. Flow chart of included studies.

In Step 2, the studies retrieved in Step 1 were reviewed based on the following inclusion criteria: (a) the construct of interest was peer victimization, including different types of peer victimization (e.g., verbal, relational, physical). Studies concerning other forms of victimization such as being a victim of crime, violence, or partner victimization were excluded; (b) longitudinal studies measuring victimization at both the beginning and the end of at least one time period were included; (c) stability data had to be either Pearson's *r* for a continuous victimization measure or frequencies displayed in a 2*x*2 contingency table for a categorical measure for the study to be included; (d) victimization had to take

place in a peer context, such as schools; studies of other contexts such as the workplace were excluded; (e) studies of clinical samples, intervention studies, or studies using a twin design were excluded. We also checked whether there was an overlap of samples between studies. In case of overlap, we only included the study that covered the largest time span. The abstracts of all 1212 studies first were scanned for these criteria, yielding 157 potential studies. These 157 were then evaluated in detail with the same criteria, yielding 53 studies that met the criteria for the meta-analysis.

In addition to these 53 studies, we contacted the authors from articles or dissertations that were not available online, but may have included a stability coefficient. We also contacted the authors of additional studies that did not meet the criteria initially because they did not report a stability coefficient but which would have been appropriate otherwise. We contacted them with a request to send the additional results. When we did not receive a response, we sent reminders and searched for updated contact information or contacted co-authors. We sent an e-mail to the authors of 54 studies and authors of 30 studies responded. Based on their responses, 18 of the 54 studies were included. Some authors sent additional papers that they had published ($n = 6$), conference presentations ($n = 1$), and dissertations or manuscripts in preparation which covered a larger time span of the longitudinal study about which we contacted them ($n = 5$). These papers were evaluated against the inclusion and exclusion criteria and, subsequently, 6 studies were included. The final sample of the meta-analysis included 77 studies. Table 3.1 provides an overview of these studies.

Coding and Entering of Study Characteristics and Effect Sizes

Stability of victimization
Stability of victimization was operationalized as Pearson's *r* of continuous victimization scores at two time points (Caspi et al., 2005). Thirteen studies (17%) only included categorical data in 2x2 contingency tables (yes/no a victim at each time point). We computed tetrachoric correlations from these tables (Enzman, 2007; Hunter & Schmidt, 1990).

In 21 studies (27%), participants were assessed at more than two time points (waves). For these studies, the correlation coefficients for all possible combinations of test-retest intervals were entered. For example, when victimization was measured at three waves (say 1, 2, 3), r_{12}, r_{13}, and r_{23} were entered when they were available. In such cases, we controlled statistically for the dependency between such correlations as explained in Appendix 3A.

In four studies, correlation coefficients were reported for boys and girls separately. Because sex differences were reported only in a small number of studies we were not able to estimate the stability of victimization by sex. If correlations were reported by sex only, we computed the weighted stability coefficients for the entire sample and subsequently used those. Similarly, a composite stability coefficient was computed when stability was reported separately for different types of victimization or different type of informants within one study.

Study characteristics

For each stability coefficient, the following study characteristics were entered in the data file: (a) sample size, (b) interval length in months, and (c) mean age of the participants in years at the first time point of each interval. If only an age range was provided, the midpoint of the range was entered. If only grade was reported, age was estimated as the typical age of students in that grade level in their school system.

Some study characteristics were entered that were fixed over different intervals within one study: (a) publication year, (b) percentage boys at the first wave of the study, (c) type of informant of victimization (self, peer, teacher, other/combined). Type of informant was coded as *self-reported* when participants reported on their own victimization, including different self-report scales such as the revised Olweus Bully-Victim Questionnaire (Solberg & Olweus, 2003). Type of informant was coded as *peer-reported* when peer nominations or peer ratings were used. Type of informant was coded as *teacher-reported* when teachers nominated students in their classroom for victimization or filled out student ratings. Finally, there was an *other/combined-reported* category which was chosen when the authors reported the stability of victimization for more than one informant in their article (combined). Most studies aggregated the reports from multiple informants into one aggregated measure. This made it impossible to know the stability coefficient for each informant type separately. In order to be consistent, we also combined the stability coefficients of the few studies that did present the estimates separately by type of informant. This category was also chosen when other informants, such as parents and independent observers (other) were used. The other informants always were part of the combined category.

Table 3.1. Study Characteristics

Authors	Year	Sample Size (N)	Sample Age (T1)	% Male	Type of Informant	Nr. stability coefficients	Range interval length	Level	Collapsed Items
Ahmed	2006	262	13.5	48	Self	1	36	Cont.	
Bagwell & Schmidt	2011	595	9.2	53	Self	1	6	Cont.	Rel. & Overt
Bellmore & Cillessen	2006	491	12.3	51	Peer	3	12-24	Cont.	
Biebl et al.	2011	65	5	45	O/C: Self, Observation	1	132	Cat.	
Boivin et al.	1995	567	10.8	49	Peer	1	12	Cont.	
Boulton	1999	89	9	49	Peer	1	5	Cont.	
Boulton et al.	2009	189	10.1	49	Peer	1	6	Cont.	
Boulton et al.	2010	115	9.5	57	Peer	1	6	Cont.	
Browning et al.	2003	162	Grade 3-5	46	Peer	1	12	Cat.	
Burk et al.	2011	344	7	48	O/C: Parent, Teacher, Child	2	24	Cat.	V & BV
Camodeca et al.	2002	215	7.6	47	Peer	1	12	Cont.	
Cantin et al.	2010	499	13.1	49	Peer	1	12	Cont.	
Carbone-Lopez et al.	2010	1165	12.3	47	Self	1	5	Cont.	
Davidson	2009	98	Grade 6-8	52	Self	1	24	Cont.	
Desjardins & Leadbeater	2011	459-580	15.5	48	Self	6	24-96	Cont.	Rel. & Overt
Esbensen & Carson	2009	1117	Grade 6-9	46	Self	1	6	Cont.	
Fekkes	2005	691-1118	10.5	50	Self	2	18	Cat.	
Georgiou & Fanti	2010	895	7	50	Self	2	12-24	Cont.	
Gibb & Alloy	2006	415	9.8	42	Self	1	6	Cont.	
Giesbrecht et al.	2011	385-423	6.3	51	Self	6	6-30	Cont.	
Grodewald	2011	346	5.5	51	O/C: Self, Peer	1	12	Cont.	
Hanish et al.	2004	126	4.3	54	Teacher	1	6	Cont.	
Hanish & Guerra	2004	1496	Grade 4	50	Peer	1	24	Cont.	

3

Authors	Year	Sample Size (N)	Sample Age (T1)	% Male	Type of Informant	Nr. stability coefficients	Range interval length	Level	Collapsed Items
Hodges et al.	1999	393	10.6	48	Peer	1	12	Cont.	
Hodges & Perry	1999	173	11.3	52	Peer	1	12	Cont.	
Houbre et al.	2010	524	9.9	46	Self	1	6	Cont.	
Iyer et al.	2010	390	7.5	54	O/C: Teacher, Self, Peer	2	6-15	Cont.	
Jansen et al.	2011	617	11.1	44	Peer	1	30	Cont.	
Jutengren et al.	2011	888	13.7	51	Self	1	12	Cont.	
Juvonen et al.	2000	106	Grade 7-8	42	Self	1	12	Cont.	
Kawabata & Crick	2011	444	10	27	Teacher	1	6	Cont.	Rel. & Phys.
Kawabata et al.	2010	124	9.4	50	Teacher	1	6	Cont.	Rel. & Phys.
Khatri et al.	2000	471	11.4	46	Peer	1	12	Cont.	
Kochenderfer-Ladd & Wardrop	2001	388-394	5.6	50	Self	10	6-42	Cont.	
Kremer	2011	153	Grade 3	53	Teacher	1	1	Cont.	
Lunde et al.	2007	600	10.4	46	Self	1	36	Cont.	
Malti et al.	2010	147	6.1	51	O/C: Self, Teacher, Parent	1	12	Cont.	
Marsh et al.	2011	3512-3263	13.8	43	Self	3	4-9	Cont.	Verb., Soc., Phys.
Martin et al.	2008	417	13	40	Self	1	12	Cont.	Rel. & Overt
McGugan	2007	800-801	11.7	49	Self	3	6-12	Cat.	V & BV
McLaughlin et al.	2009	848	Grade 6-8	51	Self	1	7	Cont.	Rel., Over, Rep.
Menzer et al.	2010	518	Grade 6	52	Peer	1	7	Cont.	Boys & Girls Asian & American
Miller et al.	2005	113-201	KG- Grade 1	42	Self	3	6-18	Cont.	
Monks et al.	2003	102	5	67	O/C: Self, Peer	1	4	Cont.	
Murray-Close & Crick	2006	408-563	Grade 4	50	Self	3	6-12	Cont.	Rel. & Phys.
Nishino et al.	2011	524	12.2	44	Self	1	3	Cont.	

Authors	Year	Sample Size (M)	Sample Age (T1)	% Male	Type of Informant	Nr. stability coefficients	Range interval length	Level	Collapsed Items
Ostrov	2008	120	3.7	43	Teacher	1	5	Cont.	Rel.& Phys.
Overbeek et al.	2010	774-1419	13.6	48	Self	3	12-24	Cont.	
Ozdemir & Stattin	2011	408-417	13.2	46	Self	3	12-24	Cont.	
Paul & Cillessen	2003	600-638	Grade 4	50	Peer	36	12-96	Cont.	
Perren & Alsaker	2009	378	KG	43	Teacher	1	18	Cont.	
Polasky	2010	357	9.3	48	Self	6	6	Cont.	
Rancourt & Prinstein	2010	576	12.1	50	Peer	1	12	Cont.	Boys & Girls
Romero	2006	210	Grade 8	66	O/C: Self, Peer	1		Cont.	
Rosen et al.	2012	190	10.8	52	O/C: Parent, Child	1	6	Cont.	
Rueger et al.	2011	694	12.6	52	Self	1	6	Cat.	
Salmivalli & Helteenvuori	2007	238	11.5	48	Peer	3	4-12	Cont.	Boys & Girls
Salmivalli et al.	1998	189	14.5	51	Peer	1	24	Cont.	Boys & Girls
Sapouna et al.	2012	454	8.9	55	Self	1	2	Cat.	
Schäfer & Albrecht	2004	479	9.2	56	Self	1	3	Cont.	V & BV
Schäfer et al.	2009	140	9	55	Self	1	24	Cont.	
Schäfer et al.	2005	283	8.1	52	Self	1	72	Cat.	V & BV
Schreier et al.	2009	2100-5109	3.9	49	O/C: Self, Parent, Teacher	8	24-85	Cat.	
Schwartz et al.	2005	240	9	52	O/C: Peer, Teacher	1	12	Cont.	Rel. & Overt
Smith et al.	2004	406	14.5	47	Self	1	24	Cat.	
Sourander et al.	2000	515	8.4	51	O/C: Parent, Child	1	96	Cat.	
Spence et al.	2009	255	12.1	47	Self	1	3	Cont.	
Storch et al.	2005	142	14.5	21	Self	1	12	Cont.	Rel. & Overt
Strohmeier et al.	2010	100	16.4	41	Self	1	5	Cont.	
Sweeting et al.	2006	2063-2371	11	52	Self	3	24-48	Cont.	

3

Authors	Year	Sample Size (N)	Sample Age (T1)	% Male	Type of Informant	Nr. stability coefficients	Range interval length	Level	Collapsed items
Toner & Heaven	2005	82	12.5	40	Self	1	24	Cont.	
Topper et al.	2011	324	13.9	28	Self	1	12	Cont.	
Troop-Gordon & Kopp	2011	311	10.3	47	Peer	1	6	Cont.	Rel.& Overt
Vaillancourt et al.	2011	139-156	12.3	54	Self	3	6-12	Cont.	
Williford et al.	2011	484-501	10.2	47	Self	2	12-24	Cat.	V & BV
Wolke et al.	2009	432	6.5	50	Self	1	36	Cat.	
Yeung & Leadbeater	2007	140	9.9	46	Self	1	4	Cont.	Rel. & Phys.

O/C = Other/Combined-reported victimization. KG = Kindergarten. In the column "level", we indicated whether the authors presented the stability by means of correlations (Cont. = Continuous) or 2x2 contingency tables (Cat. = Categorical). In the column "collapsed items" we indicated whether we calculated composite scores based on correlations that were reported separately by gender, type of victimization, ethnicity, or for victims and bully-victims. Rel. = Relational victimization, Phys. = Physical victimization, Verb. = Verbal victimization, Soc. = Social victimization, Rep. = Reputational victimization. V & BV: The authors made a distinction between the stability of victims and bully-victims.

All variables were entered by the first author. In addition, 20% of the included studies were randomly selected and two independent researchers identified the study characteristics and coded and entered them. In order to determine coder reliability, Cohen's kappa was calculated for categorical data, and intra-class correlations for interval data. Agreement for the dependent variable was perfect (1.00). Agreement for the predictors was good to perfect (.81-1.00).

RESULTS

Demographics

Table 3.2 summarizes the characteristics of the 77 included studies. The number of stability coefficients (Pearson's *r*) per study ranged from 1 to 36. The total number of available stability coefficients was 166 (two were excluded due to missing interval lengths).

Table 3.2. Summary of Study Characteristics

	Number / Range	Median
k	77	
Number of victimization stability coefficients within one study	1 – 36	1
Interval length (*m*)	1 – 132	12
Age at the first of the two waves (*y*)	3.7 – 19.5	11
Pearson's *r*	.09 – .93	.49
Sample size	65 – 5109	489
Number of studies with informant		
Self	41	
Peer	19	
Teacher	6	
Other/Combined	11	
Publication year	1995 – 2012	2009
% Male at first wave	21 – 67	49

Multi-Level Meta-Analysis Predicting Stability of Peer Victimization

Given the hierarchical structure of the data (correlations nested within studies) (Raudenbush, 2002), a multilevel analysis was conducted in MlWin 2.23 (Rasbash et al., 2011). This approach also made it possible to separate within and between study variance by means of a random effects model (Borenstein, Hedges, Higgins, & Rothstein, 2010; Hox, 2002).

Conceptual model

The conceptual model had two levels. Level 1 consisted of the correlations that were nested in Level 2, the studies. Stability of victimization (Level 1) was predicted by the variables interval length and age (Level 1) and type of informant (Level 2). Type of informant was a nominal variable consisting of self-, peer-, teacher-, and other/ combined-reported victimization. It was coded by three dummy variables using the category 'self' as the reference category (Cohen & Cohen, 1983).

Statistical model

The conceptual model was implemented by a statistical model with some special features. We controlled for dependencies between correlations for multiple waves within one study, conducted a Fisher's *r*-to-*Z* transformation (Hayes, 1978), and modeled the known error variance (Maas, Hox, & Lensvelt-Mulders, 2004). We also checked for publication bias. Together, this resulted in a statistical model with three levels and several additional (dummy) variables. See Appendices 3A and 3B for the details and outcomes of the statistical model.

Final model

The results of the meta-analysis are presented in Table 3.3 (see Model 4). The first goal was to estimate the stability of self-reported peer victimization centered at age 10 across a one-year interval. The intercept showed that this stability coefficient was $r =$ .45, indicating that self-reported victimization was moderately stable at age 10 across 1 year. The random effect at the correlation level was .14, indicating that correlations of about .59 were relatively high, and correlations of about .31 were relatively low.

Table 3.3. Results of Multilevel Meta-Analysis Predicting Stability of Peer Victimization

	Parm	Model 1		Model 2		Model 3		Model 4	
		b	*SE*	*b*	*SE*	*b*	*SE*	*b*	*SE*
Fixed Effects									
Intercept	γ_{00}	.57***	.029	.58***	.028	.49***	.029	.49***	.028
Correlation level effects									
Interval length	γ_{10}					-.01***	.001	-.01***	.001
Age	γ_{20}					.01	.009	.01	.009
r (A, B)	γ_{30}			.30	.232	-.01	.159		
r (B, C)	γ_{40}			.17	.209	.06	.142		
Study sample size	γ_{50}			-.03	.029	-.01	.023		
Study level effects									
Informant									
Peer	γ_{01}					.23***	.052	.23***	.052
Teacher	γ_{02}					.15	.128	.16	.128
Other/Combined	γ_{03}					.17*	.085	.18*	.086
Interactions Age × Informant									
Age × Peer	γ_{21}					.07***	.015	.07**	.015
Age × Teacher	γ_{22}					.01	.034	.01	.034
Age × Other/Combined	γ_{23}					-.01	.024	-.01	.024
Random Effects									
Level 1 (correlations)									
Within study	σ_{ε}^{2}	.05***	.008	.05***	.008	.02***	.003	.02***	.004
Level 2 (studies)									
Intercept	σ_{u0}^{2}	.02*	.010	.02*	.009	.01*	.005	.01*	.004
Fit statistics									
Deviance				32.75 (*n*=166)		21.22 (*n*=166)		-97.80 (*n*=166)	-96.89(*n*=166)

Note. *p < .05, ** p < .01, ***p < .001. Fisher's *r*-to-*Z* transformation was performed on the correlations. Age was centered at 10 years; interval was centered at 12 months. Dummy coding for informant used informant self as the reference group. Fixed effects were tested by means of a Wald test, random effects were tested by means of a deviance test (Snijders & Bosker, 1999).

Our second goal was to test whether the stability of victimization systematically differed by interval length, participants' age, and informant (Self, Peer, Teacher, Other/Combined). There was a negative effect of interval length on the stability of victimization. At age 10, across intervals of 6, 12, and 36 months, we found stability coefficients of self-reported victimization of .48, .45, and .33, respectively. Peer-reports ($r = .62$) and other/combined-reports ($r = .58$) differed significantly from self-reports ($r = .45$), but teacher-reports ($r = .57$) did not. Thus, peer- and other/combined-reports were more stable than self-reports at age 10 across a one-year interval. There was no significant effect for age on the stability of self-reported victimization.

Our third goal was to examine whether the association between the stability of victimization and age differed by informant, with self as the contrast (peer vs. self, teacher vs. self, other/combined vs. self). There was an interaction between type of informant (peer vs. self) and age, indicating that the increase in stability of peer-reported victimization with age was significantly stronger than the increase in stability of self-reported victimization with age. The change in teacher- and other/combined-reported victimization did not differ significantly from the change in self-reported victimization (see Figure 3.2).
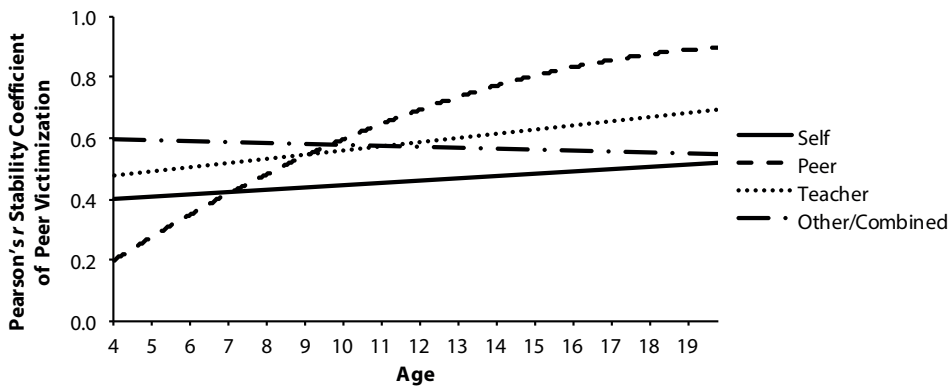
Figure 3.2. Expected values of Pearson's *r* stability coefficient of peer victimization by age and type of informant across a one-year interval.

Note. Although we tested linear effects, curved lines are presented because of the Fisher's Z to *r* transformation.

Simple effects analyses were run to determine the simple effects of age on the stability of victimization for informant self and peer. There was a significant positive age effect for peer-reports, $t(68) = 6.72$, $p < .001$, and no significant age effect for self-reports. The

region of significance for the difference in stability between peer- and self-reports by age shows the ages at which both differed significantly from each other (see Appendix 3C for the analytic approach). The model estimated that self-reports were significantly more stable than peer-reports from ages 3.7 to 4.2 years, whereas peer-reports were significantly more stable than self-reports from ages 8.4 to 19.5 years (see Figure 3.3).
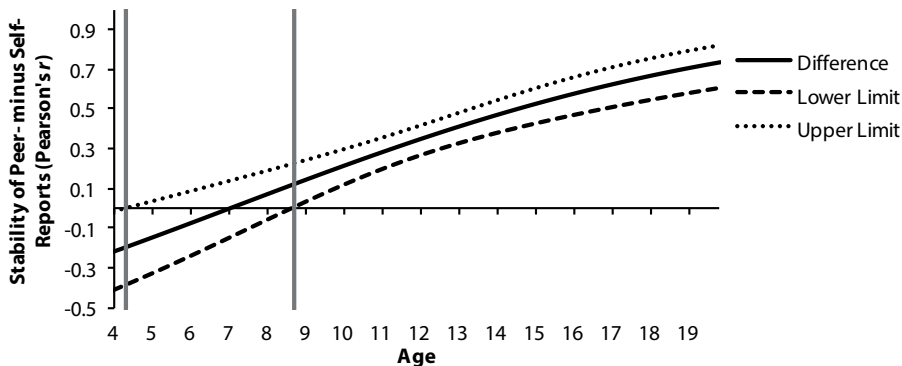
Figure 3.3. Region of significance of the difference in stability between peer- and self-reported victimization (Peer minus Self).

DISCUSSION

This study was a meta-analysis of the stability of peer victimization. The first goal was to estimate the stability of self-reported peer victimization centered at age 10 across a 1-year interval. Across 77 studies including 166 stability coefficients, this stability was estimated to be .45. Cohen (1977) placed the cut-off for a medium correlation at .30 and a high correlation at .50. While the estimate of .45 is within the moderate-to-high range, it approaches the latter value. Thus, we conclude that the 1-year stability of self-reported peer victimization is moderate to high at the end of elementary school (i.e., the beginning of early adolescence).

It should be noted that the stability of peer victimization, while substantial, is not quite as high as the estimated stability of other developmental constructs. The overall stability of victimization was lower than the one-year stability of peer acceptance and rejection (r = .45-.60) (Jiang & Cillessen, 2005), aggression (r = .76) (Olweus, 1979), internalizing behavior (r = .50-.60) (Reitz, Deković, & Meijer, 2005), and personality (r = about .50)

(Roberts & DelVecchio, 2000). This might be because the stability of victimization depends not only on the stability of the victim's behavior and personality, but also on the stability of the bully's behavior.

The Effect of Interval Length on the Stability of Peer Victimization

Our second goal was to test whether the stability of victimization systematically differed depending on interval length, participants' age, and type of informant. Our meta-analysis confirmed our first hypothesis that stability would be negatively associated with interval length. Stability decreased as interval length increased, similar to the stability of peer status, aggression, and personality (Jiang & Cillessen, 2005; Olweus, 1979; Roberts & DelVecchio, 2000). At age 10, across intervals of 6, 12, and 36 months, the model estimated the stability coefficients for self-reported victimization of .48, .45, and .33. This suggests that victimization is moderately stable within one school year and from one year to the other, but less stable over longer time intervals.

Stability of victimization may decrease because of biological and environmental changes that contribute to variability in developmental trajectories. This is a typical dynamic of social behavior as time passes. There also is a typical dynamic in victimization: levels of victimization have been shown to increase and decrease over time (Kochenderfer-Ladd & Wardrop, 2001) and aggression can be directed towards different victims. These changes contribute to a decrease in the stability over time. There also may be changes in victimization due to interventions. Teachers, parents, peers, and victims themselves may use explicit strategies to reduce victimization which may lead to mean-level changes and changes in the rank ordering of victimization in a classroom or school (e.g., Kochenderfer-Ladd & Skinner, 2002; Troop-Gordon & Ladd, 2015). Children also can change schools or classrooms, bringing them into new peer groups in which their position has to be redefined, possibly changing their victim status (Pellegrini & Bartini, 2000b; Pellegrini & Long, 2002). When children form a new social group, different peers than before might become victimized, and it may take some time before victimization is directed towards a specific group of victims (Pellegrini & Long, 2002). This suggests that there may be a decrease in stability over school transitions. However, a few studies addressing this issue have shown that there is not a large decrease in stability over school or classrooms transitions (Paul & Cillessen, 2003; Salmivalli et al., 1998; Sweeting et al., 2006). Unfortunately, most studies in the current meta-analysis did not report whether children attended classes with different peers. And only a small part of the studies examined victimization across school transitions. Hence, we were not able to examine to what extent the stability of victimization decreases when peer groups

change. Further research could compare the stability of victimization over school or classroom transitions with the stability of victimization within the same school or classroom.

Stability of victimization also may decrease with increasing intervals for methodological reasons, such as cumulative effects of measurement unreliability (Roberts & DelVecchio, 2000). It is also easier for participants to remember their answers on a previous assessment when the time interval is smaller (Benedict & Zgaljardic, 1998). Although these methodological reasons could not be disentangled from true change, the effect of interval length on stability coefficients of victimization may guide researchers in planning future data collection waves.

The Effect of Informant Type on the Stability of Peer Victimization

Our hypothesis was that peer-, teacher-, and other/combined-reported victimization would be more stable than self-reported victimization in early adolescence. In line with previous studies, this expectation was confirmed for peer-reports and other/combined-reports (e.g., Hymel & Swearer, 2015; Iyer et al., 2010). Self-reports tap into children's subjective experiences of victimization by examining the frequency of victimization. Peer-reports tap into youths' reputation of being a victim in the classroom by examining their status relative to their peers. It has been argued that youths' reputation among peers is more resistant to change than their own subjective experiences, leading to a higher stability of peer- than self-reports (Salmivalli, Kaukiainen, & Voeten, 2005). Indeed, when students have established a certain position in the classroom, peers are likely to perceive their behavior in ways that are congruent with the students' position (Hymel, Wagner, et al., 1990; Scholte et al., 2013). In contrast, self-reports vary over short time-periods based on the number of victimization incidents youths experience (Nishina & Juvonen, 2005).

Although we expected that teacher-reports would be more stable than self-reports in early adolescence, this was not confirmed. It is possible that we were not able to find a significant effect due to limited power; the number of studies using teachers as informants was small. Although the effect of teacher-reports was comparable to the effect of peer- and other/combined-reports (.16 vs.18; .23), it was not significant which is due to the large standard error. Future studies should compare self- and teacher-reports to determine whether their stabilities differ from each other.

The other/combined category consisted of studies with different type of informants within one study, sometimes including observations or parent reports. When the stability coefficient was based on combined reports, victimization was more stable

than when based on self-reports only. One reason for the higher stability of other/ combined- than self-reports could be that it may take some time before all informants have changed their perceptions when changes in victimization occur. It is important to note that this finding must be interpreted with caution because the type of informants that were combined in this category differed between studies.

The Effect of Age by Informant Type on the Stability of Peer Victimization

Our next hypothesis was that stability of victimization would be positively associated with the age of the children or adolescents. This expectation was not confirmed for self-reports. The .45 estimate for the 1-year stability of self-reported peer victimization applied to an equal extent to younger and older participants. There was, however, a significant interaction between age and type of informant (Self vs. Peer) on stability that will be discussed below.

Our third goal was to examine whether the association between the stability of victimization and age differs between self- and peer-reports. As expected, the differential stability of peer- and self-reports was further qualified by age: the increase in stability of peer-reports was significantly stronger than the increase in the stability of self-reports. Peer-reports significantly increased in stability with age, but stability of self-reports remained the same.

In early childhood, self-reports were more stable than peer-reports of victimization. This is in line with previous studies (Hanish et al., 2004; Kochenderfer & Ladd, 1996b; Monks et al., 2003). Children's social and cognitive skills are still developing at this age. As bullying in early childhood is directed at many different victims, peers may have difficulty distinguishing children who are victimized incidentally from those who are victimized repeatedly (Monks et al., 2003). A certain degree of perspective taking is needed to perceive victimization among peers, and this skill is not yet fully developed in early childhood (Marvin et al., 1976).

Another explanation may be that victimization is not a stable phenomenon in early childhood. Instead, stability in self-reports at an early age may reflect a more general self-concept or internal working model. Children may base their self-reports of victimization on a general internal working model of social relationships. This model taps into more general self-views and is not necessarily based on actual victimization experiences. As general internal working models stabilize early, this might explain why self-reports are more stable than peer-reports in early childhood and remain a constant level of stability over time (Bretherton, Ridgeway, & Cassidy, 1990).

In middle childhood, the stability of peer-reports did not differ from the stability of self-reports. As children's social-cognitive skills develop, they may become more accurate in detecting victimization among peers. As a consequence, the stability of peer-reports may increase.

In late childhood and adolescence, peer-reported victimization was more stable than self-reported victimization. Adolescents may rely more on a peer's status and reputation because status becomes more salient at this age when the peer group is more hierarchical than in childhood (Schäfer, 2005). Therefore, reputational bias may play a larger role in adolescence, contributing to higher stability of peer- than self-reported victimization (Hymel, Wagner, et al., 1990). Another reason for the prominent role of reputation bias may be that it is difficult to detect victimization in adolescence. The frequency of victimization decreases by the end of high school (Hymel & Swearer, 2015), suggesting that victimization does not occur in every classroom. However, peer nominations often invite adolescents to nominate at least one student in their classroom. Further, the frequency of indirect victimization increases, whereas the frequency of direct victimization decreases (Crick et al., 2001; Schäfer et al., 2002). As indirect victimization is difficult to detect and victimization may not occur in every classroom, adolescents may more strongly rely on previously established reputations than actual recent victimization incidents.

The interaction between type of informant (peer vs. self) and age may be important for research distinguishing groups of victims based on the overlap between self- and peer-reports. One of these groups is usually labeled "deniers", consisting of youths who are identified as victims by peers but who do not see themselves as victims (Graham & Juvonen, 1998). Our meta-analysis suggests that it may be difficult to escape from victim status, even when youths themselves experience that they are no longer bullied. This would imply that victims correctly perceive that they are no longer bullied. Peers, however, may deny that the victim status of these children has been changed. The label 'deniers' may therefore be a misleading term for this group. It is interesting to further understand this discrepancy in future research. For example, future studies may examine the actual victimization experiences of this group by means of diary assessments. When peers are asked to report on a daily basis, it is likely that they still remember the victimization episodes that occurred during the day. Therefore, they may rely less on a child's previous status as victim which reduces the impact of reputation biases (Bolger et al., 2003; Nishina & Juvonen, 2005). Thus, although peers may have the perception that a child is victimized according to his previous reputation, diary assessments may make them more aware that the child is not victimized anymore. If this diary assessment

3

indeed leads to a reduction in the prevalence of daily diary peer-reported victimization then this will support our explanation that global peer-reports are biased by a child's reputation.

Strengths, Limitations, and Suggestions for Further Research

The current meta-analysis had several strengths, including the large sample size and the highly reliable entering and coding of studies and variables. The multilevel approach made it possible to include multiple correlations from each study and model the error variance. No association between sample size and the dependent variable (i.e. stability coefficient of victimization) was found, indicating no sign of publication bias.

Despite these strengths, there were also some limitations. Stability was operationalized as the Pearson correlation over time, therefore, certain changes could not be identified. For example, we could not detect overall increases or decreases in the level of victimization in the entire sample, or individual differences in absolute levels of victimization. To address such issues, further research should examine intra-individual changes and mean-level changes in victimization, or use an intra-class correlation as the measure of stability.

Informant self was the reference category because self-reports are the most commonly used measure of peer victimization. A limitation is that we could not directly compare whether peer-, teacher- and other/combined reports significantly differed from each other.

A substantial part of the variance of the stability of victimization was explained by the predictors age, interval length, and type of informant. Part of the variance remained unexplained, to some extent because some information was reported by only a small number of studies or was inconsistently reported across studies. For example, stability of victimization may differ between victims and bully-victims (Schäfer et al., 2005) and between different types of peer victimization (e.g., overt vs. relational) (Schwartz et al., 2005). In addition, there may be gender differences in the stability of victimization (Camodeca et al., 2002). We were not able to examine them because there was not enough variation in the gender ratio across studies and only a few studies reported stability coefficients for boys and girls separately.

Another reason for the unexplained variance may be that there was variation in the methods used between studies that was not consistently reported. For example, self-reported victimization was examined with various questionnaires that differed in internal consistency (e.g., Crick & Grotpeter, 1996; Solberg & Olweus, 2003). Studies

that displayed victimization in a 2x2 contingency table differed in their cut-off points for victimization. In addition, either peer nominations or ratings were used to examine peer-reported victimization. This also may affect stability, as peer ratings tend to be more stable than nominations (Jiang & Cillessen, 2005). Some studies using peer nominations did not indicate whether they were limited or unlimited, and whether a minimum number of nominations was required. Finally, in some studies youths were given a definition of victimization but in other studies they were not. It has been shown that youths report significantly less victimization and bullying when they are provided with definitions than when they are not (Kert, Codding, Tryon, & Shiyko, 2010). To conclude, there was heterogeneity in the measures of victimization in our sample. Further research needs to examine whether some measures and methods yield more stable results than others.

Practical Implications

The findings of this study have implications for the content and evaluation of anti-bullying programs. This meta-analysis demonstrated that peer victimization is moderately stable across one year when there is no intervention. Intercept variance showed that there was even negative stability of self-reports in some cases. Fortunately, these cases suggest that some victims decrease in their level of victimization over time. However, the average stability of peer victimization without intervention is sufficiently large to support the need for prevention and intervention efforts. In line with the chronic stress model (Dohrenwend & Dohrenwend, 1981), stable victims have poorer developmental outcomes than incidental victims (Burk et al., 2011; Camodeca et al., 2002; Juvonen et al., 2000; L. H. Rosen et al., 2009). More research is needed on the predictors of stable versus unstable victims in order to early identify students at risk.

A first step will be to screen for victimized students. As the effect of interval length shows that students' victimization may change during one school year, it seems important to conduct such screening at least twice each year (Rueger et al., 2011). There was no main effect of age on the stability of self-reported victimization. Thus, some children already consistently indicate that they are a victim of bullying in early childhood. The stability of peer-reported victimization increased with age. This highlights the need for early intervention. This is in line with the idea that intervention should take place early before victimization crystallizes and becomes more difficult to change (Hanish & Guerra, 2004; Rueger et al., 2011; Smith, Ananiadou, & Cowie, 2003).

The effect of type of informant also has implications for practice. Although adolescents may no longer identify themselves as victims, they may maintain victim status in the peer group. This stable reputation may influence how peers respond to them. Peer-reported

3

victimization is associated with rejection, low peer acceptance, and low friendship qualities (Scholte et al., 2013) – problematic correlates that persist over time (Hodges & Perry, 1999; Scholte et al., 2013). Another study further demonstrated the power of the victim reputation among peers. This study showed that girls were more aggressive in a noise-blast task to a peer who was seen as a victim in the classroom than to a peer who was not seen as a victim in the classroom. This while the peer's actual behavior could not have provoked the participants' aggression due to the preprogrammed feedback the participants received during the noise-blast task. (Lansu, Cillessen, & Sandstrom, 2014). Further research on how adolescents' perceptions of peer victimization may be colored by their knowledge of a peer's previous victim status is needed.

The findings of this meta-analysis also have implications for the content of interventions. If there is indeed a 'once a victim, always a victim' bias among adolescents, this bias could potentially be changed. One reason for such a bias may be that adolescents are afraid to lose status when they affiliate with victims of bullying. Instead, they may assist or reinforce the bully to maintain or establish a higher position for themselves in the peer group (Juvonen & Galván, 2008). As they do not interact with the victim, they may not notice that the victim is no longer bullied. The interventions should challenge adolescents to rely less on their views of a peer's previous victimization status and more on observations actual bullying behavior. This may reduce a 'once a victim, always a victim' bias, and subsequently, (former) victims may have more opportunities to gain positive social experiences with peers.

In addition to assisting youths to perceive their peers more objectively, interventions also may focus on identity formation of victimized youths. An important developmental task in adolescence is the formation of a coherent sense of self based on one's strengths and values (Erikson, 1986). Adolescents shift from pursuing relationships based on popularity and status to pursuing relationships that are supportive and intimate (Steinberg & Morris, 2001). As operational and abstract thinking improves, identity matures in adolescence (Meeus, van De Schoot, Keijsers, Schwartz, & Branje, 2010). Adolescents also may have the cognitive abilities to reframe victimization in a way that is not destructive to the self. Therefore, stability of self-reported victimization may decrease in adolescence, as an increasing number of students may not identify themselves as victim anymore. However, we found that the stability of self-reported victimization did not vary by age. Perhaps not all adolescents benefit from their cognitive development. Victimized adolescents are especially at risk for developing a non-coherent sense of self, because they have difficulties integrating their identity across contexts (van Hoof, Raaijmakers, van Beek, Hale III, & Aleva, 2008). This may explain why self-reported victimization remains constant despite increased social-cognitive skills. This is alarming because

identity problems place victimized adolescents at risk for depressive symptoms (van Hoof et al., 2008). Therefore, intervention programs should assist victimized adolescents with their identity development and reframing of victimization experiences.

The stability of victimization also has to be taken into account in the evaluation of anti-bullying programs. It is important to examine whether programs lead to more changes in which children are being victimized than that would have occurred without intervention, rather than only focusing on the absolute amount or frequency of victimization. Program evaluations also need to take into account the higher stability of peer-reports than self-reports of victimization in adolescence. Studies have shown that interventions are less successful according to peer-reports than self-reports (e.g., Salmivalli, Kaukiainen, et al., 2005). One reason for this difference may be a sensitization effect (Salmivalli, Kaukiainen, et al., 2005; Smith et al., 2003). Youths may become more sensitive to victimization when their awareness of bullying is increased by the intervention. They may also begin to recognize indirect aggression as bullying. This meta-analysis showed that peer-reports are more stable than self-reports in adolescence also when there is no intervention. Therefore, the reduced effectiveness of interventions according to peer-reports may be due not only to a sensitization bias, but also to stable peer reputations.

Conclusion

This meta-analysis on the stability of peer victimization showed moderate stability of self-reported victimization over a one-year interval. Stability decreased as interval length increased. The increase in the stability of victimization with age was larger for peer-reported victimization than for self-reported victimization. In new studies, complete reporting of measurements and sample characteristics is needed to facilitate further meta-analyses.

APPENDIX 3A

Description Statistical Model

The conceptual model was implemented by means of a statistical model which had some special features. First, when stability correlations were available for three time points, say 1, 2, and 3, we expected that the correlation between 1 and 3, r_{13}, would depend on r_{12} and r_{23}. This is analogous to the effect calculation in a path model, such as a mediation model (Hayes, 2013). To correct for this dependency we included r_{12} and r_{23} as predictors for r_{13} in the model by means of dummy coding. Simulations showed that using r_{12} and r_{23} or $r_{12*}r_{23}$ did not lead to very different outcomes. The latter would intuitively seem more appropriate but is technically more complex. Therefore, for the sake of simplicity we chose to include the separate correlations.

Second, in order to have a more suitably distributed variable for the stability of peer victimization than Pearson's r itself, we performed Fisher's r-to-Z transformations (Hayes, 1978). The Z transformation provided us with a measure for the standard error of the transformed stability of peer victimization. Specifically, this means that the Level 1 error variance of the dependent variable is known. We applied the method demonstrated by Maas et al. (2004) to model this known error variance. This has the advantage that heteroscedasticity could be modeled and that it was possible to distinguish within and between study variance, according to the random effects model (Hox, 2002). An additional level was added to the statistical model in order to model the error variance.

The Fisher r-to-Z transformation has another advantage: tetrachoric correlations do have substantially larger standard errors than Pearson correlations and a correction should be applied. However, Ogasawara (2010) indicated that a Fisher r-to-Z transformation is also valid for a tetrachoric correlation.

APPENDIX 3B

Results of the Statistical Model

Model 1 was a null model that contained only an intercept without any predictors. Results showed significant error variance at Level 2, indicating the necessity of a multilevel approach (Snijders & Bosker, 1999).

In Model 2, the null model was expanded with the $r_{1,2}$ and $r_{2,3}$ correlations to check for functional dependencies. Results indicated that $r_{1,2}$ and $r_{2,3}$ had a substantial effect size, although the effects were non-significant. In addition, sample size of the study was added to examine the possibility of publication bias (Hox, 2002, pp. 150-151). According to Card (2012), a significant effect of sample size might indicate a publication bias. Sample size had a very large range compared to the ranges of the other variables. Therefore, sample size was standardized so that very small estimates would not lead to estimation problems (Hox, 2002). Findings revealed a small and not significant effect of sample size, indicating that effect sizes were independent of study sample size, not suggesting publication bias (Hox, 2002).

In Model 3, the previous model was expanded with the predictors of interest: interval length (centered at 1 year), age (centered at 10 years), type of informant, and the interaction between age and type of informant. Results showed that the effects of $r_{1,2}$ and $r_{2,3}$ have become negligible, suggesting that the effects were due to the substantive predictors and not to the functional predictors.

Model 4 was the final model, in which $r_{1,2}$ and $r_{2,3}$ and sample size were removed because they were non-significant and negligible in effect size. The other effects barely changed after removal of these variables. Model 4 was accompanied by a test of whether the residuals met the assumptions. Normal plots (Rasbash, Steele, Browne, & Goldstein, 2012) showed that the residuals were normally distributed. Model 3 and 4 show negative deviances, because of the small scale of the dependent variable (Scientific Software International, 2014).

APPENDIX 3C

Determining the Region of Significance of the Difference in Peer- Minus Self-Reported Victimization by Age

The aim was to know for which centered age (Cage) the stability of victimization (Z_r) differs significantly between the Informants Peer and Self. Therefore, we calculated the confidence intervals for the difference in stability in Fisher's Z transformed stability coefficient of Peer minus Self-reported victimization analogous to Preacher, Curran, and Bauer (2006). The confidence interval for the difference, depending on age was:

$$CI_{age} = \left(\hat{Z}r_{v,s}\big|_{peer} - \hat{Z}r_{v,s}\big|_{self}\right) \pm t_{crit} SE_{\hat{Z}r_{v,s}|_{peer} - \hat{Z}r_{v,s}|_{self}}$$

where $\hat{Z}r_{v,s}\big|_{peer}$ and $\hat{Z}r_{v,s}\big|_{self}$ were the expected Fisher's Z transformed stability coefficients for Peer and Self.

To find the $SE_{\hat{Z}r_{v,s}|_{peer} - \hat{Z}r_{v,s}|_{self}}$ and $\hat{Z}r_{v,s}\big|_{peer} - \hat{Z}r_{v,s}\big|_{self}$ we started with the model for the expected value of the Fisher's Z transformed stability coefficient based on fixed effects:

$$\hat{Z}r_{v,s} = \beta_1 Cinterval + \beta_2 Self + \beta_3 Peer + \beta_4 Teacher + \beta_5 Other + \beta_6 Self.Cage + \beta_7 Peer.Cage + \beta_8 Teacher.Cage + \beta_9 Other.Cage$$

The equations for peer- and self-reports than were:

$$\hat{Z}r_{v,s}\big|_{peer} = \beta_1 Cinterval + \beta_3 Peer + \beta_7 Peer.Cage = \beta_1 Cinterval + \beta_3 + \beta_7 Cage \text{ and}$$

$$\hat{Z}r_{v,s}\big|_{self} = \beta_1 Cinterval + \beta_2 Self + \beta_6 Self.Cage = \beta_1 Cinterval + \beta_2 + \beta_6 Cage$$

The equation for the difference in stability between peer and self was:

$$\hat{Z}r_{v,s}\big|_{peer} - \hat{Z}r_{v,s}\big|_{self} = \left(\beta_1 Cinterval + \beta_3 + \beta_7 Cage\right) - \left(\beta_1 Cinterval + \beta_2 + \beta_6 Cage\right) = \left(\beta_3 - \beta_2\right) + \left(\beta_7 - \beta_6\right)Cage$$

The *SE* for the confidence intervals, dependent on Cage was:

$$SE_{\hat{Z}r_{v,s}\big|_{peer} - \hat{Z}r_{v,s}\big|_{self}} = \sqrt{Var\left(\hat{Z}r_{v,s}\big|_{peer} - \hat{Z}r_{v,s}\big|_{self}\right)}$$

$$= \sqrt{Var(\beta_3 - \beta_2 + \beta_7 Cage - \beta_6 Cage)}$$

where

$$Var\left(\hat{Z}r_{v,s}\big|_{peer} - \hat{Z}r_{v,s}\big|_{self}\right) = Var(\beta_3 - \beta_2 + \beta_7 Cage - \beta_6 Cage)$$

$$= 2Cage[Cov(\beta_2,\beta_6) - Cov(\beta_2,\beta_7) - Cov(\beta_3,\beta_6) + Cov(\beta_3,\beta_7)] +$$
$$Cage^2[Var(\beta_6) + Var(\beta_7) - 2Cov(\beta_6,\beta_7)] +$$
$$Var(\beta_2) + Var(\beta_3) - 2Cov(\beta_2,\beta_3)$$

All the variances and co-variances in the above formula were squared SE's and covariances of the fixed effects (which could be found in column 1099 in Mlwin).

About t_{crit}:

The number of degrees of freedom were the number of level 2 units (number of publications, 77) minus the total number of predictors(9)=68. The critical t value for a (one sided) 95% confidence interval than was: t_{crit} (68) = 1.6676.

We used a one-sided test because the hypotheses were one sided.

This resulted in the of the confidence interval for the of Fisher's *Z* transformed stability coefficient for peer minus self-reports dependent on Cage:

$$\{(\beta_3 - \beta_2) + (\beta_7 - \beta_6)Cage\} \pm t_{crit} SE_{\hat{Z}r_{v,s}\big|_{peer} - \hat{Z}r_{v,s}\big|_{self}} =$$

$$\{(\beta_3 - \beta_2) + (\beta_7 - \beta_6)Cage\} \pm 1.6676 SE_{\hat{Z}r_{v,s}\big|_{peer} - \hat{Z}r_{v,s}\big|_{self}}$$

The results were transformed into stability coefficients using an inverse Fisher Z transformation.

04

Correlates and outcomes associated with aggression and victimization among elementary-school children in a low-income urban context

ABSTRACT

Previous research suggests that the prevalence of aggression is high among low-income urban youth who have to cope with a number of psychological stressors. Less is known about the early development and consequences of aggression and peer victimization prior to adolescence in these contexts. This study examined the correlates, interplay, and consequences of aggression and victimization among children in a low-income urban context. Data were collected in the spring of Grades 1, 2, and 3. The final sample included 333 children (59.5% girls, $M = 6.46$ years). Each year, children completed sociometric and peer assessments in their classrooms. A cross-lagged panel model with extended effects showed that aggression was relatively stable over time, whereas victimization was less stable. Aggression and victimization became increasingly less correlated over time. Further, early victimization negatively predicted later aggression for boys, but positively for girls. Growth curve modeling showed that initial aggression and victimization were associated with initial behavioral and relational problems. Early aggression, but not victimization, predicted relative stable or increasing in behavioral and relational problems over time. The results underscore the importance of a developmental perspective on early childhood aggression and victimization in high-risk contexts, in order to understand their implications for adjustment in adolescence.

Ample research has elucidated the causes, risks, protective factors, and consequences of peer aggression and victimization (Rubin, Bukowski, & Laursen, 2009). Although much is known about aggression and victimization, relatively few studies have examined them among low-income urban youth in the beginning of elementary school. In the first grades of elementary school, the basis for later functioning in the adolescent peer group is developed. Previous research suggests that the prevalence of aggression is relatively high among low-income urban youth who have to cope with a number of psychological stressors (Grant et al., 2004). However, relatively little is known about the early development and consequences of aggression and peer victimization in these risk contexts. Therefore, the current study examined aggression and victimization among children in low-income urban regions in the first, second, and third grades, and what may be the precursors of adolescent aggression and victimization in these contexts.

Peer and Behavioral Outcomes Associated with Aggression

Direct aggression has been associated with poor peer relations and adverse behavioral outcomes. In peer relations research, social status groups have been distinguished based on the numbers of positive and negative nominations received from peers: accepted (many positive, few negative nominations), rejected (few positive, many negative nominations), neglected (few positive and negative nominations), controversial (many positive and negative nominations) and average (average numbers of both) (Coie & Dodge, 1983). A meta-analysis of behavioral outcomes associated with status has shown that rejected and controversial elementary school children express higher levels of aggressive behavior than children in other status groups (Newcomb et al., 1993). This may be particularly harmful for rejected children who, unlike controversial children, do not display positive behaviors to compensate for their aggression (Newcomb et al., 1993). Interestingly, non-significant associations have been found between physical aggression and accepted status.

Different studies assessed the association between aggression and social status over time. Poulin and Boivin (2000) examined the association of status and aggression among 4th to 6th grade Caucasian middle-class youth over time and found that aggression preceded rejection. Cillessen and Mayeux (2004) distinguished acceptance or preference (including kind, trustworthy children who are liked by others) from popularity (including children who are cool and kind, but also dominant and antisocial). Their longitudinal study showed that aggression was related positively to popularity among low-middle and middle class youth, whereas it was related negatively to social preference. These results suggest that popular children might use aggression as a means to maintain their social status. A meta-analysis by Card, Stucky, Sawalani, and

Little (2008) showed that direct aggression is associated with emotion dysregulation and the absence of prosocial behavior. These associations are probably present across childhood and adolescence.

In addition to the association with poor peer relationships, Broidy et al. (2003) showed that aggression was associated with delinquency in adolescence using data from six sites with various socioeconomic characteristics. Coie, Lochman, Terry, and Hyman (1992) conducted a study among Black 3rd-grade children from low income families and found that aggression was associated with externalizing and internalizing problems. Aggression is associated with internalizing symptoms such as loneliness, depression, and social anxiety (Storch, Bagner, Geffken, & Baumeister, 2004). In short, different studies showed that aggression is associated with poor social and behavioral outcomes.

Peer and Behavioral Outcomes Associated with Victimization

In addition to aggression, victimization also has been associated with poor relational outcomes. Among Finnish children, victims of peer aggression scored low on preference and high on rejection (Salmivalli, Lagerspetz, et al., 1996). However, the direction of this relationship is unclear. On the one hand, children who are rejected or not preferred may evoke bullying behavior. On the other hand, victimization might also be the cause of negative peer evaluations (Hanish & Guerra, 2002); being the target of bullying may change quickly and negatively the perceived status of the victim in the peer group (Olweus, 1991). That is, children may begin to be seen as deviant, worthless, and unpopular when they become victimized, which in turn may create a social norm for the group to dislike and reject this child. Hanish and Guerra (2002) also found in an ethnically diverse sample that victimization was systematically related to being disliked by peers.

In addition to a lower social status, reviews established that victimization is associated both concurrently and longitudinally with various internalizing symptoms, such as withdrawn behavior, loneliness, anxiety, depression, and suicide ideations and attempts (Hawker & Boulton, 2000; Reijntjes et al., 2010). Furthermore, victimization also is associated with school adjustment problems among children from diverse socioeconomic backgrounds (Kochenderfer & Ladd, 1996a). Moreover, a meta-analysis showed that victimization is related concurrently and longitudinally to externalizing symptoms, such as aggression, deviance, and truancy (Reijntjes et al., 2011). Thus, in addition to aggression, victimization also has been associated with adverse behavioral and peer outcomes.

Dynamic Interplay of Aggression and Victimization

Aggression and victimization also often are related to each other. Examining the interplay of aggression and victimization is important. It may link aggression to internalizing problems, and victimization to externalizing problems (Leadbeater & Hoglund, 2009; Morrow, Hubbard, Rubin, & McAuliffe, 2008). Cross-sectional studies with middle class samples (Camodeca et al., 2002; Poulin & Boivin, 2000) and lower class samples (Schwartz, McFadyen–Ketchum, et al., 1998) have shown positive associations between aggression and victimization. Some longitudinal studies have addressed the temporal ordering of aggression and victimization.

On the one hand, some longitudinal studies with children from various backgrounds have found that aggression precedes victimization (Morrow et al., 2008; Salmivalli & Helteenvuori, 2007). Different theories exist about the mechanisms that may link aggression to victimization. First, aggressive children often show attention problems, impulsive behavior, and emotion regulation problems that may frustrate their peers. This, in turn, may make aggressive children vulnerable becoming a victim of bullying (Dodge, Lochman, Harnish, Bates, & Pettit, 1997; Salmivalli & Helteenvuori, 2007; Schwartz, Proctor, & Chien, 2001). Second, it has been speculated that bullies initially victimize various peers, but continue to victimize only those who reward and maintain their bullying behavior by responding with aggression (Salmivalli, Karhunen, & Lagerspetz, 1996). Third, aggressive children often are rejected (Poulin & Boivin, 2000), and rejected children have a high chance of becoming a victim of bullying (Hodges et al., 1997; Morrow et al., 2008). They also lack support from peers, which further increases their risk of victimization. In line with this, it has been hypothesized that peer victimization is a means to isolate aggressive children so that group functioning can be restored (Bukowski & Sippola, 2001).

On the other hand, other theories describe how victimization might develop into aggressive behavior, and this association has been supported longitudinally as well (Hanish & Guerra, 2002; Ostrov, 2010). Victims might copy the aggression they observe in their bullies. They may discover that it helps them to retaliate against the bullies (Ostrov, 2010). When they are reinforced by reduced victimization, they may increase their aggression over time.

Some researchers combine the theories described above and propose that the association between victimization and aggression may be bidirectional and should be thought of as a cyclical process (Ostrov, 2010). Children who are aggressive may be at risk for victimization. If they are bullied, their aggression will become more severe as a result, which in turn puts them even more at risk for victimization, and so on. This is in

line with a recent meta-analysis by Reijntjes et al. (2011) who showed that externalizing behavior, such as aggression, both longitudinally precedes and follows victimization. Van Lier et al. (2012) also found in a representative sample that externalizing problems may lead to peer victimization, which was then associated with increases in internalizing and externalizing behaviors.

Because victimization and aggression are associated, some studies on victimization have distinguished passive and aggressive victims of bullying (Schwartz et al., 2001). The largest group of victims consists of passive victims who are characterized by being defenseless, submissive, withdrawing themselves, and reinforcing bullying behavior. A smaller group of victims are aggressive towards other children and retaliate against bullies, but are bullied themselves at the same time. These two types of victimization are associated differently with relational and behavioral problems, whereby in general aggressive victims suffer more than passive victims (Schwartz et al., 2001; Unnever, 2005).

Role of the Low-Income Urban Context

Previous research supported associations of aggression and victimization with poor peer relationships and behavioral outcomes. A large portion of this research was conducted among children in regular elementary schools in representative socioeconomic samples. However, less is known about how these risks might be exacerbated for children in an urban high-risk context with a low socioeconomic status (SES).

Different studies have shown a higher prevalence of aggression among children in a low-income urban area than among children from higher SES backgrounds (Coie & Dodge, 1998). In contrast to aggression, little is known about the prevalence of victimization among low-income urban children. Barker, Boivin, et al. (2008) found that insufficient parental income and physical aggression may predict high chronic and moderate increasing levels of victimization. Although the previously mentioned studies examined different rates of aggression and victimization across various SES origins, the studies did not explain how background and poverty might influence the effects of aggression. Are all children, regardless of background and SES, affected by aggression and victimization in the same way?

The interplay of aggression and victimization may differ among low income urban youth. There are often more conflicts in these areas; therefore, it may be important to respond with aggression to victimization as a protective measure. Victims may be more likely to be reactively aggressive, which would predict a higher number of aggressive victims. Leadbeater and Hoglund (2009) found that aggression was related more strongly to

victimization among high SES children in first grade, whereas the effect of SES reversed in higher grades. Williford, Brisson, Bender, Jenson, and Forest-Bank (2011) found that aggression and victimization were related more strongly among children who lived in a high risk urban area. Despite these results, few studies examined victimization in a low-income urban context. In addition, it is unknown whether the effects of aggression and victimization are the same for children in low-income urban areas compared to children in predominantly average or high income areas. Low-income urban youth are exposed to higher levels of stressors, which may lead to a higher concurrence of internalizing and externalizing symptoms (Grant et al., 2004).

The effects of aggression and victimization may be larger for low-income urban children for different reasons (Morales & Guerra, 2006). First, children in these contexts have less access to the social and instrumental resources that usually buffer the effects of aggression and victimization (Bradley & Corwyn, 2002). Second, children who endure frequent transitions, such as moving schools or homes, display increased internalizing and externalizing problems, and low-SES children pass through these events to a greater extent (Attar, Guerra, & Tolan, 1994; Juon & Ensminger, 1997; McLoyd, 1990). This was also the case for the children in the current study. Third, low-SES children experience more negative parenting and witness more violence, which contribute to aggression and internalizing problems (Dodge, Pettit, & Bates, 1994; Morales & Guerra, 2006). Fourth, children in low-income urban areas often have to cope with multiple stressors at the same time, which may heighten the effects of aggression and victimization (Morales & Guerra, 2006).

For these reasons, we examined aggression and victimization among children in a low-income urban sample, who are already facing multiple risks for their social and school adjustment. For them in particular, aggression or victimization in the classroom is an additional risk factor. Therefore, the reduction of aggression and victimization is particularly important among low-income children who already face various other risks.

Victimization and Aggression in a Developmental Perspective

From a developmental psychopathology perspective it is important to examine the early precursors of adolescent aggression and victimization at a young age (Cicchetti & Rogosch, 2002). For different reasons, it is interesting to study the development of aggression and victimization at the beginning of primary school; the first time that children are systematically together with peers in classes. Aggression and peer victimization at a young age might be related to the development of internalizing and externalizing problems in adolescence (Scholte et al., 2007). Indeed, Coie, Terry, Lenox, Lochman, and Hyman (1995) found that aggression in third grade predicted increasingly

severe internalizing and externalizing problems across adolescence. Koeppel and Bouffard (2012) found that early victimization may have substantial consequences for later physical and mental health. Thus, early levels of aggression and victimization have been associated with poor externalizing and internalizing outcomes in adolescence.

In addition, it has been shown that aggression and victimization are relatively stable over time (Camodeca et al., 2002; Dumas, Neese, Prinz, & Blechman, 1996; Huesmann, Eron, Lefkowitz, & Walder, 1984; Salmivalli et al., 1998). Moffitt (1993) stated that there are two trajectories of antisocial behavior: adolescent-limited and life-course-persistent. Children in the adolescence-limited group only show antisocial behavior in adolescence. Children in the life-course-persistent group already show high levels of aggression in early childhood and remain aggressive and antisocial across childhood and adolescence. The life-course-persistent group consists of early onset aggressors; various studies confirm the existence of this group (Côté, Vaillancourt, LeBlanc, Nagin, & Tremblay, 2006; van Lier & Crijnen, 2005). Thus, children who are highly aggressive or victimized at a young age may have a higher chance to show the same behaviors in adolescence. This is alarming, as the consequences of aggression and victimization may be particularly severe for children who are stable aggressors or victims (Scholte et al., 2007).

Thus, the negative mental and health consequences of bullying and victimization may extend across the lifespan. Understanding early aggression and victimization is important to develop effective prevention programs aimed at reducing the immediate negative effects. An understanding of early aggression and victimization also will help to reduce the negative long-term effects for aggressors and victims, and health care and other societal costs (Koeppel & Bouffard, 2012). Therefore, this study examined the stability and consequences of aggression and victimization in the first three grades of primary school.

The Present Study

The present study examined aggression and victimization among low-income urban children in the first, second, and third grades of primary school. First, we examined the stability of aggression and victimization, and second, the interplay of these two constructs. The expectation was that both aggression and victimization are stable over time. In addition, we expected a bidirectional association between aggression and victimization over time. That is, aggression was expected to predict positively the development of victimization, and conversely, peer victimization was expected to predict positively the development of aggression. In addition, we explored potential gender differences.

Third, we examined the correlates of aggression and victimization at the beginning of primary school. The following constructs were assessed: being chosen as best friend, withdrawn behavior, prosocial behavior, social preference, and social impact. Together, these five outcomes form an important set of variables representing important aspects of children's peer group experiences. They are indicators of important dimensions of peer group functioning. Specifically, we expected aggression to be associated positively with social impact and negatively with social preference and with being prosocial, withdrawn, and chosen as best friend. We expected a positive association of victimization with withdrawn behavior and low social impact, and a negative association of victimization with being chosen as best friend, prosocial behavior, and social preference. The interaction between aggression and victimization also was examined, because we expected stronger effects of victimization on the outcomes for children who scored high on both victimization and aggression.

Fourth, we examined whether aggression and victimization in Grade 1 predicted changes in the outcome variables over the following years. Specifically, we expected that aggression or victimization in Grade 1 predicted not only peers' concurrent behavioral and relational views, but also their later views in Grades 2 and 3. The expectation was that the peer correlates of aggression and victimization are relatively stable over time.

METHOD

The data were collected as part of a larger longitudinal study on the prediction of dropping out of school. Data were collected in the spring of Grades 1, 2, and 3, respectively. At Wave 1, five schools were selected from a list of nine elementary schools that had been identified by the Board of Education of the inner-city school district as needing intervention for high dropout rates. The five schools were located in low-income neighborhoods of a large city in the Northeastern United States. The schools were mostly ethnically homogenous; three of the schools were predominantly Black and two were predominantly Latino. The majority of Latino children were Puerto Rican. Parents received a letter in English or Spanish describing the study and requested their permission for participation. A passive consent procedure was followed. Parents were asked to return the letter if they did not wish their child to participate. This was done at the request of the school system, who was interested in understanding low attendance rates at the beginning of elementary school, and wanted the research team to follow the school district's own procedures for standardized testing.

At the beginning of Wave 1, the classrooms included 360 children, but 27 children were absent on the day of data collection or did not have permission to participate. The final sample in Wave 1 therefore included 333 children (49.5% girls), ranging in age from 5 to 8 years ($M = 6.46$, $SD = .59$). In addition, 317 and 288 children were present at Wave 2 and 3, respectively. Table 4.1 shows the distribution of participants across the three waves of data collection. Drop-out was mainly caused by children who moved during the study. Some children moved due to changing family circumstances. Others moved when their families could afford a change to another neighborhood. In general, the schools in this study were facing very high mobility rates and low and unstable attendance rates among their students.

Table 4.1 Number of Participants Present across the Three Grades of Data Collection

	Present Grade 2		Absent Grade 2	
	Present Grade 3	Absent Grade 3	Present Grade 3	Absent Grade 3
Present Grade 1	79	79	27	148
Absent Grade 1	61	98	121	0

Procedure

Children completed sociometric and self-report questions in the spring of first, second, and third grade. All children were interviewed individually in either English or Spanish during a 15-minute session by trained graduate and undergraduate psychology students. For all measures, the questions were read to each child by a researcher in a one-on-one setting outside the classroom. For sociometric and peer-report nominations, children were instructed to list the students in their class who fit each of seven peer nominations. Children were allowed to name as many peers as they wanted to for each question including same-sex and other-sex peers, absent peers, and themselves (although they were not encouraged to self-nominate, all self-nominations were excluded in the data). Research has shown that social status and peer outcomes can be reliably measured in this age group and that peer nominations are significantly related to self- and teacher-reported measures (Ladd & Troop-Gordon, 2003; Ledingham, Younger, Schwartzman, & Bergeron, 1982; Rubin & Daniels-Beirness, 1983).

Measures

Sociometric status

Sociometric status as a measure of children's position in the peer group is derived from responses to the questions, "Who do you like the most in your class?" and "Who do you like the least in your class?" (Coie & Dodge, 1983). The numbers of liked most and liked least nominations received by each child were counted and standardized to z-scores within classrooms to control for differences in classroom size.

Social preference. A score for social preference was computed by taking the difference between the standardized liked most and liked least scores, and again standardizing the resulting difference score within classrooms.

Social impact. A score for social impact was computed by taking the sum of the standardized liked most and liked least scores, again standardizing the resulting sum score within classrooms.

Other peer nominations

Other peer nominations (also unlimited, allowing same-sex and other-sex choices) yielded scores for aggression, victimization, being chosen as best friend, and prosocial and withdrawn behavior. Nominations received for each question were again counted for each child and standardized to *z*-scores within classrooms to control for classroom size.

Aggression. Aggression scores were obtained from the question "Who are the kids in your class who start fights, hit or push, or say mean things to other kids?"

Victimization. Victimization scores were derived from the question "Who are the kids in your class who get picked on or teased by other kids?"

Being chosen as best friend. Being chosen as best friend was derived from the question "Who are your best friends in your class?"

Prosocial behavior. Prosocial behavior was measured with the question "Who shares and cooperates a lot with other kids in your class?"

Withdrawn behavior. Withdrawn behavior was measured with the question "Who stays alone and plays by themselves a lot?"

RESULTS

Descriptive Statistics

Table 4.2 shows the means and standard deviations for the unstandardized variables. Table 4.3 shows the associations of aggression and victimization in Grade 1 with the peer measures across time points. Some differences were found in the strength and direction of the correlations between aggression and victimization in Grade 1 with the

other constructs over time. First, some constructs were associated significantly with initial levels of aggression and or victimization only in Grade 1 and these associations decreased in strength over time (e.g., withdrawn behavior). Second, other constructs were not associated concurrently with aggression and victimization in Grade 1, but the associations of these constructs with aggression and victimization in Grade 1 became significant over time (e.g., prosocial behavior). Third, some constructs were associated with aggression in all three grades (e.g., social preference). Table 4.3 also shows the stability of the peer outcomes.

Being chosen as best friend, prosocial behavior, and social preference were correlated significantly across grades; withdrawn behavior and social impact were correlated significantly between Grades 2 and 3.

Missing Data

The questions of this study were addressed with a cross-lagged panel model with extended effects and a multilevel model for change. The advantage of these techniques is that children who dropped out in one of the waves can still be included in the analyses. Because of the high attrition during the study, logistic regression analyses were conducted to examine whether dropout was random or selective. These analyses did not show a significant association between peer nomination and sociometric variables in Grade 1 and whether children were present in all three waves of data collection compared to just one or two waves, $\chi^2(7) = 7.96$, n.s. In addition, the study variables in Grade 1 did not predict being present in one wave only compared to being present in at least two waves, $\chi^2(7) = 7.93$, 7.96, and 10.34, all n.s., for Waves 1 to 3, respectively. Thus, the main study variables in Grade 1 did not predict which children dropped out of the study, and there were no clear indications of selective attrition. Therefore, all children were included in the subsequent analyses.

Table 4.2 Descriptive Statistics of Unstandardized Main Study Variables across Grades

	Grade 1		Grade 2		Grade 3	
	M	*SD*	*M*	*SD*	*M*	*SD*
Aggression	2.84	1.85	2.36	3.12	2.95	4.45
Victimization	2.15	1.68	2.11	1.90	2.24	2.80
Best Friend	4.00	2.52	3.63	2.53	3.43	2.53
Prosocial Behavior	2.95	2.00	2.47	2.10	2.84	2.46
Withdrawn Behavior	1.85	1.49	1.26	1.36	1.21	2.10
Liked Most	3.76	2.51	2.59	2.04	3.23	2.46
Liked Least	2.41	1.85	1.91	1.81	2.17	2.33

Table 4.3 Correlations between Main Study Variables across Grades

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.
1. Aggression (1)																
2. Victimization (1)	.33**															
3. Best Friend (1)	-.10	.13*														
4. Best Friend (2)	-.15	-.01	.43**													
5. Best Friend (3)	-.20*	-.11	.21*	.49**												
6. Prosocial Behavior (1)	-.10	.10	.60**	.28**	.14											
7. Prosocial Behavior (2)	-.19*	.01	.36**	.62**	.28**	.29**										
8. Prosocial Behavior (3)	-.35**	-.21*	.23*	.35**	.52**	.33**	.42**									
9. Withdrawn Behavior (1)	.22**	.29**	.07	-.14	-.08	.06	-.03	-.11								
10. Withdrawn Behavior (2)	.06	-.07	-.15	-.11*	-.11	-.11	-.05	-.01	.09							
11. Withdrawn Behavior (3)	-.10	.01	.10	-.14	-.15*	.24*	-.02	.02	.02	.24**						
12. Social Preference (1)	-.32**	-.26**	.52**	.36**	.30**	.40**	.29**	.38**	-.16**	-.21**	.05					
13. Social Preference (2)	-.17*	-.08	.35**	.63**	.39**	.24**	.49**	.29**	-.15	-.11	-.19*	.36**				
14. Social Preference (3)	-.25*	-.16	.21*	.41**	.60**	.20*	.33**	.38**	-.21*	-.06	-.31**	.45**	.46**			
15. Social Impact (1)	.32**	.38**	.52**	.14	.08	.38**	.13	.01	.24**	-.05	.07	.00	.09	-.05		
16. Social Impact (2)	.18*	.12	.11	.35**	.24**	.06	.35**	.11	.13	.04	-.14	-.02	.00	.12	.14	
17. Social Impact (3)	.23*	.09	.01	.21*	.44**	-.09	.11	.16**	.06	-.08	.05	-.09	.04	.00	.18	.27**

Note. * $p < .05$., ** $p < .01$. Grade numbers are between parentheses.

Dynamic Interplay of Aggression and Victimization

To examine the stability of aggression and victimization over time, and their concurrent and longitudinal associations, a cross-lagged panel model with delayed effects was run. Figure 4.1 shows the model. Gender differences were examined with individual equality constraints of all regression paths, and the χ^2 difference test.
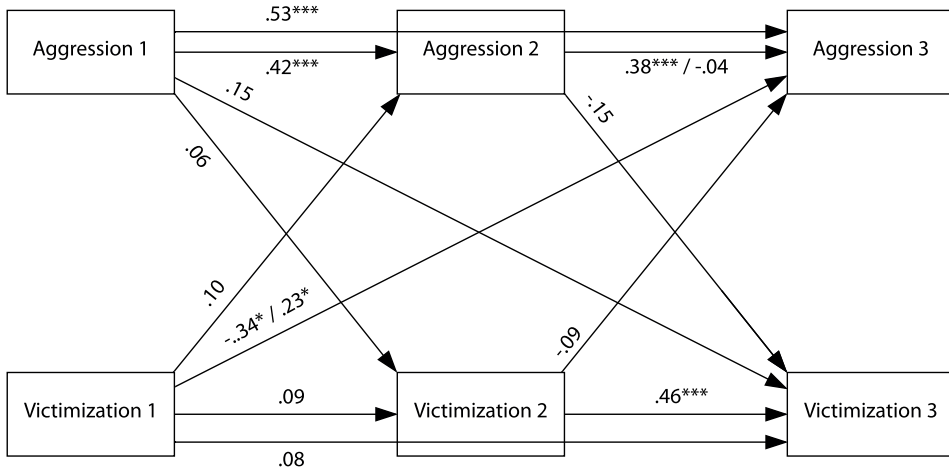
Figure 4.1. Cross-lagged panel model with extended effects.

Note. *$p < .05.$, ** $p < .01.$, ***$p < .001$. When estimates differed reliably by gender two estimates are presented on a path separated by a slash: the first is for boys, the second for girls. Correlated errors are not shown for clarity of presentation. These were: Aggression 1 – Victimization = 1 .33***; Aggression 2 – Victimization 2 = .21**; Aggression 3 – Victimization 3 = -.12.

Stability

The stability of aggression and victimization is displayed by the horizontal lines in Figure 4.1. Aggression was associated significantly over time. A significant difference between boys and girls was found for Grade 2 aggression predicting Grade 3 aggression, $\chi^2(1) = 7.33$, $p = .007$. For boys, aggression in Grade 2 predicted aggression in Grade 3, whereas no significant longitudinal association was found from Grade 2 to Grade 3 for girls.

Surprisingly, for both boys and girls, a higher correlation was found for the two-year interval than for the one-year intervals. We attribute this finding to the high instability of school attendance in the neighborhoods of these schools, and the fact that many children changed schools and/or moved to other districts, even in the early grades of elementary school. The school district of this study experienced many problems with poor and unstable school attendance in the district – even in the elementary schools.

Correlates and outcomes associated with aggression and victimization | 97
among elementary-school children in a low-income urban context

4

The study was part of a partnership between the university and the school district, aimed at understanding the reasons for poor school attendance and dropout. Children who were in the study for three years represented the more consistent part of the sample, who may have had more stable lives in general. They also had a better chance to get to know each other, which may also have lead to more stable sociometric scores. These reasons may explain why stability over the longer three-year interval was higher than over the shorter intervals in this particular sample. We examined the correlations for those children who were present at all three waves of data collection to check this result. No substantial differences were found between the one- and two-year intervals for this group, supporting our explanation.

Finally, victimization scores between Grades 1 and 2, and between Grades 1 and 3 were not significantly correlated. In contrast, a significant association between victimization in Grade 2 and victimization in Grade 3 was found.

Concurrent associations

The concurrent associations between aggression and victimization in Grades 1, 2 and 3 are displayed in the note of Figure 4.1. Aggression and victimization were associated significantly in the first two grades of primary school. No significant relationship between aggression and victimization was found in Grade 3. In addition, no interaction of any of the concurrent links with gender was found.

Longitudinal associations

The longitudinal associations between aggression and victimization are depicted by the diagonal lines in Figure 4.1. Aggression in Grades 1 and 2 did not significantly predict victimization in Grades 2 and 3. In addition, victimization preceding aggression was assessed. A significant gender difference was found, $\chi^2(1) = 6.66$, $p = .010$. For boys, victimization in Grade 1 significantly and negatively predicted aggression in Grade 3. For girls, victimization Grade 1 significantly and positively predicted aggression in Grade 3. The other longitudinal associations between victimization in Grades 1 and 2 predicting aggression in grades 2 and 3 were not significant.

Describing and Predicting Change in Behavior and Peer Relations

To assess how aggression and victimization in Grade 1 were related concurrently to the peer variables in Grade 1, and how early aggression and victimization predicted the rate of change in the peer variables over time, the multilevel model for change was used (see Cillessen & Borch, 2006, for an application to sociometric data; Singer & Willet, 2003). The analyses were conducted using the MIXED procedure in SPSS.

The analyses began with an unconditional means model to test whether it was useful to conduct multilevel analysis. For all dependent variables, the model showed substantial within-subject variance, meaning that there was substantial variation of individual scores around their mean over time. This indicates that it is useful to add time-varying predictors to the model. The between-individual variance was also significant for all outcome variables, indicating that there was substantial variation in initial scores due to time-invariant differences between children. Therefore, it may be useful to add time-invariant predictors, such as aggression and victimization in Grade 1, into the model. The intra-class correlations (ICCs) were significant as well (ranging from .12 to .42), indicating that the variance in nominations received over time differed significantly between children. For example, an ICC of .12 indicates that 12% of the variation in the outcome variable was due to individual differences between children. Together, these results suggest that it was useful to examine the data by means of multilevel modeling. As expected, the unconditional growth model was not significant for all dependent variables, meaning that there was no mean change in the dependent variables over time. This was anticipated because the outcome variables were standardized within classrooms to control for differences in classroom size. Therefore, as a result of standardization, mean level change is obscured because the sample mean of each grade is set to 0.

Next, predictors were entered in the model to examine whether Grade 1 aggression and victimization could predict concurrently the other peer variables and their rate of change over time. The following final model was used to test the effects of aggression and victimization on the intercepts and slopes of the dependent variables being chosen as best friend, withdrawn behavior, prosocial behavior, social preference, and social impact:

Fixed effects:

$$\gamma_{ij}=\beta_{0i}+\gamma_{10}\text{Time}_{ij}+\gamma_{01}\text{Aggr}_i+\gamma_{02}\text{Vict}_i+\gamma_{03}\text{Aggr}_i*\text{Vict}_i+\gamma_{11}\text{Aggr}_i*\text{Time}_{ij}+\gamma_{12}\text{Vict}_i*\text{Time}_{ij}+\gamma_{13}\text{Aggr}_i*\text{Vict}_i*\text{Time}_{ij}+\varepsilon_{ij}$$

Random effects:

$$\beta_{0i}=\gamma_{00}+u_{0i}$$

In these models, γ_{ij} is the outcome of a child (*i*) at a certain grade (*j*). The intercept (β_{0i}) was the average estimated value of the dependent variable in Grade 1. The effects of initial levels of aggression and victimization on the intercept are indicated by the main effects of aggression in Grade 1 (γ_{01}), victimization in Grade 1 (γ_{02}), and their interaction (γ_{03}). In

addition, effects of aggression and victimization in Grade 1 on the rate of change in the outcome measures were estimated by the interactions of initial levels of aggression and victimization with time (γ_{11}, γ_{12}, γ_{13}).

We tested other models as well that showed that the models using a random slope for time, or for the interaction of initial levels of aggression or victimization with time, were not significantly better than models using a fixed slope for time. This was true for all dependent variables. Therefore, the random slopes for time were removed from the final models. This indicates that the rate of change did not vary between individuals.

Effects of Aggression and Victimization on Level and Change of Peer Variables

The results of the multilevel model of change are shown in Table 4.4. The log likelihood test showed that all final models were significantly better than the unconditional growth models. The deviance between the two nested models ranged from 915.78 to 1024.27 ($p < .001$). Because both outcome and predictor variables were standardized, the coefficients in Table 4 correspond with an intuitively appealing measure of effect size. For example, the coefficient of the main effect of aggression in Grade 1 on being chosen as best friend was -.12, indicating that 12% of the range of the outcome variable being chosen as best friend could be accounted for by the predictor. The mean plus and minus 1 standard deviation was used to create the high and low aggressive and victimization groups.

Being chosen as best friend
(a) In Grade 1, children who were highly aggressive were less often chosen as best friend than their peers; (b) aggression in Grade 1 did not predict significantly rate of change in being chosen as best friend over time.

In contrast, (c) in Grade 1, children who scored high on victimization were chosen more often as best friend than their peers; (d) over time, children who scored high on victimization in Grade 1 were nominated progressively less often as best friend ($b = -.14$), whereas children who scored low on victimization in Grade 1 were chosen relatively more often as best friend over time ($b = .08$). No significant interaction between aggression and victimization on intercept or rate of change was found.

Table 4.4 Multilevel Growth Models of Behavioral and Relational Outcomes

	Parm	Best Friend		Prosocial Behavior		Withdrawn Behavior		Social Preference		Social Impact	
		b	SE	b	SE	b	SE	b	SE	b	SE
Fixed effects											
Initial status											
Intercept	γ_{00}	.04	.05	.02	.05	.02	.05	.04	.05	.00	.05
Aggression	γ_{00}	-.12*	.06	-.15*	.06	.16**	.06	-.19**	.06	.20***	.06
Victimization	γ_{00}	.20**	.06	.15**	.06	.21***	.05	-.14*	.05	.28***	.05
Aggr.×Vict.	γ_{00}	-.09	.05	-.00	.05	-.01	.05	-.12*	.05	.01	.05
Rate of change											
Time	γ_{00}	-.03	.05	-.03	.05	-.05	.05	-.02	.05	.02	.05
× Aggression	γ_{00}	-.06	.06	-.12*	.06	-.12*	.06	-.05	.06	-.01	.06
× Victimization	γ_{00}	-.12*	.05	-.11*	.05	-.16**	.06	.06	.05	-.16**	.05
× Aggr.×Vict.	γ_{00}	.09	.05	.07	.05	.03	.05	.15**	.05	-.02	.05
Random effects											
Level 1											
Within-person	σ^2_ε	.59	.05	.60	.05	.77	.06	.56	.05	.70	.06
Level 2											
In initial status	σ^2_{u0}	.33	.06	.30	.06	.10	.05	.30	.05	.09	.04
Fit statistics											
AIC		1612.96		1606.08		1613.05		1569.51		1554.14	
BIC		1656.81		1649.93		1656.91		1612.98		1597.99	
Deviance		1592.96		1586.08		1593.05		1549.13		1534.14	

Note. * p < .05., ** p < .01., *** p < .001.

Prosocial behavior

The effects of aggression and victimization on prosocial behavior are shown in Figure 4.2. (a) In Grade 1, children who were highly aggressive were less likely to be nominated as prosocial; (b) over time, children who were highly aggressive in Grade 1 became progressively less likely to be chosen as prosocial ($b = -.15$), whereas children who were low in aggression were nominated increasingly more as prosocial ($b = .09$).

In contrast to aggression, (c) children who scored high on victimization were chosen relatively more often as prosocial than their peers in Grade 1; (d) victimization in Grade 1 predicted the rate of change in prosocial behavior over time. Children who scored high on victimization in Grade 1 became progressively less prosocial over time ($b = -.14$), whereas children who scored low on victimization in Grade 1 became increasingly more prosocial over time ($b = .08$). Interactions between aggression and victimization were not significant.

Figure 4.2. Effects of aggression and victimization on initial status and rate of change of prosocial behavior.

Note. Prototypical plots are based on scores 1 *SD* above and below the mean.

Withdrawn behavior

(a) In Grade 1, children who were highly aggressive were also more often named as withdrawn than their peers; (b) over time, children who were highly aggressive in Grade 1 became progressively less likely to be named as withdrawn ($b = -.17$), whereas children who were not aggressive in Grade 1 were increasingly more likely to be nominated as showing withdrawn behavior ($b = .08$).

(c) In Grade 1, children with high levels of victimization were also more likely to be named as withdrawn than peers; (d) over time, children who scored high on victimization in Grade 1 became progressively less likely to be named ($b = $ -.20), whereas children who scored low on victimization became relatively more likely to be named as withdrawn ($b = $ .11). The interactions of aggression and victimization were not significant.

Social preference
(a) In Grade 1, children who were (1) highly aggressive and highly victimized and (2) children who were highly aggressive and low victimized scored low on social preference. This effect was particularly strong for children who scored high on both aggression and victimization. In addition, children who were (3) low aggressive and highly victimized in Grade 1, or (4) low aggressive and low victimized in Grade 1 scored significantly higher on social preference in the same year.

(b) A significant three-way interaction between aggression, victimization, and time was found and is shown in Figure 4.3. Over time (1) children who were highly aggressive and highly victimized in grade 1 ($b = $ .12) and (2) children who were low aggressive and low victimized in Grade 1 ($b = $ .11) progressively increased in social preference over time; (3) children who were highly aggressive and low victimized ($b = $ -.27) in Grade 1 progressively showed the largest decrease in social status over time; (4) children who were low aggressive and highly victimized in Grade 1 also showed a decrease in social preference ($b = $ -.06).
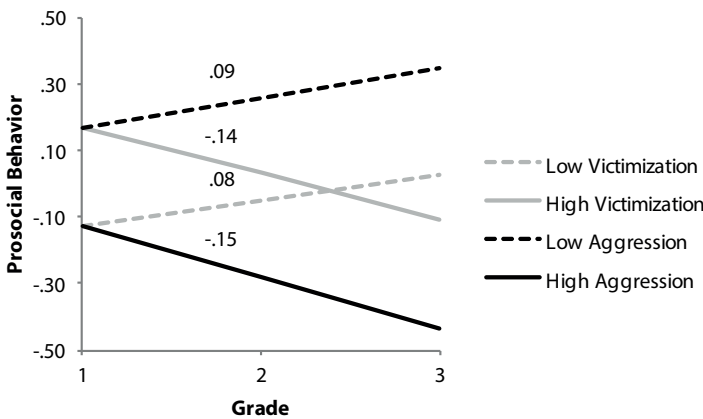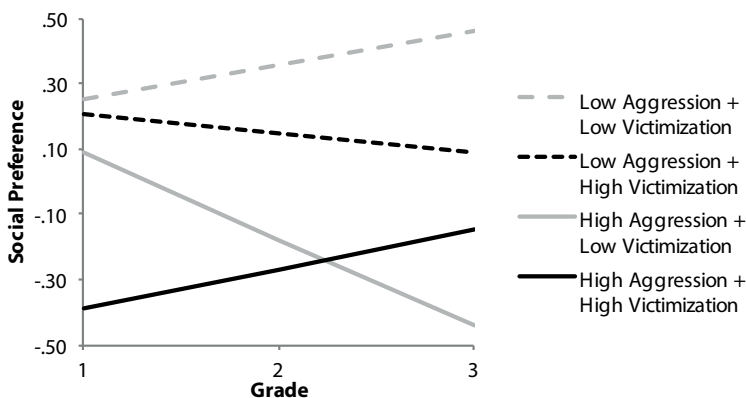

Figure 4.3. Effects of aggression and victimization on initial status and rate of change of social preference.

Note. Prototypical plots are based on scores 1 *SD* above and below the mean.

Social impact
(a) In Grade 1, children who were highly aggressive also had a higher social impact; (b) aggression did not predict the rate of change in impact over time. (c) Children who scored high on victimization also scored higher on social impact than their peers in Grade 1; (d) over time, children who scored high on victimization progressively decreased in social impact over time (b = -.14), whereas children who scored low on victimization increased in social impact over time (b = .18). No significant interactions between aggression and victimization were found.

DISCUSSION

Ample research has been done on aggression and victimization, however relatively little research has been done in low-income urban areas, where children have to cope with multiple stressors at the same time. Previous research, in line with developmental psychopathology theory (Cicchetti & Rogosch, 2002) and the life course theory (Moffitt, 1993), has shown that aggression and victimization are relatively stable across multiple school years, and that aggression and victimization in childhood predict internalizing and externalizing problems in adolescence (Coie et al., 1992; Scholte et al., 2007). Therefore, the current study examined the early precursors of later aggression and victimization among low-income urban children. Results of the current study showed that aggression was relatively stable over time; however, victimization was only stable later in the development. In the first years, aggression and victimization were associated significantly. Most longitudinal associations between aggression and victimization were not significant. In addition, early levels of aggression and victimization were related to adverse behavioral outcomes. Further, initial levels of aggression predicted relative stable or increasing levels of negative peer outcomes over time. These results underscore the importance of a developmental perspective on early childhood aggression and victimization in high-risk contexts, in order to understand their implications for adjustment in adolescence.

The first aim of the study was to examine the stability of aggression and victimization in the first three grades of primary school in a high-risk context. Aggression was correlated significantly over time for boys. For girls, aggression was stable as well with the exception of aggression between grade 2 and 3. In contrast to aggression, victimization was not stable over time. This is in line with a study among a comparable sample of lower to middle class 4-to-5-year-olds by Monks, Smith and Swettenham (2003). They did not find a significant stability of peer reported victimization over time. However, Monks et al. (2003), and Malti, Perren, and Buchman (2010) who studied victimization among

a socioeconomic diverse sample, did show that victimization already was stable at a young age by using self-report measures. Therefore, the low stability of victimization in our study may be due to the nature of victimization; it may be easier for children to detect outwardly directed behavior among peers such as aggression and their own victimization, than behaviors among peers that are inwardly directed such as victimization. Further research using self- and teacher-reported measures are needed to examine the prevalence of victimization among low-income urban youth.

The second aim of the study was to examine the dynamic interplay between aggression and victimization. In line with our hypothesis and previous research, aggression and victimization were associated concurrently in first grade (Camodeca et al., 2002; Schwartz, Dodge, et al., 1998). However, the strength of the concurrent association decreased over time, indicating that aggression and victimization become relatively independent over time. This fits with the perspective of a number of aggression researchers who distinguish among children who are bullies, victims, bully-victims, or neither, where each possible combination can occur. Our data suggest that this relative independence of bullying and victimization is established in the first few years of elementary school. This may be particularly true in a low-income urban context where aggression is more normative and where there may be fewer reasons to victimize aggressive children (Leadbeater & Hoglund, 2009). This explanation is partly in contrast to Leadbeater and Hoglund (2009) who found that aggression was more strongly related to subsequent victimization among high SES children than low SES children in first grade. However, this effect reversed over time.

In addition, longitudinal associations between aggression and victimization were assessed. Victimization in Grade 1 negatively predicted aggression in Grade 3 for boys but positively for girls. That victimization predicted decreases in aggression over time for boys was in contrast to our hypothesis. However, this was in line with results by Salmivalli and Helteenvuori (2007) who found that victimization predicted decreases in proactive aggression over time, but only for boys. Further research is needed to examine the mechanism of this effect. As expected, for girls, a positive association between victimization in Grade 1 and aggression in Grade 3 was found. However, research in a middle-class socioeconomic context did not find this effect. Girls who are victimized may learn to fight back, especially in a low-income context with high rates of aggression (Salmivalli & Helteenvuori, 2007). Other longitudinal associations were not significant, which may be explained by the fact that our study did not make a distinction between proactive and reactive aggression. Therefore, the effects of the different types of aggression may counteract each other. Whereas reactive aggression has been found to

Correlates and outcomes associated with aggression and victimization
among elementary-school children in a low-income urban context | 105

4

be related positively to victimization because it reinforces bullies, proactive aggression has been found to be related negatively to victimization because these children are feared and admired by their peers (Salmivalli & Helteenvuori, 2007).

The third aim of the study was to examine the concurrent associations of aggression and victimization in Grade 1 with peer nominations, and how aggression and victimization in Grade 1 could predict changes in slopes of these behaviors over time. Children who were initially aggressive tended to initially show more withdrawn behavior and less prosocial behavior. They also had more social impact and a lower social preference than their peers and were less often being chosen as best friends. The higher scores for withdrawn behavior may reflect the way it was measured – by asking kids who stayed by themselves. Aggressors may have been relatively isolated at this time (others did not want to be their friend), although their negative aggressive behaviors and low prosocial behavior had impact on the group and resulted in less liking by their peers.

Over time, children who were highly aggressive in Grade 1 became progressively less likely to be named as withdrawn. This may be due to the context of the study; because the high degree of aggression and violence in low-income urban contexts, children may need to cope with their distress by means that are less likely to be seen as signs of weakness. Withdrawing themselves may be seen a sign that they are emotionally weak or vulnerable, making them an ideal victim of aggression. This is in line with results by Grant et al. (2004), which showed that aggression was associated more strongly with physical complaints than internalizing problems in a high risk context. Other results showed that aggression in Grade 1 did not predict any changes in the slope of being chosen as best friend and social impact over time. In addition, children who were highly aggressive in the first grade, showed a decrease in prosocial behavior over time.

Victimization in Grade 1 was associated concurrently positively with being chosen as best friend, prosocial behavior, and withdrawn behavior, and negatively with social preference and low impact. Although victims initially have some best friends, they probably withdraw themselves to cope with their problems. At the same time, victims may have some friends who withdraw themselves or are victimized as well. This is in line with previous studies among lower to lower-middle socioeconomic samples showing that children who were initially more submissive and less assertive had a higher chance to become victimized (Arsenault, Walsh, Trzesniewski, Newcombe, & Moffitt, 2006; Schwartz, Dodge, et al., 1998). In contradiction to results of previous studies among socioeconomically representative samples, victimization was associated with high levels of prosocial behavior (Crick & Dodge, 1996). This may be due to the low-income urban context of the current study, in which children are exposed to relatively high levels of

conflict and aggression. Behaving prosocially might deviate from the norm behavior in a high risk context; children may be at a higher risk to be a victim of bullying when they show high levels of prosocial behaviors. The negative association of victimization with social preference is in line with previous research (Hanish & Guerra, 2002). Despite their low preference, their behavior may have an impact on the group.

Over time, children who were victimized in Grade 1 decreased in being chosen as best friend, prosocial behavior, withdrawn behavior, and social impact over time. These results may be explained by the low stability of victimization that was found. Children in this study probably were victimized for a relatively short time; therefore, it may be the case that victimization may only have longitudinal influence on behavior later in development when victimization has been experienced over a relatively long time. This is in line with Scholte et al. (2007) who found that the effects of victimization were worst for those children who had been victimized for a longer period of time. Therefore, these results indicate that children who are nominated by peers as victims of bullying in the first grade probably may not experience any negative effects over time. As previously mentioned, the results may be due to peers being unable to detect victimization; however, it also may be that victims have learned to cope with their problems in different ways. Victims may have learned that withdrawn behavior could maintain victimization, especially in a high risk context. By displaying less of these behaviors, children may have learned to adapt their behavior to their environment. Additional research using self- and teacher-reports is needed to examine the longitudinal associations of aggression and victimization in a low-income urban context.

Beside the aggressors and victims, some children score high on aggression and victimization at the same time. As expected, aggressive victimization had the most negative concurrent associations with the outcomes withdrawn behavior, social preference, and social impact, which is in line with Schwartz et al. (2001) and Unnever (2005). Aggressive victims do probably have some problems in social information processing and subsequently behave more reactively aggressive. Reactive aggression is related more strongly to a negative social status than proactive aggression, which may explain why the results are worse for them (Price & Dodge, 1989; Toblin, Schwartz, Hopmeyer Gorman, & Abou-ezzeddine, 2005). In contrast to the hypotheses, aggressive victims did display more prosocial behavior than their aggressive peers, and in addition, had more best friends. It may be that these children are more likely to be controversial, combining both aggressive behaviors and peer sociability skills.

Children who scored high on aggression and high on victimization had initially a lower social preference than children who scored high on aggression and low on victimization. This may be explained by the type of aggression different groups use; pure aggressors may use more proactive aggression, whereas aggressive victims may use more reactive aggression (Kempes, Matthys, Vries, & Engeland, 2005). This may explain differences in initial status because reactive aggression is related more strongly to a negative social preference than proactive aggression (Kempes et al., 2005). However, over time, initial high levels of both aggression and victimization predicted an increase in social preference, whereas initial high levels of aggression and low levels of victimization predicted a decrease in social preference over time. This is probably due to the instability of victimization.

Despite these results, this study had some limitations that should be acknowledged. First, because only peer-reported measures were used, reporter bias may have increased the strength of our results. Second, because the scores were standardized within classrooms to control for differences in classroom sizes, we were only able to predict relative growth in comparison to peers over time. We could not conclude whether there was an absolute increase in the outcomes over time. Therefore, a suggestion for future research is to use more diverse methods with multiple informants, which include unstandardized scores as well. Third, no differences between direct versus indirect aggression, and reactive versus proactive aggression were examined. Fourth, we did not assess potential gender differences in the associations between aggression and victimization in Grade 1 with the peer nominations and sociometrics due to the sample size. Because previous research showed effects of gender and types of aggression, future research is needed to examine their potential moderating effects. Fifth, this study did not examine whether the results depended on the stability of aggression and victimization. It may be the case that results are stronger for those children who were aggressive and victimized over a longer period of time. A suggestion for further research is to address the multiple and potentially complex associations between changes in aggression and victimization and changes in each of the outcome variables. Sixth, although our study highlights the negative effects of initial aggression and victimization, we are not able to conclude that the problems may be worse in the high-risk context. Therefore, future research with a control group is needed. In addition, the current study was conducted among a sample with low income, in an urban context, and among Latino and African American children. Therefore, different factors are at play and the current study could not tease these factors apart. Further sociometric research is needed to address this limitation.

4

Despite the above limitations, these results underscore implications for further research and practice. Particularly for aggression, results underscore the need for early interventions that successfully modify developmental trajectories of aggression and related problems. Theories, such as developmental psychopathology and life course theory, and research findings show that early aggression is related to aggression and victimization in adolescence (Cicchetti & Rogosch, 2002; Moffitt, 1993). These interventions may interrupt the course towards the development of serious and chronic behavioral and social problems (Tolan, Guerra, & Kendal, 1995). Future research could contribute to expanding the developmental perspective in a low-income urban area by showing how early aggression and victimization are related to aggression, victimization, and behavioral and social outcomes in adolescence. Furthermore, it may show the potential moderating effects of multiple risk factors in a low-income urban context. In addition, research needs to examine which factors could make children resilient for the negative effects in their environment.

This study showed that aggression and victimization are already present in early elementary school and are related to several initial negative behavioral and social outcomes among low-income urban children. This is especially alarming for aggressive children or aggressive victims, because aggression is already relatively stable at a young age and most negative outcomes were relatively stable or even increased over time. In addition, previous studies have shown that stability increases over time; therefore, children who are aggressive in early childhood have a higher chance to be aggressive in adolescence as well (Olweus, 1979). These results underscore the importance of a developmental perspective on aggression in early childhood within a risk context, as children who are aggressive in the first grade may develop various complex problems when they enter adolescence.

Predicting the development of peer victimization across childhood and adolescence from early childhood internalizing, externalizing, and ego-resiliency

ABSTRACT

The aim of this 8-year longitudinal study was to predict children's (n = 96) level of self-reported peer victimization at age 9 and their development of victimization from age 9 to 13 from teacher-reported internalizing and externalizing behaviors at age 5. We also examined whether ego-resiliency was a protective factor in these associations. Findings revealed that early childhood externalizing behavior was positively related to chronic experiences of peer victimization from age 9 to 13, especially among children with low levels of ego-resiliency. Moreover, for children with high levels of ego-resiliency, externalizing behavior in early childhood was associated with average levels of peer victimization at age 9 that gradually decreased over time. Internalizing behavior in early childhood was not related to peer victimization throughout middle childhood and adolescence. Suggestions for further research and practical implications for early prevention of peer victimization were discussed.

Multiple studies have shown that children are at risk of victimization when they tend to behave in internalizing or externalizing ways (for meta-analyses, see Reijntjes et al., 2011; Reijntjes et al., 2010). For example, by displaying internalizing behaviors, children give bullies the impression that they will not be able to defend themselves, making them attractive victims of bullying (Hodges et al., 1997; Sentse et al., 2017). The display of externalizing behaviors places children at risk for victimization as these behaviors may provoke aggression (Kochenderfer & Ladd, 1997; Schwartz, McFadyen–Ketchum, et al., 1998).

Most previous studies of internalizing and externalizing behaviors as predictors of victimization have examined these predictions in middle childhood and adolescence (Cillessen & Lansu, 2015; Sentse et al., 2017; Sugimura, Berry, Troop-Gordon, & Rudolph, 2017; Vaillancourt, Brittain, McDougall, & Duku, 2013). Less is known about internalizing and externalizing behaviors in early childhood as predictors of peer victimization. We cannot generalize from studies with older children to studies with younger children, because a comparison of findings at various developmental levels suggests that the predictive power of internalizing and externalizing behaviors is age dependent (Boivin et al., 2010). In addition, the relative paucity of long-term longitudinal studies that span from early childhood to adolescence makes it difficult to understand longer-term developmental patterns. Those few studies that have sampled from younger children were cross-sectional or short-term longitudinal, with internalizing and externalizing predicting victimization measured continuously or close in time (Hanish et al., 2004; van Lier & Koot, 2010). Thus, it is still unclear how early childhood internalizing and externalizing behaviors predict victimization several years later. Answering this question is important because it has been argued that prevention programs should be targeted at young children, before victimization stabilizes and detrimentally impacts long-term functioning (Hanish & Guerra, 2004; Chapter 3: Pouwels, Souren, et al., 2016). In the present study, we therefore first examined how internalizing and externalizing behaviors in early childhood (age 5) are related to children's peer victimization four years later, in middle childhood (age 9). Second, we assessed whether early childhood internalizing and externalizing behaviors are related to the rate of change in peer victimization from middle childhood to adolescence (age 9 to age 13).

A Developmental Perspective on Internalizing Behavior as a Predictor of Victimization

The symptoms-driven model states that internalizing problems may precede the development of poor peer relationships, such as peer victimization (Kochel, Ladd, & Rudolph, 2012). Internalizing behaviors reflect inwardly-facing feelings and emotions, such as socially hesitant and withdrawn behaviors, that are indicative of somatic

problems, anxiety, and depression (Achenbach, 1991). Children with high levels of internalizing behaviors tend to interact with peers in ways that may elicit bullying, such as behaving submissively, expressing fear, or withdrawing from interactions. This may give peers the impression that they are unable or unwilling to defend themselves against aggressive acts and that they would suffer from aggression, all of which can increase the likelihood of victimization concurrently and over time (Hodges & Perry, 1999; Sentse et al., 2017; Vaillancourt et al., 2013). Moreover, children with internalizing problems are sometimes disliked due to a lack of social skills (Sandstrom, Cillessen, & Eisenhower, 2003). As a result, they may not receive support from peers in the form of protection or retaliation against those who victimize them (Hodges & Perry, 1999). This puts internalizing children at risk for chronic victimization (Serdiouk, Rodkin, Madill, Logis, & Gest, 2015). Thus, there are reasons to expect a prospective association between internalizing behaviors and subsequent victimization by peers.

Although meta-analysis supports an overall effect of internalizing behavior on later peer victimization (Reijntjes et al., 2010; for more recent studies, see Sentse et al., 2017; Vaillancourt et al., 2008), there appears to be developmentally-related variation in the strength of this effect. Indeed, it has been suggested that the association of internalizing behavior with later peer victimization increases in strength and robustness from early childhood to adolescence (Boivin et al., 2010; Hanish et al., 2004; Hodges & Perry, 1999). This association may increase with age as older children may be better able to detect and react to internalizing problems than younger children, because they are more skilled at discriminating internalizing behaviors from other social behaviors (Younger, Schwartzman, & Ledingham, 1985).

Several studies have examined the short-term prospective relation between internalizing behaviors measured in early childhood and subsequent victimization in middle childhood. The findings from these studies have been mixed. Some studies found no effect of internalizing problems (i.e., anxiety and depression) measured at age 6 and 7 on peer victimization one year later (van Lier & Koot, 2010; van Lier et al., 2012). Other studies found mixed effects when examining how anxiety, sadness, and withdrawal (Leadbeater & Hoglund, 2009), depressive symptoms (Rudolph, Troop-Gordon, Hessel, & Schmidt, 2011), and loneliness (Kochenderfer-Ladd & Wardrop, 2001) were related to prospective levels of peer victimization one to three years later in samples ranging from 5 to 7 years old. Other studies found consistent evidence in favor of a prospective link between internalizing and victimization at relatively young ages. For instance, there is evidence that internalizing symptoms at age 5, such as anxious solitude and depressive symptoms, are predictive of increases in peer exclusion and victimization in early

elementary school (ages 5 to 9, Gazelle & Ladd, 2003; ages 5 to 7, Snyder et al., 2003). Taken together, the evidence for a longitudinal association between early childhood internalizing behavior and victimization in middle childhood is equivocal.

Moving beyond early and middle childhood and into (early) adolescence, there is stronger support for a prospective relation between internalizing behaviors and victimization (Hodges & Perry, 1999; Sentse et al., 2017; Vaillancourt et al., 2013). For instance, internalizing behaviors in 9 to 14 year olds predicted high levels of peer victimization and increases in peer victimization across a one-year interval (Goldbaum, Craig, Pepler, & Connolly, 2003). Sugimura et al. (2017) found that anxious solitude in Grade 2 (age 8) predicted subsequent elevated levels of peer victimization from Grade 2 to Grade 8 (age 8 to 14) among girls. However, support for this association largely comes from short-term longitudinal studies and it is unclear if early childhood levels of internalizing behaviors predict victimization in adolescence.

In other words, is the long-term risk of victimization already present for young children who exhibit internalizing behaviors? It may be that early childhood internalizing behaviors do not fully manifest in victimization until adolescence. Internalizing behaviors are relatively stable (Mesman, Bongers, & Koot, 2001; Verhulst & van der Ende, 1992); children who display internalizing behaviors in childhood tend to continue to display them in early adolescence, when their internalizing behaviors are related to subsequent levels of peer victimization. Thus, given the stability of internalizing behaviors and the increasing longitudinal association between internalizing behaviors and peer victimization with development, early childhood internalizing behaviors may predict an increase in peer victimization from middle childhood to adolescence.

A Developmental Perspective on Externalizing Behavior as a Predictor of Victimization

Besides internalizing behaviors, children's tendencies to display externalizing behaviors are also predictive of their prospective levels of peer victimization (Hanish et al., 2004; Reijntjes et al., 2011; van Lier et al., 2012). Externalizing behaviors, such as aggression and delinquency, indicate outwardly-directed emotions such as anger (Achenbach, 1991). Children who behave in externalizing ways are often disliked by their peers (van den Berg, Lansu, & Cillessen, 2015) due to their aggression, rule-breaking behavior, and lack of social skills, which, in turn, increases their risk of victimization (Sandstrom et al., 2003; Serdiouk et al., 2015). Moreover, children with high levels of externalizing behaviors may become embroiled in a cycle in which they respond to peer provocation by retaliation (Perren & Alsaker, 2006; Schwartz, McFadyen–Ketchum, et al., 1998; Unnever, 2005), which may provoke further aggression and lead to escalating hostile interactions

(Kochenderfer & Ladd, 1997). Thus, although children who behave in externalizing ways interact very differently with peers than children who behave in internalizing ways, the behaviors of both groups increase their likelihood of being chronically victimized.

Just as studies on the relation between internalizing behavior and victimization suggest that a developmental model might be useful for understanding it, a developmental model is also needed to explain the link between externalizing behavior and victimization. Findings for internalizing behavior suggest an increasing longitudinal association between internalizing behavior and victimization across the early childhood, middle childhood, and adolescent periods. In contrast, the strength of the prospective relation between externalizing behavior and victimization is generally stronger in early and middle childhood than in adolescence (Boivin et al., 2010; Hanish et al., 2004; Hodges & Perry, 1999).

Various studies have shown a link between externalizing behavior and prospective levels of peer victimization in early and middle childhood. For instance, children with high levels of anger in the fall of Kindergarten (3 to 5 year olds) were likely to be victimized in the spring (Hanish et al., 2004). Snyder et al. (2003) found that children's trajectories of antisocial behavior from age 5 to 7 were positively related to their trajectories of peer victimization during the same time frame. In another study, early externalizing behavior at ages 6 and 7 was associated with increases in victimization in the next year (van Lier & Koot, 2010). Together, these studies suggest that children who behave in externalizing ways in early to middle childhood are at risk prospectively for later victimization in this developmental period. Again, due to the short-term nature of previous longitudinal studies, we do not know yet how children's externalizing behavior in early childhood is related to their peer victimization across a longer developmental time frame.

Moving from childhood and into adolescence, studies suggest that externalizing behavior in early adolescence is not related to subsequent changes in peer victimization (age 9 to 12, Boivin et al., 2010; age 10 to 14, Vaillancourt et al., 2013). The age-related decreasing strength of the association of externalizing behavior with prospective levels of peer victimization (Barker, Boivin, et al., 2008; Hodges & Perry, 1999) can be explained by the heterogeneity of students with externalizing behaviors in adolescence. According to a developmental taxonomy of antisocial behavior, there are two groups of adolescents who display externalizing behaviors: a life-course-persistent group and an adolescence-limited group (Moffitt, 1993).

Predicting the development of peer victimization across childhood and | 117
adolescence from early childhood internalizing, externalizing, and ego-resiliency

5

For the adolescence-limited group, externalizing behavior is a relatively short-term phenomenon. Youth in this group are deviant, rule-breaking, and aggressive only in adolescence. These externalizing behaviors are normative in adolescence and may even be associated with high peer status in terms of perceived popularity (Cillessen & Rose, 2005). It is, therefore, relatively unlikely that youth in the adolescence-limited group irritate their peers and provoke bullying by behaving in externalizing ways. Thus, within the adolescence-limited group, externalizing behavior may not lead to subsequent victimization in adolescence.

In contrast, the life-course-persistent group is already aggressive and hyperactive in early childhood and chronically displays externalizing problems throughout childhood and adolescence into adulthood (Moffitt, 1993). This group has a restricted behavioral repertoire (Caspi & Moffitt, 1995) and lacks opportunities to develop their social skills. This may lead to escalating interactions with peers throughout their development that further increase their risk for peer victimization during adolescence. Therefore, there may be a long-term longitudinal effect of early childhood externalizing behavior on victimization in adolescence. Children with high levels of externalizing behaviors in early childhood may be victimized in middle childhood and further increase in peer victimization when moving into adolescence.

Taken together, these ideas suggest that the short-term longitudinal effect of externalizing behaviors on peer victimization in early and middle childhood is cancelled out in adolescence when externalizing behaviors are more normative. That is, both adolescence-limited and life-course-persistent youth display externalizing behaviors in adolescence, whereas only the latter is at risk for victimization. Thus although the association of externalizing behavior with prospective levels of peer victimization may therefore decrease with age, early externalizing behavior may be related to elevated levels of peer victimization at age 9 that further increase over time.

The Moderating Role of Ego-Resiliency

There may be heterogeneity between individuals in the strength of the links of internalizing and externalizing behavior with peer victimization. Not all young children with high levels of internalizing or externalizing behaviors may be at risk for increasing levels of peer victimization from middle childhood to adolescence. Previous research has shown that there is variability in the associations of internalizing and externalizing behaviors with subsequent victimization. For example, not all 9-to-14-year olds with high levels of anxiety, withdrawn behavior, or aggression are at risk for increasing in peer victimization in the next year (Goldbaum et al., 2003). Thus, the predictive value

of internalizing and externalizing behavior for later victimization may be stronger for certain youth than others. An important question is what factors may explain this variability.

Here, we consider ego-resiliency as one such factor that might moderate the associations of early childhood internalizing and externalizing behaviors with peer victimization in middle childhood and adolescence. Ego-resiliency refers to children's ability to adjust their impulses and emotions flexibly, but persistently and resourcefully, to social situations (Block & Block, 1980). Internalizing ($r = -.42$) and externalizing behavior ($r = -.38$) are negatively related to ego-resiliency. That is, children who have difficulty adjusting their impulses and emotions to stressful situations generally display more internalizing behaviors or more externalizing behaviors (Oshri, Rogosch, Burnette, & Cicchetti, 2011). However, the moderate size of these associations indicates that some children who behave in internalizing or externalizing ways are more ego-resilient than others.

Consequently, we hypothesized that early childhood ego-resiliency may protect children who behave in internalizing or externalizing ways against peer victimization throughout middle childhood and adolescence. If children's emotional expressions and behavioral impulses are well adapted to situational demands, they have a lower risk for a range of social problems, such as low peer status and low levels of peer competence (Hofer, Eisenberg, & Reiser, 2010; van den Berg, Deutz, Smeekens, & Cillessen, 2017). On this basis, we hypothesized that children who behave in internalizing or externalizing ways but who are resilient are able to adjust their behavior to bullying situations. Hence they are less likely to be victimized than children who behave in internalizing or externalizing ways but are less resilient. Internalizing and externalizing behaviors may therefore be related to experiences of peer victimization among children who are relatively low on ego-resiliency, but not among children who are relatively high on ego-resiliency.

There is some preliminary evidence that ego-resiliency may play a buffering role in the association between internalizing behavior and children's development of peer victimization. Low self-esteem is one determinant of internalizing behavior (Bosacki, Dane, Marini, & YLC-CURA, 2007) that puts children at risk for victimization. Overbeek et al. (2010) found that highly ego-resilient adolescents with low levels of self-esteem were not at risk of victimization, whereas adolescents with low levels of ego-resiliency and self-esteem were at risk, but only if they always suppressed their impulses, regardless of the situation. This suggests that ego-resiliency may protect children with internalizing

problems against victimization. Although we do not know of similar evidence for
externalizing behavior, we also expected that ego-resiliency may protect children with
externalizing problems against victimization.

The Present Study

The current study extended the time span of previous studies by examining how
internalizing and externalizing behaviors in early childhood are related to the
development of peer victimization throughout childhood and adolescence. Providing a
developmental perspective on peer victimization is important as the predictors of peer
victimization may change with age due to developmental variation in the normativity
of externalizing and internalizing behavior. To get more insight in the early predictors of
victimization, we conducted an 8-year longitudinal study to predict children's level of
peer victimization at age 9 (intercept) and change in victimization from age 9 to age 13
(slope) from their internalizing and externalizing behaviors at age 5. We also examined
whether ego-resiliency was a protective factor in this association.

Our first goal was to predict children's later levels of victimization at age 9 and the
subsequent rate of change in victimization from early childhood levels of internalizing
behavior. Findings from previous research on the association of internalizing behavior
with prospective levels of victimization in early to middle childhood were mixed,
ranging from null effects to weak positive effects. We therefore expected a null effect or
a slight positive effect of internalizing behavior at age 5 on peer victimization at age 9
(intercept). In addition, as the association between internalizing with prospective levels
of peer victimization increases over time (Boivin et al., 2010), we expected that children's
internalizing behavior at age 5 would have a positive effect on the change (slope) of
peer victimization from ages 9 to 13. That is, that children with more early internalizing
behaviors were expected to increase more in peer victimization. We further assessed
whether the effects of early internalizing behavior on their victimization at age 9
and further change in victimization were moderated by ego-resiliency at age 5. Our
hypothesis was that more ego-resiliency would weaken the effect of internalizing on
peer victimization at age 9 and on the subsequent increase of victimization (Overbeek
et al., 2010).

Our second goal was to predict the later levels of victimization at age 9 and further
change in victimization from children's early externalizing behavior. Our hypothesis was
that more externalizing behavior at age 5 would predict more peer victimization at age
9 (intercept) and a faster increase in victimization after age 9 (slope). We also tested

5

whether these effects were moderated by ego-resiliency at age 5. Our hypothesis was that more ego-resiliency would weaken the effect of early externalizing behavior on later peer victimization at age 9 and on the subsequent increase in victimization.

METHOD

Participants

The current study was part of the ongoing Nijmegen Longitudinal Study (NLS) on infant and child social development (van Bakel & Riksen-Walraven, 2002). In 1998, we recruited families with a 15-month-old child who lived in a city in the east of The Netherlands. Local health-care centers provided contact information for a subset of 639 families, to whom we sent a letter explaining the study goals. A return card of interest was sent back by 174 families. Out of these families, we randomly selected a subsample of 129 parent-child dyads to participate in the study as we had limited time and financial resources. This resulted in a community sample of 129 children and their parents, which was representative of the Dutch population of families with young children in terms of the number of single parents (5%) and fathers as primary caregiver (2%). For more details about the community sample see van Bakel and Riksen-Walraven (2002). This community sample has been followed since the children were 15 months old. To prevent attrition, we aimed to provide them with a sense of commitment to the study by sending birthday cards to the children and newsletters about the study.

Of the original sample of 129 15-month-old children, 116 children participated at age 5, 108 at age 9, 116 at age 12, and 114 at age 13. We conducted our analyses on the subsample of participants who had complete teacher data at age 5 and who had data on self-reported victimization in at least one out of three other waves (age 9, 12, and/ or 13). Eighteen children had to be excluded due to missing data on the age 5 predictor variables and two children were excluded due to missing data on all three victimization variables. Specifically, the final sample included 96 children who were present at age 5 (49% girls, M_{age} = 5.37, SD = .08), 80 children who were present at age 9 (49% girls, M_{age} = 9.33, SD = .15), 81 who were present at age 12 (43% girls, M_{age} = 12.59, SD = .18), and 88 who were present at age 13 (50% girls, M_{age} = 13.54, SD = .25). Table 5.A1 shows the number of participants at ages 9, 12, and 13 who were included in the final sample. For a more detailed description of the participants at each age see Smeekens, Riksen-Walraven, and van Bakel (2007), Peters, Riksen-Walraven, Cillessen, and de Weerth (2011), and van den Berg, Burk, and Cillessen (2015).

Procedure

At each wave of the NLS study, the aim of the assessment was to obtain a complete overview of children's socio-emotional competence and functioning relevant to the given age and to future social and emotional development. For the current study, we used a selection of data out of a larger battery of measures collected at age 5 (Wave 3), 9 (Wave 5), 12 (Wave 6), and 13 (Wave 7), representing early childhood, middle childhood, and early adolescence. At each of these ages, we asked parents for informed active consent. Children gave verbal assent.

At age 5, the primary classroom teachers were asked to complete several questionnaires on children's behavior and a Q-sort that assessed children's ego-resiliency. Teachers returned the questionnaires by mail. In the present study, we used teacher-reported data on internalizing and externalizing behaviors and on ego-resiliency.

At ages 9, 12, and 13 children were visited at school. We obtained informed consent from teachers according to their school policies. As five teachers did not give consent, six children completed the questionnaires at home rather than school. One additional child completed the questionnaire at home because the child did not want to participate in a classroom session. Those other children completed several questionnaires on their socio-emotional functioning during a one-hour classroom session. During the classroom session, research assistants were present to monitor the data collection and to answer children's questions. Children completed the questionnaires on paper at age 9 and on mini-laptop computers at ages 12 and 13. In the present study, we assessed self-reported peer victimization at these ages.

Measures

Internalizing and externalizing behavior

Internalizing and externalizing behaviors were assessed at age 5 with the Teacher Report Form – the teacher-report version of the Child Behavior Checklist (TRF, Achenbach, 1991). Teachers rated 113 problem behavior items belonging to 9 subscales on a 3-point scale (0 = not true, 1 = somewhat or sometimes true, 2 = very true or often true). Internalizing behavior consisted of the sum of the following subscales: Anxiety/Depression (16 items), Somatic Complaints (9 items), and Withdrawal (8 items). Externalizing behavior consisted of the sum of the following subscales: Aggressive Behavior (11 items) and Delinquent Behavior (20 items). Cronbach's α was .80 for internalizing behavior and .90 for externalizing behavior.

Ego-resiliency

Children's ego-resiliency was assessed at age 5 by asking teachers to complete the Nijmegen-California Kinder Sorteertechniek (NCKS), the Dutch version of the California Child Q-set (Block & Block, 1980; van Lieshout & Haselager, 1994). The NCKS consists of 100 descriptions of behavioral, affective, and cognitive child characteristics (e.g., "is inhibited and constricted"). Teachers were asked to sort the descriptions in 9 categories based on how salient each characteristic was for the child (1 = extremely uncharacteristic, 9 = extremely characteristic). The neutral category had to contain 12 cards and all remaining categories 11 cards. Children's profiles were correlated with the Q-sort profile of a prototypically ego-resilient child that was provided by clinical experts (see Block & Block, 1980). Correlations represent the similarity between the children and the prototypical ego-resilient child (-1.00 = highly dissimilar (low ego resiliency), 1.00 = highly similar (i.e., high ego resiliency)). It has been found that the CCQ is a valid instrument to measure ego-resiliency (Block & Block, 1980) and that it is a robust indicator of children's general competence and predictive of their peer competence in later years (van Lieshout, Scholte, Van Aken, Haselager, & Riksen-Walraven, 2000). Split-half reliability in this sample was high ($r = .96$, see also van den Berg et al, 2017).

Peer victimization

Peer victimization was assessed at ages 9, 12, and 13 with the Victim Scale of the Olweus Bully/Victim Questionnaire (Solberg & Olweus, 2003). Children reported how often they were victimized in the current school year. Items reflected verbal, physical, and relational victimization (e.g., "In the current school year, how often did one of your classmates say nasty things about you at school?"). Children responded on a 5-point scale (0 = never, 1 = once in a while, 2 = one or two times a month, 3 = one or two times a week, 4 = three or more times a week) at age 9 and 12 and on a 4-point scale (0 = never, 1 = one to three times a month, 2 = one or two times a week, 3 = three or more times a week) at age 13. Cronbach's α was .81 at age 9, .89 at age 12, and .85 at age 13. For each wave, mean scores were standardized to control for differences in response categories between waves.

Attrition analyses

We conducted attrition analyses to examine whether children who were included in the final analyses differed on any of the predictor variables at age 5 from children who were not included at ages 9, 12 and 13. We conducted a separate t-test for each age. Children who were included in the analyses at age 9 scored significantly lower on externalizing behavior ($M = 5.93$, $SD = 7.17$) than children who were not included ($M = 11.58$, $SD =$

12.02), $t(38.57) = 2.46$, $p = .019$, Cohen's $d = .57$. They also scored higher on ego-resiliency ($M = .51$, $SD = .28$) than those who were not included ($M = .31$, $SD = .29$), $t(96) = -2.65$, $p = .009$, Cohen's $d = .69$. No other differences were found.

Data-analysis

For all variables, outliers were replaced by scores reflecting the outlier limits (Tabachnick & Fidell, 2007). Results of the final models, in which we set the outliers to the outer limits, did not differ from models in which outliers were not replaced. Multi-level growth curve models were run to predict the development of victimization. The growth models were estimated by using a linear mixed-effects modelling approach, using the lmer function in the lme4 package (version 1.1-12, Bates, Maechler, Bolker, & Walker, 2016) in R (version 3.1.2, R Core Team, 2016). The mixed-effects model consisted of two levels, with repeated assessments of victimization (Level 1) nested within children (Level 2). An advantage of mixed-effects models is that all 96 children who completed the victimization measure on at least one out of the three waves could be included in the analyses by using maximum likelihood estimation. Singer and Willet (2003) illustrated that the multi-level model of change is suitable to predict growth in a small sample (i.e., 82 students).

Different nested models with increasing levels of complexity were tested. We first tested preliminary models to examine the relative amount of variance in victimization within and between students (Model 1), students' unconditional growth in peer victimization (Model 2), and the variance between students in their growth in peer victimization over time (Model 3). Subsequently, we controlled for gender (Model 4). We only controlled for gender and did not test for interactions including gender due to limited power for including gender as an interaction term given the sample size. Next, we added the substantive predictors (i.e., internalizing, externalizing, ego-resiliency); these were tested in separate models for internalizing and externalizing behavior (Models 5A and 5B). Finally, the interaction between ego-resiliency with either internalizing or externalizing behavior was tested (Models 6A and 6B). Nested models were compared by the likelihood ratio test. *P*-values of the likelihood ratio tests were determined by parametric bootstrapping using the PBmodcomp function in the pbkrtest package (version 0.4-6, Halekoh & Højsgaard, 2016). Significance of the fixed effects was determined using parametric bootstrapping implemented in the bootMer function in the lme4 package, with 5000 simulations. Confidence intervals were obtained by the function boot.ci of the package boot (version 1.3-1.8, Canty & Ripley, 2016; Davison & Hinkley, 1997).

5

RESULTS

Descriptive Statistics and Correlations

Table 5.1 shows the descriptive statistics and correlations between the main study variables. Victimization was moderately to highly stable across 1 to 4 year intervals (Cohen, 1977). Higher correlations were found across smaller time intervals. Internalizing behavior at age 5 was not correlated with victimization at any age, whereas externalizing behavior at age 5 was positively correlated with victimization at all ages. Internalizing and externalizing behavior were not significantly correlated. Ego-resiliency at age 5 was negatively correlated with victimization at ages 12 and 13, but not at age 9. Ego-resiliency was also significantly negatively correlated with internalizing and externalizing behavior. Although the correlation between ego-resiliency and internalizing and externalizing behavior was negative, 38% and 42% of the children who scored above average on internalizing or externalizing behavior, respectively, also scored above average on ego-resiliency.

Table 5.1. Descriptive Statistics and Correlations Among Main Study Variables

	M	*SD*	Min	Max	1.	2.	.3	4.	5.
1. Internalizing Age 5	5.51	4.54	.00	17.00					
2. Externalizing Age 5	6.95	8.00	.00	26.00	.12				
3. Ego-Resiliency Age 5	.48	.28	-.35	.80	-.51***	-.46***			
4. Victimization Age 9	-.01	.94	-1.18	2.22	-.09	.28*	-.08		
5. Victimization Age 12	-.03	.93	-1.05	2.13	.01	.42***	-.22*	.47***	
6. Victimization Age 13	-.04	.93	-.84	2.41	.11	.49***	-.38***	.35**	.74***

Note. $^* p < .05$; $^{**} p < .01$; $^{***} p < .001$.

Preliminary Linear Growth Models

Unconditional means model (Model 1)

We started the analyses by predicting the unconditional means model (Model 1), a model with no predictors on either level, to examine the relative amounts of within-person and between-person variance in victimization, AIC = 613.93, BIC = 624.48, deviance = 607.93. The intraclass correlation was .56, indicating that 56% of the variance in victimization was due to differences between children. The other 44% of the variance was due to variation of children's individual scores around their individual mean over time. As expected, no significant intercept (γ_{00}) for victimization was found.

This was due to the sample mean at each wave being zero because children's victimization scores were standardized.

Unconditional growth models (Model 2 & 3)

Next, we predicted the unconditional growth model to examine the baseline amount of change, by adding time (γ_{10}) as a predictor to the model (Model 2), AIC = 615.20, BIC = 629.27, deviance = 607.20. We centered time at age 9, so that the intercept reflected children's victimization scores at age 9 and the effect of time represented the slope of children's victimization development from age 9 to 13. The likelihood ratio test indicated that the fit of Model 2 was not significantly better than the fit of Model 1, PBtest = .73, p = .409. This indicates that there was no significant effect of time on victimization, which was due to the standardization of victimization at each time point.

As a next step, we added a random effect of time to the model to examine whether there was significant heterogeneity in children's development of victimization (Model 3), AIC = 603.37, BIC = 624.47, deviance = 591.37. Model fit significantly improved, as indicated by the likelihood ratio test, PBtest = 15.83, $p < .001$, demonstrating that there was significant variation between children in the slope of victimization. We also found a negative correlation between the intercept and slope ($r = -.51$), indicating that children who initially scored low on victimization more strongly increased in victimization with time than children who initially scored high.

Gender

Next, we added gender (γ_{01}) as a control variable to the model (Model 4), AIC = 598.66, BIC = 623.29, deviance = 584.66. Gender was dummy coded (0 = boys, 1 = girls). The likelihood ratio test showed that, by adding gender to the model, the fit of Model 4 was significantly better than the fit of Model 3, PBtest = 6.70, $p = .013$ The fixed effect of gender revealed that boys scored significantly higher on victimization than girls (see Model 4, Table 5.2). This Model 4 was the baseline model to which the models testing the main effects of internalizing, externalizing, and resiliency were compared.

Substantive Linear Growth Models

We ran two separate models to predict levels of victimization at age 9 from internalizing (Model 5A) and externalizing (Model 5B) behavior, respectively (γ_{02}). In both models, we also added the main effect of ego-resiliency (γ_{03}). In addition to examining the effects of the predictors on levels of victimization at age 9, we were also interested in the effects

on the rate of change in victimization. These effects were estimated by including the two-way interactions of internalizing and externalizing behavior, respectively, with time (γ_{12}), and of ego-resiliency with time (γ_{13}).

Finally, we ran two separate models to predict victimization at age 9 from the two-way interaction between ego-resiliency and internalizing (Model 6A) and the two-way interaction between ego-resiliency and externalizing (Model 6B), respectively (γ_{04}). We also added the three-way interaction of internalizing or externalizing, respectively, with ego-resiliency with time (γ_{14}), to examine interaction effects on the rates of change in victimization.

Internalizing behavior model

The fit of models 5A and 6A, that included internalizing behavior and ego-resiliency, were better than the fit of Model 4, as indicated by the likelihood ratio test (see Table 5.2). However, the fixed effects showed that neither internalizing behavior nor the interaction between internalizing and ego-resiliency were related to victimization at age 9 (i.e., intercept) or the rate of change (i.e., slope) in victimization (see Table 5.2, Model 5A & 6A).

We also did not find a significant effect of ego-resiliency on victimization at age 9 and the rate of change in victimization.

Externalizing behavior model. The fit of Model 5B, in which externalizing behavior and ego-resiliency were added to Model 4, significantly improved compared to Model 4, as indicated by the likelihood ratio test (see Table 5.2). Moreover, the likelihood ratio test also showed that the fit of Model 6B, in which the interaction between externalizing behavior and ego-resiliency was added, significantly improved compared to Model 5B (see Table 5.2).

Table 5.2. Effects of Early Internalizing Behavior, Externalizing Behavior, and Ego-Resiliency on Victimization at Age 9 and Rate of Change of Victimization from Age 9 to 13

	Parm	Model 4		Model 5A Internalizing		Model 6A Internalizing		Model 5B Externalizing		Model 6B Externalizing	
		b	SE	b	SE	b	SE	b	SE	b	SE
Fixed effects											
Victimization Age 9											
Intercept	γ_{00}	.21	.13	.17	.12	.19	.14	.21	.13	.17	.12
Gender	γ_{01}	-.41**	.16	-.31*	.15	-.30	.15	-.41**	.16	-.31*	.15
Internalizing/Externalizing	γ_{02}			-.04	.03	-.03	.03	-.04	.03	-.04	.03
Ego-resiliency	γ_{03}			-.68	.44	-.72	.46			-.68	.44
Internalizing/Externalizing × Ego-Resiliency	γ_{04}					.03	.07				
Rate of change in victimization (Age 9 to 13)											
Time	γ_{10}	-.02	.03	-.02	.03	.00	.03	-.02	.03	-.02	.03
× Internalizing/Externalizing	γ_{12}			.01	.01	.01	.01	.01	.01	.01	.01
× Ego-resiliency	γ_{13}			-.10	.12	-.14	.13			-.10	.12
× Internalizing/Externalizing × Ego-Resiliency	γ_{14}					.02	.02				
Random effects											
Level 1											
Within-person	σ^2_ϵ	.22	.47	.22	.47	.22	.47	.22	.47	.22	.47
Level 2											
In victimization Age 9	$\sigma^2_{\mu0}$	.67	.82	.64	.80	.64	.80	.67	.82	.64	.80
In rate of change	$\sigma^2_{\mu1}$	.04	.29	.04	.20	.04	.19	.04	.29	.04	.20
Correlation	(μ_0,μ_1)	-.53		-.56		-.58		-.53		-.56	
Fit statistics											
AIC		598.66		595.62		596.25		583.35		577.99	
BIC		623.29		634.32		641.98		622.04		623.71	
Deviance		584.66		573.62		570.25		561.35		551.99	
Parametric Bootstrapping Likelihood Ratio Test		6.70*		11.04**		3.37		23.32**		9.36*	

Note. *p < .05, **p < .01. We ran two separate models for internalizing and externalizing behavior (Model 5A & 5A and 6B & 6B, respectively). Victimization scores were standardized at each time point, therefore we predicted relative growth in victimization in comparison to peers, rather than absolute growth. Time was centered at Age 9. Gender was dummy-coded (0 = boys, 1 = girls).

5

We first discuss the fixed effects on the intercept of victimization, which corresponds to levels of victimization at age 9. Model 5B showed a significant positive main effect of externalizing behavior at age 5 on the intercept of victimization. No main effect of ego-resiliency on victimization at age 9 was found. Model 6B showed that the effect of externalizing behavior on levels of victimization at age 9 was further qualified by a two-way interaction between externalizing behavior and ego-resiliency. We determined the significance of the effect of externalizing behavior on the intercept of victimization among low (Mean – 1 *SD*) and high values of ego-resiliency (Mean + 1 *SD*) using the web utility of Preacher et al. (2006). The interaction is plotted in Figure 5.1. Externalizing behavior was significantly positively related to levels of victimization at age 9 among children with low levels of ego-resiliency, whereas externalizing was not significantly related to victimization at age 9 among children with high levels of ego-resiliency. As values of 1 *SD* below or above the mean are relatively arbitrary, we also calculated the region of significance of the interaction (Curran, Bauer, & Willoughby, 2006). Externalizing was related to victimization for centered values of ego-resiliency lower than .35 and higher than .98. Given that the value of .98 was out of range, this indicates that the effect of externalizing behavior at age 5 on victimization at age 9 was significant only for children with relatively low levels of ego-resiliency at age 5.

In addition to the effects on victimization at age 9 (intercept), we were also interested in whether externalizing behavior and ego-resiliency at age 5 could predict the rate of change in victimization (i.e., slope) from age 9 to 13. Model 5B revealed no significant interaction of externalizing behavior or ego-resiliency, respectively, with time, indicating neither externalizing behavior nor ego-resiliency at age 5 predicted changes in children's level of victimization from age 9 to 13. In contrast, Model 6B showed a significant three-way interaction between externalizing behavior, ego-resiliency, and time. To interpret the interaction, we calculated the effect of time among low (0 for externalizing & Mean – 1 *SD* for resiliency) and high values (Mean + 1 *SD*) of externalizing behavior and ego-resiliency, using the web utility of Preacher et al. (2006). The interaction is plotted in Figure 5.2. Children with high levels of both externalizing behavior and ego-resiliency (1) and children with high levels of externalizing behavior and low levels of ego-resiliency (2) did not show significant changes in their levels of victimization across time. Among children with low levels of externalizing behavior, the effect of time on victimization depended on their level of resiliency. Children who scored low on externalizing behavior and high on ego-resiliency (3) significantly decreased in their level of victimization over time, whereas children who scored low on both externalizing behavior and resiliency (4) did not show significant changes in their level of victimization with time.

We also calculated the region of significance of the interaction using the technique described by Curran et al. (2006). For children who scored high on ego-resiliency, the slope of victimization was significant for values of externalizing behavior lower than 4.36 and higher than 32.29. Given that the value of 32.29 was out of range, this indicates that the effect of time on victimization was significant only for children with low levels of externalizing behavior and high levels of ego-resiliency at age 5.
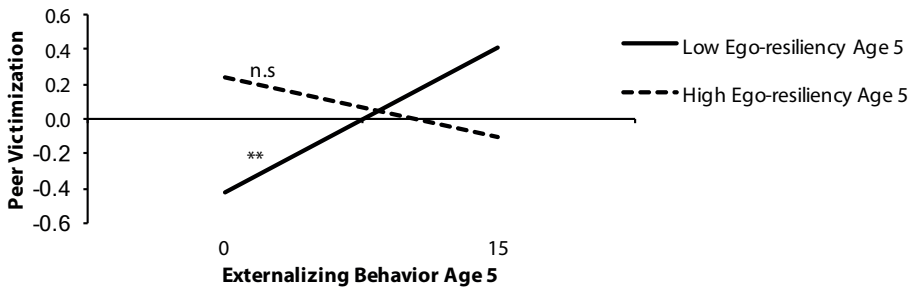
Figure 5.1. Effect of externalizing behavior and ego-resiliency on victimization Age 9 (i.e., intercept).

Note. $^{**} p < .01$. Simple slopes for ego-resiliency were calculated at values 1 *SD* below and above the mean.
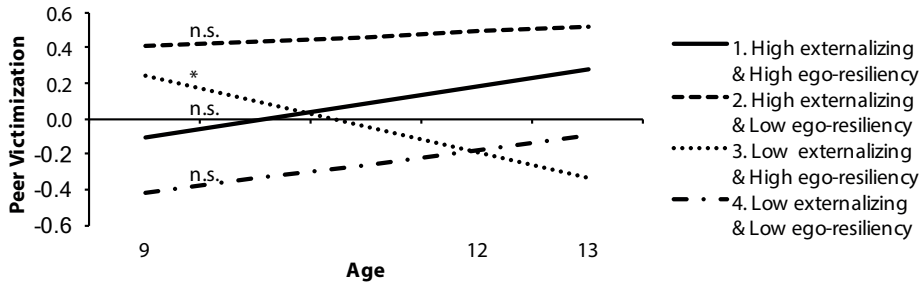

Figure 5.2. Effect of externalizing behavior and ego-resiliency on rate of change in peer victimization from age 9 to 13 (i.e., slope).

Note. $^{**} p < .01$. Simple slopes were calculated at values of 0 (low) and 1 *SD* above the mean (high) for externalizing behavior, and 1 *SD* below (low) and above (high) the mean for ego-resiliency.

DISCUSSION

In this 8-year longitudinal study, we predicted children's levels of peer victimization at age 9 and their development of victimization from age 9 to 13 from their internalizing and externalizing behaviors at age 5. An important finding of this study was that early childhood externalizing behavior was related to subsequent chronic peer victimization throughout childhood and adolescence, especially among children with relatively low levels of ego-resiliency. In contrast, no link between early internalizing behavior with later peer victimization was found.

Predicting Peer Victimization from Early Childhood Internalizing Behavior

Early childhood internalizing behaviors were not associated with later peer victimization. Specifically, teachers' perceptions of internalizing behaviors at age 5 were not related to children's prospective levels of peer victimization at 9. Previous short-term longitudinal studies have shown that the association of internalizing behavior with subsequent peer victimization increases in strength from early childhood to adolescence (Boivin et al., 2010; Hanish et al., 2004; Hodges & Perry, 1999). Internalizing problems are not consistently related to peer victimization in early childhood, as they are unlikely to be noticed by their peers due to young children's relatively limited perspective taking skills (Younger et al., 1985). Older children may be better able to detect and react to internalizing problems, as they are more skilled at discriminating them from other social behaviors. We expected, therefore, that young children who displayed internalizing behaviors in early childhood would have an increased risk of victimization in adolescence because we assumed that they would still display internalizing behaviors in adolescence. However, early childhood internalizing behaviors were not related to victimization at age 9 or to the rate of change in victimization from age 9 to 13.

One explanation for the lack of these associations may be found in our assessment of internalizing behavior. We measured internalizing using teacher-reports, assuming that, because teachers see children in the context of the peer group, teachers would be effective reporters of the ways in which internalizing symptoms are exhibited in the peer group. However, the use of this method might also have come at a cost as teacher-reports may be unstable and unrelated to peer-reports.

First, there may be a lack of stability in teacher-reported internalizing behavior (Ladd & Troop-Gordon, 2003). Teacher-reports of internalizing behaviors are less stable than other methods of measuring internalizing symptoms, such as parent-reports; perhaps this is due to the fact that children change teachers from year to year (Mesman et al., 2001). Those children who are viewed by their teachers as internalizing in early

childhood may therefore not be the same as those who are viewed by their teachers as internalizing in middle childhood and adolescence. This lack of stability might preclude a long term developmental effect of teacher-reported internalizing on victimization. Perhaps this problem would be solved by using another measure of internalizing than teacher reports. For example, children who display internalizing behaviors according to their parents in childhood, may still be perceived by their parents as internalizing in early adolescence, when their internalizing behaviors are related to subsequent levels of peer victimization.

A second limitation of teacher-reports is that they may not correspond to peer-reports of internalizing behavior in adolescence. Even if teacher-reports of internalizing behavior would have been stable from childhood to adolescence, those adolescents who are identified as internalizing according to their teachers may not be the ones whose behavior is perceived as internalizing by their peers. Previous research suggests that the correlation between peer-reported and teacher-reported internalizing behavior is moderately strong in middle childhood ($r = .24$ to $r = .37$) (Hymel, Rubin, Rowden, & LeMare, 1990). This suggests that internalizing behaviors that young children display according to their teachers are not those that are most likely to be perceived as internalizing by their peers in middle childhood and adolescence. This could also explain why teacher-reported internalizing behavior may not be related to later peer victimization. Further longitudinal research that includes multiple informants and/ or methods of measuring internalizing behavior in the peer context is needed to obtain more insight in the association between early internalizing behavior and later victimization in adolescence. For example, facial coding of affect in peer interactions (Cohn, 2010) may be a promising method to early identify children who will experience chronic internalizing problems and are at risk for later victimization as a result.

Predicting Peer Victimization from Early Childhood Externalizing Behavior

Previous short-term longitudinal studies have shown that children with high levels of externalizing behavior in early to middle childhood are at risk for peer victimization 6 to 24 months later (Hanish et al., 2004; Snyder et al., 2003; van Lier & Koot, 2010). By extending the time span of these studies, we showed that children who were rated by their teachers as highly externalizing at age 5 experienced higher levels of peer victimization than their peers at age 9. Thus, children's externalizing behaviors in early childhood predicted their peer victimization across a long developmental time frame (and longer than examined previously).

We further extended the time frame by examining whether early childhood externalizing behaviors were associated with changes in victimization throughout middle childhood and adolescence. In contrast to our expectation, victimization of children with high levels of externalizing behavior in early childhood did not further increase from ages 9 to 13, but remained chronically high from childhood into adolescence. This suggests a ceiling effect; by the time externalizing children enter middle childhood, their growth in victimization may have reached a plateau. This is in line with a recent meta-analysis showing that peer victimization is rather stable over time from early childhood on (Chapter 3: Pouwels, Souren, et al., 2016). It is also consistent with research that identified subgroups of youth based on their developmental trajectories of peer victimization (Biggs et al., 2010; Boivin et al., 2010; Goldbaum et al., 2003; Ladd, Ettekal, & Kochenderfer-Ladd, 2017). These studies consistently identified a small group of children who are chronically victimized. There are indications that this chronically victimized group displayed high levels of externalizing behaviors in middle childhood (Boivin et al., 2010; Goldbaum et al., 2003). By extending the developmental range, the present study suggests that children who display externalizing behaviors in early childhood are likely to be chronically victimized later in life.

Because we examined externalizing behaviors in early childhood, we were unable to link externalizing and victimization concurrently in adolescence. Thus, we do not know whether the relatively high rates of victimization in middle childhood and adolescence were due to the continuity of externalizing behavior over time. There are two possibilities: externalizing behaviors may decrease over time or externalizing behaviors may remain stably high.

First, we might expect that victims no longer show externalizing behaviors in adolescence, as the concurrent association between victimization and externalizing behavior in adolescence is relatively weak (Boivin et al., 2010; Cillessen & Lansu, 2015; Hanish et al., 2004). If this is true, externalizing children may reduce their externalizing behaviors in response to their peer victimization. This is consistent with Boivin et al. (2010), who found that chronic victims were more aggressive than non-victims and unstable victims in Grade 3. However, their level of aggression decreased from Grade 4 to 6 and they even became as (un)aggressive as non-victims. Cillessen and Lansu (2015) also found that victimized youth exhibited high levels of aggression in Grade 4, but decreased in aggression from Grade 4 to 12. If their externalizing behaviors decrease, the chronic high levels of victimization of youth with a history of externalizing behavior may be due to other deficits, such as in social skills (Caspi et al., 1987; Kochenderfer-Ladd & Wardrop, 2001; Scholte et al., 2007). Future research is needed to test such mediational processes.

Second, instead of decreasing in externalizing, it is possible that chronically victimized students continue to display high levels of externalizing behaviors throughout childhood and adolescence. It may seem counterintuitive to expect that victims still display high levels of externalizing problems in adolescence, given the weak concurrent association between victimization and externalizing behavior in adolescence (Boivin et al., 2010; Cillessen & Lansu, 2015; Hanish et al., 2004). However, this weak association may be caused by the fact that the group of students who are aggressive and delinquent is heterogeneous in adolescence (Moffitt, 1993). According to Moffitt, there are two subgroups of youth with externalizing behaviors in adolescence: life-course-persistent and adolescence-limited youth. Life course-persistent youth may be the chronically victimized youth whose externalizing behavior is consistently high from early childhood to adolescence. This is consistent with Goldbaum et al. (2003), who found that victims displayed the highest levels of externalizing behaviors, such as bullying, throughout middle childhood (Grade 5 to 7). This suggests that children with externalizing problems in early childhood become aggressive victims in adolescence, one of the two distinct subtypes of victims (Stassen Berger, 2007; Unnever, 2005). This implies that there may be continuity in both victimization and externalizing behavior for the life-course-persistent subgroup.

In contrast to the life-course persistent group, the adolescence-limited group exhibits low levels of externalizing behaviors earlier in life and shows a peak of aggression and delinquency in adolescence due the normative nature of externalizing behavior in this developmental phase. This group may be well-adjusted and may have a low risk of victimization in adolescence. The aggression in the adolescence-limited group may cancel out the concurrent association between externalizing behavior and peer victimization because these youth did not show externalizing behaviors in early childhood. Future research needs to follow chronically victimized youth from childhood into adolescence to further understand their long-term trajectories of aggression.

The Protective Effect of Ego-Resiliency

The association of early childhood externalizing behaviors with later peer victimization at age 9 was moderated by ego-resiliency. That is, externalizing behavior was more strongly related to later peer victimization in middle childhood when children were relatively less resilient. What may explain that externalizing behaviors are especially a risk factor for victimization for children with relatively low levels of ego-resiliency? Children with low ego-resiliency are not able to flexibly adjust their behavior and emotions to different situations (Block & Block, 1980). Thus, they may always respond in the same predictable way to peer provocation; always with aggression which is also rewarding for

the peers who provoke them. Their predictable and rewarding externalizing reactions make them attractive victims for bullies. This also implies that externalizing behavior among children with relatively low levels of ego-resiliency is reactive rather than proactive.

In contrast, externalizing children with high levels of ego-resiliency are better able to adjust their behavior, including aggression, to different social situations (Block & Block, 1980). It has been argued that ego-resilient children are skilled in reading group norms and interactions and that they can flexibly and strategically adjust their (externalizing) behavior to these norms (van den Berg et al., 2017). Therefore, their behavior may be less predictable and less rewarding for others. This is supported by research showing that popular adolescents are relatively ego-resilient (van den Berg et al., 2017) and proactively aggressive (Stoltz, Cillessen, van den Berg, & Gommans, 2016). An example of this controlled, manipulative type of aggression is that popular students strategically direct their aggression primarily to other popular peers (Closson & Hymel, 2016). This can be seen as a flexible and strategic adaptation of behavior to group norms, as adolescents who direct aggression to high status victims increase in importance and dominance in the peer group over time (Andrews, Hanish, & Santos, 2017). This suggests that the ability to adapt behavior flexibly, but persistently and resourcefully, to social situations may protect children with externalizing problems in early childhood against being victimized in middle childhood.

Ego-resiliency also moderated the effect of externalizing behavior on the rate of change in peer victimization from age 9 to 13. Children with low levels of externalizing behaviors in early childhood decreased in peer victimization from age 9 to 13 if their level of ego-resiliency was relatively high. Low externalizing ego-resilient children are the most socially competent group. They behave in a non-impulsive deliberative way, which becomes more normative as youth grow up (Côté, Tremblay, Nagin, Zoccolillo, & Vitaro, 2002). Hence, it is not surprising that they are increasingly less likely to be victimized over time.

Strengths, Considerations, & Suggestions for Further Research

The strengths of this study were that we covered a long-term longitudinal time-span of eight years, had a low attrition rate, and used a multi-informant approach. Long-term longitudinal studies enhance our understanding of the generalization of social processes across different developmental periods. Specifically, the current study revealed that the predictors of peer victimization depend on age. Unfortunately, one consequence of this long-term method is that, by the time that all data have been collected, new insights have been obtained that have been implemented in new measures of personality and

peer victimization. For instance, we did not distinguish between different types and functions of aggression. Future long-term longitudinal studies are therefore warranted that build forward on the findings of the present study and that take the state of the art measures of peer victimization, internalizing and externalizing problems, and emotion regulation into account.

Another consequence of our long-term design was that the sample size was relatively small, due to the considerable time and effort that it takes to follow children over such a long time. We therefore did not have enough power to examine gender differences in the developmental models linking internalizing and externalizing behaviors to subsequent peer victimization. Some previous short-term longitudinal studies found that the association of internalizing behaviors with prospective peer victimization is particularly strong for girls, whereas the link between externalizing behavior and later victimization is particularly strong for boys (see e.g., Hanish et al., 2004; Sentse et al., 2017; Snyder et al., 2003). Other studies have found no gender differences (see e.g., Barker, Boivin, et al., 2008; Boivin et al., 2010; van Lier & Koot, 2010). Further research should examine gender differences in the links of internalizing and externalizing behaviors with victimization in long-term studies. The relevance of gender for long-term longitudinal research was demonstrated by Sugimura et al. (2017), who found that internalizing and externalizing behaviors differentially predicted later trajectories of victimization for boys and girls. We also recommend to distinguish different types of externalizing and internalizing problems, such as anxiety and depression, for which gender differences vary (Sentse et al., 2017).

Another limitation is that we had to focus on relative growth in peer victimization over time, because the response format for victimization was not exactly identical between waves. The relative approach showed that children with relatively low levels of ego-resiliency and high levels of externalizing behaviors stably reported more peer victimization than their peers. Nonetheless, their absolute levels of peer victimization may have changed. For example, the frequency and severity of peer victimization may change over time and may vary depending on children's early childhood characteristics.

This study did not determine causal effects. We found a link between early childhood externalizing behavior and peer victimization in adolescence. We do not know whether children were victimized due to their externalizing behavior or if they were already victimized in early childhood, because we did not examine victimization in early childhood. Future long-term longitudinal studies that measure a wider array of

5

constructs at each time point are needed to further support the developmental model linking peer victimization and externalizing behaviors and to disentangle cause and effect.

A further suggestion for future research is to examine how the developmental models that link internalizing and externalizing behaviors with subsequent peer victimization are related. According to the developmental cascade model, children first display externalizing behaviors that lead to later victimization. Victimization leads to the development of internalizing problems, and these internalizing problems lead to further victimization in middle childhood and adolescence (Sentse et al., 2017; Vaillancourt et al., 2013). Consistent with this model, short-term longitudinal studies have shown links between early externalizing behaviors and later internalizing behaviors mediated by negative peer experiences such as victimization (Ladd & Troop-Gordon, 2003; van Lier et al., 2012). Future research should extend the time span of these studies to examine whether early childhood externalizing behaviors are linked to internalizing behaviors in adolescence via peer victimization in middle childhood. Such models could not be tested in this study as they require a much larger sample size.

Practical Implications

It has been argued that peer victimization prevention programs should be targeted at young children, before victimization stabilizes and detrimentally impacts long-term functioning (Hanish & Guerra, 2004; Chapter 3: Pouwels, Souren, et al., 2016). The present study enhanced our understanding of early childhood risk factors that are associated with peer victimization throughout childhood and adolescence. We demonstrated that early childhood externalizing behavior is related to peer victimization throughout middle childhood and early adolescence. Thus, we should be concerned about early externalizing children as they may not only continue to display externalizing behaviors later in life (Hay et al., 2004), but are also at risk for chronic peer victimization. They may become aggressive victims who experience the most severe psychological and emotional problems (Stassen Berger, 2007; Unnever, 2005), which highlights the importance of targeting this group.

In contrast to early externalizing behaviors, this study did not find a significant association between early internalizing behavior with subsequent peer victimization as reported by teachers. As there often are limited resources and time available, findings imply that early prevention of adolescent peer victimization may be more effective if it is focused on externalizing rather than internalizing behaviors. Future research is needed to test this claim. This implication is unique to the early childhood period, as associations of peer victimization with internalizing and externalizing behaviors depend on age.

An important factor to consider in intervention and future research is that externalizing behavior early in life may not always be a risk factor of later maladjustment and peer victimization because children may be protected by other factors, such as their ego-resiliency. Efforts to prevent peer victimization should focus specifically on externalizing children with low levels of ego-resiliency, as they were particularly at risk. Externalizing children with high levels of ego-resiliency were not at risk of negative peer experiences in terms of peer victimization. Future research should address whether the ego-resilient externalizing group is protected against other negative peer experiences. Knowing about children's ego-resiliency may help us to identify which externalizing children are at risk for future negative per experiences. Intervention programs may also try to enhance children's ego-resiliency to protect them against later (chronic) victimization and psychopathology. Before children's ego-resiliency becomes a stable trait, it may be effective to teach children to adjust their emotional and behavioral responses to different social situations. Ego-resiliency may be fostered by promoting high quality parent-child interactions (Eisenberg, Chang, Ma, & Huang, 2009; Eisenberg et al., 2005; van den Berg et al., 2017).

Conclusion

The current longitudinal study provided insight in early childhood predictors of peer victimization. Children with high levels of early childhood externalizing behavior experienced chronic victimization, whereas early internalizing children did not experience peer victimization throughout middle childhood and adolescence. Not all children with elevated levels of externalizing behaviors were at risk, as ego-resilient children were protected against chronic peer victimization. These findings imply that early prevention of adolescent peer victimization should focus especially on externalizing rather than internalizing behaviors and take children's ego-resiliency into account.

5

APPENDIX 5A

Table 5.A1. Number of Participants in Subsample Present Across the Waves of Data-Collection

	Absent Age 12			Present Age 12			Total
	Absent Age 13	**Present Age 13**	**Subtotal**	**Absent Age 13**	**Present Age 13**	**Subtotal**	
Absent Age 9	0	1	1	0	15	15	16
Present Age 9	3	11	14	5	61	66	80
Total	3	12	15	5	76	81	96

Note. All 96 participants were present at age 5.

06

Interpretations of bullying by bullies, victims, and bully-victims in interactions at different levels of abstraction

ABSTRACT

According to the Social Information Processing Model of children's adjustment, children develop general interpretation styles for future social events based on past social experiences. Previous research has shown associations between interpretations of social situations and internalizing and externalizing symptoms. This study investigated whether bullies, victims, bully-victims, and uninvolved children interpreted ambiguous human interactions differently in terms of bullying and whether these interpretations generalized to abstract non-human interactions. Participants were 390 children (49% girls, M_{age} = 10.3 years) who completed self-report measures of bullying and victimization. In addition, they indicated whether video fragments of positive, negative, or ambiguous interactions between humans, animals, and abstract figures depicted bullying situations. Bully-victims reported more bullying than victims and uninvolved children in ambiguous abstract figure, animal, and human fragments and in positive animal fragments. Children who bully did not differ from the other groups. These findings indicate that interpretations of bullying generalized from ambiguous human interactions to more abstract ambiguous animal and abstract figure interactions. Implications for further research and practice were discussed.

Bullying is a type of aggression with three main characteristics (Olweus, 1994): children who are victimized are exposed to harmful behavior that is (1) intentional and (2) displayed frequently and over time, and victims are (3) unable to defend themselves easily (Solberg & Olweus, 2003; Vaillancourt et al., 2008). In previous research different roles within bullying involvement have been distinguished (Salmivalli, Lagerspetz, et al., 1996; Schwartz et al., 2001), with the most common being bullies, victims, bully-victims, and uninvolved children (e.g., Perren, Gutzwiller-Helfenfinger, Malti, & Hymel, 2012; Schwartz et al., 2001). Bullies are those who repeatedly and intentionally attack others who have difficulty defending themselves, but are not attacked themselves. Victims are those who are repeatedly and over time attacked by bullies, and who are characterized by defenseless, submissive, and withdrawn behavior. There also is a group of children who are involved in both bullying and victimization (bully-victims). They are aggressive to peers and retaliate against children who bully, while they are simultaneously bullied themselves (Schwartz et al., 2001; Unnever, 2005). Finally, there is a group of uninvolved children who are neither involved in bullying nor in victimization.

As many as 16-30% of primary- and secondary-school children reports to be involved in bullying as bully (5-13%), victim (10-16%), or bully-victim (2-7%) (Fekkes, Pijpers, & Verloove-Vanhorick, 2005; Nansel, Craig, Overpeck, Saluja, & Ruan, 2004; Solberg, Olweus, & Endresen, 2007). Involvement in these bullying roles is quite stable over time (Burk et al., 2011; Scholte et al., 2007). The high prevalence rates and stabilities are alarming because both bullying and victimization have been associated with emotional, behavioral, and social adjustment problems both concurrently and longitudinally (e.g., Hawker & Boulton, 2000; Scholte et al., 2007). The outcomes are particularly negative for bully-victims (Schwartz et al., 2001; Unnever, 2005).

Together, the prevalence, stability, and negative outcomes of bullying and victimization emphasize the need for more research on the factors that contribute to them. One potentially important factor is the way in which children who are involved in bullying perceive and interpret ambiguous social interactions in the peer group. Therefore, the current study examined interpretations of bullying by bullies, victims, bully-victims, and uninvolved children and whether these interpretations generalize from human social interactions to more abstract non-human interactions. This knowledge would provide information on the extent to which the concept of bullying is embedded in children's schemas.

6

Social Information Processing Model of Children's Adjustment

Crick and Dodge (1994) proposed the Social Information Processing (SIP) theory to explain how children interpret ambiguous social situations and how these interpretations influence their behavior in interactions with peers (Orobio de Castro, Veerman, Koops, Bosch, & Monshouwer, 2002). According to this perspective, latent mental structures containing social knowledge (schemas) derived from past experiences are stored in children's long term memory. When encountering a social situation, first, children's schemas are used to encode and interpret social cues. Subsequently, these interpretations of ambiguous situations will influence children's goals and behavior selection. As a consequence, the resulting behavioral outcomes change children's schemas. Next, schemas are restored in their memories and will guide future social information processing. These cognitive processes are also related to children's emotional experiences. For example, children's emotions or mood may impact on their interpretation of ambiguous social cues and the responses they select (Lemerise & Arsenio, 2000). In short, children develop general interpretative styles for future social events based on past social experiences (Crick & Dodge, 1994).

Previous studies have demonstrated that interpretative styles are associated with internalizing and externalizing symptoms. For example, individuals who experience high levels of loneliness or who have a chronically unmet need to belong are particularly attentive in decoding social cues and are hypervigilant for social threat; they are more attentive to social rejection stimuli and attribute more hostility to ambiguous social exclusion situations (Qualter et al., 2013). In addition, aggression has been associated with a hostile attribution bias, a tendency to attribute hostile intent to others in ambiguous social situations (Orobio de Castro et al., 2002). In contrast to negative social information processing biases, it has been found that prosocial adolescents are more likely than their peers to attribute benign intent to provocations (Nelson & Crick, 1999). To summarize, different associations have been found between children's past social experiences and biases in the processing of social information.

Bullying Involvement and Interpretations of Bullying Behavior in Ambiguous Situations

A SIP perspective contributes to the understanding of victimization (Crick & Dodge, 1994). Based on their past victimization experiences, it is likely that children who have been victimized interpret interactions in ambiguous situations as hostile or negative. The schemas of victimized children may be shaped by their negative past experiences and guide current and future social information processing accordingly. Indeed, positive associations have been found between peer victimization and hostile attributions of

intent (Camodeca & Goossens, 2005; Hoglund & Leadbeater, 2007; Perren et al., 2013). In addition, it has been found that children who are victimized show problems in the encoding and interpretation of angry and fearful faces (Woods, Wolke, Nowicki, & Hall, 2009). Together these findings suggest that children who are victimized have impairments in their processing of ambiguous situations.

It may be especially important to know whether children's victimization experiences are associated with their perception of bullying in ambiguous interactions with peers. The negative past experiences of victimized children not only may be related to general hostile attributions of intent in ambiguous social situations, but also specifically to interpretations of bullying in those situations. Interpretations of bullying in ambiguous situations may even be worse than hostile attributions of intent. This is because children who are victimized may believe that they cannot defend themselves and that their negative experiences will be repeated.

Few studies exist on interpretations of bullying among regularly developing adolescents. There is one study among adolescents with an autism spectrum disorder (ASD): van Roekel, Scholte, and Didden (2010) examined interpretations of bullying behavior by providing adolescents with ASD a definition of bullying. Subsequently, they showed them video fragments of bullying and non-bullying situations that adolescents were asked to evaluate. The more the adolescents were bullied, the more they misinterpreted non-bullying social situations as bullying. These results suggest that children have biased schemas. However, adolescents with ASD have general deficits in social insight, such as in their theory of mind (Baron-Cohen, 2000) and understanding of peers' intentions (Frith & Hill, 2004). Perhaps victims' biased interpretations of bullying were partly due to their own social deficits (van Roekel et al., 2010). It is unknown whether victimized children in regular primary schools also have biased perceptions of bullying.

Furthermore, van Roekel et al. (2010) first provided their participants with a definition of bullying and then asked them to determine according to this definition whether they thought bullying occurred in the fragments they were shown. However, children's own definitions of bullying may differ from operationalizations of bullying in the literature (Vaillancourt et al., 2008). Providing participants with a definition may bias the validity of the results because they might have perceived the fragments differently if they had not been primed with a definition. Therefore, we examined children's perceptions of bullying without priming them with an a priori definition, because this corresponds most with how they perceive the world around them in real life.

Most studies that have examined the link between victimization and hostile attributions of intent used continuous victimization scores and did not distinguish victims from bully-victims (Camodeca & Goossens, 2005; Hoglund & Leadbeater, 2007; Perren et al., 2013). However, there is some evidence that bully-victims are particularly biased in SIP (Camodeca, Goossens, Schuengel, & Terwogt, 2003). This may be due to higher levels of reactive aggression among children who are involved in both bullying and victimization than those who are only involved in victimization. Reactive aggression is hot-tempered aggression accompanied by emotions and a reaction to the environment. This type of aggression has been strongly associated with hostile attributions of intent (Crick & Dodge, 1996). Therefore, it is possible that bully-victims are also impaired in their perceptions of bullying.

Although both groups are aggressive, bullies are probably less biased in their perceptions of bullying than bully-victims. The reason is that bullies and bully-victims differ in the type of aggression they use. In addition to reactive aggression, bullies also showed proactive aggression, a controlled and manipulative form of aggression focused on anticipated rewards (Camodeca et al., 2002; Salmivalli & Nieminen, 2002). Proactive aggression is related less strongly to hostile attributions of intent than reactive aggression (Card & Little, 2006; Sutton, Smith, & Swettenham, 1999a). Children who bully may score high on social cognitions that enable them to use aggression in a manipulative way to reach their own social goals (Sutton, Smith, & Swettenham, 1999b). Additionally, the experience of bullying is less negative for bullies than for victims, and victims' reactions are sometimes rewarding for bullies. For these reasons, bullying experiences may have less impact on the interpretation stage of social information processing of bullies than of victims and bully-victims. This is in line with previous findings by Camodeca et al. (2003) who did not find any impairment in social information processing among bullies. In contrast, the aggression of children who bully is probably explained by impairments in the later stages of the SIP model, such as response selection (Ziv, Leibovich, & Shechtman, 2013). Therefore, it is unlikely that bullies are biased in their interpretations of bullying.

It is important to examine children's interpretations of bullying behavior in ambiguous situations, because such interpretations may be related to their emotions and reactions towards potential bullies (Crick & Dodge, 1994; Lemerise & Arsenio, 2000) and may thus contribute to their bullying involvement. For example, some studies have shown that hostile attributions of intent partly mediate the association between peer victimization and aggressive behavior (Leadbeater & Hoglund, 2009; Perren et al., 2013). These results indicate that children who are victimized might be more likely than others to interpret ambiguous social behavior as hostile, which, in turn, may increase their aggressive reactions to peers. This suggests that when they interpret an ambiguous social situation

as bullying, victims may react submissively or express negative emotions, whereas bully-victims may respond with reactive aggression and retaliation. These reactions are rewarding for children who bully because they show their own strength and the weakness of the victim. As a consequence, victims and bully-victims may elicit further bullying from their peers, thereby reinforcing their initial interpretations (Hodges et al., 1999; Prinstein, Cheah, & Guyer, 2005; Unnever, 2005). This reinforcing cycle may contribute to and maintain victimization.

Generalizability of Interpretations of Bullying

Victims and bully-victims may not only differ from non-involved children in the way they interpret bullying in ambiguous social interactions with peers, but they may also have a biased interpretation of other ambiguous interactions. It may be that biased interpretations of bullying in ambiguous situations are generalized across many ambiguous situations in addition to social situations. Children's social schemas are used to encode and interpret cues in human social situations. The accessibility of a schema will be increased by the frequency of prior activation (Higgins, 1996; Kunda, 2001). Accessible schemas are more easily retrieved from memory and have a larger impact on social information processing (Kunda, 2001). Specifically, when the schema of bullying is accessible a broad range of social behavior may be interpreted as bullying. At the same time, alternative interpretations for the ambiguous behavior will be inhibited. For children who are involved in victimization, schemas of bullying may be particularly accessible. This suggests that their bullying schemas may be used to interpret any number of ambiguous situations, indicating that their biased interpretations of bullying are generalized across various levels of abstraction. Examining the generalizability of "seeing" bullying in ambiguous situations is important because it might illustrate the strength of the SIP model. A generalized bias would indicate that the concept of bullying is embedded in the child's schemas to such a degree that he or she easily perceives it everywhere in the social world.

The Present Study

The first aim of this study was to examine interpretations of bullying by bullies, victims, bully-victims, and uninvolved primary school children. Therefore, children watched positive, negative, and ambiguous video fragments. We did not expect group differences in interpretations of bullying in positive and negative social situations, because it has been shown that group differences in social information processing are stronger in ambiguous situations than in more salient positive and negative situations (Orobio de Castro et al., 2002). However, these fragments were included to provide children with a larger variety of situations as in real life.

Based on the SIP model we expected that victims and bully-victims would make more bullying interpretations in ambiguous social situations than uninvolved children. In addition, we expected children who bully to interpret as much bullying behavior in social situations as uninvolved children, because bullies have higher levels of social cognition and proactive aggression, and experience bullying situations as less negative than victims and bully-victims (Arsenio & Lemerise, 2001; Sutton et al., 1999b).

The second aim of this study was to examine whether children's interpretations of bullying in general human situations generalize to the interpretation of bullying in more abstract or non-human situations. Children's schemas may be easily accessible when they encounter many bullying situations, which might result in generalized interpretations of bullying. Therefore, we examined children's interpretations at three increasing levels of abstraction: human, animal, and abstract figure fragments. Humans frequently interpret interactions between animals as human interactions. This may be because animals, like humans, show body movements, emotional expressions, and non-verbal communication that steer human's interpretation. Therefore, it is likely that ambiguous interactions among animals are interpreted more like human interactions than simple interactions between abstract figures that are even less complex than animal interactions. However, it has been found that humans interpret abstract figures in simple interactions as being alive and even as having goals and intentions (Scholl & Tremoulet, 2000). It may therefore be that humans interpret bullying across all different levels of interaction. We expected the same associations between children's bullying involvement and interpretations of bullying in ambiguous abstract figure, animal, and human fragments. Taken together, we predicted that victims and bully-victims perceive more bullying in ambiguous abstract figure, animal, and human fragments than bullies and uninvolved children.

METHOD

Participants and Procedure

This study was conducted among early adolescents as it has been found that the effects of hostile attributions of intent are particularly large in this developmental phase (Orobio de Castro et al., 2002). Potential participants were 419 children from 17 fourth, fifth, and sixth grade classrooms of six elementary schools. At the schools' request, a passive consent procedure was used. A letter with information about the study was sent to the parents who were asked to return it if they did not wish their child to participate. Using passive consent is a common procedure in the Dutch research system. In this study, most schools already have made a general agreement with parents at the beginning

of the school year in which parents give permission for administering questionnaires among their children. School boards are critical and selective in choosing studies in which they participate and parents trust the ethical committee of the university and the school board that the selected studies are not harmful for their children. This consent procedure has been approved by the Institutional Review Board of the university. Of the 419 children in these classrooms, 11 (3%) did not have parental permission and 13 (3%) were absent due to illness or for other reasons. No children objected to participating themselves, however, due to a lack of time 5 children (1%) did not manage to complete the measures. Therefore, the final sample included 390 children (49.2% girls; 93% of the original sample; M_{age} = 10.33, *SD* = 1.01 years). The sample was 82.1% Dutch; the remaining 17.9% were ethnic minorities from Morocco (2.3%), Surinam and the Dutch Antilles (2.3%), Turkey (1.5%), or other origins (11.8%). The study was approved by the Institutional Review Board of the university.

Data were collected during 90-min computerized assessments administered by trained research assistants in the classroom. Each child in the classroom was given a mini laptop computer to complete the measures. To prevent children from seeing one another's notebook screens, tables were separated and partitioning screens were placed on each tabletop. During the session, two or three experimenters and the teacher were in the room to monitor the data collection and to answer questions.

Data collection consisted of two parts. Part 1 started with an introduction explaining the questions and movie fragments children could expect. Children were told that there were no right or wrong answers and that it was important to answer based on their first impressions. Children were assured that their responses were confidential. Next, children provided demographic information. Subsequently, interpretations of bullying were examined with short video fragments that children were asked to describe using multiple questions.

Part 2 followed immediately after Part 1 and started with a plenary introduction in which also a definition of bullying was provided (Solberg & Olweus, 2003). After the instructions, children completed self-reported questions about bullying and victimization. The definition of bullying and self-reported questions about bullying were administered after the video fragments in order to avoid influencing the interpretations of the video fragments by priming the concept of bullying.

6

Measures

Interpretations of bullying

Interpretations of bullying were measured with short video fragments shown on the laptops (M_{length} = 8.26 seconds, SD = 7.29 seconds). The level of abstraction of the fragments was manipulated in three conditions, from high to low levels of abstraction. These conditions presented (1) highly abstract interactions between abstract figures, (2) moderately abstract interactions between animals (apes), and (3) low abstract human interactions (children or adolescents). There were eight fragments per abstraction condition that differed in valence of intent and outcome: two positive, two negative, and four ambiguous, yielding a total of 24 fragments. Positive and negative fragments were included to create a range of interactions resembling real life. A within-subject design was used; all 24 video fragments were shown to each child. Children first were presented all abstract figure fragments, then all animal fragments, and then all human fragments, with fragments randomized within each abstraction condition to minimize carry-over effects.

We choose fragments that were realistic and ecologically valid to the children. Fragments were selected from a larger set. In order to make the selection, two independent raters indicated for 23 animal fragments and 30 human fragments whether they were positive, negative (bullying), or ambiguous in valence. In addition, they rated how sure they were of their choice on a 5-point scale. Criteria for selection were: (1) both raters agreed on the valence category, and (2) both rated the certainty of their choice as at least 3 on the 5-point scale. For animals, some fragments also were selected as ambiguous when one rater judged it as positive, while the other judged it as negative. Of all fragments that met the criteria, we selected fragments with different kinds of social interactions (physical and relational). As it took a lot of time and effort to develop the abstract figure fragments, the script of those fragments was discussed by the researchers beforehand. We matched fragments on ethnicity, gender, and instrumental versus relational provocations as much as possible. Only human fragments were presented with audio-tracks.

Abstract figure fragments consisted of interactions between circles. They were inspired by Heider and Simmel's (1944) moving picture film. Observers interpret the items in such films as being alive and having goals and intentions (Scholl & Tremoulet, 2000). Positive fragments were based on synchronized movements of circles. An example of a positive abstract figure fragment was a clip in which a group of circles moved around in synchrony. Negative fragments consisted of destructive patterns of movement in which one circle was obstructed in its movement by other circles. An example of a negative

abstract figure fragment was a clip in which a group of circles bumped into one circle in the middle. Ambiguous fragments consisted of unsynchronized movement of circles. An example of an ambiguous abstract figure fragment was a clip in which one circle in the middle was approached by other circles around it. Participants may interpret this in different ways as, for example, (1) the circle in the middle was threatened by the outer circles, (2) the circle in the middle was the leader and approached by the other circles, or (3) the circle in the middle was approached by the other circles because they wanted to make friends.

Animal fragments were videotaped interactions between apes made by biologists in the zoo. An example of a positive animal fragment was a clip in which a group of little apes were climbing on each other and jumped away. An example of a negative animal fragment was a clip in which an ape threw sand at other apes. An example of an ambiguous interaction fragment was a clip in which one ape was twirling another ape on its arm. Participants could interpret this clip as, for example, (1) bullying, when they thought that the other ape did not like it, or (2) play, when they thought that it was part of a game.

The fragments of humans were short fragments of interactions between children from Dutch movies for children from 2004 and 2006. In addition, some fragments were from Dutch television series and the characters that were shown in these fragments played in the series between 2007 and 2011. Thus, they had not played in the series for several years at the moment of data collection. In this way we reduced the chance that children had prior knowledge of the characters. In addition, we chose characters who had no clear prosocial or bully role in the series, so that even if children happened to know them, they will not have been able to link them to a specific bullying role. An example of a positive human fragment was a clip in which children were holding hands and smiled to each other while they were skating on an ice rink. An example of a negative human fragment was a clip in which a group of children waited for a child, pushed and kicked her on the ground, and walked away. An example of an ambiguous human interaction fragment was a clip in which children were squirting water from a bottle in a soccer locker room. The boy that was squirted on tried to steal the bottle and run away. Participants could interpret this as, for example, (1) bullying, when they thought the boy did not like it and wanted to make the other kids stop, or (2) play, when they thought the boy liked it and participated in the game.

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Behavior ratings

Children rated each video fragment on several items by marking how much they agreed with each item on a visual analogue scale ranging from completely disagree to completely agree. Each response was recorded as a number from 1-100 but the number was not shown during the rating process in order to avoid confusion. Children were instructed how to use the scale and were given some examples in order to get used to the scale. In contrast to previous studies, we did not ask children to identify themselves with the protagonists or to pretend that the events were happening to them (Lansford et al., 2006). This was because we examined whether children were biased in their perceptions, even in situations in which they were not involved themselves. The behavioral descriptions were: playing nicely ('they were playing nicely with each other'), social exclusion ('one or more figures/apes/children were neglected or excluded'), physical aggression ('there was pushing, hitting, and kicking'), threatening ('one or more figures/apes/children were threatened'), leadership ('one or more figures/apes/children were the leader of the other children'), verbal aggression ('mean things were said about one or more figures/apes/children'), withdrawn behavior ('one or more figures/apes/children withdrew from the situation or preferred to be alone'), submissive behavior ('one or more figures/apes/children did what the others were doing or said'), and bullying ('there was bullying behavior'). Given the aim of the current study, we only focused on children's perceived bullying in the fragments. Furthermore, the content of the fragments (e.g., relational or physical) differed across fragments. Therefore, the fragments were not comparable on the other behavioral descriptions. Children's bullying ratings were averaged across the items for each valence condition within each abstraction condition.

Self-reported bullying and victimization

Self-reported bullying and victimization were assessed with the bully and victim scales of the revised Olweus Bully-Victim questionnaire (Solberg & Olweus, 2003). The bully scale had six items (e.g., 'How often do you hit, kick, or threaten classmates?') rated on a 5-point scale (0 = never, 1 = sometimes, 2 = frequently, 3 = about once a week, 4 = several times a week). Cronbach's α was .79. The victimization scale also had six items (e.g., 'How often did other students bully you at school in the past couple of months?') and the same response categories. Cronbach's α was .85.

RESULTS

Classification of Bullying Involvement

Using the standard deviation approach (Solberg & Olweus, 2003) children were assigned to one of the four bullying involvement groups based on their scores on the Olweus Bully-Victim scales. Children who scored at least 1 *SD* above the sample mean on the bully scale but not the victim scale were classified as bullies (5%, *n* = 21, 28.6% girls). Children who scored at least 1 *SD* above the sample mean on the victim scale but not the bully scale were classified as victims (9%, *n* = 36, 58.3% girls). Children who scored at least 1 *SD* above the sample mean on both the bully and victim scales were classified as bully-victims (6%, *n* = 22, 36.4% girls). Children who scored less than 1 *SD* above the sample mean on both the bully and victim scales were classified as uninvolved (80%, *n* = 311, 50.5% girls). The distribution of the four groups was in line with other studies in The Netherlands (e.g., Fekkes et al., 2005). Bullying role was not significantly associated with sex, $\chi^2(3) = 6.43$, *p* = .092, or grade, $\chi^2(3) = 3.85$, *p* = .698.

Bullying Involvement and Interpretations of Bullying in Video Fragments

To examine whether the four bullying involvement groups differed in interpretations of bullying and whether this effect generalized across levels of abstraction, a 4 (Bullying Involvement: Bullies, Victims, Bully-Victims, Uninvolved) by 3 (Valence: Positive, Negative, Ambiguous) by 3 (Abstraction: Abstract Figures, Animals, Humans) ANOVA was conducted on the bullying ratings with abstraction and valence as repeated measures factors.[3] We controlled for grade and sex in all analyses, but no significant effects of age and sex were found. Mauchley's test indicated that the assumptions of sphericity were violated for valence, $\chi^2(2) = 43.08$, *p* < .001, abstraction, $\chi^2(2) = 14.56$, *p* = .001, and valence by abstraction, $\chi^2(9) = 92.65$, *p* < .001. Therefore, Greenhouse-Geisser corrections for degrees of freedom were applied (ε .877 - .964). In addition, Bonferroni post-hoc comparison tests were used.

Table 6.1 shows the average interpretations of bullying by valence, abstraction, and bullying involvement. A main effect for valence was found, $F(1.81, 415.38) = 21.70$, *p* < .001, $\eta_p^2 = .05$. Post-hoc comparisons showed that children (irrespective of bullying

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3. Some dependent variables were not normally distributed. Although repeated measures ANOVA is robust for skewness, we replicated the analyses by using non-parametric tests and the same pattern of results was found. In addition, the assumption of homogeneity of variance was violated for one of the scales. Therefore, we run the analyses once with all cases included and once with outliers removed. Both ways did reveal the same pattern of results, therefore all cases were included in the final analyses.

involvement) rated negative fragments higher on bullying than ambiguous or positive fragments, and ambiguous fragments higher than positive fragments, indicating that the valence manipulation was successful.

Table 6.1. Means (SD) of Interpretations of Bullying by Valence by Abstraction by Bullying Involvement

	Bullies (n = 21)		Victims (n = 36)		Bully-Victims (n = 22)		Uninvolved (n = 311)	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Positive								
Abstract Figures	11.79	21.75	15.76	20.65	14.23	17.61	16.32	19.13
Animals	$45.98_{a,b}$	29.66	38.93_b	26.91	61.16_a	34.19	43.96_b	27.94
Humans	7.88	8.02	7.78	11.67	9.27	12.16	8.36	11.03
Mean	21.88	14.72	20.82	14.76	28.22	16.12	22.88	12.96
Negative								
Abstract Figures	85.95	16.93	74.78	29.22	91.34	10.60	81.09	23.65
Animals	76.64	20.54	73.81	17.79	83.11	18.76	78.29	20.40
Humans	91.00	18.16	89.69	13.56	91.48	15.63	91.29	12.90
Mean	84.53	13.78	79.42	14.52	88.64	8.98	83.56	14.53
Ambiguous								
Abstract Figures	71.27	20.66	57.40	24.29	78.58	20.13	64.89	23.58
Animals	69.24	21.09	59.02	22.77	69.07	23.47	61.82	23.23
Humans	36.98	19.46	41.92	20.51	55.89	19.61	41.99	18.52
Mean	$59.16_{a,b}$	15.72	52.78_b	15.70	67.84_a	14.70	56.23_b	15.62

Note. Means within rows that do not share a subscript were significantly different between roles in a Bonferroni post-hoc comparison test.

This main effect was qualified by a two-way interaction of valence and abstraction, $F(3.51, 305.42) = 3.74$, $p = .007$, $\eta_p^2 = .01$, further qualified by a three-way valence by abstraction by bullying involvement interaction, $F(10.53, 305.42) = 2.76$, $p = .002$, $\eta_p^2 = .02$. To examine this interaction, we tested whether the interaction between bullying involvement and abstraction (i.e., the effect of bullying involvement across levels of abstraction) differed between positive, negative, and ambiguous fragments. Therefore, the two-way interaction of bullying role by abstraction was tested separately for each

level of valence of the fragments (positive, negative, and ambiguous fragments). The interaction of abstraction by bullying involvement was significant for positive fragments, $F(4.80, 614.87) = 2.58$, $p = .027$, $\eta_p^2 = .02$, but not for negative or ambiguous fragments.

Further post-hoc testing of the significant interaction for positive fragments revealed an effect of bullying involvement for positive animal fragments, $F(3, 384) = 3.24$, $p = .022$, $\eta_p^2 = .03$, but not for positive abstract figures or positive human fragments. Bully-victims gave higher bullying ratings to positive animal fragments than victims and uninvolved children did, whereas bullies did not differ significantly from any of the other three groups.

Next, the main effect of bullying involvement was examined for negative and ambiguous fragments for which the bullying involvement by abstraction interaction was not significant. For negative fragments the main effect of bullying involvement on interpretations of bullying was not significant. In contrast, there was a main effect of bullying involvement for ambiguous fragments, $F(3, 384) = 4.41$, $p = .005$, $\eta_p^2 = .03$. Post-hoc analyses showed that bully-victims rated ambiguous fragments higher on bullying than victims and uninvolved children, whereas bullies did not differ significantly from any of the other three groups. Thus, the effect of bullying involvement on interpretations of bullying in ambiguous fragments generalized across the three levels of abstraction.

In summary, a three-way bullying involvement by abstraction by valence interaction indicated that bully-victims interpreted more bullying in ambiguous abstract figure, animal, and human fragments, and in positive animal fragments than victims and uninvolved children. Bullies did not differ significantly from any of the other three groups. No group differences were found in interpretations of negative fragments. Group differences in interpretations of bullying in ambiguous fragments generalized across the three levels of abstraction.

DISCUSSION

Based on the assumptions of Social Information Processing (SIP) theory, the first aim of this study was to examine interpretations of bullying by bullies, victims, bully-victims, and uninvolved children (Crick & Dodge, 1994). The second aim was to examine whether children's interpretations of bullying in ambiguous human interactions generalized to their interpretations of more abstract interactions of animals and abstract figures.

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Bully-victims perceived more bullying in ambiguous human social fragments than victims and uninvolved children did. Bullies did not differ significantly from any of the other three groups. The higher interpretations of bullying by bully-victims (compared to victims and uninvolved children) generalized from human interactions to non-human interactions. Bully-victims attributed more bullying to ambiguous human, animal, and abstract figures interactions than victims and uninvolved children did. Bullies did not differ from any of the other three groups at any level of abstraction.

Interpretations of Bullying in Ambiguous Interactions

This study showed that children who are involved in both bullying and victimization interpreted more bullying in ambiguous human interactions than victims and uninvolved children. These findings nuanced the results of van van Roekel et al. (2010) who found that victims in general perceive more bullying in human interactions. However, they did not distinguish victims from bully-victims and the current findings underline the importance of this distinction. The current study suggests that victims and bully-victims differ in their processing of ambiguous social information.

It may be that bully-victims actually have more negative peer experiences than victims. Bully-victims do not differ from children who are involved in victimization in the number of times they are involved as victim of bullying during one month. However, they are significantly more often involved in bullying situations as bully than victims (Holt & Espelage, 2007). Therefore, they encounter the most bullying situations overall as they are sometimes involved as victims, and in addition, sometimes involved as bullies. Mahady Wilton, Craig, and Pepler (2000) showed that bully-victims tend to express emotions of anger, sadness and contempt in bullying interactions, indicating that they experience those interactions negatively. Previous research suggests that attribution biases are related to the number of negative experiences children have (Dodge, 2006). Therefore, children who are involved in both bullying and victimization should have larger biases than children who are involved in victimization only.

It is also possible that other cognitive differences between victims and bully-victims explain their differences in bullying interpretations. Previous studies suggest that bully-victims tend to interpret others' behavior as more hostile than other children do (Georgiou & Stavrinides, 2008). Bully-victims may be mainly focused on the behavior of the peer, rather than their own behavior, when they interpret a situation as bullying. As a result, bully-victims may see more bullying in social interactions regardless of their own involvement in the situation. In contrast, victims are more likely to believe that they themselves elicited the bullying behavior (Graham & Juvonen, 1998). P. J. Rosen et al. (2007) showed that frequently victimized children were more likely to have

implicit associations of themselves as victims, which probably guide their information processing. These findings suggest that victims, who are more focused on their own experiences, may have distorted cognitions of themselves as victim. This implies that children who are victimized may only over-interpret bullying in situations in which they themselves are involved because their social information processing only reflects their own experiences. We used video fragments in which the participants themselves were not involved. This may explain the differences in interpretations of bullying between victims and bully-victims. Bully-victims may interpret more bullying in ambiguous situations than victims, regardless of their involvement, due to their focus on peers' aggression. In contrast, victims may only have biased interpretations for ambiguous situations in which they are involved themselves, due to their focus on their own vulnerability.

Bully-victims did not differ from bullies in their interpretations of bullying behavior. Further, in contrast to bully-victims, bullies did not differ from victims and uninvolved children in their interpretations of bullying in ambiguous situations. These findings are in line with those of Camodeca et al. (2003) who also found social information processing impairments in bully-victims, but not in bullies. This may be explained by different types of aggression displayed by bully-victims and bullies. Bully-victims are reactively aggressive, show signs of emotion dysregulation, and are likely to perceive bullying in ambiguous situations (Toblin et al., 2005). They see more bullying in ambiguous social interactions than other children do which, in turn, might lead to reactive aggressive responses. In contrast, bullies are more proactively aggressive, which is associated less strongly with hostile attributions of intent (Card & Little, 2006; Sutton et al., 1999a). Like uninvolved children, children who bully may score high on social-cognitive skills (Sutton et al., 1999a) that make them able to use aggression in a controlled, manipulative way to reach their goals (Sutton et al., 1999b; Toblin et al., 2005). It has been found that children who bully have higher efficacy beliefs of aggression than bully-victims and uninvolved children (Arsenio & Lemerise, 2001; Toblin et al., 2005). In addition, unlike uninvolved children, children who bully may be less guided by moral values in their behavior selection (Sutton et al., 1999b). Together, this may result in proactive aggressive behavior by bullies, which has been associated less strongly with biases in social information processing than reactive aggression.

Finally, the experience of bullying situations may be less severe for children who are only involved in bullying than for children who are involved in both bullying and victimization because it may be rewarding for bullies to see that their bullying behavior

was successful. Together, this suggests that children who bully without becoming victimized themselves may not be impaired in their perceptions of bullying in ambiguous social situations.

Generalization of Interpretations of Bullying

The common findings for the ambiguous human, animal, and abstract figure fragments suggest that the same social schemas may be related to the interpretation of human fragments as to the interpretation of animal and abstract figures fragments (Higgins, 1996; Kunda, 2001). Children's social experiences are associated with these interpretations. Their schemas are so easily accessible that they not only impact their interpretations of human interactions, but also of ambiguous animal and abstract figure interactions. So the concept of bullying can be embedded in children's schemas at a higher level. This highlights the strength of children's social information processing. More research is needed to replicate these findings and to test the generalizability of other social information processing biases, such as hostile attributions of intent or hypervigilance to social threat.

In the current study, we did not examine children's emotional reactions to interpretations of abstract figure and animal interactions. Therefore, we do not know whether a generalized interpretation bias of bullying by bully-victims might have more negative consequences than an interpretation bias to ambiguous human situations alone. As children's interpretations are highly related to their mood and emotions (Lemerise & Arsenio, 2000), further research could examine children's emotional responses to perceiving bullying in non-human interactions.

Surprisingly, in addition to attributing more bullying to ambiguous fragments, bully-victims also attributed more bullying to positive animal fragments than victims and uninvolved children did. This may be due to the relatively wild or aggressive nature of play among apes as compared to humans, because apes are less socialized in their play than humans (Guldberg, 2009). This aggressive play might make positive animal fragments more ambiguous. This is probably also reflected in the relatively higher bullying ratings of positive animal fragments than positive human and abstract figure fragments. Therefore, the positive animal fragments may have functioned more like the ambiguous human fragments did.

Strengths and Limitations

Strengths of this study were the inclusion of different bullying involvement groups, distinguishing bully-victims from victims and bullies, and examining the generalization of bullying interpretations across levels of abstraction. However, this study also had some limitations. First, bullying interpretations were assessed with rating scales which reduced ecological validity because children were primed with the behavior descriptions of the scales. We aimed to limit the priming effect by letting children rate the video fragments for various behavior. However, the question remains whether the same bullying schema will also be activated in real life interactions.

Second, effect sizes of this study were low. Results therefore need to be interpreted with caution. One reason for the low effect sizes may be that we did not distinguish direct from indirect victimization. Research on aggression has shown that physically aggressive children showed hostile attribution biases for instrumental provocations, whereas relationally aggressive children showed hostile attribution biases for relational provocations (Crick, Grotpeter, & Bigbee, 2002). Therefore, further research should test the convergence between children's own type of bullying and the interpretations of different types of bullying in video fragments.

Third, both children's own involvement in bullying and their interpretations of bullying behavior were based on self-reports. Self-reports are the most common method for measuring victimization (Stassen Berger, 2007). However, such reports may be biased, because when bully-victims interpret more bullying in ambiguous video fragments, they may also be biased in the interpretation of their own bullying involvement. A solution would be to use peer nominations for bullying. However, from a theoretical perspective, we predicted that only self-reported involvement in bully-victim behavior would be associated with ambiguous interpretations of bullying. We propose that children's interpretation of social situations is not guided by actual bully-victim behavior or a general interpretation bias, but by the fact that they perceive themselves as bully-victims. So children's self-identification as victims may be the underlying cause of their biased interpretations of bullying. More research is needed to examine the temporal associations of self- and peer-reported bullying groups with interpretations of bullying.

Fourth, according to our definition of bullying, it was impossible to objectively determine whether there was bullying behavior in the fragments or not. A core element of our definition is that bullying has to occur repeatedly and over time (Solberg & Olweus, 2003). However, children were unable to determine the repetitive nature of bullying in the fragments, because the characters in the fragments were not related to each other, and each fragment consisted of only one situation. It was not our goal

to examine whether children were able to objectively distinguish bullying situations from non-bullying situations according to a definition. We were interested in children's subjective experiences of bullying in the fragments, as this corresponds most with how they perceive the world around them in real life. This is also the reason why we used video fragments that were as realistic as possible.

Implications for Further Research and Practice

Suggestions for future research can be made. The findings of this study were in line with other studies of social information processing among children involved in bullying (Camodeca et al., 2003). The bullying groups differed in social information processing, therefore, a recommendation for further research on processing of social information is to distinguish between bullies, victims, and bully-victims.

By examining the generalization of children's perceptions of bullying, this study provided evidence for the strength of social information processing theory. Findings show that bullying experiences may have a large impact on children because the concept of bullying appears to be embedded in their schemas at a higher order level. The next step will be to examine how biased interpretations of bullying in ambiguous situations are related to children's emotional and behavioral responses. Moreover, more research is needed on the temporal associations between biased interpretations of bullying and bully-victim behavior. It is unknown whether distorted interpretations of bullying precede the development of bully-victim behavior, or whether bully-victim behavior precedes the development of distorted perceptions of bullying. It has been speculated that children's social information processing may stabilize their bully-victim behavior, like a transcyclic process (Camodeca et al., 2003; Perren et al., 2013). For some children, being victimized increases the likelihood of participation in bullying behavior (Barker, Arseneault, Brendgen, Fontaine, & Maughan, 2008; Haltigan & Vaillancourt, 2014). Victimized children especially may interpret behavior as bullying, leading to reactive aggression and retaliation to the perpetrator (Unnever, 2005). This is in line with the study of Perren et al. (2013) who found that hostile attributions of intent mediated the association between victimization experiences and externalizing behavior. Reactive behavior of the victim is rewarding for the bully and may elicit further victimization, which reinforces the bully-victim's initial interpretation. This will, in turn, strengthen their biased perceptions (Kochenderfer & Ladd, 1997; Schwartz, Dodge, et al., 1998).

If future studies confirm the hypothesis that negative interpretations of bullying lead to the expression of negative emotions and behavior, an assessment procedure may be developed to identify children who over-interpret bullying in ambiguous situations. Next, the perceptions of those children may be targeted in interventions so

that they learn not to misattribute bullying to ambiguous social scenes. Thus, it may be important to teach children to differentiate bullying and non-bullying situations. However, first more information on the effects of interpretation biases is needed in order to formulate hypotheses on the effect of such training on children's emotions and behavior. Vaillancourt et al. (2008) found that only a small group of children included the elements of intent, repetition, and power imbalance in their own definition of bullying. Furthermore, students reported lower levels of victimization when they were provided with a definition of bullying than when they were not.

It is important to note that perceptions of bullying are not always inaccurate or negative. In real life, victims do encounter unambiguous situations in which they are actually bullied. In our data, both victims and bully-victims did not differ from any other group in their perceptions of those negative or bullying interactions. However, although victims' perceptions of those situations may be accurate, they may not be able to respond effectively when they are bullied.

Previous studies have shown the importance of peers in the bullying process (Salmivalli, Lagerspetz, et al., 1996). For example, children who are not involved as a bully or a victim might intervene in the bullying process by defending children who are victimized. However, children have to be aware of bullying among peers in order to know who to defend and when. It is therefore important that they are able to recognize which classmates are bullied. The finding that, in general, uninvolved children perceive equal amounts of bullying as victims do might support that the view that uninvolved children can distinguish bullying and non-bullying situations. Further research is needed to examine whether uninvolved children also recognize bullying in real life interactions with peers.

Conclusion

This study showed that bully-victims interpreted more bullying in ambiguous interactions than victims and uninvolved children, while bullies did not differ from the other groups. This pattern of interpretation of bullying generalized across levels of abstraction. Findings highlight the importance of distinguishing between bullies, victims, and bully-victims when studying social information processing. In addition, this underscored the need to teach children to accurately perceive bullying. Finally, further research should address whether other social attribution biases also generalize across levels of abstraction and examine the impact of generalized negative perceptions on children's long-term well-being and health.
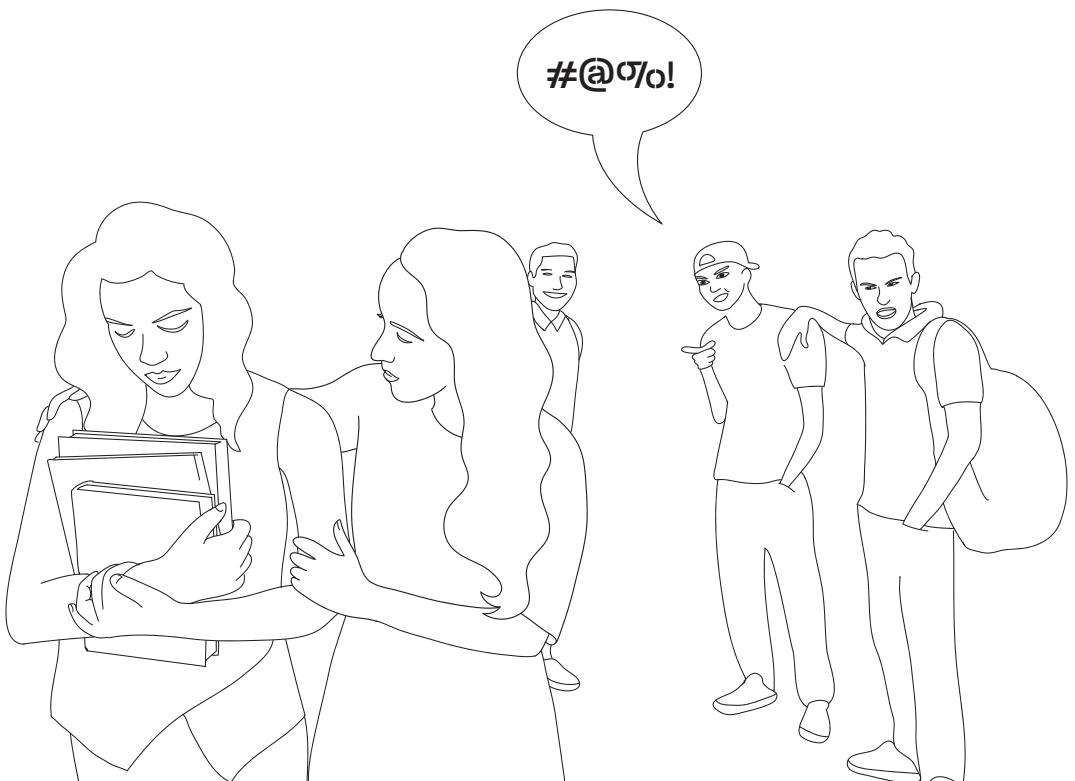
02

THE GROUP PROCESS OF BULLYING

07

Participant roles of bullying in adolescence: Status characteristics, socialbehavior, and assignment criteria

ABSTRACT

This study had three goals. First, we examined the prevalence of the participant roles of bullying in middle adolescence and possible gender differences therein. Second, we examined the behavioral and status characteristics associated with the participant roles in middle adolescence. Third, we compared two sets of criteria for assigning students to the participant roles of bullying. Participants were 1638 adolescents (50.9% boys, M_{age} = 16.38 years, SD = .80) who completed the shortened participant role questionnaire and peer nominations for peer status and behavioral characteristics. Adolescents were assigned to the participant roles according to the relative criteria of Salmivalli et al. (1996). Next, the students in each role were divided in two subgroups based on an additional absolute criterion: the *Relative Only Criterion* subgroup (nominated by less than 10% of their classmates) and the *Absolute & Relative Criterion* subgroup (nominated by at least 10% of their classmates). Adolescents who bullied or reinforced or assisted bullies were highly popular and disliked and scored high on peer-valued characteristics. Adolescents who were victimized held the weakest social position in the peer group. Adolescents who defended victims were liked and prosocial, but average in popularity and peer-valued characteristics. Outsiders held a socially weak position in the peer group, but were less disliked, less aggressive, and more prosocial than victims. The behavior and status profiles of adolescents in the participant roles were more extreme for the *Absolute & Relative Criterion* subgroup than for the *Relative Only Criterion* subgroup.

Bullying is a widespread problem in schools and associated with negative outcomes for both bullies and victims (Salmivalli, 2010). Bullying is a subtype of aggressive behavior in which bullies intentionally and repeatedly attack relatively powerless victims over a longer period of time (Salmivalli, 2010; Solberg & Olweus, 2003). Bullying situations not only involve bullies and victims; most other classmates also play a role in the bullying process. Classmates who regularly witness bullying situations are aware of the bullying that takes place among their peers (Hawkins, Pepler, & Craig, 2001). Salmivalli, Lagerspetz, et al. (1996) proposed that in bullying situations, besides being a *bully* or a *victim*, students can have the following roles: *assistants* who join the bullies and help them to attack the victims, *reinforcers* who encourage bullying by providing an audience and laughing, *defenders* who try to intervene and comfort the victim, and *outsiders* who are not present in or stay away from the bullying situation. A number of studies in different countries have examined the characteristics associated with the participant roles of bullying in childhood and early adolescence (Goossens et al., 2006; Salmivalli, Lagerspetz, et al., 1996; Sutton & Smith, 1999). However, less is known about the participant roles in middle adolescence. Therefore, this study examined the prevalence of the participant roles and their associated behavioral and status characteristics in this age group. We also compared different criteria for assigning students to the participant roles of bullying.

Prevalence of Participant Roles of Bullying in Adolescence

Several studies have examined the prevalence of the participant roles in childhood and early adolescent samples (from 7 to 14 years old). These studies found that 8 to 14% of the participants were bullies, 13 to 28% were reinforcers or assistants, 12 to 18% were victims, 17 to 28% were defenders, and 12 to 29% were outsiders (Goossens et al., 2006; Salmivalli, Lagerspetz, et al., 1996; Sutton & Smith, 1999).

The first goal of this study was to investigate the prevalence of the participant roles in middle adolescence and possible gender differences therein. We expected the prevalence of bullying, assisting, and reinforcing to be higher, and the prevalence of defending to be lower in middle adolescence than in the younger samples (middle childhood and early adolescent) of previous studies. Pro-bullying behavior may be more prevalent because pro-bullying roles may help youths to show dominance, which plays an increasingly important role in adolescence (LaFontana & Cillessen, 2010). Moreover, it may be more risky to defend a victim in middle adolescence than in middle childhood, because prosocial behavior becomes less valued among peers (Bukowski et al., 2000; LaFontana & Cillessen, 2010; Pöyhönen, Juvonen, & Salmivalli, 2010)

As in previous studies, we expected more boys than girls to be bullies, assistants, and reinforcers, and more girls than boys to be defenders and outsiders (Goossens et al., 2006; Salmivalli, Lagerspetz, et al., 1996; Sutton & Smith, 1999). People have gender-specific norms for certain behavior and girls and boys are socialized differently. Girls may therefore be more motivated to show empathic behavior and to behave prosocially than boys, whereas boys' aggressive behavior may be more accepted than girls' aggressive behavior (Eagly & Wood, 1991; Hoffman, 1977; Ickes, Gesn, & Graham, 2000).

Peer Status Associated with Participant Roles of Bullying in Adolescence

In addition to the their prevalence, the associations between the participant roles and social status also may be different in adolescence than at younger ages. Two types of peer status are distinguished: acceptance and popularity (Cillessen & Rose, 2005). Peer acceptance is assessed by asking youths to nominate classmates they like most and like least. Popularity is assessed by asking youths to nominate the most and least popular peers in their classroom. Acceptance and popularity are different constructs that are moderately correlated (e.g., Cillessen & Mayeux, 2004; Lansu et al., 2012; Parkhurst & Hopmeyer, 1998; van den Berg & Cillessen, 2012).

With regard to peer acceptance, it has been shown that youths who bully are disliked and rejected by their peers (Boulton & Smith, 1994; Caravita et al., 2009). Some studies suggest that children who bully have a controversial status, indicating that they are accepted by some peers, but rejected by others (Salmivalli, Lagerspetz, et al., 1996; Sentse, Scholte, Salmivalli, & Voeten, 2007). Findings regarding the peer acceptance of children who reinforce or assist bullies are inconsistent. Some followers (showing assistant and reinforcer behavior) are highly accepted or average in acceptance, whereas others are rejected or controversial (Goossens et al., 2006; Olthof & Goossens, 2008; Salmivalli, Lagerspetz, et al., 1996). Children who are victimized are usually disliked by peers and have few friends (de Bruyn et al., 2010; Hodges & Perry, 1999). Children who defend victims are well-liked by their peers, whereas children who behave as outsiders are more likely to be average in acceptance or neglected by peers (Caravita et al., 2009; Goossens et al., 2006; Salmivalli, Lagerspetz, et al., 1996). Defending a victim may be risky, because defenders may become the bully's next target (Juvonen & Galván, 2008; Pöyhönen et al., 2010). Therefore, children may need to have a relatively high level of acceptance in the peer group before they can successfully defend a child who is victimized without becoming victimized themselves.

Regarding popularity, in childhood and early adolescent samples bullies are perceived as popular by their peers (Caravita et al., 2009; de Bruyn et al., 2010; Vaillancourt et al., 2003). This may be because bullying can be seen as a way to maintain or increase one's

status over time (Caravita & Cillessen, 2012; Juvonen & Galván, 2008; Sijtsema et al., 2009). Thus although children who bully are disliked, they seem to have a central and dominant position in their peer group. It may be that followers are also perceived as popular among their peers, because some children may assist or reinforce bullies in order to increase their own popularity and power in the group. Indeed, students who liked children who bully or wanted to affiliate with them engaged in more bullying behavior over time (Juvonen & Galván, 2008; Sentse et al., 2014). Children who are victimized clearly are perceived as unpopular (de Bruyn et al., 2010; Hodges & Perry, 1999; Schwartz et al., 1993; van den Berg & Cillessen, 2012). Several studies have found positive associations between defending behavior and popularity in middle childhood (Caravita et al., 2009; Pöyhönen et al., 2010; Sainio, Veenstra, Huitsing, & Salmivalli, 2011). As outsiders are often neglected by peers and attach little value to establishing high status, we expected outsiders to score moderate or low on popularity (Pöyhönen, Juvonen, & Salmivalli, 2012; Salmivalli, Lagerspetz, et al., 1996).

Our second goal thus was to examine the peer group status of the participant roles in middle adolescence (Goal 2a). In general, we expected that the associations between the bullying participant roles and status and behavior in middle adolescence would be in the same direction as in middle childhood or early adolescence. However, the strength of some associations might differ from younger ages. Adolescents more strongly value status among peers (LaFontana & Cillessen, 2010) and bullying is an important means to gain status (Ojanen, Grönroos, & Salmivalli, 2005; Olthof et al., 2011). At the same time, attraction to prosocial peers is lower in adolescence (Bukowski et al., 2000). Moreover, Caravita et al. (2009) found that defending was more strongly related to defending in middle childhood than in early adolescence. Therefore, we expected bullies and followers to score high, and defenders to score average on popularity in middle adolescence. Children who are victimized are increasingly avoided by their peers, and peers become less supportive of them over time (Juvonen & Galván, 2008; Rigby & Slee, 1991). Therefore, we predicted that victims in middle adolescence would score low on both acceptance and popularity.

Behavioral and Peer-Valued Characteristics Associated with Participant Roles of Bullying in Adolescence

The associations of behavior and peer-valued characteristics with the participant roles may also differ between childhood and adolescence. Therefore, in addition to status, we also examined these characteristics of the participant roles in adolescence (Goal 2b). One is prosocial behavior, which is negatively associated with bullying (Veenstra et al., 2005; Wolke, Woods, Bloomfield, & Karstadt, 2000). Followers may also score low on prosocial behavior, as they usually behave in quite similar ways as bullies. Prosocial

behavior has been negatively associated with victimization (Kochenderfer & Ladd, 1996b; Schwartz et al., 1993; van den Berg & Cillessen, 2012). Defending a victim is a form of prosocial behavior. It has been found that children who defend victims also display other prosocial behavior, such as helping and cooperation (Crapanzano, Frick, Childs, & Terranova, 2011). It is interesting to examine whether defenders are more prosocial than outsiders.

The participant roles of bullying may also differ in levels of aggression. There are two types of aggression: reactive and proactive aggression. Reactive aggression is an uncontrolled hot-tempered type of aggression that is often expressed in response to environmental cues (Dodge & Coie, 1987). Both bullies and victims tend to show high levels of reactive aggressive behavior (Camodeca et al., 2002; Salmivalli & Nieminen, 2002). In addition to reactive aggression, children who bully also display high levels of proactive aggression: controlled, manipulative aggression often used to establish high status among peers (Camodeca et al., 2002; Dodge & Coie, 1987; Salmivalli, Ojanen, Haanpää, & Peets, 2005). It could be that children who assist and reinforce the bully also show higher levels of proactive aggression than defenders and outsiders, because they aim, like bullies, to increase their status over time (Juvonen & Galván, 2008).

Peer-valued characteristics are non-behavioral characteristics that are taken into account by children and adolescents when they attribute status and dominance to peers (Vaillancourt & Hymel, 2006). Examples are athletic ability, physical attractiveness, leadership, and humor (Dijkstra, Lindenberg, Verhulst, Ormel, & Veenstra, 2009; Lease, Kennedy, & Axelrod, 2002; Vaillancourt & Hymel, 2006; Vaillancourt et al., 2003). We do not know exactly how peer-valued characteristics are related to the participant roles of bullying. We do know that aggressive students, such as bullies, score high on peer-valued characteristics which may help them to become popular and powerful in spite of their aggression (Dijkstra et al., 2009; Vaillancourt & Hymel, 2006; Vaillancourt et al., 2003). Followers may possess somewhat fewer peer-valued characteristics than bullies; otherwise they might already have taken up the most powerful bullying position in the peer group. Further, peer-valued characteristics are negatively related to peer victimization (Knack, Tsar, Vaillancourt, Hymel, & McDougall, 2012), which corresponds with findings that children who are victimized have the lowest status. Peer-valued characteristics are strongly related with popularity. Therefore, we expected defenders and outsiders to have average levels of peer-valued characteristics as they probably have average levels of popularity.

Absolute and Relative Criteria for Assigning Students to Participant Roles

The participant roles of bullying have been measured with the Participant Role Questionnaire (Salmivalli, Lagerspetz, et al., 1996) in middle childhood and early adolescence samples by various researchers from different countries (Andreou & Metallidou, 2004; Caravita et al., 2009; Goossens et al., 2006; Salmivalli, Lagerspetz, et al., 1996; Schäfer & Korn, 2004; Sutton & Smith, 1999). Various procedures have been developed over time, including ratings and peer nominations. There is still some discussion regarding the criteria for assigning students to roles (Goossens et al., 2006; Sutton & Smith, 1999). A distinction can be made between relative and absolute criteria. When using a relative criterion, peer nominations are standardized within classrooms. Students are assigned to roles when they score relatively high compared to classmates on the items belonging to a role. In contrast, absolute criteria are based on the proportion of the maximum number of nominations one can receive.

Goossens et al. (2006) and Sutton and Smith (1999) found differences between participant role assignments based on relative and absolute criteria. They concluded that both criteria can claim some validity and have their advantages and disadvantages. Goossens et al. (2006) showed that a relative criterion yields almost the same distribution of roles in every classroom. However, the actual occurrence of participant roles in every day practice may differ between classrooms. For example, there may be classrooms in which certain roles do not occur. An absolute criterion is more sensitive than a relative criterion to such classroom differences. Goossens et al. (2006) also found that fewer students were unclassifiable with an absolute criterion than with a relative criterion, because the absolute differences between roles were often larger than the relative differences. In addition, more students were classified as not being involved in any role because they scored low on all six participant roles when using an absolute criterion than when using a relative criterion. They concluded that a relative criterion might lead to false positives, whereas an absolute criterion may lead to false negatives. A disadvantage of the relative criterion proposed by Goossens et al. (2006) is that when the total number of nominations given in a classroom is very low, students can already be classified as a bully when only one or two classmates nominated them as a bully. The status and behavioral profile of students whose role assignment was based on a shared perception by many classmates may be more pronounced than the profile of students whose role assignment was based on the opinion of only a few classmates.

The fact that there are disadvantages associated with a relative criterion does not automatically mean that absolute criteria are better. Absolute criteria do not take into account whether students score relatively high on a certain role in comparison to their classmates. For example, when almost all students are nominated for bullying behavior

by at least 10% of their classmates, they may have a less distinct status and behavioral profile than when only a few students are nominated for bullying by at least 10 % of their classmates. This may be because their classmates were less selective in assigning students to a certain role when they nominated almost everyone. Both Goossens et al. (2006) and Sutton and Smith (1999) assigned students once according to a relative criterion and once according to an absolute criterion. Although they were able to compare the advantages and disadvantages of both strategies, they could not directly compare students who met both criteria with students who met only one of the criteria. The third goal of this study was to make this direct comparison.

To address this goal, students were assigned to the participant roles according to the relative criteria of Salmivalli, Lagerspetz, et al. (1996). Next, students in each role were divided into two subgroups based on an additional absolute criterion: the *Relative Only Criterion* subgroup (nominated by < 10% of classmates) and the *Absolute & Relative Criterion* subgroup (nominated by ≥ 10% of classmates). We predicted that both groups have the same behavioral pattern. However, we expected role differences in the status and behavioral characteristics of the participant roles to be more extreme for the *Absolute & Relative Criterion* subgroup than for the *Relative Only Criterion* subgroup.

METHOD

Participants and Procedure

The data for this study were collected as part of Wave 9 of the Nijmegen Longitudinal Study on child and adolescent development (van Bakel & Riksen-Walraven, 2002). The potential sample consisted of 1650 students attending 63 9th to 12th grade classrooms in 24 secondary schools. Average classroom size was 26.2 students (range 13-32). At the request of the schools, a passive parental consent procedure was used. Parents received an information letter about the study and could contact the researchers if they did not wish their child to participate. The students themselves gave informed assent on the day of data collection in the classroom. Of all students, eight did not have parental permission and four did not want to participate themselves. Therefore, the final sample consisted of 1638 students (M_{age} = 16.38 years, SD = .80, 50.9 % boys. Students were in three educational tracks: pre-vocational (VMBO, n = 300), intermediate general secondary education (HAVO, n = 629), and college preparatory (VWO, n = 709). The sample was 81.4% Caucasian. Of the remaining 18.8%, ethnic origin was Moroccan (1.6%), Turkish (1.7%), Surinamese (.9%), Antillean/Aruban (.9%), other ethnic origin within Europe (5.8%), other ethnic origin outside of Europe (7.2%), or mixed (.4%). On

the day of data collection, 160 students were absent. The nominations given by one adolescent were removed because the questionnaire was not filled out seriously. The study was approved by the Institutional Review Board of the university.

Data were collected by means of a 50-min computerized assessment in the classroom. First, a general introduction was given, in which participants were guaranteed confidentiality of their answers. In addition, a definition of bullying was given and explained (Solberg & Olweus, 2003). Each student was presented with a mini laptop computer to complete the sociometric measures (van den Berg & Cillessen, 2012). For all nominations, students could nominate both same-sex and other-sex peers, and there was no maximum number of nominations. To prevent students from seeing each other's notebook screens, tables were separated, and partitioning screens were placed on the tabletop. During the session, two or three experimenters were present to monitor the data collection and answer questions.

Measures

Social status
Four nomination questions asked the students who was liked ("Who do you like the most?"), disliked ("Who do you like the least?"), popular ("Who are most popular?"), and unpopular ("Who are least popular?"). For these questions, students were asked to nominate at least one classmate as they measured social status relative to other members of the reference group. Self-nominations were not possible. For each question, the number of nominations received was counted and standardized to *z*-scores within classrooms.

Friendship
Students also nominated their best friends (zero nominations were possible). The number of reciprocal nominations was determined for each student.

Behavior and peer-valued characteristics
Students were asked to nominate classmates for the following behavior: cooperation ("Who can cooperate well with others?"), helping behavior ("Who are often willing to help others?"), proactive aggression ("Which classmates fit the following description. Some students try to reach their goals by using aggressive behavior. They intimidate, manipulate or bully others to get admiration, respect or objects."), reactive aggression ("Which classmates fit the following description? Some students feel threatened or attacked easily (even though this might not have been intended). They are not able to control their behavior and feelings and react with aggressive behavior, like yelling or

hitting"), withdrawn behavior ("Who do not say much, or sit alone during break time?"), attention ("Who get the most attention of others?"), leadership ("Who are leaders or take the lead?"), attractiveness ("Who is good looking?"), humor ("Who make jokes?"). Again, students had the option to nominate none of their classmates. Self-nominations were not possible. For each question, the total number of nominations received was counted and standardized to z-scores within classrooms.

Participant roles of bullying and victimization

Participant roles of bullying and victimization were examined with the shortened Participant Role Questionnaire (PRQ) (Kärnä et al., 2013; Salmivalli & Voeten, 2004). The Dutch translation of the questionnaire was based on Goossens et al. (2006). Students were asked to nominate classmates for different behavior in bullying situations. The PRQ has the following scales reflecting the participant roles: bully ("Who starts bullying?"; "Who makes others join in the bullying?"; "Who always finds new ways of harassing the victim?"), reinforcer ("Who comes around to watch the situation when someone is being bullied?"; "Who laughs when someone is being bullied?"; "Who incites the bully by shouting or saying, 'Look at him/her!'"), assistant ("Who joins in the bullying when someone else has started it"; "Who assists the bully"; and "Who goes and gets the victim for the bully"), defender ("Who comforts the victim or encourages him/her to tell the teacher about the bullying"; "Who tells the others to stop bullying"; "Who tries to make the others stop bullying"), and outsider ("Who is not usually present in bullying situations"; "Who stays away from the situation"; "Who does not take sides with anyone"). For all items, students could nominate an unlimited number of classmates; it was also possible to nominate no one. Self-nominations were allowed for these items because we wanted to examine students' own perceptions of their bullying involvement for another study. Self-nominations were not taken into account in the current study.

Victimization was examined by asking students to nominate classmates for four additional items ("Who is victimized by getting pushed/hit/kicked?"; "Who is victimized by having nasty things said about them or rumors spread about them?"; "Who is victimized by being neglected or excluded?"; "Who is victimized?"). Again, students were not required to nominate someone. Self-nominations were not possible for these questions.

First, we standardized the number of nominations received for each question within classrooms. Average scale scores per bullying involvement role then were computed in order to assign students to the participant roles, again standardizing the average scores

per bullying role within classrooms. Cronbach's α was .87 for the standardized items of the bully scale, .73 for the reinforcer scale, .69 for the assistant scale, .84 for the defender scale, .78 for the outsider scale, and .86 for the victim scale.

There were some indications that the item "Who goes and gets the victim for the bully" was not a valid or reliable measure of assistant behavior. First, the number of nominations for this item was very low. As bullying is more indirect in secondary school, it may become unnecessary to go get the victim for the bully and this behavior simply may not occur. Second, Cronbach's α improved to an acceptable level when the item was removed (.61 to .69) indicating that the item was unreliable as part of the assistant scale. Therefore, we decided to exclude this item from the assistant scale.

We assigned students to roles based on the criteria of Salmivalli, Lagerspetz, et al. (1996). That is, students were assigned to a role when: (1) they scored above the classroom average on the scale for that role, (2) they scored higher on this scale than on all other scales, (3) the difference with the second highest scale score was larger or equal to .10. Students who did not score above the mean on any scale or for whom the difference between the highest and second highest scale score was less than .10 were considered as not having a clear role.

Next, proportion scores were calculated by dividing the total number of peer nominations received by the total number of classmates responding. Subsequently, we computed the average proportion scores across the items of each participant role scale. Based on these proportion scores, we divided the students assigned to each participant role in the previous step in two subgroups: the *Relative Only Criterion* subgroup and the *Absolute & Relative Criterion* subgroup. Students who were assigned to a role based on the relative criterion and who scored below .10 on the proportion scale corresponding to the role were assigned to the *Relative Only Criterion* subgroup; students in this subgroup scored above average on the role compared to their classmates but fewer than 10% of their classmates nominated them for this role. Students who were assigned to a certain role based on the relative criterion and who had a score greater than or equal to .10 on the proportion scale for the role (absolute criterion) were assigned to the *Absolute & Relative Criterion* subgroup; students in this subgroup scored above average on the role compared to their classmates and at least 10% of their classmates nominated them for this role.

7

RESULTS

Descriptive Statistics

Table 7.1 shows the correlations between the participant role scores. The bully, reinforcer, and assistant scores were strongly positively correlated with each other, and highly negatively correlated with the outsider scores. The correlations of both the victim and defender scores with all the other participant role scores were weak.

Table 7.1. Correlations Between Standardized Mean Scores on the Scales of the Participant Role Questionnaire

	Bully	**Reinforcer**	**Assistant**	**Victim**	**Defender**
Reinforcer	.65*				
Assistant	.55*	.61*			
Victim	-.11*	-.20*	-.17*		
Defender	-.15*	-.13*	-.11*	-.12*	
Outsider	-.44*	-.59*	-.50*	-.22*	.12*

Note. *p < .01.

Prevalence of Participant Roles of Bullying in Adolescence

The first aim of the study was to examine the prevalence of the participant roles in adolescence. Based on Salmivalli et al.'s (1996) criteria, 10.1% of the students was victim, 8.7% bully, 12% reinforcer, 12.1% assistant, 18.9% defender, 24.1% outsider, and 13.8% unassigned. Figure 7.1 presents the distribution of roles by gender. More boys than girls were bullies, $\chi^2(1) = 10.89$, $p = .001$, reinforcers, $\chi^2(1) = 32.30$, $p < .001$, and assistants, $\chi^2(1) = 29.33$, $p < .001$, whereas more girls than boys were defenders, $\chi^2(1) = 110.20$, $p < .001$, and outsiders, $\chi^2(1) = 7.24$, $p = .007$. There was no gender difference for victimization.

In addition, we compared adolescents who were assigned to a role according to the *Relative Only Criterion* with adolescents assigned to a role according to the *Absolute & Relative Criterion*. Figure 7.2 shows the distribution of the adolescents across those two subgroups. Almost all defenders and outsiders met the *Absolute & Relative Criterion*. In contrast, more than half of the adolescents in the bully, reinforcer, assistant, and victim role met the relative, but not the absolute criterion (*Relative Only Criterion*). These results show that the number of nominations given for negative behavior is much smaller than the number of nominations given for positive and neutral behavior.
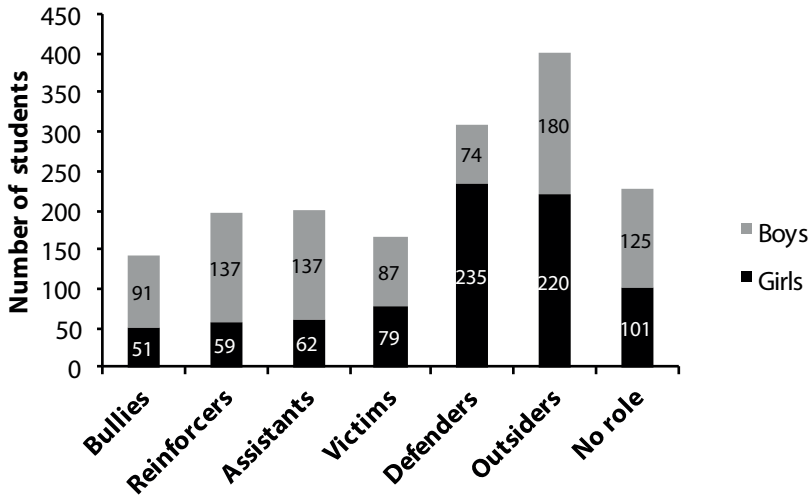
Figure 7.1. Prevalence of the participant roles by gender.

Figure 7.2. Prevalence of the participant roles by criterion subgroup (*Relative Only* vs. *Absolute & Relative*).

Status and Behavior Profiles of the Participant Roles

In order to examine the associations between the participant roles (Bully, Reinforcer, Assistant, Victim, Defender, Outsider) and status and behavior, two MANOVAs were conducted. One MANOVA was conducted for the *Relative Only Criterion* subgroup and

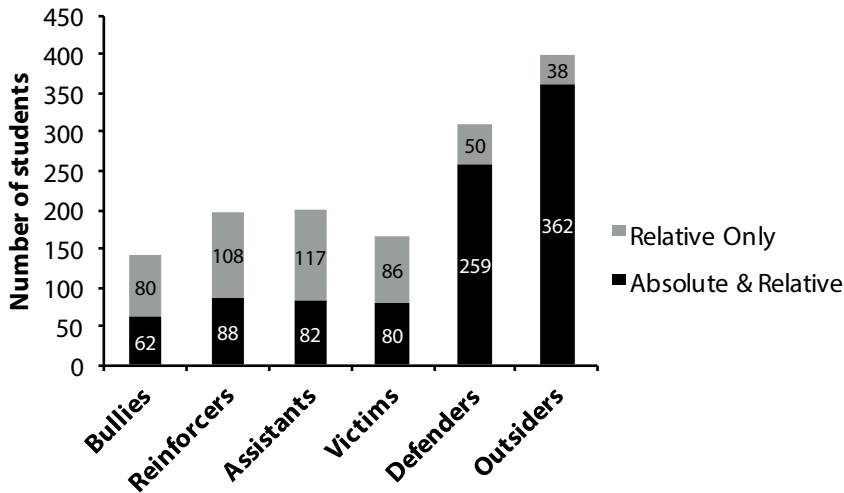one for the *Absolute & Relative Criterion* subgroup. There was a significant main effect of the participant role on all status and behavior characteristics, both for the *Relative Only Criterion* subgroup, $\Lambda = .47$, $F(65, 2182.55) = 5.82$, $p < .001$, $\eta_p^2 = .14$ and for the *Absolute & Relative Criterion* subgroup, $\Lambda = .11$, $F(65, 4328.07) = 38.77$, $p < .001$, $\eta_p^2 = .35$.

The MANOVAs were followed by univariate (Participant Role: Bully, Reinforcer, Assistant, Victim, Defender, Outsider) ANOVAs for each measure of status and behavior separately. All univariate ANOVAs were significant, both for the *Relative Only Criterion* subgroup (Table 7.2) and for the *Absolute & Relative Criterion* subgroup (Table 7.3).

We also tested for each participant role the difference between the two criterion subgroups (*Relative Only* vs. *Absolute & Relative*) on the status and behavior variables. Per role, a MANOVA was conducted with the status and behavior characteristics as dependent variables and criterion subgroup as independent variable. All MANOVAs were significant, except for the reinforcer role. This indicated, for example, that victims who were assigned according to the *Relative Only Criterion* differed across all status and behavior characteristics from victims who were assigned according to the *Absolute and Relative Criterion.*

Given the significant multivariate effects, for each participant role (except reinforcers), a (Criterion Subgroup: *Relative Only* vs. *Absolute & Relative*) follow-up univariate ANOVA was conducted on each status and behavior measures. The results are summarized in Tables 7.2 and 7.3. Means that differed significantly between the two criterion subgroups within a role are underlined in Table 7.2 and 7.3.

Reciprocal friendship was not included in the MANOVAs, because of an incomparable range of the friendship scale in comparison with the other status and behavior constructs that were z-standardized. Therefore, for friendship, separate one-way ANOVAs were conducted for each criterion subgroup, with bullying participant role as the independent variable and reciprocal friendship as the dependent variable. The participant roles differed in the number of reciprocal friendships when using the *Absolute and Relative Criterion* (Table 7.3) but not when using the *Relative Only Criterion* (Table 7.2). We also conducted a one-way ANOVA for each role to examine whether the two criterion subgroups (*Relative Only* vs. *Absolute & Relative*) differed in friendships within each role. Significant differences in friendships between the two subgroups within a role are underlined in Tables 7.2 and 7.3.

Bullies

Bullies assigned according to the *Relative Only Criterion* scored relatively high on being disliked, popularity, proactive aggression, attention, leadership, and humor compared with the other roles. Bullies assigned according to the *Absolute & Relative Criterion* also scored high on the same characteristics and also on reactive aggression, and low on being liked, cooperation, and helping compared with the other roles.

When comparing the criteria, the *Absolute & Relative Criterion* bully subgroup scored lower on being liked, unpopularity, cooperation, helping, and withdrawn behavior than the *Relative Only Criterion* bully subgroup. In contrast, the *Absolute & Relative Criterion* bully subgroup scored higher on being disliked, popularity, proactive aggression, reactive aggression, attention, leadership, and humor than the *Relative Only Criterion* bully subgroup.

Reinforcers and Assistants

The status and behavior profile of reinforcers and assistants was almost the same. When meeting the *Relative Only Criterion,* the behavior characteristics of assistants and reinforcers were in general quite average compared to other roles. The characteristic on which they scored above average (together with the bullies) compared to the other participant roles was humor. When meeting the *Absolute & Relative Criterion,* reinforcers and assistants had approximately the same behavioral pattern as bullies, although the results suggest that most of their behavior was less extreme. However, their scores for unpopularity and attractiveness were as high as those of the bullies.

When comparing the criteria, the *Absolute & Relative Criterion* reinforcer subgroup had significantly more reciprocal friendships than the *Relative Only Criterion* reinforcer subgroup. The *Absolute & Relative Criterion* assistant subgroup scored significantly lower on unpopularity and withdrawn behavior, and significantly higher on popularity, reciprocal friendships, proactive aggression, attention, leadership, and humor, than the *Relative Only Criterion* assistant subgroup.

Victims

Victims assigned according to the *Relative Only Criterion* scored relatively low on liking, popularity, attention, and attractiveness, and relatively high on disliking, unpopularity, reactive aggression, and withdrawn behavior compared to the other roles (Table 7.2).

7

Table 7.2. Means and Standard Deviations of Main Study Variables by Participant Role for the Relative Only Criterion Subgroup.

	Bullies (n = 80)		Reinforcers (n = 108)		Assistants (n = 117)		Victims (n = 86)		Defenders (n = 50)		Outsiders (n = 38)		F (5, 473)	η_p^2
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD		
Liked	$-.01_a$	.83	$-.09_{a,b}$	.97	$.03_a$	1.00	$-.46_b$	.88	$.33_a$	1.02	$.03_{a,b}$	.88	5.06*	.05
Disliked	$.42_a$	1.07	$-.16_b$	.91	$-.07_b$	.79	$.38_a$	1.04	$-.45_b$	.40	$-.25_b$	.60	10.97*	.10
Popular	$.66_a$	1.29	$.18_b$	.98	$.25_{a,b}$	.95	$-.49_c$	.53	$.09_b$	.98	$-.27_{b,c}$	.92	13.61*	.13
Unpopular	$-.38_c$	.53	$-.43_c$	.39	$-.38_c$	.52	$.83_a$	1.19	$-.43_c$	.30	$.13_b$	.98	44.43*	.32
Reciprocal Friendships	3.59	2.50	3.67	2.48	3.85	2.52	3.74	2.37	4.00	2.67	2.68	2.65	1.49	.02
Cooperation	$-.18_{b,c}$	.87	$-.13_{b,c}$	.87	$-.18_{b,c}$	.89	$-.48_c$	1.01	$.33_a$	.92	$.04_{a,b}$	.91	5.53*	.06
Helping behavior	$-.31_b$	.93	$-.33_b$	.83	$-.27_b$	.86	$-.19_b$	.93	$.37_a$	.98	$.08_{a,b}$	.72	5.83*	.06
Proactive Aggression	$.36_a$	1.23	$-.09_b$	.71	$-.09_b$	.68	$.05_{a,b}$	1.05	$-.31_b$	.39	$-.19_b$	.93	4.71*	.05
Reactive Aggression	$.12_{a,b}$	.90	$-.24_b$	.62	$-.10_b$	.75	$.49_a$	1.47	$-.28_b$	.47	$-.18_b$	.56	8.53*	.08
Withdrawn Behavior	$-.29_b$	.53	$-.38_b$	.38	$-.30_b$	.52	$.65_a$	1.37	$-.40_b$	.35	$.28_a$	1.00	25.95*	.22
Attention	$.65_a$	1.24	$.19_{b,c}$	.95	$.26_{a,b}$	.94	$-.43_d$	.57	$-.05_{b,c,d}$	.87	$-.29_{c,d}$	.85	13.51*	.13
Leadership	$.65_a$	1.28	$-.01_b$	.94	$.06_b$	.92	$-.27_b$	.75	$-.16_b$	.68	$-.26_b$	.86	9.95*	.10
Attractiveness	$.32_{a,b}$	1.08	$.12_{a,b}$	1.09	$.07_{a,b}$	1.02	$-.45_c$	.64	$.54_a$	1.27	$-.17_{b,c}$	.79	8.18*	.08
Humor	$.41_a$	1.03	$.39_a$	.96	$.38_a$	.97	$-.45_b$	.77	$-.23_b$	.61	$-.29_b$	.88	15.20*	.14

Table 7.3. Means and Standard Deviations of Main Study Variables by Participant Role for the Absolute & Relative Criterion Subgroup.

	Bullies (n = 62)		Reinforcers (n = 88)		Assistants (n = 82)		Victims (n = 80)		Defenders (n = 259)		Outsiders (n = 362)		F (5, 927)	η_p^2
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD		
Liked	-.45c	.74	-.03b,c	1.04	-.10b,c	.83	-1.07d	.64	.54a	.92	.00b	.96	43.61*	.19
Disliked	1.81a	1.46	-.10c,d	.82	.14c	.80	1.16b	1.38	-.35d	.62	-.29d	.61	112.13 *	.38
Popular	1.39a	1.06	.71b	1.12	.91b	1.03	-.66d	.22	-.02c	.90	-.58d	.35	136.98*	.43
Unpopular	-.55c	.34	-.53c	.27	-.57c	.32	2.45a	1.07	-.32c	.52	.38b	.94	227.12*	.55
Reciprocal Friendships	3.66b,c	2.55	5.26a	2.85	4.71a,b	2.54	1.67d	1.55	4.55a,b	2.67	3.70c	2.33	24.14*	.12
Cooperation	-.81c	.82	-.01b	.88	-.23b	.86	-1.21c	.80	.78a	.81	.07b	.90	86.94*	.32
Helping behavior	-.85d	.76	-.25c	.89	-.45c,d	.86	-.51c,d	.94	.84a	.91	.11b	.90	65.71*	.26
Proactive Aggression	2.40a	1.76	.18b	.94	.40b	1.11	-.22c	.52	-.24c	.41	-.33c	.30	172.48*	.48
Reactive Aggression	1.06a	1.41	.00b,c	.94	.06b	.90	.88a	1.64	-.14b,c	.74	-.27c	.52	42.35*	.19
Withdrawn Behavior	-.47c	.20	-.48c	.21	-.46c	.25	2.28a	1.46	-.36c	.32	.35b	1.01	172.06*	.48
Attention	1.55a	1.01	.63b	1.06	.79b	.94	-.72d	.43	.02c	.90	-.60d	.39	146.18*	.44
Leadership	1.73a	1.29	.37b,c	1.13	.69b	1.11	-.60d	.25	.15c	.97	-.51d	.36	110.86*	.37
Attractiveness	.07a	.90	.31a	1.11	.21a	.86	-.76c	.33	.41a	1.12	-.32b	.73	34.66*	.16
Humor	1.26a	1.02	.59b	.99	.87b	.97	-.85e	.43	-.10c	.78	-.56b	.57	129.14*	.41

Note Tables 7.2 & 7.3. * $p < .001$. Means within rows that do not share a subscript were statistically significantly different between roles in a Bonferroni post-hoc comparison test. Means that are underlined were statistically significantly different between the *Relative Only Criterion* subgroup (Table 7.2) and the *Absolute & Relative Criterion* subgroup (Table 7.3) in separate univariate ANOVAs following a MANOVA ($p < .05$).

7

The same pattern was found for victims assigned according to the *Absolute & Relative Criterion*, and in addition, these victims also scored relatively low on friendships, cooperation, helping, leadership, and humor (Table 7.3).

The *Absolute & Relative Criterion* victim subgroup scored significantly lower on liking, popularity, friendships, cooperation, helping, proactive aggression, attention, leadership, attractiveness, and humor, than the *Relative Only Criterion* victim subgroup. The *Absolute & Relative Criterion* subgroup also scored significantly higher on being disliked and unpopular and on withdrawn behavior than the *Relative Only Criterion* victim subgroup.

Defenders

Defenders assigned according to the *Relative Only Criterion* scored relatively high on being liked, cooperation, and helping compared to the other roles. In addition, defenders assigned according to the *Absolute & Relative Criterion* also scored high on the number of reciprocal friendships compared to the other roles.

When comparing the different criterion subgroups, defenders in the *Absolute & Relative Criterion* subgroup scored significantly higher on cooperation, helping behavior and leadership than defenders in the *Relative Only Criterion* subgroup.

Outsiders

Outsiders assigned according to the *Relative Only Criterion* in general scored quite average compared to the other roles, except for scoring high on withdrawn behavior and low on attention, just like victims. Outsiders assigned according to the *Absolute & Relative Criterion* scored low on popularity, attention, and leadership, again comparable to victims. Like victims they also scored below average on attractiveness and humor, and above average on unpopularity and withdrawn behavior, but not as extremely as victims.

The *Absolute & Relative Criterion* outsider subgroup scored significantly lower on popularity, proactive aggression, attention, leadership, and humor and significantly higher on reciprocal friendships than the *Relative Only Criterion* outsider subgroup.

DISCUSSION

The current study examined the prevalence of the participant roles and the behavioral and status characteristics associated with them. The prevalence of the participant roles and the status, behavioral, and peer-valued characteristics associated with the roles tended to differ slightly in middle adolescence from middle childhood. The profiles of adolescents in the participant roles were more extreme for the *Absolute & Relative Criterion* subgroup than for the *Relative Only Criterion* subgroup.

Prevalence of Participant Roles of Bullying in Adolescence

The first goal of this study was to examine the prevalence of the participant roles in middle adolescence and possible gender differences therein. By making some minor changes (i.e., deletion of 1 item) the shortened Participant Role Questionnaire seemed to be a reliable instrument to assess the participant roles of bullying in middle adolescence. The associated status and behavioral characteristics showed that the participant role distinction is meaningful. Although there is a conceptual difference between the reinforcer and assistant roles, their status and behavioral profiles were almost the same in this study. When examining research questions related to status and behavior in adolescence, we recommend that researchers combine assistants and reinforcers into one "follower" group.

When roles were assigned according to the criteria that are used in the majority of studies (Salmivalli, Lagerspetz, et al., 1996), the distribution of roles in middle adolescence was: 10% victims, 9% bullies, 12% reinforcers, 12% assistants, 19% defenders, 24% outsiders, and 14% unclassified. Although these percentages are within the range of previous studies, there were some differences from previous research findings for middle childhood and early adolescence.

As expected, the prevalence of assistants and reinforcers was higher in the middle adolescent sample of this study (24%) than in middle childhood samples studied by Goossens et al. (2006) and Sutton and Smith (1999) (13-16%). Assisting and reinforcing a bully might help adolescents to gain or maintain dominance and popularity, goals that are particularly prioritized and valued in adolescence (Juvonen & Galván, 2008; LaFontana & Cillessen, 2010). This might explain the higher percentage of followers in the adolescent age group than in the middle childhood age group studied by Goossens et al. (2006) and Sutton and Smith (1999).

7

The prevalence of victimization was slightly lower in the middle adolescent sample of this study (10%) than in middle childhood samples studied by Goossens et al. (2006) and Sutton and Smith (1999) (14-18%), while the prevalence of the bully role remained stable (10% vs. 9-14%). One explanation may be that bullying in middle adolescence is directed at a smaller group of victims than in middle childhood (Pellegrini & Long, 2002). Bullies strategically pick on victims with the lowest social position in the group to increase their own status (Adler & Adler, 1995). This could be more pronounced in adolescence than in childhood, making the targeted group of victims smaller. The victim group also may have become smaller in middle adolescence because some victims may have learned to effectively cope with bullying situations and therefore no longer hold a victim role. For example, they may have learned that ignoring a bully instead of reacting aggressively may work to escape him or her (Pellegrini & Long, 2002; Smith, Shu, & Madsen, 2001).

We expected the frequency of defending to be lower in adolescence than found previously in childhood as it may be more risky to defend victims for adolescents, and as prosocial behavior becomes less valued among peers over time (Bukowski et al., 2000; LaFontana & Cillessen, 2010; Pöyhönen et al., 2010). Our findings did not support this hypothesis as the percentage of defenders (19%) fell within the range found previously in middle childhood and early adolescence (17-28%) (Goossens et al., 2006; Salmivalli, Lagerspetz, et al., 1996; Salmivalli et al., 1998; Schäfer & Korn, 2004; Sutton & Smith, 1999). Thus, despite the devaluation of prosocial behavior, there are still a substantial number of adolescents who defend victims.

In line with younger samples, the prevalence of the bully, reinforcer, and assistant roles was higher among boys than girls, whereas the prevalence of the defender and outsider roles was higher among girls than boys (Goossens et al., 2006; Salmivalli, Lagerspetz, et al., 1996; Sutton & Smith, 1999). This may be explained by gender-specific norms of empathy, prosocial behavior, and aggression (Eagly & Wood, 1991; Hoffman, 1977; Ickes et al., 2000).

Peer Status and Behavioral and Peer-Valued Characteristics Associated with Participant Roles of Bullying in Adolescence

The second goal of this study was to examine the status, behavioral, and peer-valued characteristics associated with the participant roles in middle adolescence. As expected, adolescents who bully were most popular and had the most socially dominant position in the peer group. This is in line with previous studies showing that adolescents value status and that bullying can be seen as a way to maintain or increase it (Caravita & Cillessen, 2012; Juvonen & Galván, 2008; Ojanen et al., 2005; Sijtsema et al., 2009). As

expected, adolescents who bully displayed relatively low levels of prosocial behavior and high levels of aggression, indicating that bullies fit the aggressive 'tough' type of popularity better than the well-behaved 'model' type (de Bruyn & Cillessen, 2006; Rodkin, Farmer, Pearl, & Van Acker, 2000; Vaillancourt et al., 2003). As in early adolescence, adolescent bullies scored high on both reactive and proactive aggression (Salmivalli & Nieminen, 2002). Their elevated levels of proactive aggression could indicate that they use aggression in a controlled and manipulative way to increase their status. Bullies' high levels of peer-valued characteristics may be another reason why they possess status and power despite their negative behavior (Dijkstra et al., 2009; Vaillancourt & Hymel, 2006). However, as at younger ages (Vaillancourt & Hymel, 2006), high levels of peer-valued characteristics and popularity could not protect adolescents who bully from being disliked.

The status and behavior profile of reinforcers and assistants resembled the profile of the bullies. This suggests that in adolescence, followers, like bullies, might prioritize popularity over more socially accepted behavior. This is in line with previous findings that students' involvement in bullying was related to their desire to be accepted by other antisocial peers (Olthof & Goossens, 2008), and that students who liked bullies or wanted to affiliate with them increased their bullying behavior over time (Juvonen & Galván, 2008; Sentse et al., 2014). Although the behavior and status patterns of reinforcers and assistants resembled those of bullies, most of their behavior was less extreme, especially when using the *Absolute and Relative Criterion*. Specifically, reinforcers and assistants were less popular and proactively aggressive and had fewer peer-valued characteristics than bullies, but more than adolescents in the other participant roles. Reinforcers and assistants were somewhat more prosocial and less disliked than bullies and displayed, in contrast to the highly reactively aggressive bullies, average levels of reactive aggression. Followers had the largest number of reciprocal friendships of all groups.

To summarize, followers were somewhat less powerful and visible and displayed less extreme negative behavior than bullies. Their lower levels of aggression could be explained by having a lower position in the status hierarchy than bullies. The high levels of popularity among adolescents who bully indicate their top status in the hierarchy. However, a disadvantage of this position is that assistants and reinforcers, who are positioned at the near-adjacent points of the status hierarchy, are a potential threat to take on the bullies' position (Prinstein & Cillessen, 2003). In order to defend their central position, adolescents who bully may need to display higher levels of negative behavior than reinforcers and assistants.

7

Adolescents who were victimized held the lowest position in the peer group, as they were both disliked and unpopular. Furthermore, they scored low on peer-valued characteristics, high on reactive aggression, and low on prosocial behavior. On the one hand, their low levels of prosocial behavior may be a consequence of victimization, because in line with previous studies victims had the fewest friendships and withdrew themselves (de Bruyn et al., 2010; Hodges & Perry, 1999). This indicates that they have less interaction with peers, and therefore few possibilities to develop their prosocial skills. On the other hand, high levels of reactive aggression and low levels of prosocial behavior are unattractive to peers, who therefore may be unlikely to enter friendships with victims. Being reactively aggressive and not being prosocial may be the cause of victims' low position in the peer group. This, in turn, might elicit bullying because there is less risk associated with bullying someone with a low position in the peer group. Victims' reactive aggression can further reinforce bullying because it is an ineffective, powerless way of retaliating that rewards the bullies (Salmivalli & Nieminen, 2002; Schwartz, Dodge, et al., 1998). To summarize, in middle adolescence children who are victimized have low status and a behavioral profile (low prosocial, high reactive aggression) that makes them attractive targets.

Adolescents who defend victims are the most prosocial and accepted members of the peer group. They are average in peer-valued characteristics and popularity and low in aggression. This is in line with previous studies that suggest that defending is positively associated with popularity in middle childhood but not in adolescence (Caravita et al., 2009; Sainio et al., 2011). Prioritizing popularity over other social goals increases from childhood into adolescence (LaFontana & Cillessen, 2010). Further, attraction to prosocial peers decreases in adolescence whereas attraction to aggressive peers increases (Bukowski et al., 2000). This might explain why the association between defending and popularity is less strong in adolescence than in childhood. In order to test this hypothesis, further research is needed on the dynamic interplay between age, prioritizing popularity, and defending behavior.

Outsiders were neither liked nor disliked by their peers, and were unpopular and withdrawn, but not as much as victims. Like adolescents who were victimized, they scored low on peer-valued characteristics. Previous research found that low levels of peer-valued characteristics are a risk factor for victimization, but that this risk can be attenuated by low levels of rejection (Knack et al., 2012). This may explain why outsiders are not victimized despite their relatively weak position in the peer group. Other protective factors for victimization for outsiders, in contrast to victims, are their average levels of prosocial behavior and low levels of aggression which might make them more pleasant to interact with and less rewarding potential victims for adolescents who bully

(Schwartz, Dodge, et al., 1998). The relatively weak position of outsiders in the peer group may explain why they withdraw from bullying situations. Outsiders may be at risk to become the next target of bullying when they defend victims, given their relatively low status in the peer group (Pöyhönen et al., 2010).

Absolute and Relative Criteria for Assigning Students to Participant Roles

The third goal of this study was to compare different criteria for assigning students to the participant roles of bullying. We split the students who were assigned to the participant roles according to the three relative criteria of Salmivalli, Lagerspetz, et al. (1996) into two subgroups based on an additional fourth absolute criterion: the *Relative Only Criterion* subgroup (proportion of classmates from whom nominations received < .10) and the *Absolute & Relative Criterion* subgroup (proportion of classmates from whom nominations received ≥ .10). The distribution of participants across the two subgroups showed a remarkable pattern. Almost all defenders and outsiders met the *Absolute & Relative Criterion*. In other words, almost all defenders and outsiders scored above average on their role as compared to their classmates *and* they were nominated by at least 10% of their peers. In contrast, less than half of the adolescents in the bully, assistant, reinforcer, and victim roles met the *Absolute & Relative Criterion*. The number of nominations given was lower for negative participant roles than for positive participant roles. A consequence of these small numbers of nominations given is that when using the original Salmivalli, Lagerspetz, et al. (1996) criteria in adolescence, a considerable number of students will be classified as bully, reinforcer, assistant, or victim when they are nominated by just one or two peers. Multiple explanations are possible for the low numbers of nominations for bullying, assisting, reinforcing, and victimization. One explanation may be that the prevalence of bullying is in fact low in some adolescent classrooms. In these classrooms, just one nomination already may lead to the classification as a bully (perhaps just based on a personal disliking). It may also be that bullying and follower behavior are less visible in adolescence when indirect aggression is more prevalent than direct aggression (Björkqvist et al., 1992). It is also possible that students are less aware of the negative roles of their classmates in secondary school when the grades are larger than in elementary school. Students often have classes with different groups of peers rather than just one set of classmates during the entire day. Students may also be more hesitant to nominate peers for negative participant roles than for positive roles. Further research should examine whether adolescents are less aware of the negative roles of their peers or whether they are more hesitant to nominate others for negative participant roles than children are. This could be achieved,

7

for example, by asking students for the reasons for not nominating anyone (e.g., also giving participants the option to choose 'I do not want to nominate a classmate for this question' and 'I do not know which classmate to nominate for this question').

Next, we compared the behavior and status profiles of the participant roles between students who met the *Relative Only Criterion* and students who met the *Absolute & Relative Criterion*. As predicted, status and behavioral characteristics of the participant roles were more distinct for the *Absolute & Relative Criterion* subgroup than for the *Relative Only Criterion* subgroup. The profiles of adolescents in the participant roles were most pronounced when they scored relatively high on a role compared to their classmates *and* when they were nominated by a substantial proportion of the classroom. When children are assigned according to the *Absolute & Relative Criterion* their reputation of having a certain role is more pronounced as more classmates perceive them as having this role than when they are assigned to a role according to the *Relative Only Criterion.*

Based on these findings we recommend using the *Absolute & Relative Criterion* for the participant roles in adolescence. That is, we encourage researchers to add the absolute criterion to the original relative criteria of Salmivalli, Lagerspetz, et al. (1996), as role differences were most pronounced when including this criterion. Another advantage of this additional criterion is that it prevents students from being assigned to a negative role based on just one or two nominations. This approach also takes into account that the distribution of roles may differ between classrooms, leaving more room for the possibility that not all participant roles are present in every classroom. In addition, the combined criterion is less prone to error, as adding an absolute criterion may reduce the number of false positives (Goossens et al., 2006).

Although we recommend the *Absolute & Relative Criterion*, there may be some limitations to its use. For example, under some circumstances one may have to use either a relative only or an absolute only criterion to obtain enough participants in each role. The combined criterion leads to smaller numbers in each role (particularly the negative roles) which may lead to power issues. In addition, it may be better to use an absolute only criterion instead of the *Absolute & Relative Criterion* when one wants to compare the prevalence of the participant roles across different reference groups or samples, because absolute criteria do not depend on classroom context.

Another possibility would be to use continuous scores, such as the standardized number nominations received within classrooms (*z*-scores) or proportion nominations received by the total number of classmates responding. They have the advantage that

one can take into account the full range of participant role behavior and that students can receive a high score on multiple roles simultaneously. A practical concern with approach is that it is not possible to directly compare adolescents with specific roles.

The current study may help researchers choose a criterion by showing their impact on the behavioral and status profiles of the roles. For example, an *Absolute & Relative Criterion* leads to more distinct role profiles of leadership than a *Relative Only Criterion,* whereas the type of criterion does not have a large impact on the distinctiveness of the attractiveness profile of the roles. We recommend further research to explicitly substantiate the choice for a certain strategy or criterion. In addition, we recommend that researchers consider the use of a combined criterion when examining the participant roles in adolescence.

Limitations and Suggestions for Further Research

This study had some limitations. First, the participant roles and the status and behavioral characteristics associated with them were only examined in a middle adolescent sample. We were not able to directly compare the behavioral and status characteristics of the participant roles between middle childhood, early adolescence, and middle adolescence in samples that are comparable in location, time, and procedure of data collection. The current study found that bullies are the most popular members of the peer group in adolescence. Further research among a sample with a large age range is warranted to directly test whether the association between bullying and popularity is stronger in middle adolescence than in middle childhood.

This study was cross-sectional and showed that the participant roles have different status and behavior profiles. In the discussion of the results, we speculated about the dynamic interplay between participant role behavior and status characteristics. For example, researchers often assume that bullying can be used to increase status (Juvonen & Galván, 2008). However, we could not examine whether involvement in the participant roles led to changes in status and behavior. It may also be that certain status and behavioral characteristics led to an increased chance of involvement in certain participant roles over time. Future longitudinal research on the directionality of the associations of the participant roles with status and behavioral characteristics is warranted.

Further, we only examined gender differences in the frequency of the participant roles. There may also be gender differences in the status and behavioral patterns associated with the participant roles. For example, it has been found that girls who engage in aggressive behavior such as reinforcing and assisting have a lower social status than

7

boys who engage in aggressive behavior (Salmivalli, Lagerspetz, et al., 1996). Future studies are needed to obtain a complete view of the role of gender in the association of the participant roles with status and behavioral characteristics in adolescence.

This study focused on characteristics of individual children and peer nomination scores controlled for differences in classroom size. The goal was to obtain a general overview of the characteristics of the participant roles in adolescence. However, this study was conducted in a large number of schools and classrooms and classroom characteristics (e.g., norms) may play a role in bullying role prevalence and associated characteristics. Taking classroom context into account would require a different analytic strategy. Further research should examine how classroom characteristics, such as bullying norms or the prevalence of victimization, would influence the characteristics associated with the participant roles.

This study used a shortened peer nomination version of the participant role questionnaire. This measure has some limitations. In contrast to peer ratings, nominations are less sensitive to gradations in the frequency of participant role behavior. In addition, adolescents could only be assigned to one role but in everyday bullying situations they may have more than one role (Goossens et al., 2006). For example, victims are also defenders of each other (Huitsing, Snijders, van Duijn, & Veenstra, 2014). Victims who have a secondary role as defender may be more prosocial than victims without such a secondary role. It may also be that certain participant roles take various forms regarding physical and relational aggression. For example, coming around to watch the situation may be less relevant when bullying occurs indirectly. Further research should examine the characteristics of adolescents in different role combinations, separately for physical and relational aggression. The study of such complex network structures of bullying in adolescence can build on the characteristics of the participant roles in adolescence documented in this study.

Most studies on the participant roles of bullying do not take bully-victims into account as separate role. However, previous studies found important differences between non-victimized bullies and bully-victims. Non-victimized bullies use aggression in a controlled strategic way, whereas bully-victims seem to be hot-tempered, dysregulated, and highly proactively and reactively aggressive (Salmivalli & Nieminen, 2002). Therefore, future research should take bully-victims into account as a separate role.

The current findings could contribute to the development of anti-bullying interventions in adolescence. Although bullying is still a problem in middle adolescence, many school teachers indicate that they only have an anti-bullying program or protocol in the first

years of secondary school. In addition, it has been found that anti-bullying programs are less successful in secondary school than in primary school (Kärnä et al., 2013; Yeager et al., 2015). The current findings may help to adapt existing anti-bullying interventions to adolescent samples. For example, studies have indicated that it is important to take adolescents' status into account in bullying interventions, as bullies are the most popular and socially dominant members of the peer group (Pöyhönen et al., 2012). Further research is needed on how classroom norms and attitudes could be changed in adolescence so that prosocial behavior, such as defending, becomes more important, whereas aggression becomes less important to obtain status in the group (Pöyhönen et al., 2012). By comparing the status and behavior characteristics of victims and outsiders, this study suggests that improving social skills and decreasing levels of aggression might lower adolescents' risk for victimization. The comparison of the *Relative Only Criterion* with the *Absolute & Relative Criterion* subgroups shows that adolescents whose role assignment is based on a shared perception of many classmates might play a particularly important role in anti-bullying programs. For example, defenders who met the *Relative & Absolute Criterion* were more prosocial and scored higher on leadership than defenders who met the *Relative Only* criterion, indicating that the first group may have a larger influence on classroom climate than the second group. Teachers and practitioners may therefore want to focus especially on students who meet both the relative and absolute criteria as change agents.

Conclusion

This study examined the prevalence and characteristics associated with the participant roles of bullying in adolescence. The prevalence of the roles and their associations with status and behavior in middle adolescence differed slightly from findings from studies that were conducted in middle childhood. Adolescents in the bully, reinforcer, and assistant roles were popular and powerful. Victims held the weakest position in the peer group and were low in prosocial behavior and strongly disliked. Adolescents who defended victims were accepted and prosocial, but less popular and socially dominant than bullies. Outsiders, like victims, held a weak position in the peer group, but were less disliked and aggressive and more prosocial than adolescents who were victimized. The status and behavior profiles of adolescents in the participant roles were more extreme for the *Absolute & Relative Criterion* subgroup than for the *Relative Only Criterion* subgroup.

08

The participant roles of bullying in different grades: Prevalence and social status profiles

ABSTRACT

This study investigated grade differences in the prevalence and social status profiles of the bullying participant roles. Participants were 598 primary school students (Grades 4-6), 545 students in the lower grades of secondary school (Grades 7 & 8), and 1650 students in the upper grades of secondary school (Grades 9-11). Students' participant roles, popularity, and social preference were measured with peer nominations. Bullies/followers were underrepresented among girls in primary school. Defenders were overrepresented among boys in primary school and among girls in the lower grades of secondary school. Outsiders were underrepresented among boys and overrepresented among girls in primary school. Victims were overrepresented among boys in primary school and underrepresented among boys in the upper grades of secondary school. Bullies/followers were equally popular as defenders in primary school, but more popular than defenders in secondary school. These differences further depended on the sex of the reference group. Bullies/followers were more popular than defenders among other-sex peers in the lower grades of secondary school but not among same-sex peers. In the upper-grades of secondary school, bullies/followers were more popular than defenders among other-sex peers and among same-sex peers. Grade differences in the social preference profiles of the participant roles were small.

Bullying can be seen as a group process in which students have different participant roles. Almost all students are aware of bullying and many are actively involved in it (Salmivalli, Lagerspetz, et al., 1996). In the last decades, multiple anti-bullying programs have been developed to target the group process of bullying. Although these programs have effectively reduced the level of bullying and victimization in primary schools, the efficacy of such anti-bullying programs is considerably lower in secondary schools (Kärnä et al., 2013; Yeager et al., 2015).

Anti-bullying programs may be less successful in secondary schools because the group process of bullying changes from primary to secondary school. This may be seen in differences in the prevalence of the participant roles between childhood and adolescence. As previous studies on the bullying participant roles focused on relatively narrow age ranges, direct comparisons of the prevalence of the roles between grades could not be made. Therefore, the first aim of this study was to compare the prevalence of the participant roles of bullying between three grade levels that correspond with the grouping of the Dutch school system: the upper grades of primary school (Grades 4-6, corresponding to ages 8 to 12), the lower grades of secondary school (Grades 7-8, corresponding to ages 12 to 14), and the upper grades of secondary school (Grades 9-12, corresponding to ages 14 to 18). Because the prevalence of the participant roles varies between boys and girls (e.g., Salmivalli, Lagerspetz, et al., 1996), the sex of the participants was also taken into account in these comparisons.

Another reason for the low efficacy of anti-bullying programs in secondary schools may be that the social status profiles of the participant roles differ between childhood and adolescence. The increasing importance of social status from childhood to adolescence (LaFontana & Cillessen, 2010) may affect the group process of bullying in important ways. Therefore, the second aim of this study was to examine grade differences in the social status profiles of the participant roles. Here, both participants' own sex as well as the sex of the reference group was taken into account by comparing social status among same-sex and other-sex peers. This was done because cross-sex interactions in peer relations increase in higher grades (Rubin et al., 2006) and status among same-sex versus other-sex peers may play different roles in the group processes of bullying in secondary school.

Prevalence of the Participant Roles of Bullying

Students can have different participant roles in bullying situations: *bullies* who start bullying, *assistants* who join the bullies and help them to attack the victim, *reinforcers* who encourage bullying by providing positive feedback to bullies (e.g., providing an audience), *defenders* who try to intervene or comfort the victim, *outsiders* who are

usually not present in bullying situations, and *victims* who are repeatedly victimized over a prolonged period of time and often have difficulties to defend themselves (Salmivalli, Lagerspetz, et al., 1996). In line with some previous studies, this study classified bullies, assistants and reinforcers into one *bully/follower* role (e.g., Chapter 9: Pouwels et al., 2017) because the characteristics of youths in these roles are very similar (Chapter 7: Pouwels, Lansu, et al., 2016).

The first difference in the group process of bullying between primary and secondary school may be the prevalence of the participant roles. There is preliminary support for the idea that the prevalence of the bully/follower and victim roles varies between childhood and adolescence. Salmivalli et al. (1998) compared the prevalence of the participant roles of Finnish lower-grades secondary school students (Grade 8) with their prevalence two years earlier in primary school (Grade 6). Indeed, assistants were more common (13% vs. 6%) and victims less common (5% vs. 12%) in Grade 8 than in Grade 6. In Chapter 7, Pouwels, Lansu, et al. (2016) also identified more followers (24%) and fewer victims (10%) in a Dutch sample of upper-grades secondary school students (Grades 9-12) than in a different Dutch sample of primary school students (Grades 3-4) studied by Goossens et al. (2006) (16% followers, 14% victims). The prevalence rates of the defender and outsider roles seem to be quite similar between different grades (Goossens et al., 2006; Chapter 7: Pouwels, Lansu, et al., 2016; Salmivalli et al., 1998). However, although these studies suggest grade differences in the prevalence of some participant roles between primary school and the lower and upper grades of secondary school, the prevalence could not be compared directly as study samples differed in location, measurement of the roles, and criteria for the roles. As the findings are inconclusive, the first main goal of this study was to systematically compare the prevalence of the participant roles between youths in three grade levels: primary school as well as the lower and upper grades of secondary school.

The grade differences in the prevalence of the participant roles may vary between boys and girls. Both in primary and secondary school, the bully and follower roles are more common among boys than girls, whereas the defender and outsider roles are more common among girls than boys (Chapter 7: Pouwels, Lansu, et al., 2016; Salmivalli, Lagerspetz, et al., 1996). These studies did not reveal sex differences in the prevalence of the victim role. Although this pattern seems to be similar at different grades, this has not been directly examined. We therefore directly assessed whether grade differences in the prevalence of the participant roles were identical for boys and girls.

Social Status Profiles of the Participant Roles of Bullying

The second difference in the group process of bullying between primary and secondary school may be in the social status profiles of the participant roles. In the literature, two types of peer status are distinguished: social preference and popularity (Parkhurst & Hopmeyer, 1998). Social preference indicates how well-liked students are by their classmates, whereas popularity is a measure of visibility, social dominance, and attention in the peer group (LaFontana & Cillessen, 2010). Social preference and popularity are moderately related (Cillessen & Mayeux, 2004) and each is distinctly related to the participant roles.

In primary school, bullies and followers are often popular, but disliked (Goossens et al., 2006; Sijtsema et al., 2009). Defenders tend to be popular and liked, whereas outsiders tend to be unpopular and average in social preference (Olthof et al., 2011; Salmivalli, Lagerspetz, et al., 1996). Victims are unpopular as well as disliked (Salmivalli, Lagerspetz, et al., 1996; Sijtsema et al., 2009).

There are indications that the social status profiles of bullies/followers and defenders differ between primary and secondary school. This can be explained by the maturity gap that youths experience when transitioning from primary to secondary school: although they become more mature in biological terms, they remain socially dependent on adults (Moffitt, 1993). Around the time youths experience this gap, they transfer from primary to secondary school and enter a new social reference group of older youths in which aggressive or delinquent behavior is more common (Moffitt, 1993). They become exposed to older peers among whom aggressive and antisocial behavior is more normative, and may start to imitate their behavior. By engaging in these more mature "adult-like" behaviors, adolescents may experience increased autonomy and adult status (Moffitt, 1993). Because antisocial behavior is seen as more mature and indicating autonomy, youths become more attracted to aggressive peers and less to prosocial peers (Bukowski et al., 2000). As bullying is a subtype of aggression, bullies and followers may thus be more popular in secondary school than in primary school. Defending is a subtype of prosocial behavior, and defenders may therefore be less popular in secondary school than in primary school.

Caravita et al. (2009) indeed found that bullying was related more strongly and defending less strongly to popularity in the lower grades of secondary school than in primary school. It is unclear whether bullies and followers are even more popular and defenders even less popular in the upper-grades of secondary school than in the lower-grades of secondary school. The distinction between the lower and upper grades of secondary school is important theoretically. Directly after the transition from primary to

8

secondary school, new peer groups are formed. But in the upper grades of secondary school, the structure of the peer group has been established and is more hierarchical. It can therefore be expected that role differences established in the first few years of secondary school are further exacerbated.

In addition to grade differences in the status profiles of bullies/followers and defenders, there may also be grade differences in the status profile of victims. As victims are often disliked, peers may dissociate themselves from them as they will lose status when they affiliate with a low-status peer (Juvonen & Galván, 2008; Sentse, Kretschmer, & Salmivalli, 2015). Peers may especially distance themselves from victims in the first grades of secondary school – a time in which having high status becomes increasingly important and new peer groups need to established (LaFontana & Cillessen, 2010). Therefore, the social preference and popularity of victims may be even lower in the lower grades of secondary school than in primary school and the upper grades of secondary school.

Taken together, theory and empirical evidence suggest larger status differences between the participant roles in secondary school than in primary school. However, the levels of social preference and popularity of all participant roles have not yet been examined across a large grade range. The second main goal of this study was thus to systematically compare the social status profiles of the participant roles of bullying between different grades.

Social Status Among Same-Sex and Other-Sex Peers

When examining how the social status profiles of the participant roles vary between grades, it is important to consider the sex of the reference group, that is, to make a distinction between social status among same-sex peers versus other-sex peers. In previous studies, bullying and victimization have been linked to social preference separately among same-sex peers and other-sex peers (e.g., Dijkstra, Lindenberg, & Veenstra, 2007; Olthof & Goossens, 2008). However, these studies were not able to compare these associations across development between broad grade levels. Other recent studies also examined popularity among same-sex versus other-sex peers (e.g., Troop-Gordon & Ranney, 2014), but did not link popularity to bullying involvement.

With development, cross-sex interactions among youth increase over time (Rubin et al., 2006). These interactions and interests may impact how adolescents are seen differentially by same- and other-sex peers. One developmental change is that adolescents become interested in other-sex peers who display antisocial behaviors (Bukowski et al., 2000). Antisocial peers are often attractive romantic partners because their behavior is seen as mature (Moffitt, 1993). The popularity profiles of bullies/followers and defenders and

grade differences therein may therefore depend on the sex of the reference group: grade differences in status may be stronger for their popularity with other-sex peers than for their popularity with same-sex peers. Therefore, we examined the social preference and popularity profiles of the participant roles among same-sex peers and among other-sex peers. We examined how these status profiles varied between primary school, the lower grades of secondary school, and the upper grades of secondary school. As for the previous goal, we explored whether there were differences between boys and girls.

The Present Study

The overall aim of this study was to examine the participant roles of bullying in different grades. The first goal was to examine grade differences in the prevalence of the participant roles between primary school (Grades 4-6), the lower grades of secondary school (Grades 7-8), and the upper grades of secondary school (Grades 9-12). Our hypothesis was that the prevalence of the bully/follower role would increase and the prevalence of the victim role would decrease with grade. No grade differences were expected in the prevalence of the defender and outsider roles. We also examined whether these grade differences were similar for boys and girls.

The second goal was to investigate differences in the status profiles of the participant roles between the same three grade levels. In primary school, we expected that bullies/followers would be more popular than defenders, who would be more popular than outsiders, and that victims would be less popular than all other roles. We also expected that in primary school defenders would be the most preferred, followed by outsiders, followed by bullies/followers, and that victims would be the least preferred of all roles. Moving from primary to secondary school, we expected that bullies/followers would become more popular, defenders would become less popular, and victims would become less popular. We also expected that victims would be especially disliked in the lower grades of secondary school. As a corollary of these grade differences, we expected that the status differences between the participant roles would be larger in secondary school than in primary school.

We further examined whether the grade-related differences in the status profiles of the participant roles depended on the sex of the reference group. We expected that the status differences between the participant roles would be larger for popularity and social preference among other-sex peers than among same-sex peers, especially in the upper grades of secondary school. We also explored the role of sex of the participant, but did not have specific hypotheses about how grade differences in the status profiles of the roles would vary between boys and girls.

8

METHOD

Participants and Procedure

Participants were part of several projects on bullying and peer relations using the same methods from the same lab in 2013 and 2014. All studies were approved by the Institutional Review Board of the university. Data of the primary and lower-grade secondary school samples have not been published before. These samples were recruited by sending a letter to schools in the Eastern part of the Netherlands explaining the study and asking teachers to participate. The data of the upper-grades secondary school sample stem from Wave 9 of the Nijmegen Longitudinal Study, an ongoing study on child development in the Netherlands (for more details, see Chapter 7: Pouwels, Lansu, et al., 2016). Examination of data of the upper-secondary school sample has been published before in Chapter 7 (Pouwels, Lansu, et al., 2016). In the present study, we conducted secondary analyses on these data to make direct comparisons between upper-grades secondary school students, lower-grades secondary school students, and primary school students.

In each sample, parents were sent a letter explaining the study details. They were asked to return the letter if they did not want their child to participate in the study. Informed assent was obtained from the children. Table 8.1 presents an overview of the inclusion of schools, classrooms, and participants and their demographic characteristics by grade level. The final sample consisted of 598 primary school, 545 lower-grades secondary school, and 1491 upper-grades secondary school students.

Data were collected during a one-hour classroom session. Primary school students completed the measures on paper. Secondary school students participated in a computerized sociometric assessment. Each student was provided with a mini-laptop computer on which they filled in the questionnaire in their own classroom. We separated the desks and placed partitioning screens on each desk to prevent students from seeing each other's laptop screens. Further details are provided by van den Berg and Cillessen (2012), who also compared sociometric scores resulting from computerized and paper-and-pencil assessments and found no substantial differences. For each sociometric question, the classroom was the reference group and students could nominate both same-sex and other-sex peers. They were allowed to nominate an unlimited number of peers.

Table 8.1. Inclusion of Participants and Demographics by Grade Level

	Primary School				Lower-Grades Secondary School				Upper-Grades Secondary School			
	M (SD)	Level	N	%	*M (SD)*	Level	N	%	*M (SD)*	Level	N	%
Schools			11				2				24	
Classrooms			24				23				63	
Excluded: >75% boys/girls[1]			0				0				7	
Included:			24				23				56	
Classroom size	25.00(4.73)				23.87(3.97)				26.56(3.49)			
Grade Level		Grade 4	1			Grade 7	6			Grade 9	3	
		Grade 4 & 5	1			Grade 8	17			Grade 10	28	
		Grade 5	10							Grade 11	25	
		Grade 5 & 6	2									
		Grade 6	10									
Students			607				545				1650	
Excluded:			8				0				12	
No parental consent			7				0				8	
No consent participant			1				0				4	
Included:			598				545				1491	
Present			577				533				1345	
Absent[2]			21				12				145	
Did not speak Dutch			1				0				0	
Given nominations excluded[3]			0				0				1	

8

Table 8.1. (continued)

	Primary School				Lower-Grades Secondary School				Upper-Grades Secondary School			
	M (SD)	Level	N	%	M (SD)	Level	N	%	M (SD)	Level	N	%
Demographics												
Gender (N Girls)			300	50%			287	53%			747	50%
Age	11.23(.79)				13.39(.67)				16.40 (.76)			
Educational Level[4]						VMBO/HAVO	98	18%		VMBO	192	13%
						HAVO/VWO	143	16%		HAVO	629	42%
						VWO	34	6%		VWO	670	45%
						MIXED	270	50%				
Ethnicity (N Caucasian)			472	82%			480	90%			1094	81%

Notes. [1]As students' social status among same- and other-sex peers was the topic of interest of our study, we excluded classrooms in which more than 75% of the students were boys or girls. [2]We included students who were absent or who did not speak Dutch, as they could be nominated by classmates. [3]The given nominations of 1 participant were excluded as there were indications that this participant did not complete the questionnaire in a serious way. The number of nominations received by this participant were taken into account in the analyses. [4]In the Netherlands, students are segregated into different educational tracks in secondary education: VMBO = Pre-vocational track, HAVO = Intermediate secondary education, VWO = College preparatory.

Measures

Participant roles of bullying. Students' participant roles of bullying were assessed with the Dutch translation (Chapter 7: Pouwels, Lansu, et al., 2016) of the shortened Participant Role Questionnaire (PRQ) (Kärnä et al., 2013; Salmivalli & Voeten, 2004). Students were provided with statements describing different behaviors in bullying situations and were asked to nominate classmates who showed these behaviors. The PRQ has one scale with three questions for each participant role: bully (e.g., "Who starts bullying?"), assistant (e.g., "Who joins in the bullying, when someone else has started it"), reinforcer (e.g., "Who comes around to watch the situation when someone is being bullied?"), defender (e.g., "Who tells the others to stop bullying"), and outsider (e.g., "Who does not take sides with anyone"). Victimization was examined by asking students to nominate classmates for four items (e.g., "Who is victimized by being neglected or excluded?", see Chapter 7: Pouwels, Lansu, et al., 2016). For all participant role items, students could nominate an unlimited number of peers, but could also nominate no one.

For each student, the number of nominations received was counted and standardized to z-scores within classrooms. We then computed a mean score for each original participant role subscale, which we again standardized within classrooms. Cronbach's alpha was .93 for the bully scale, .71 for the assistant scale, .72 for the reinforcer scale, .89 for the defender scale, .79 for the outsider scale, and .87 for the victim scale. In line with Chapter 7 (Pouwels, Lansu, et al., 2016), in the upper-grades secondary school sample, one item ("Who goes and gets the victims for the bully") of the assistant scale was excluded as this led to an improvement of Cronbach's alpha of the scale in the upper-grades secondary school sample (.63 vs. .70).

Students were assigned to the participant roles based on the criteria of Salmivalli, Lagerspetz, et al. (1996). They were assigned to a role if they scored above the classroom average on the scale for that role ($z > 0$). If students scored above average on more than one scale, they were assigned to the role for which they had the highest scale score. The difference between their highest and second highest scale score had to be at least .10. We did not assign a role to 11% of the students ($n = 280$), because the difference between their highest and second highest scale was smaller than .10 or because they did not score above the classroom average on any scale.

In line with Chapter 9 (Pouwels et al., 2017), bullies, assistants, and reinforcers were assigned to one combined bully/follower role. This was done because separating bullies from assistants and reinforcers would result in groups within each grade and sex that were too small to reliably analyze the data. For example, only 6 girls could be assigned

8

to the bully role in primary school, whereas 39 girls could be assigned to the combined bully/follower role. Previous research supports the combination of bully, assistant, and reinforcer roles, as their status profiles are relatively similar in adolescence (Chapter 7: Pouwels, Lansu, et al., 2016).

Social status among same-sex and other-sex peers
We examined social status by asking students to nominate classmates who were popular ("Who are most popular?") and unpopular ("Who are least popular?"), and who they liked ("Who do you like the most?") and disliked ("Who do you like the least?"). For each question, students had to nominate at least one classmate. For each student we calculated the number of nominations received from same-sex peers and other-sex peers for each item, and standardized them into z-scores within classrooms. This was done separately for boys and girls, to control for differences in sex distribution between classrooms, in addition to differences in classroom size. Popularity among same-sex peers was determined by taking the difference between the standardized numbers of most popular and least popular nominations received from same-sex peers. Social preference among same-sex peers was determined by taking the difference between the standardized numbers of liked most and liked least nominations received from same-sex peers. We again standardized the difference scores within classrooms and sex. Scores for popularity and social preference among other-sex peers were calculated in the same way using the nominations received from other-sex classmates.

RESULTS

Prevalence of the Participant Roles by Age
Our first main goal was to examine grade differences in the prevalence of the participant roles. Table 8.2 shows the distribution of the roles (Bullies/Followers, Defenders, Outsiders, Victims) by grade level (Primary School, Lower-Grades Secondary School, Upper-Grades Secondary School). A χ^2 test indicated no association between roles and grade level, $\chi^2(8, n = 2784) = 10.86$, $p = .21$, in the total sample.

We repeated this test for boys and girls separately. Table 8.2 shows the distribution of the roles across grade levels for boys and girls. For boys, there was a significant association between roles and grade levels, $\chi^2(8, n = 2784) = 25.65$, $p = .001$. Adjusted standardized residuals showed that the bully/follower role was not under- or overrepresented in a certain grade. In primary school, *defenders* and *victims* were overrepresented, whereas *outsiders* were underrepresented. In the upper-grades of secondary school, the *victim* role was underrepresented.

For girls, there was also a significant association between roles and grade levels, χ^2(8, n = 2784) = 27.5, p = .001. Adjusted standardized residuals showed a different pattern for girls. For girls, the *bully/follower* role was underrepresented in primary school. The *defender* role was overrepresented in the lower grades of secondary school. The *outsider* role was overrepresented in primary school and underrepresented in the lower grades of secondary school. The *victim* role was not under- or overrepresented in any grades.

In summary, there were no grade differences in the prevalence of the participant roles in the total sample. However, when broken down by sex, there were grade differences in the prevalence of the defender, outsider, and victim roles for boys, and in the bully/follower, defender, and outsider roles for girls.

Grade Differences in Same-Sex and Other-Sex Status of the Bullying Participant Roles

Our second main goal was to examine grade differences in the social status profiles of the participant roles, and whether these differences depended on sex of the participant and reference group (same-sex vs. other-sex). We analyzed popularity and social preference in separate models. For each, we conducted a 4 (Participant Role: Bully/Follower, Defender, Outsider, Victim) x 3 (Grade Level: Primary School, Lower-Grades Secondary School, Upper-Grades Secondary School) x 2 (Participant Sex: Boy, Girl) x 2 (Reference Group: Same-Sex, Other-Sex) ANOVA, with reference group as a repeated measures factor.

Grade differences in same-sex and other-sex popularity of the bullying participant roles. The ANOVA for popularity yielded a main effect of participant role, F(3, 2331) = 332.45, p < .001, η_p^2 = .30. Bonferroni post-hoc comparisons showed that bullies/followers were significantly more popular than defenders, who were significantly more popular than outsiders. Victims were significantly less popular than all other roles.

Our main question was whether the differences between the participant roles on popularity depended on grade, and whether this grade effect varied between same-sex and other-sex popularity. The analysis yielded a significant participant role x grade level x reference group interaction, F(6, 2331) = 2.63, p = .015, η_p^2 = .007. To further examine this effect, we tested the univariate effects of participant role for each grade level separately for same- and other-sex popularity. Within each grade level, a main effect of participant role on same- and other-sex popularity was found (see Table 8.3). This main effect increased in strength by grade for both same-sex and other-sex popularity. Thus, the differences in popularity between the participant roles were larger in adolescence than in childhood.

Table 8.2. Observed Frequencies per Grade Level, Percentages within Grade Level, and Expected Frequencies of the Participant Roles of Bullying by Sex

	Primary School			Lower-Grades Secondary School			Upper-Grades Secondary School			Total
	n	% within grade level	n expected	n	% within grade level	n expected	n	% within grade level	n expected	n
Total										
Bully/Follower	181_b	30%	203	184	34%	185	529	35%	506	894
Defender	127	21%	123	124	23%	111	288	19%	305	539
Outsider	146	24%	144	122	22%	131	366	25%	359	634
Victim	77	13%	65	62	11%	60	149	10%	163	288
No Role	68	11%	64	53	10%	58	159	11%	158	280
Total	599			545			1491			2635
Boys										
Bully/Follower	142	48%	144	118	46%	124	366	49%	358	626
Defender	38_a	13%	27	18	7%	23	60	8%	66	116
Outsider	36_b	12%	60	62	24%	52	164	22%	150	262
Victim	46_a	15%	35	32	12%	31	76_b	10%	88	154
No Role	37	12%	33	28	11%	28	78	11%	82	143
Total	299			258			744			1301
Girls										
Bully/Follower	39_b	13%	60	66	23%	58	163	20%	150	268
Defender	89	30%	95	106_a	37%	91	228	31%	237	423
Outsider	110_a	37%	84	60_b	21%	80	202	28%	208	372
Victim	31	10%	30	30	10%	28	73	10%	75	134
No Role	31	10%	31	25	9%	30	81	11%	77	137
Total	300			287			747			1334

Note. Frequencies with subscript $_a$ had adjusted standardized residuals larger than 2 and refer to overrepresentations. Frequencies with subscript $_b$ had adjusted standardized residuals smaller than -2 and refer to underrepresentations.

Table 8.3. Means and Standard Deviations of Same- and Other-Sex Popularity by Grade Level by Participant Role

Grade Level	Bully/follower (n = 894)		Defender (n = 539)		Outsider (n = 634)		Victim (n = 288)		F(3, 2331)	η_p^2
	M	SD	M	SD	M	SD	M	SD		
Same-sex popularity										
Primary school	.39$_a$	.85	.40$_a$	.87	-.39$_b$	.82	-.99$_c$	.79	66.90*	.08
Lower-secondary school	.55$_a$	.78	.27$_a$	.69	-.42$_b$	.75	-1.28$_c$	.72	99.34*	.11
Upper-secondary school	.54$_a$	.81	.24$_b$	.76	-.50$_c$	.73	-1.13$_d$	.92	235.52*	.23
Other-sex popularity										
Primary school	.35$_a$	.85	.45$_a$	.96	-.39$_b$	.77	-.88$_c$	.81	56.50*	.07
Lower-secondary school	.60$_a$	.75	.22$_b$	.76	-.58$_c$	.73	-1.09$_d$	.73	95.35*	.11
Upper-secondary school	.52$_a$	.84	.28$_b$	.79	-.50$_c$	.74	-1.11$_d$	.85	216.07*	.22

*Note. * p < .001. Means within rows that do not share an identical subscript were statistically significantly different between roles in a Bonferroni post-hoc comparison test.*

Table 8.4. Means and Standard Deviations of Same- and Other-Sex Social Preference by Grade Level by Participant Role

Grade Level	Bully/follower (n = 894)		Defender (n = 539)		Outsider (n = 634)		Victim (n = 288)		F(3, 2331)	η_p^2
	M	SD	M	SD	M	SD	M	SD		
Same-sex preference										
Primary school	-.13$_b$	.92	.41$_a$	.81	.14$_a$	.95	-.81$_c$	.97	33.59*	.04
Lower-secondary school	-.06$_b$	.91	.56$_a$	.69	.10$_b$	.83	-1.12$_c$	.96	40.20*	.05
Upper-secondary school	-.17$_b$	1.01	.32$_a$	.86	.20$_a$	.78	-.69$_c$	1.04	51.54*	.06
Other-sex preference										
Primary school	-.18$_b$	.95	.48$_a$	.84	.07$_b$	.84	-.65$_c$	1.04	27.64*	.03
Lower-secondary school	-.05$_a$	1.03	.28$_a$	.87	.03$_a$	.75	-.74$_b$	.95	14.59*	.02
Upper-secondary school	-.11$_b$	1.00	.40$_a$	.86	.05$_c$	.85	-.65$_c$	.99	45.40*	.06

*Note. * p < .001. Means within rows that do not share an identical subscript were statistically significantly different between roles in a Bonferroni post-hoc comparison test.*

8

In order to examine which roles differed from each other in each grade level, Bonferroni post-hoc comparisons were conducted.

In primary school, among both same- and other-sex peers, bullies/followers and defenders were significantly more popular than outsiders who, in turn, were significantly more popular than victims. This pattern replicated for same-sex popularity in the lower-grades of secondary school. However, for other-sex popularity, there was a difference in popularity between bullies/followers and defenders, with bullies/followers being more popular than defenders. In upper-grades secondary school the latter pattern was found for both same-sex and other-sex popularity. These results suggest that the difference in popularity between bullies/followers and defenders was larger in secondary school than in primary school. This difference was already visible in the lower-grades of secondary school for popularity among other-sex peers but not (yet) among same-sex peers.

In order to further understand the data, we conducted another set of univariate effects analyses to identify whether the increased difference in popularity between bullies/followers and defenders by grade was due to grade-related differences in popularity among bullies/followers, defenders, or both. Therefore, we tested the univariate effects of grade level by participant role separately for same- and other-sex popularity. No significant grade effects on same-sex popularity were found for each role. However, there was a significant effect of grade on other-sex popularity for bullies/followers, $F(2, 2331) = 3.80$, $p = .02$, $\eta_p^2 = .003$, and a marginally significant effect for defenders, $F(2, 2331) = 2.99$, $p = .05$, $\eta_p^2 = .003$. No grade effects for other-sex popularity were found for outsiders and victims. Bonferroni post-hoc comparisons showed that bullies/followers were more popular among other-sex peers in lower-grades secondary school than in primary school. In contrast, defenders were more popular among other-sex peers in primary school than in the upper-grades of secondary school. Thus, the larger difference in popularity between bullies/followers and defenders in the higher grades than in the lower grades was due to higher levels of popularity according to other-sex peers among bullies/followers in the higher grades than in the lower grades and lower levels of popularity among defenders.

Finally, we examined whether there were any main effects or interactions of sex of the participant on same-sex or other-sex popularity. No main effects of or interactions including sex of the participant were found. Thus, the increased difference between bullies/followers and defenders by grade on same- and other-sex popularity was found for both boys and girls.

In summary, differences between the participant roles in popularity were larger in secondary school than in primary school. In primary school, bullies/followers were as popular as defenders, whereas in secondary school, they were more popular than defenders. These grade differences depended on the sex of the reference group but not on sex of the participant.

Grade differences in same-sex and other-sex preference of the bullying participant roles

The ANOVA for social preference also yielded a main effect of participant role, $F(6, 2331) = 142.64$, $p < .001$, $\eta_p^2 = .16$. Bonferroni post-hoc comparisons showed that defenders were significantly more preferred than outsiders, who were significantly more preferred than bullies/followers. Victims were significantly less preferred than all other roles.

Our main question was whether the differences between the participant roles in social preference depended on grade, and further varied between same- and other-sex preference. The ANOVA yielded a significant participant role x grade level x reference group interaction, $F(3, 2331) = 2.34$, $p < .030$, $\eta_p^2 = .01$. Univariate follow-up analyses yielded main effects of participant role on same- and other-sex social preference for each grade level. The most consistent finding was that across all grades, victims were significantly less preferred than all other roles by both same- and other-sex peers. There were only minor variations in the participant role comparison by grade. These variations are shown in detail in Table 8.4, but because the effect sizes were small, are not further discussed here.

In addition, we examined grade differences in social preference among same- and other-sex peers for each role. We tested the univariate effect of grade level for each participant role separately for same- and other-sex preference. No significant grade effects on social preference were found for bullies/followers, defenders, and outsiders. However, a significant effect of grade on same-sex social preference was found for victims, $F(2, 2331) = 5.03$, $p = .007$, $\eta_p^2 = .004$. Bonferroni post-hoc comparisons showed that in lower-grades secondary school, victims had lower social preference among same-sex peers than in upper-grades secondary school. For victims' other-sex social preference, there was no grade effect.

Finally, we examined whether there were any main effects or interactions of participant sex on same-sex and other-sex social preference. No main effects of sex or interactions including sex of the participant were found. Thus, the grade differences in the same-sex and other-sex preferences for the roles did not vary for boys and girls.

8

In summary, overall, grade differences in social preference profiles of the participant roles were relatively small. Compared to all roles, victims were least preferred in all grades. Victims' social preference among same-sex peers was lower in the lower grades of secondary school than in the upper grades of secondary school.

DISCUSSION

The present study sheds light on grade differences in the group process of bullying. We investigated grade differences in the prevalence and status profiles of the participant roles of bullying. Regarding social status, grade differences in popularity and social preference among same-sex and other-sex peers were examined.

Grade Differences in the Prevalence of the Participant Roles

The first main goal of this study was to examine grade differences in the prevalence of the participant roles. We expected that the bully/follower role would be more common among older than younger students (Goossens et al., 2006; Chapter 7: Pouwels, Lansu, et al., 2016; Salmivalli et al., 1998), as bully/follower behavior is associated with popularity, which is especially important in secondary school. This hypothesis was confirmed for girls, but not for boys. This sex difference may be explained by the different types of aggression that boys and girls typically use in bullying situations. Girls are more likely to use relational aggression than boys (Crick & Grotpeter, 1995), and relational aggression is more effective than physical aggression to enhance or maintain a powerful position in the peer group (Cillessen & Mayeux, 2004). As the association between relational aggression and popularity is particularly strong for girls (Cillessen & Mayeux, 2004), it could be that especially girls in secondary school use relational aggression in a bullying context to gain status, that is highly valued in this period (LaFontana & Cillessen, 2010). This might explain why the prevalence of bully/follower behavior was higher in secondary school than in primary school for girls.

For victimization, we expected that the prevalence would be lower among older than younger students. For boys, this was confirmed. In higher grades, social skills are more advanced and adolescents may be better able to respond to bullying situations, which may decrease their chance of being victimized (Pellegrini & Long, 2002). For girls, no grade differences in the prevalence of victimization were found. For girls, two qualitative changes take place and their effects on the prevalence of peer victimization may cancel each other out. On the one hand, (relational) bullying increases with grade. As girls are most likely to display relational aggression to other girls (Crick et al., 2001), the prevalence of peer victimization may increase among girls. On the other hand, girls'

social skills also increase with development, reducing their chance on being victimized (Pellegrini & Long, 2002). As girls may be better able to respond to bullying due to their social skills development, the increase in (relational) bullying in girls may not result in an increased prevalence of victimization. Thus, the net prevalence of peer victimization may remain similar across grades for girls.

For defending behavior, we did not expect grade effects. However, for girls, the prevalence of defending behavior was particularly high in the lower grades of secondary school. This may be explained by the relatively high prevalence of bullying among girls in this period. When there are more incidents of bullying, there is also more need to defend a peer. As victims tend to be defended by same-sex peers (Sainio et al., 2011), this could explain why defending behavior was more common in the first grades of secondary school than in primary school for girls, but not for boys.

For girls, the prevalence of defending behavior was particularly high in the lower grades of secondary school but not in the upper grades. It has been suggested that bullies initially target a wide range of students in a new social group, such as after a school transition. Given the high prevalence of defending, some girls are probably defended by their peers in the first grades of secondary school, which diminishes the rewards of bullying them. In the upper grades, it may be more effective for bullies and followers to direct their aggression towards students who are not defended by peers, as the risk for retaliation is then lower. Moreover, the peer hierarchy may be more stable and aggression may be more systematically directed at a smaller group of socially weak girls in the upper grades than earlier (Pellegrini & Long, 2002). The motivation to defend this weak group is low, as peers tend to dissociate themselves from low status peers in order to prevent losing their own status (Juvonen & Galván, 2008). This may result in a lower prevalence of defending in the upper grades than in the lower grades of secondary school.

For boys, the prevalence of defending was particularly high in primary school rather than in secondary school. This is in line with Trach, Hymel, Waterhouse, and Neale (2010) who found that among boys, the frequency of self-reported defending behavior was higher in childhood than in adolescence. In contrast to girls, the prevalence of bullying was not particularly high among boys in secondary school, indicating that the need to defend their peers was relatively low among boys. For boys, the lower prevalence of defending in the higher grades could therefore be explained by defenders being less popular in adolescence than in childhood. Students who pursue popularity may refrain from defending in secondary school, as defending is less valued in terms of peer status.

8

With regard to the prevalence of outsider behavior, we did not expect grade differences. However, our findings revealed some grade differences in the prevalence of outsider behavior for both boys and girls. These grade differences seem to be related to grade differences in the prevalence of the other roles. For boys, in the higher grades, the prevalence of the outsider role was higher and the prevalence of the defender and victim role was lower than in the lower grades. For girls, in the higher grades, the prevalence of outsider behavior was lower and the prevalence of bully/follower behavior and defender behavior was higher than in the lower grades. Due to the cross-sectional nature of this study, we do not know whether these differences between grades also reflect grade-related differences within individual students. Future longitudinal research should examine the stability of the participant roles and assess which role transitions are most prevalent.

Grade Differences in the Social Status Profiles of the Participant Roles

The second goal of this study was to examine grade differences in the social status profiles of the participant roles. In line with our hypotheses, the differences in popularity between the participant roles increased from primary, to lower-grades secondary, to upper-grades secondary education. These differences could be explained by grade differences in the popularity of bullies/followers and defenders that were found in this study. In primary school, there were no differences in popularity between bullies/followers and defenders; students in both roles were popular. In the last grades of secondary school, bullies/followers were more popular than defenders because bullies/followers are more and defenders less popular in adolescence than in childhood.

The changing associations of popularity with defending and bullying with grade are in line with Caravita et al. (2009), who showed that the association between bullying and popularity was stronger in the lower grades of secondary school than in primary school, whereas the association between defending and popularity was stronger in primary school than in the lower grades of secondary school. In secondary school, students become increasingly attracted to antisocial peers and less attracted to prosocial peers (Bukowski et al., 2000). In order to establish or maintain a popular position in the peer group, secondary school students may therefore bully others or follow the bully (Juvonen & Galván, 2008). As students get older, they prioritize popularity over rule adherence (LaFontana & Cillessen, 2010). This may explain why popularity is more strongly related to bullying and follower behavior in the upper grades of secondary school than in the lower grades of secondary school and primary school and less strongly to defending.

The grade differences in the popularity profiles of bullies/followers and defenders depended on sex of the reference group. In the first grades of secondary school, bullies/followers were already more popular among other-sex peers than defenders, but not yet among same-sex peers. When children transit into secondary school, they become interested in other-sex peers who behave antisocially, because these peers already bridged the maturity gap and are seen as attractive romantic partners (Bukowski et al., 2000; Mayeux, 2011). As bullies/followers are popular among other-sex peers in lower-grades secondary schools, they may become increasingly visible among their same-sex peers. Same-sex peers may believe that affiliating with adolescents who are popular with the other sex will help them increase their own other-sex status. Indeed, early adolescents' status among other-sex peers impacts their prospective status among same-sex peers (Troop-Gordon & Ranney, 2014). Our findings are in line with this study as bullies/followers were more popular than defenders among other-sex peers in the lower grades of secondary school but not yet among same-sex peers. In the upper-grades of secondary school, this difference in popularity between the roles was present for both same- and other-sex peers.

We did not find large grade differences in the associations of the participant roles with social preference. Across all grades, defenders were liked most, followed by outsiders, bullies, and victims. Although some roles differed significantly from each other in certain grades but not at others, grade differences were small. Thus, grade differences in the associations of popularity with bully/follower and defending behavior are not reflected in youths' social preference profiles.

Victims were consistently rejected throughout primary and secondary school. In lower-grades secondary school, they were more rejected by their same-sex peers than in primary school and the upper grades of secondary school. After the transition from primary to secondary school, new peer hierarchies are established (Pellegrini & Long, 2002) and peers may be especially likely to dissociate themselves from victims to avoid losing status (Juvonen & Galván, 2008). Rejected youths may therefore be less likely to be defended and run a great risk of being bullied, as bullies strategically pick on victims who have a low status among their own gender (Veenstra et al., 2010; Veenstra et al., 2007). This may minimalize bullies' loss of acceptance among their same-gender peers.

Strengths, Considerations, and Suggestions for Further Research

The key strengths of this study are the direct comparison of grades, the large sample size, and the examination of grade differences in both same- and other-sex social preference and popularity. This study also had some limitations. Our grade comparisons were cross-sectional. Therefore, we do not know how stable youths' participant roles

8

involvement is over time. Moreover, we could not test the direction of effects between social status and bullying involvement over time. To reveal the temporal relations of the participant roles with social status, longitudinal research is needed of the participant roles that includes the transition from primary school to secondary school.

A suggestion for further research is to examine variability between classrooms in the prevalence and social status profiles of the participant roles within certain grades. We found grade differences in the prevalence and status profiles of the participant roles. However, within each grade, the prevalence of the participant roles varied between classrooms and the participant roles may be related to social status in a different way in different classrooms.

We assume that the grade changes in status profiles of the participant roles are related to youths' increased motivation to be popular (LaFontana & Cillessen, 2010). Further research could directly test this assumption by examining grade-related changes in youths' social motivations, social status, and participant role involvement in one study.

Practical Implications

The findings of this study have a number of practical implications. A meta-analysis has shown that anti-bullying programs are less effective in secondary schools than in primary schools (Yeager et al., 2015). Our findings suggest that one reason may be that popularity is more important in the group process of bullying in secondary schools than in primary schools. As bullying is more rewarding in terms of popularity, bullying may be relatively difficult to change in secondary school students as being popular is highly valued in secondary school. Indeed, Garandeau, Lee, and Salmivalli (2014) demonstrated that the KiVa anti-bullying program, in which the participant roles are the central focus, does not decrease bullying by popular adolescents. This may explain why anti-bullying programs are less successful in secondary schools than in primary schools because bullies/followers are more popular in secondary school, whereas these programs are relatively ineffective in targeting popular students (Kärnä et al., 2013; Yeager et al., 2015).

Another reason for the lower efficacy of anti-bullying programs in adolescence may be that defenders are less popular in secondary school than in primary school. As secondary school students are more attracted to aggressive peers than primary school students (Bukowski et al., 2000), it may be more risky to defend a peer in secondary school as it may come with a cost to one's own status. Moreover, as bullies/followers are more popular than defenders in adolescence, there is a larger power imbalance between both groups, which may increase the risk for defenders to become the next target of

bullying. This suggests that although anti-bullying programs in primary schools may effectively reduce bullying by promoting defending behavior, anti-bullying programs in secondary schools may be less effective in reducing bullying by promoting defending.

Anti-bullying programs for primary school students are often adapted to make them more age-appropriate for secondary school students (Yeager et al., 2015). The theoretical idea behind the intervention often remains the same. However, given the grade differences related to social status in the group process of bullying, we recommend that anti-bullying programs with a different theoretical basis should be developed for secondary school students. These programs should specifically focus on the important role of social status and particularly popularity in bullying. Recently, interventions have been developed that try to change group norms. For example, the meaningful roles intervention tries to alter the association between popularity and bullying by providing adolescents prosocial alternatives that may also lead to popularity (Ellis, Volk, Gonzalez, & Embry, 2016). This intervention could be a starting point to further develop and evaluate anti-bullying programs for secondary school students.

Conclusion

This study revealed that the group process of bullying and the role of social status in it depends on grade. Popularity, but not social preference, seems to play a more prominent role in the group process of bullying in secondary school than in primary school. Research and practitioners should take the important role of popularity into account when studying the bullying participant roles in adolescence and in their efforts to improve anti-bullying programs for secondary schools.

8

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Predicting adolescents' bullying participation from developmental trajectories of social status and behavior

ABSTRACT

The aim of this study was to determine how trajectory clusters of social status (social preference and perceived popularity) and behavior (direct aggression and prosocial behavior) from age 9 to age 14 predicted adolescents' bullying participant roles at age 16 and 17 ($n = 266$). Clusters were identified with multivariate growth mixture modeling. The findings showed that participants' developmental trajectories of social status and social behavior across childhood and early adolescence predicted their bullying participant role involvement in adolescence. Practical implications and suggestions for further research are discussed.

Bullying is a group process in which children have different participant roles (Hymel, McClure, Miller, Shumka, & Trach, 2015; Salmivalli, 2010). Previous studies on the participant roles have three limitations. First, most studies have focused on middle childhood or early adolescence and few have examined the participant roles in adolescence. Second, although much is known about the concurrent associations of the participant roles of bullying with social status and behavior, much less is known about the developmental precursors of the participant roles. Longitudinal studies have provided some valuable insights into the developmental predictors of the bully and victim roles (e.g., Caravita et al., 2009; Cook et al., 2010; Sentse, Kretschmer, et al., 2015), but little is known about the predictors of the other roles. Third, longitudinal predictions of the bully and victim roles were sometimes difficult to integrate because they used a variable-centered approach such as longitudinal panel models, that showed significant effects at some ages but not at others (see e.g., Sentse, Kretschmer, et al., 2015). Longitudinal panel models cannot generalize to more than two time points. Combining a variable-centered with a person-centered approach provides a more integrated perspective on the childhood trajectories leading up to each role. For example, latent growth models examine growth in developmental trajectories and capture individual differences over time. In contrast to longitudinal panel models that focus on changes in relative rank ordering, growth models assume that adolescents' involvement in bullying may be predicted from an accumulation of earlier social experiences by taking mean changes in social status and social behavior at both the individual and group levels into account. Instead of focusing on levels of social status and behavior at specific ages the goal of this paper was to examine the trajectories that connect childhood experiences to adolescent participant role involvement. We examined what trajectories of social status and behavior across middle childhood and early adolescence predicted the bullying participant roles in adolescence. We used a person-centered approach with data from an ongoing longitudinal study across 7 years. We first identified clusters of youths based on trajectories of social status and clusters based on trajectories of social behavior across middle childhood and early adolescence (Grades 3 to 8). We then examined how these longitudinal clusters were associated with the participant roles of bullying in adolescence (Grades 10 and 11).

The Bullying Participant Roles

Salmivalli, Lagerspetz, et al. (1996) proposed six participant roles of bullying: *bullies* who start bullying; *assistants* who join the bullies by helping them to attack the victims; *reinforcers* who encourage bullying by providing an audience and inciting the bully; *defenders* who comfort the victim and try to intervene; *outsiders* who stay away from bullying situations; and *victims* who are relatively powerless children who are repeatedly

victimized over a prolonged period of time (Solberg & Olweus, 2003). Victims may reinforce bullying by responding with withdrawn behavior or reactive aggression to being the target of aggressive acts of their peers (Schwartz et al., 1993). As all six bullying roles contribute to the bullying process, examining their developmental predictors is an important research goal. In this study, this general goal was translated into two specific goals: predictions of adolescent participant roles from childhood trajectories of social status and predictions from childhood trajectories of social behavior.

Predicting Adolescent Participant Roles from Longitudinal Clusters of Social Status

To predict adolescents' participant roles from developmental trajectories of social status, we first identified longitudinal clusters of status (Goal 1A). Social status can be operationalized as social preference and perceived popularity (Parkhurst & Hopmeyer, 1998). Social preference indicates how well liked children are among their classmates. It is derived from subtracting the standardized number of nominations received for least liked from most liked (Coie et al., 1982; Newcomb et al., 1993). Perceived popularity indicates children's impact, dominance, and social influence in the classroom and is derived from direct nominations of popularity (LaFontana & Cillessen, 2010; Parkhurst & Hopmeyer, 1998). Brendgen, Vitaro, Bukowski, Doyle, and Markiewicz (2001) examined longitudinal clusters of social preference in elementary school and identified a stable liked cluster, a stable average cluster, and a disliked cluster whose preference decreased over time.

Previous studies have shown that social preference and perceived popularity are interrelated over time (Cillessen & Mayeux, 2004). Preference and popularity become more divergent over time from childhood to adolescence, as evidenced by a decreasing positive correlation between them from middle childhood to early adolescence (e.g., Cillessen & Mayeux, 2004). In addition, a previous cluster analysis of status groups identified one cluster of popular and liked children until age 14. After age 14, this cluster split into two clusters: a liked cluster and a popular cluster. Liked adolescents scored high on social preference and average on perceived popularity, whereas popular adolescents scored average on social preference and high on perceived popularity (van den Berg, Burk, et al., 2015). Therefore, we identified longitudinal clusters based on joint developmental trajectories of perceived popularity and social preference.

Our hypothesis was that we would identify an *unpopular/disliked* cluster, an *average* cluster, a *liked* cluster, and a *popular* cluster (Brendgen et al., 2001; van den Berg, Burk, et al., 2015). We hypothesized that the *unpopular/disliked* cluster would have low levels of preference and popularity that would further decrease over time (Brendgen et al.,

2001). Our hypothesis was that the *average* cluster would have stable average levels of preference and popularity. We hypothesized that the *liked* and *popular* clusters would have above average levels of preference and popularity in middle childhood, but that the liked cluster would increase in preference and decrease in popularity over time, whereas the *popular* cluster would increase in popularity but decrease in preference. Gender was included as a covariate to control for gender differences in initial levels and developmental trajectories of status, as girls are more likely to be classified as popular-liked or liked than boys are (van den Berg, Burk, et al., 2015).

After identifying these social status trajectories, our next goal was to predict adolescents' participant role involvement from them (Goal 1B). Previous research on the participant roles of bullying in adolescence has shown that the roles have different social status profiles (Chapter 7: Pouwels, Lansu, et al., 2016). Adolescent bullies (Caravita et al., 2009; Dijkstra, Lindenberg, & Veenstra, 2008) and assistants and reinforcers (followers) (Chapter 7: Pouwels, Lansu, et al., 2016) are highly popular and disliked by some peers whereas they are liked by others. Our hypothesis was therefore that adolescent bullies/followers would be characterized by a popular trajectory cluster in childhood. In adolescence, defenders are liked, but average in popularity (Caravita et al., 2009; Chapter 7: Pouwels, Lansu, et al., 2016). Therefore, our hypothesis was that adolescent defenders would be characterized by a liked trajectory in childhood. Outsiders are unpopular but neither liked nor disliked (Chapter 7: Pouwels, Lansu, et al., 2016). We therefore had the hypothesis that adolescent outsiders would be characterized by average and unpopular disliked trajectories in childhood. Adolescent victims are disliked and unpopular (Chapter 7: Pouwels, Lansu, et al., 2016), so our hypothesis was that adolescent victims would be characterized by a trajectory of being unpopular and disliked in childhood.

Predicting Adolescent Participant Roles from Longitudinal Clusters of Behavior

Our second goal was to predict adolescents' participant roles from developmental trajectories of social behavior. In order to do so, we first identified clusters representing the heterogeneity of children's joint development of direct aggression and prosocial behavior (Goal 2A). Multiple studies have examined children's trajectories of direct aggression. Most children follow a stable low or high/moderate decreasing aggression trajectory (Kokko, Tremblay, Lacourse, Nagin, & Vitaro, 2006; Nagin & Tremblay, 1999). A small group follows a stable high aggression trajectory (Brame, Nagin, & Tremblay, 2001; Nagin & Tremblay, 1999; Nantel-Vivier, Pihl, Côté, & Tremblay, 2014), although this group did not emerge in the cluster analysis by Kokko et al. (2006).

In general, aggression is negatively associated with prosocial behavior (Card et al., 2008; Kokko et al., 2006; Nantel-Vivier et al., 2014). Nantel-Vivier et al. (2014) found separate trajectories for direct aggression and prosocial behavior and showed that children with a stable high trajectory of prosocial behavior are likely to have a low or average aggression trajectory. In contrast, children with a stable low trajectory of prosocial behavior are likely to follow a high direct aggression trajectory. These findings suggest clusters of children with qualitatively different developmental trajectories of aggression and prosocial behavior.

Aggression is not always negatively associated with prosocial behavior. Some previous studies identified a small group of students who were both aggressive and prosocial in childhood (Kokko et al., 2006; Nantel-Vivier et al., 2014; Veenstra et al., 2008). In contrast, there is a larger group displaying both behaviors in adolescence (Hawley, 2003; Lease, Musgrove, & Axelrod, 2002; Olthof et al., 2011).

Based on previous studies our hypothesis was that we would find a *prosocial* cluster, an *aggressive* cluster, a *decreasing aggression* cluster, and a *prosocial / increasing aggression* cluster (Brame et al., 2001; Kokko et al., 2006; Nagin & Tremblay, 1999). Our hypothesis was that the *prosocial* trajectory cluster would show stable low levels of direct aggression and high levels of prosocial behavior. In contrast, the *aggressive* trajectory cluster would show stable high levels of direct aggression and decreasing levels of prosocial behavior. Our hypothesis was that the *decreasing aggression* trajectory cluster would start with high levels of direct aggression and low levels of prosocial behavior and we expected that children in this trajectory would decrease in aggression over time. We hypothesized that there would be a small *prosocial/increasing aggression* trajectory cluster that would start with average levels of direct aggression in middle childhood which would increase over time, accompanied by high levels of prosocial behavior. Gender was again taken into account as a covariate because girls are more prosocial and less directly aggressive than boys (e.g., Eagly & Wood, 1991).

Finally, we predicted adolescents' participant role involvement from their middle childhood to early adolescence behavior trajectory clusters (Goal 2B). Adolescent bullies/ followers display relatively high levels of aggression and low levels of prosocial behavior (Cook et al., 2010; Chapter 7: Pouwels, Lansu, et al., 2016). Therefore, our hypothesis was that they would be characterized by a childhood aggressive trajectory. Adolescent defenders display low levels of aggression and are the most prosocial members of the classroom. Outsiders are not aggressive and show moderate levels of prosocial behavior (Chapter 7: Pouwels, Lansu, et al., 2016). Therefore, our hypothesis was that adolescent defenders and outsiders would be characterized by a prosocial trajectory.

The association between victimization and aggression is complex. Some victims are relatively aggressive and often display, similar to bullies, low levels of prosocial behavior (Cook et al., 2010; Chapter 7: Pouwels, Lansu, et al., 2016). Other victims tend to be submissive and may withdraw themselves (Perren & Alsaker, 2006; Toblin et al., 2005). We therefore explored whether the victim role could be predicted from an aggressive trajectory.

METHOD

This study was part of the Nijmegen Longitudinal Study (NLS); an ongoing study of child development in the Netherlands (van Bakel & Riksen-Walraven, 2002). The original sample consisted of a core of 129 children who have been followed since they were 15 months old and are now adolescents. Since school age, their classmates also participated in the project, and those classmates who participated multiple waves have been incorporated in the analyses as well. The current study had two parts. Part 1 was the identification of longitudinal clusters. Part 2 was the prediction of the participant roles from these clusters.

Participants and Procedure in Part 1

Part 1 regarded the identification of longitudinal clusters of children's trajectories of social status and behavior. The data for Part 1 came from Waves 5, 6, and 7 of the NLS, that we refer to here as T1, T2, and T3, respectively. In each wave, the longitudinal core and their classmates were invited to participate in a classroom data collection session at school (45-60 minutes). Schools were asked to give permission for the project. Active consent was given by the school. The parents of all children in these classrooms (longitudinal and classmates) received a letter carefully explaining the study and asking permission for a sociometric and self-report data collection session at school. Five teachers and 16 parents did not give consent to participate in the study. Data were collected among 1960 students in 83 classrooms from 51 primary schools at T1 (2006-2007), 2114 students in 86 classrooms from 30 primary schools and 32 secondary schools at T2 (2009-2010), and 2061 students in 81 classrooms from 4 primary schools and 31 secondary schools at T3 (2010-2011).

For the current study, we selected the data of the participants from the core of the NLS as well as classmates who participated in the classroom session in at least two consecutive or non-consecutive waves from T1 to T3.[4] Special educational classrooms were not included ($n = 15$). Data from three additional classrooms were not included because a high percentage of students were absent on the day of data collection at T2 ($\geq 45\%$).

Two main longitudinal cohorts that were large enough for modeling the status and behavior trajectories emerged. Longitudinal Cohort 1 consisted of a group of children who were in Grade 3 at T1, Grade 6 at T2, and Grade 7 at T3. Longitudinal Cohort 2 consisted of a group of children who were in Grade 4 at T1, Grade 7 at T2, and Grade 8 at T3. Together, these two cohorts yielded a sample of 1228 children. The identification of social status clusters was based on this sample (Cohort 1, $n = 635$, 47% girls, M_{age} T1 = 9.05 years, $SD = .48$; Cohort 2, $n = 593$, 55% girls, M_{age} T1 = 9.78 years, $SD = .49$). At the request of the school, two classrooms did not complete the aggressive behavior assessment at T1. Therefore, the identification of social behavior clusters was based on a sample of 1165 students (Cohort 1, $n = 620$; Cohort 2, $n = 545$). A flow chart of included participants is presented in Figure 9.1[5].

Participants and Procedure in Part 2

Part 2 regarded associating the longitudinal clusters identified in Part 1 (across T1-T3) with the participant roles of bullying determined at T4 (NLS Wave 9). At T4, the longitudinal core and their classmates again were invited to participate in a classroom data-collection session at school (2013-2014). One teacher, 7 parents, and 8 children did not give consent to participate at T4. Therefore, data were collected among 1911 students in 74 classrooms from 28 schools. Four special education classrooms and one classroom in which more than 45% of the students were absent on the day of data collection were excluded from the analyses. Of the 1911 children who participated at T4,

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4. The advantage of growth curve modeling is that children who were not present at all three time points could still be taken into account in the analyses of the growth trajectories. However, there was a relatively large number of children who were present at just one out of three waves, which may lead to estimation problems of the slopes of the different clusters. Therefore, we only included those children who were present at least two out of three waves so that we had some information on how their status and behavior changed over time (T1-T3).

5. At each time point. a logistic regression analysis was run to examine the effects of social preference, perceived popularity, aggression, and prosocial behavior on the likelihood that participants were included in one of the two main cohorts or not. The model was statistically significant at T1, $\chi^2(4) = 10.13$, $p = .04$, Nagelkerke $R^2 = .01$. Higher levels of prosocial behavior at T1, were associated with an increased likelihood of being included in one of the two main cohorts, $B = .15$, $SE = .06$, $p = .02$. At T2 and T3, no significant differences were found between children in or not in one of the two main cohorts.

266 participated also in least two of the three earlier waves (T1-T3). In the Netherlands, classroom composition is highly stable the first grades of secondary school, but changes substantially after that when students choose different tracks. This explains why a relatively large number of T4 classmates had not been part of T1-T3.
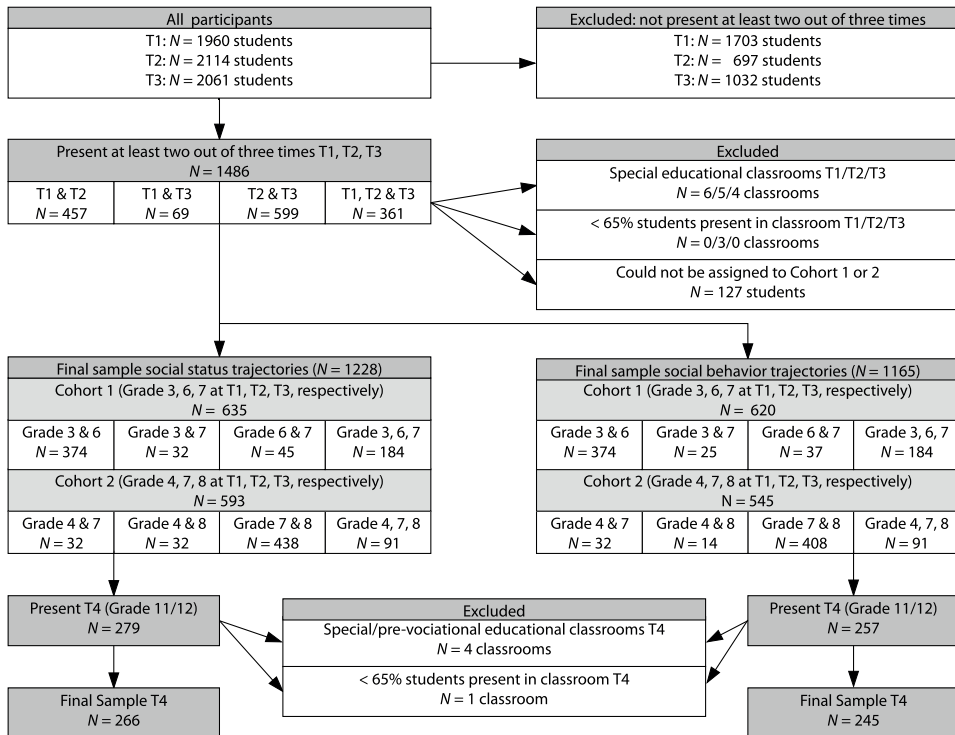
Figure 9.1. Flow Chart of included participants.

The prediction of the T4 participant roles from the T1-T3 status trajectories was conducted on these 266 students (55% girls, M_{age} T4 = 16.26 years, SD = .54) of which 18% were in pre-vocational track education (VMBO), 24% in intermediate general secondary education (HAVO), and 58% in college preparatory education (VWO). The higher educational tracks were overrepresented in this sample (Onderwijs in Cijfers, 2014). The sample was 83.8% Caucasian. Non-Caucasian adolescents were Moroccan (.8%), Turkish (1.2%), Surinamese (1.2%), Antillean/Aruban (1.2%), of other ethnic origin within Europe (4.2%), of other ethnic origin outside Europe (7.3%), or of mixed ethnic origin (.5%).

The prediction of the adolescent participant roles from the earlier behavior trajectories was conducted with 245 of the 266 students because of the missing aggression data at T1. Logistic regression analyses were conducted to examine whether the Part 2 sample was a random selection of the Part 1 sample. Neither social status scores nor social behavior scores at T1-T3 were significantly associated with whether children were present at T4 or not, $\chi^2(6) = 3.54$, $p = .74$; $\chi^2(6) = 10.27$, $p = .11$. This suggests that the adolescents who participated at T4 (Part 2) were a representative subsample of the T1-T3 sample (Part 1).

Measures

At T1, participants completed the measures on paper. At T2-T4, data were collected by means of computerized assessments. The research assistants provided each child with a mini-laptop computer that they used to fill in the questionnaire in their own classroom. Tables were separated, and partitioning screens were placed on each table top so that children could not see others' laptop screens. For more details and the comparison of the paper-and-pencil and computerized sociometric assessment methods, see van den Berg and Cillessen (2012). Children could name an unlimited number of classmates, both same- and other-sex. Research assistants were present in order to monitor the data collection and answer questions.

Social status

Four nomination questions asked children who they liked ("Who do you like the most?"), disliked ("Who do you like the least?"), who were popular ("Who are most popular?"), and unpopular ("Who are least popular?"). For these questions, students were asked to nominate at least one classmate. For each question, the number of nominations received was counted and standardized to *z*-scores within classrooms. For social preference, we subtracted the standardized number of nominations received for least liked from most liked, and standardized this score again within classrooms (Coie et al., 1982). For perceived popularity, we subtracted the standardized number of nominations received for least popular from most popular, and standardized this score again within classrooms (Parkhurst & Hopmeyer, 1998). Scores below -3 and above 3 were set to -3 and 3, respectively (Tabachnick & Fidell, 2007).

Social behavior

Prosocial behavior was assessed with peer nominations for cooperation ("Who cooperates well with others?") and helping ("Who are often willing to help others?"). Aggression was assessed with "Who argues a lot with others?" (T1, T2) and "Who fights with others?" (T2, T3). Children were asked to nominate at least one classmate for each

item. For each question, nominations received were counted and standardized within classrooms. We averaged the two prosocial scores at each wave (r's= .63 - .75) and the two aggression scores at T2 ($r = .86$). We again standardized the average scores within classrooms. Scores below -3 and above 3 were again set to -3 and 3, respectively.

Participant roles of bullying and victimization

The participant roles of bullying were assessed with the shortened Participant Role Questionnaire (PRQ) (Kärnä et al., 2013; Chapter 7: Pouwels, Lansu, et al., 2016; Salmivalli & Voeten, 2004). Previous research has shown that this is a reliable and valid measure of the participant roles among Dutch adolescents (Chapter 7: Pouwels, Lansu, et al., 2016). The PRQ has three items for each role: bully (e.g., "Who starts bullying?"), assistant (e.g., "Who joins in the bullying when someone else started it?"), reinforcer (e.g., "Who comes to watch when someone is bullied?"), defender (e.g., "Who tells the bullies to stop?"), and outsider (e.g., "Who does not take sides with anyone?"). Victimization was assessed with four additional peer nominations (e.g., "Who is victimized?") (Chapter 7: Pouwels, Lansu, et al., 2016). For all these items, students were not required to nominate anyone.

The number of nominations received for each question was standardized within classrooms. Average scale scores for each role were computed which were again standardized within classrooms. Standardized scores below -3 and above 3 were set to -3 and 3, respectively. Cronbach's α was .92 for the standardized items of the bully scale, .80 for the assistant scale, .72 for the reinforcer scale, .85 for the defender scale, .75 for the outsider scale, and .78 for the victim scale. Table 9.1 presents the correlations between the scales.

Table 9.1. Correlations Between Participant Role Scales

	Bullying	Assisting	Reinforcing	Defending	Outsider Behavior
Assisting	.56***				
Reinforcing	.62***	.68***			
Defending	-.15*	-.14*	-.18**		
Outsider Behavior	-.43***	-.50***	-.62***	.09	
Victimization	-.11	-.17**	-.18**	-.04	.24***

*Note. * p < .05; ** p < .01; *** p < .001.*

Children were assigned to the participant roles of bullying based on the criteria of Salmivalli, Lagerspetz, et al. (1996). They were assigned to a role when they scored above the classroom mean on the corresponding scale ($Z > 0$). If they met the criterion

for more than one role, they were assigned to the role for which they had the highest scale score, to ensure that they were assigned to just one role. In addition, in line with previous research (Salmivalli, Lagerspetz, et al., 1996) the difference between the scores for the highest and second highest role had to be at least .10. If this difference was less than .10, no role was assigned. We combined bullies, assistants, and reinforcers into one bully/follower group in order to facilitate the analyses because separating bullies from assistants and reinforcers resulted in group sizes that were too small. Cronbach's α was .90 for the scale scores of these three roles. Of the 266 adolescents, 96 (36%) were classified as bully/follower, 52 (20%) as defender, 65 (24%) as outsider, 26 (10%) as victim, and 28 (11%) could not be classified into any role.

RESULTS

Correlations

First, we examined stability correlations. Social status and behavior were moderately to highly stable over time intervals from 1 to 4 years, with correlations varying from .41 to .84 for perceived popularity, .34 to .64 for social preference, .15 to .72 for direct aggression, and .25 to .69 for prosocial behavior. Second, as the estimation of the trajectories used data from different grades, we examined concurrent correlations of social status and behavior by grade. The concurrent correlations between perceived popularity and social preference were .57, .62, .59, .51, and .43, and the concurrent correlations between direct aggression and prosocial behavior were -.25, -.28, -.39, -.42, and -.38, for Grades 3, 4, 6, 7, and 8, respectively. These correlations suggest that the positive concurrent association between perceived popularity and social preference slightly decreased after the transition from primary to secondary school, whereas the negative concurrent association between aggression and prosocial behavior increased at the end of primary school. Table 9.A1 presents the correlations between all study variables.

Part 1: Identifying Developmental Trajectories of Social Status and Behavior

The developmental trajectories were estimated in *M*plus version 7.3, which uses the Expectation Maximization algorithm to obtain maximum likelihood estimates (Muthén & Muthén, 1998-2012). To estimate the developmental patterns of social status and behavior from middle childhood to early adolescence, we used the data of both cohorts in a single cohort-sequential design. This resulted in a quasi-longitudinal study of children's social status and social behavior trajectories from Grade 3 to Grade 8.

Before proceeding, we checked whether we were allowed to analyze the data according to a cohort-sequential approach. We compared a multivariate perceived popularity and social preference latent growth curve model (LGM) in which the intercepts and slopes were constrained to be equal across cohorts with an unconstrained LGM in which the estimates were allowed to vary across cohorts. The slope loadings were fixed at 0, .3, and .4, for Cohort 1, and at .1, .4, and .5, for Cohort 2. The same procedure was used for the social behavior model. The unconstrained LGM model did not fit significantly better than the constrained LGM model for social status, $\Delta\chi^2(4) = 2.89$, $p = .58$, and for behavior, $\Delta\chi^2(4) = 6.22$, $p = .18$, indicating that it was valid to analyze the data with a cohort-sequential approach.

Next, we examined the intercept and slope variances of the restricted multivariate social status and behavior LGMs. Significant intercept and slope variances were found for popularity ($Di = .81$; $Ds = 3.21$) and preference ($Di = .87$; $Ds = 3.52$) in the status model, and for aggression ($Di = .78$; $Ds = 3.63$) and the intercept of prosocial behavior ($Di = .58$) in the behavior model, all p's < .001. The only exception was the slope variance of prosocial behavior ($Ds = 2.40$, $p = .13$) in the behavior model. Together, this indicates that there was substantial variance around the means and slopes, suggesting that children followed different trajectories of social status and behavior that may form identifiable clusters.

Therefore, we began our main analyses by determining the number and characteristics of clusters of joint developmental trajectories of social preference and perceived popularity and of joint trajectories of direct aggression and prosocial behavior. A cohort-sequential multivariate latent class growth mixture modeling (GMM) approach was used. For all models, we estimated two- to five-class solutions. At this moment, there are no clear criteria in the literature for the optimal number of classes. The bootstrap likelihood ratio test (BLRT) and Lo-Mendell-Rubin (LMR) tests of model fit are not available for a cohort-sequential approach within the growth mixture model framework. Therefore, we used a combination of theoretical justification, parsimony, and fit indices to decide on the number of latent classes. We used the Bayesian Information Criterion (BIC) (Schwarz, 1978), and plots of log-likelihood values as indicators of model fit as recommended by Nylund, Asparouhov, and Muthén (2007). We also included entropy and class sizes in our decision on the number of latent classes (Jung & Wickrama, 2008).

Trajectories of social status

Multivariate GMM was used to identify clusters in the joint development of perceived popularity and social preference. First, we estimated unconditional models with two to five classes (Goal 1A, see Table 9.2). The three-class solution had the lowest BIC. We

also plotted the log-likelihood values by the number of classes. Inspection of the plot showed that the increase in log-likelihood flattened out when moving from three to four classes, suggesting that the increase in log-likelihood was not significant (Nylund, Asparouhov, et al., 2007). The three-class solution also had the highest entropy value. Therefore, we decided that three-class solution best fitted our data.

Second, we tested a conditional model in which gender was included. We tested the effect of gender on the intercepts and slopes of each cluster. The conditional model (14473.17) had a higher BIC value than the unconditional model (14457.96), which suggests that the model fit did not improve by adding gender to the model.

Table 9.2. Model Fit Indices of the Cohort-Sequential Multivariate Growth Mixture Models.

Class	Social Status ($n = 1228$)				Social behavior ($n = 1165$)			
	k[a]	LL[b]	BIC[c]	Entropy	k	LL	BIC	Entropy
Two	29	-7154.90	14516.08	.91	29	-6492.56	13189.86	.98
Three	34	-7100.04	14441.92	.89	30	-6242.72	12697.26	.98
Four	39	-7083.65	14444.72	.89	35	-6153.21	12553.54	.97
Five	44	-7065.99	14444.97	.84				

[a] k parameters
[b] Log-likelihood
[c] Bayesian Information Criteria

Third, it could be that the intercept and slope variances and intercept-slope covariances are different between classes. We estimated them across classes in Step 1. In Step 3, we examined whether model fit could be improved by freeing and allowing them to vary across trajectory clusters. Models in which these estimates were predicted within each cluster did not have a substantially better fit than models in which they were predicted across clusters. Therefore, the final unconditional model, in which the variances and covariances were estimated across clusters, resulted in a log-likelihood H_0 value of -7108.07, BIC value of 14457.96, and an entropy estimate of .89.

Figure 9.2 shows the estimated trajectories of perceived popularity and social preference for each of the three clusters and the number of boys and girls in each cluster. Trajectory Cluster 1 was labeled "*stable average/liked*" and included children who had a stable average trajectory of popularity, but who scored above average on social preference in middle childhood ($b = .24$, $p < .001$) which did not significantly increase over time ($b = .20$, $p = .10$). Trajectory Cluster 2 was labeled "*stable popular*" and included children who scored above average on popularity ($b = 1.03$, $p < .001$) that did not increase significantly

over time ($b = .74$, $p = .12$). These children scored average on social preference that did not decrease significantly over time ($b = -.81$, $p = .11$). Trajectory Cluster 3 was labeled "*unpopular/disliked*" and included children who scored below average on popularity and social preference in middle childhood ($b = -1.07$, $p < .001$; $b = -1.08$, $p < .001$) and their preference decreased over time ($b = -1.15$, $p = .05$).

Trajectories of behavior

Another set of multivariate GMM analyses was conducted to identify clusters in the joint development of direct aggression and prosocial behavior (Goal 2A, see Table 9.2). We found a small non-significant negative intercept variance for aggression for the three- and four-class solutions, which we fixed to zero.

The five-class solution did not converge. First, we examined which class solution had the best fit. The four-class solution had the lowest BIC value, indicating that this may be the best solution. However, we also plotted the log-likelihood values by the number of classes. Inspection of the plot showed that the increase in log-likelihood flattened out when moving from three to four classes. The three-class solution also had a higher entropy than the four-class solution indicating greater clarity in classification. The extra class in the four-class solution was just a minor variation on a single increasing aggression theme. In the four class solution, there were two classes with increasing levels of direct aggression; one class with increasing aggression and stable low levels of prosocial behavior and another class with increasing aggression and low decreasing levels of prosocial behavior. We selected the more parsimonious three-class solution in which these two classes were combined.

Second, we estimated the conditional model in which gender was included. The conditional model (12459.31) had a lower BIC than the unconditional model (12697.26), indicating that the model better fitted the data when gender was included as a covariate.

Third, we also examined whether model fit could be improved by freeing the intercept and slope variances and covariances within classes as compared to fixing them to be equal across classes. The conditional model in which the intercept variances were allowed to vary within classes and the slope variances and intercept-slope variances were fixed across classes led to the best solution. The final conditional GMM model resulted in a log likelihood H_0 value of -5818.25, BIC value of 11968.34, and an entropy estimate of .94.
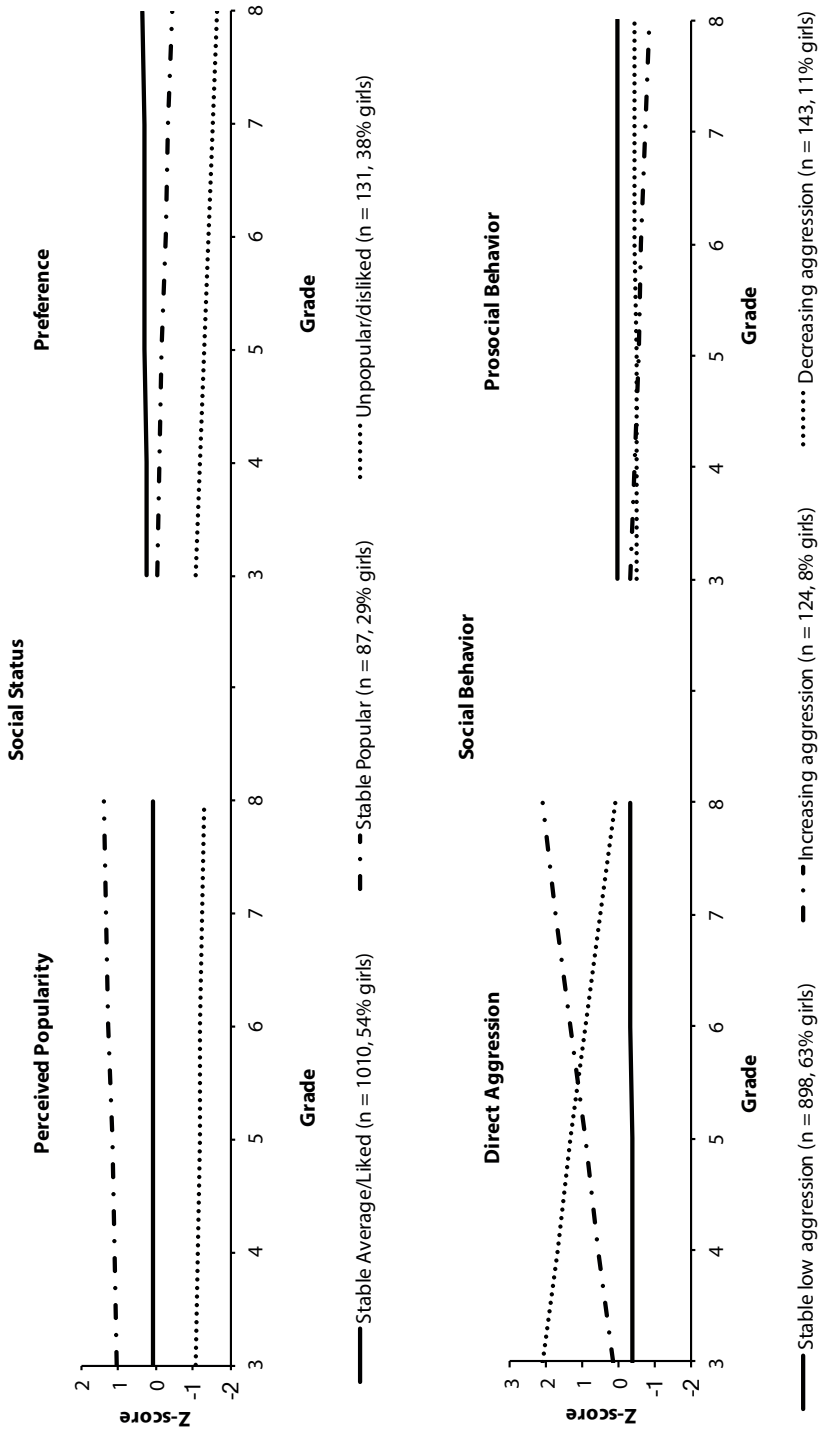
9

Figure 9.2. Estimated trajectories for the three-class multivariate social status and social behavior growth mixture models.

Figure 9.2 shows the estimated trajectories of direct aggression and prosocial behavior for each cluster and the number of boys and girls in each cluster. Trajectory Cluster 1 was labeled "*stable low aggression*" and included children with a stable below average trajectory of aggression ($b = -.35$, $p < .001$) and a stable average trajectory of prosocial behavior. Trajectory Cluster 2 was labeled "*increasing aggression*" and included children who scored average on aggression in Grade 3, and who gradually increased in aggression over time ($b = 3.91$, $p < .001$). These children scored below average on prosocial behavior ($b = -.35$, $p < .001$) and decreased in their level of prosocial behavior over time ($b = -.95$, $p < .001$). Trajectory Cluster 3 was labeled "*decreasing aggression*" and included children who scored above average on aggression in Grade 3 ($b = 2.11$, $p < .001$) and who decreased in their level of aggression over time ($b = -4.01$, $p < .001$). These children had a stable below average ($b = -.48$, $p < .001$) trajectory of prosocial behavior. The *increasing aggression* and *decreasing aggression* trajectory clusters scored below average on prosocial behavior as indicated by a significant negative intercept of prosocial behavior. It should be noted that their level of prosocial behavior was only a bit lower than the level of the *stable low aggression* trajectory cluster which scored average on prosocial behavior (see Figure 9.2). In contrast to the social status model, the final behavior model was a conditional model with gender included as a covariate. Table 9.B1 shows the effects of gender on the intercept and slope of aggression and prosocial behavior in each cluster.

Part 2: Predicting the Bullying Participant Roles from Trajectory Clusters

Bullying roles and trajectories of social status
We predicted adolescents' participant role involvement from the social status trajectory clusters (Goal 1B, see Table 9.3). Fisher's *Z* exact test showed that there was significant overlap between the bullying roles and social status trajectory clusters, $p < .001$. The adjusted standardized residuals showed that children with a bully/follower role were overrepresented in the *stable popular* trajectory cluster and underrepresented in the *unpopular/disliked* cluster. Defenders were overrepresented in the *stable average/liked* trajectory cluster. Outsiders were not over- or underrepresented in any of the status trajectory clusters. Victims were overrepresented in the *unpopular/disliked* trajectory cluster and underrepresented in the *stable average/liked* cluster.

Bullying roles and trajectories of behavior
Finally, we predicted adolescents' participant role involvement from the behavior trajectory clusters (Goal 2B, see Table 9.3). Fisher's *Z* exact test showed that there was significant overlap between children's social behavior trajectory cluster and their participant role, $p < .001$. Adjusted standardized residuals revealed that bullies/

followers were overrepresented in the *decreasing aggression* trajectory cluster and underrepresented in the *stable low aggression* trajectory cluster. Defenders were overrepresented in the *stable low aggression* trajectory cluster and underrepresented in the *decreasing aggression* cluster. Outsiders, like defenders, were overrepresented in the *stable low aggression* trajectory cluster, but, in contrast to defenders, were not underrepresented in any of the other clusters. Victims were not over- or underrepresented in any of the behavior trajectory clusters.[6]

Table 9.3. Observed (and Expected) Frequencies of Bullies/Followers, Defenders, Outsiders, and Victims with Different Social Status and Behavior Trajectories.

	Bully/Follower		Defender		Outsider		Victim		*Total*
Social status cluster									
Stable average/liked	78	(79)	48	(43)$_a$	57	(53)	13	(21)$_b$	196
Stable popular	13	(6)$_a$	2	(3)	1	(4)	0	(2)	16
Unpopular/disliked	5	(10)$_b$	2	(6)	6	(7)	13	(3)$_a$	26
Total	96		51		64		26		237
Social behavior cluster									
Stable low aggression	60	(70)$_b$	46	(38)$_a$	54	(48)$_a$	16	(19)	176
Increasing aggression	9	(6)	1	(3)	2	(4)	4	(2)	16
Decreasing aggression	19	(11)$_a$	1	(6)$_b$	4	(8)	4	(3)	28
Total	88		48		60		24		220

Note. Frequencies with subscript $_a$ had adjusted standardized residuals larger than 2 and refer to overrepresentations. Frequencies with subscript $_b$ had adjusted standardized residuals smaller than -2 and refer to underrepresentations.

DISCUSSION

This longitudinal study with a time span of 7 years showed that developmental trajectories of social status and behavior in middle childhood and early adolescence predicted adolescents' participant roles of bullying. The results may help to improve early

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6. We also examined the association of the social status and behavior trajectories with the continuous participant role behavior scales. In order to be consistent with most previous studies that assigned children to roles we decided to only report the categorical results in this manuscript. Regarding the continuous outcomes, approximately the same pattern of results was found as for the categorical outcomes (results are available upon request by first author).

intervention and prevention of bullying and victimization by (additionally) targeting status and behavior before victimization crystallizes in adolescence and becomes more difficult to change (Hanish & Guerra, 2004; Rueger et al., 2011; Smith et al., 2003).

Clusters in Children's Development of Social Status

We first identified clusters in children's development of social status from middle childhood to early adolescence (Goal 1A). We extended previous studies by assigning children to clusters based on their joint trajectories of preference and perceived popularity. Three clusters were identified: *stable average/liked*, *stable popular*, and *unpopular/disliked*. Most children were assigned to the *average/liked* cluster. They showed a stable trajectory of above average social preference and average popularity. In contrast, the *popular* cluster scored average on social preference and above average on popularity. They did not significantly increase in popularity over time. These results show that children followed relatively stable trajectories of being popular or being liked. It should be noted that van den Berg and Cillessen (2012) showed that it was unlikely to identify separate liked and popular clusters before age 14. This suggests that it may be hard to distinguish liked from popular children in middle childhood when their future levels of likeability and popularity could not yet be taken into account (van den Berg, Burk, et al., 2015). However, when looking at children's trajectories over time, we can conclude that early adolescents who scored average or high on likeability already scored lower on popularity in middle childhood than early adolescents who were popular.

In addition to the stable average/liked and popular clusters, we identified an *unpopular/ disliked* trajectory cluster which scored below average on both preference and popularity in middle childhood. They further decreased in social preference over time. Children may dissociate themselves from rejected classmates, because they may be afraid to lose status when affiliating themselves with rejected peers. Dissociation from rejected peers may be especially important in adolescence when being popular is an important goal (Juvonen & Galván, 2008; LaFontana & Cillessen, 2010; Sentse, Kretschmer, et al., 2015). This may explain the further decrease in preference of unpopular/disliked children over time.

In contrast to previous studies, we did not identify an average cluster of children who scored average on both social preference and popularity (Brendgen et al., 2001; Lease, Musgrove, et al., 2002; van den Berg, Burk, et al., 2015). The average cluster was the largest cluster in previous studies (20 to 50% of children). We did find a large cluster (82%) that we labeled as "*stable average/liked*". In general, children in the *stable average/ liked* cluster followed average trajectories of popularity and trajectories of social preference that were slightly, but significantly, above zero ($M = 0.14$). It should be noted

that on average their level of social preference was less than one standard deviation above the mean, a frequently used criterion (e.g. Coie et al., 1982). It may be that the *stable average/liked* cluster is relatively heterogeneous: all children who could not be identified as *popular* or *unpopular/disliked* may have been assigned to this cluster.

Clusters in Children's Development of Social Behavior

We continued our study by identifying clusters in children's joint development of aggression and prosocial behavior from middle childhood to early adolescence (Goal 2A). Again, three clusters were identified: *stable low aggression*, *increasing aggression*, and *decreasing aggression*. Children in the *stable low aggression* cluster showed a stable low trajectory of aggression and a stable average trajectory of prosocial behavior. Students in the *increasing aggression* cluster scored average on aggression in middle childhood and increased in aggression over time. In contrast, they started with below average levels of prosocial behavior and decreased in prosocial behavior over time. Aggressive children are often rejected and avoided by their peers, as their peers may dislike the company of aggressive children. Therefore, aggressive children may have few opportunities to develop their prosocial skills which may explain their increase in aggression and decrease in prosocial behavior (Obsuth, Eisner, Malti, & Ribeaud, 2015).

Children in the *decreasing aggression* cluster scored above average on aggression in middle childhood and decreased in aggression over time. They showed stable below average levels of prosocial behavior. Physical aggression, a type of direct aggression like fighting and arguing, is decreasingly predictive of popularity, whereas relational aggression is increasingly predictive of popularity over time (Cillessen & Mayeux, 2004). There was substantial overlap between the *decreasing aggression* and *popular* clusters (see Table 9.C1). Therefore, it could be that some children in the popular cluster started to use other types of aggression that are more fitting with their age. For example, some youth in this popular group may have started using relational aggression instead of fighting when they entered early adolescence. This may also explain why we, in contrast to our hypothesis and previous studies, did not identify a stable high aggressive and low prosocial cluster (Brame et al., 2001; Nagin & Tremblay, 1999; Nantel-Vivier et al., 2014).

Like previous studies, we found that high levels of aggression were related to low levels of prosocial behavior (Kokko et al., 2006; Nantel-Vivier et al., 2014). In contrast to studies on physical aggression, we found that the negative association of fighting and arguing with prosocial behavior increased in strength by age (Kokko et al., 2006; Zimmer-Gembeck, Geiger, & Crick, 2005). We also did not identify a cluster of bi-strategic controllers who were perceived as both highly aggressive and prosocial (Hawley, 2003; Lease, Musgrove, et al., 2002). Fighting and arguing are subtypes of direct aggression

which may be less age-adequate in adolescence than other types of aggression such as relational aggression. Unfortunately, these types have not been examined systematically in the Nijmegen Longitudinal Study and could therefore not be taken into account in this study.

Predicting the Participant Roles of Bullying from Developmental Trajectories of Social Status and Behavior

Our second goal was to examine the associations of the social status (Goal 1B) and behavior clusters (Goal 2B) with the participant roles of bullying in adolescence. For each role, it was examined whether certain social status or behavior trajectories were overrepresented. These results are summarized and discussed below.

Among adolescent bullies/followers the *stable popular* trajectory cluster was overrepresented. These results suggest that as in adolescence (Chapter 7: Pouwels, Lansu, et al., 2016), adolescent bullies/followers already were quite popular in middle childhood. They also scored average on likeability throughout middle childhood and early adolescence. Among adolescent bully/followers the *decreasing aggression* trajectory cluster was also overrepresented. This is in line with findings by Cook et al. (2010) who showed that externalizing behavior is a stronger predictor of bullying in childhood than in adolescence. This finding also supports our idea that children in the *decreasing aggression* cluster, who scored high on arguing and fighting in middle childhood, may have started to use other types of aggression, such as relational aggression, in adolescence. Future research could also address different functions of aggression, such as proactive aggression and machiavellianism. Fighting and arguing are more reactive with regard to their function. Although the levels of reactive aggression of children in the decreasing aggression cluster may decrease over time, bullies may increase their use of proactive aggression. It has been found that adolescent bullies display high levels of proactive aggression (Chapter 7: Pouwels, Lansu, et al., 2016; Salmivalli & Nieminen, 2002) which may help them to increase in popularity over time (Juvonen & Galván, 2008; Olthof et al., 2011).

It should be noted that although bullies/followers were underrepresented in the *stable low aggression* cluster as compared to the other roles, still the largest part of the adolescent bullies/followers followed this trajectory, which is characterized by average levels of prosocial behavior. These relatively prosocial bullies may be bi-strategic controllers in adolescence. They may use prosocial resource control strategies in combination with bullying behaviors (Hawley, 2003; Olthof et al., 2011). A characteristic of bi-strategic controllers is that they are able to perceive how their behavior impacts their peers. They also have good perspective taking skills. Therefore, adolescent bullies

who followed a stable low aggression trajectory may use more proactive and indirect types of aggression and bullying rather than engaging in the fighting and arguing that we examined in this study. Moreover, bullying is often selective; adolescent bullies are not necessarily aggressive towards all their classmates. Another explanation for the high number of bullies/followers with a stable low aggression trajectory is that bullies and followers were treated as one group. Previous research has shown that adolescent bullies are somewhat more aggressive and less prosocial than assistants and reinforcers (Chapter 7: Pouwels, Lansu, et al., 2016). As we collapsed bullies and followers into one group, the followers may have been the participants who were classified as *stable low aggressive.*

Among adolescent defenders, the *stable average/liked* and *stable low aggression* clusters were overrepresented. These results are in line with previous research showing that defenders are more popular in childhood than in adolescence (Caravita et al., 2009; Sainio et al., 2011). We further support this idea by showing that the adolescent defenders followed a trajectory of average popularity and above average likeability. Defending is a type of prosocial behavior. This study showed that adolescents who defend others in bullying situations were already relatively prosocial in middle childhood.

No significant overlap between the outsider role and the status trajectory clusters was found. Outsiders are relatively unpopular in adolescence (Chapter 7: Pouwels, Lansu, et al., 2016). In line with this study, we found that only one adolescent classified as outsider followed a popular childhood trajectory. This underrepresentation may not have been statistically significant due to the small size of the popular group. Therefore, future studies with larger group sizes are needed to examine whether students who are popular throughout middle childhood and early adolescence are unlikely to be an outsider in adolescence.

Among adolescent outsiders, the *stable low aggression* cluster was overrepresented. When comparing the behavior trajectories of outsiders with the trajectories of defenders we see that they are quite similar. Defenders and outsiders may have followed a similar behavior trajectory of above average prosocial behavior and below average aggression. This is in line with findings by Pronk, Goossens, Olthof, de Mey, and Willemen (2013) that both outsiders and defenders have a prosocial intention to help children who are victimized. There may be other reasons why outsiders refrain from defending, such as having a lower self-efficacy for direct intervention than defenders (Pronk et al., 2013). Additional longitudinal research is needed to examine whether defenders and outsiders had different trajectories of these other constructs. In addition, it has been proposed that defending is risky behavior as the defender may become the next target of the bully

(Pöyhönen et al., 2010). Therefore, it has been assumed that defenders need to have social power in order to prevent this (Pöyhönen et al., 2010). In adolescence, defenders are better accepted by their peers and more popular than outsiders (Chapter 7: Pouwels, Lansu, et al., 2016), and may therefore intervene more often in bullying situations than outsiders. Thus, differences in the levels of social preference and self-efficacy rather than differences in prosocial behavior may explain why some students with a *stable low aggression* trajectory throughout middle childhood and early adolescence become outsiders while others become defenders in adolescence.

Among adolescent victims the *unpopular/disliked* cluster was overrepresented. In line with previous research we found that most adolescent victims already were unpopular and disliked throughout middle childhood and early adolescence (Cook et al., 2010; Hodges & Perry, 1999). Rejected children are an easy target for bullies because it is less likely that peers retaliate upon the bullies when they are victimized (Hodges & Perry, 1999). We even showed that the social preference of adolescent victims further decreased from middle childhood to early adolescence. We did not examine whether adolescent victims were already victimized in middle childhood, but a meta-analysis showed that peer-reported victimization is quite stable during this age period (Chapter 3: Pouwels, Souren, et al., 2016). Therefore, we assume that a relatively large part of adolescent victims were already bullied before. Their social preference may further decrease because their peers dissociate themselves from the victims (Sentse, Kretschmer, et al., 2015).

Surprisingly, the social behavior clusters were not related to adolescents' victimization. Adolescent victims were not overrepresented in any of the behavior trajectory clusters. One explanation is that the group of victims is quite heterogeneous and that each type of victim may have their own behavior trajectory. One type may consist of bully-victims; children who are highly reactively aggressive and tend to retaliate when they are bullied (Salmivalli & Nieminen, 2002). They may represent the small number of victims who followed an *increasing aggression* trajectory. Another type may consist of unaggressive victims who are submissive and who may withdraw themselves when they are bullied (Perren & Alsaker, 2006). They may be the victims who followed a *stable low aggression* trajectory. Unfortunately, the sample size of this study was not large enough to distinguish between different victim subgroups, thus this remains an issue for future research.

Limitations and Suggestions for Further Research

This study had several limitations which lead to suggestions for further research. First, we did not have information about children's participant role involvement from middle childhood to adolescence. Children's trajectories of social status and behavior were related to their bullying role in adolescence. However, we do not know if these trajectories were also related to trajectories of participant role behavior. For example, perhaps children in the stable popular cluster already had a bully/follower role in middle childhood. However, it could also be that they did not bully at all in middle childhood, but gradually increased in bullying over time. We only assessed the participant roles in adolescence, so we could not take children's earlier participant roles into account. Therefore, future research should examine the joint development of the participant roles with social status and behavior from childhood to adolescence.

Next, there may be significant gender differences in the prediction of the participant roles from the trajectory clusters (see e.g., Salmivalli, Lagerspetz, et al., 1996; Sentse, Kretschmer, et al., 2015). For example, previous research shows that girls who engage in bullying and follower behavior have a lower social preference than boys who engage in these behaviors (Salmivalli, Lagerspetz, et al., 1996). Unfortunately, the sample size of this study was not large enough to examine gender differences. We followed 238 children across 7 years, and it is difficult to identify large numbers of each participant role. This is especially difficult for victimization as its prevalence decreases from middle childhood to adolescence (Chapter 7: Pouwels, Lansu, et al., 2016; Salmivalli et al., 1998). As a result, the participant role prevalences were too small to examine gender differences and we could only control for gender in the cluster analysis. Another suggestion for further research is to examine whether there are differences between educational tracks in how status and behavioral trajectories are related to the bullying participant roles in adolescence.

Another limitation due the small sample was that bullies/followers were combined into one group. Previous research has shown that adolescent bullies, assistants, and reinforcers show a status and behavioral profile that is relatively similar, which justifies that the groups were combined (Chapter 7: Pouwels, Lansu, et al., 2016). However, there are some small differences between bullies, assistants, and reinforcers. For example, although both adolescent bullies and followers are more popular than all other roles, bullies are somewhat more popular than their followers. Therefore, a suggestion for further research with a larger sample is to include bullies, assistants, and reinforcers as separate groups in the analyses for example, to identify how popular and aggressive trajectories can differentially predict the likelihood of being a bully versus a follower in adolescence.

Another suggestion for further research is to examine how social status trajectories and behavior trajectories can jointly predict bullying participant role involvement. For example, children who followed a stable popular trajectory may be more likely to be a bully/follower in adolescence when they also followed a decreasing aggression trajectory than when they also followed a stable low aggression trajectory. Our cluster sizes were too small to answer this question, but further research with larger samples should examine whether the interaction between the status and behavior trajectories also predicts the participant roles.

Social status and behavior were examined by peer nominations. Peer nominations tend to focus on extremes. For example, children were asked to nominate who they liked most and liked least. As a consequence, more subtle differences in likeability between peers and relatively average levels of likeability were not captured. This may explain why it was hard to detect increases or decreases in popularity and likeability over time. A suggestion for further research is to use other methods to examine social status and behavior, such as peer ratings, observations (see e.g., Lansu & Cillessen, 2015) and experimental designs (e.g., a noise blast task to measure aggression, Sandstrom & Herlan, 2007).

This study highlights the importance of individual child characteristics that predict later bullying involvement. Children's individual social developmental trajectories are important predictors of their participant roles. A strength of this study is that children were enrolled in various classrooms during their school career and that there was a new composition of classrooms from T3 to T4. Therefore, we did not add classroom characteristics as control variables when examining the relationship between social status and bullying. Previous studies have highlighted that classroom characteristics also significantly contribute to bullying, defending and victimization in the classroom (see e.g.,Garandeau, Lee, & Salmivalli, 2013; Peets, Poyhonen, Juvonen, & Salmivalli, 2015; Saarento, Kärnä, Hodges, & Salmivalli, 2013; Salmivalli & Voeten, 2004; Scholte, Sentse, & Granic, 2010). It is hard to take specific classroom characteristics into account in a 7-year longitudinal study, as children were enrolled in many different classrooms during this time period. A first step for further research would be to examine how classroom characteristics interact with children's status and behavior in predicting changes in their bullying involvement across one school year (see e.g., Sentse, Veenstra, Kiuru, & Salmivalli, 2015).

9

Practical Implications

The results of this study may help to improve early prevention of adolescent bullying. Over the last decades, a number of anti-bullying programs have been developed (Ttofi & Farrington, 2011). Unfortunately, many programs, including those that target bullying at the group level, show a decline in efficacy from primary to secondary school (Kärnä et al., 2013; Yeager et al., 2015). In addition, the stability of peer-reported victimization increases with age (Chapter 3: Pouwels, Souren, et al., 2016). Together, these findings highlight the need for early intervention and prevention before victimization becomes chronic and difficult to change (Hanish & Guerra, 2004; Rueger et al., 2011; Smith et al., 2003). Insights from the current study may help to identify children who are at risk for bullying involvement later in adolescence already at an early age.

Children who score high on popularity and aggression in childhood are more likely than others to bully in adolescence. This group may already need some attention in childhood and early adolescence. Intervening with popular children's aggressive behavior seems especially challenging (see Garandeau et al., 2014, for KiVa effects on popular vs. non-popular bullies). It might therefore be critical to influence group norms so that aggression is not a way to gain popularity. One concrete suggestion might be to teach popular children prosocial rather than aggressive strategies by which they can maintain status in the peer group (Ellis et al., 2016). For example, the meaningful roles approach (Ellis et al., 2016) assigns bullies together with prosocial children to meaningful roles in school, such as door greeter or technology assistant. This approach also describes how these prosocial roles may affect peer group status by letting children praise each other in public for their prosocial acts. Empirical research is needed to examine whether the meaningful roles approach will indeed make bullies give up their popular strategies. If positive effects are found, the same strategies may be used at an early age, before bullying takes place, to foster a climate in which popular children are prosocial. The advantage of these strategies is that they can easily be incorporated in an existing curriculum, which is an important strength as we acknowledge that teachers often have little time and few resources for classroom interventions.

It is also important to pay attention to children who are disliked and unpopular in middle childhood. They are at risk of being victimized over time. One way to increase their likeability in the peer group is to increase the amount of positive interaction between children who are being disliked by their peers, for example by letting them cooperate in team-based tasks (Mikami, Boucher, & Humphreys, 2005).

Further, our study emphasizes the importance of the development of prosocial behavior. Adolescents who scored average on prosocial behavior in childhood and adolescence were more likely to act as defenders in bullying situations than adolescents who scored high on aggression and low on prosocial behavior. This highlights the importance of screening children on aggression and helping them to change their behavior. We acknowledge that teachers do not always have the time and resources in their regular curriculum to help aggressive children. Therefore, these children may benefit from school-based preventive interventions that are individually delivered by trained adults. Such interventions reduce the risk of peer contagion of aggression, enhance opportunities to reward learned skills, and foster the development of positive relationship with an adult (Stoltz, Londen, Deković, Orobio de Castro, & Prinzie, 2012). Individually-delivered school based interventions have shown to decrease externalizing behavior in children at risk (see for a meta-analysis Stoltz et al., 2012).

Conclusion

This study examined the association of developmental trajectories of social status and behavior from age 9 to 14 with the participant roles of bullying at age 16 and 17. Adolescent bully-followers were characterized by a childhood trajectory of above average popularity and average preference. A relatively large proportion of bullies/followers also followed a trajectory starting with high levels of aggression in middle childhood which decreased over time. Most defenders followed childhood trajectories of stable above average social preference and stable low aggression and average prosocial behavior. A relatively large proportion of outsiders followed childhood trajectories of stable low aggression and average prosocial behavior. Most victims followed a trajectory of being unpopular and disliked. Together, the findings of this study showed that children's developmental trajectories of social status and behavior across childhood and early adolescence are predictive of their bullying participant role involvement in adolescence. This emphasizes that bullying prevention programs may want to pay more attention to children's social status, especially when they also want to positively affect children's bullying involvement later in adolescence.

9

APPENDIX 9A

Table 9.A1. Correlations Between Social Status, Social Behavior and Participant Roles of Bullying for Cohort 1 (below diagonal) and Cohort 2 (above diagonal).

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.
1. Pref T1		.47***	.40**	.62**	.35***	.33**	-.47***	-.37***	-.24*	.58***	.39***	.35*	-.03	-.16	.00	.25	-.21	-.57***
2. Pref T2	.62***		.64***	.47***	.57***	.50***	-.06	-.32**	-.19***	.19*	.62***	.39***	.02	-.01	.08	.28**	-.01	-.37**
3. Pref T3	.34**	.48***		.45***	.36***	.43***	-.01	-.28**	-.27**	.30**	.51***	.60***	.00	-.07	.13	.25**	-.06	-.30**
4. Pop T1	.57***	.48***	.16*		.62***	.58***	.02	-.06	.12	.53***	.30**	.17	.27*	.11	.34*	.25	-.53***	-.54***
5. Pop T2	.35***	.59***	.31**	.62**		.84***	.19*	.16**	.21**	.18*	.22**	.04	.27**	.30**	.40**	.13	-.37**	-.42**
6. Pop T3	.22*	.37***	.37***	.41***	.62**		.18	.19**	.23**	.25*	.19**	.05	.32***	.24**	.45***	.06	-.42**	-.40**
7. Agg T1	-.49***	-.27***	-.27**	-.02	.13*	.08		.50***	.53***	-.27**	-.22*	-.19	.20	.20	.13	-.21	-.09	.38*
8. Agg T2	-.36***	-.36***	-.34***	.01	.13**	.10	.59***		.72***	-.18*	-.41***	-.37***	.32***	.30*	.31***	-.10	-.27*	-.01
9. Agg T3	-.16*	-.21**	-.43***	-.08	-.11	.02	.14	.51***		-.01	-.31***	-.38***	.42***	.24**	.35***	-.17	-.31**	-.02
10. Pros T1	.57***	.42***	.20**	.49***	.27***	.22**	-.25***	-.23**	-.20*		.25*	.29**	.02	-.20	-.04	.04	-.09	-.25
11. Pros T2	.48***	.62***	.33***	.34***	.32***	.20**	-.31***	-.38***	-.23**	.53***		.69***	-.10	-.06	-.05	.46***	.08	-.19*
12. Pros T3	.20*	.33***	.66***	.15	.25**	.22*	-.17*	-.24**	-.42***	.36***	.45***		-.22*	-.19*	-.22*	.41***	.22*	-.13
13. Bul T4	-.05	-.08	-.31**	.21*	.26**	.21	.26**	.31***	.10	.06	-.16	-.15		.54***	.55**	-.13	-.43***	-.14
14. Ass T4	.01	.03	-.10	.09	.16	.27*	.08	.12	.03	.03	-.15	-.01	.57***		.71***	-.17*	-.56***	-.17*
15. Rei T4	-.06	.01	-.27*	.15	.28**	.35**	.31**	.29**	.10	-.08	-.14	-.15	.65***	.68***		-.12	-.69***	-.15
16. Def T4	.04	.06	.19	-.03	.08	-.02	-.10	-.13	-.14	.05	.10	.20	-.10	-.18*	-.23**		.12	-.03
17. Out T4	-.19*	-.17	.01	-.19*	-.32**	-.39***	.00	-.05	.09	-.18	-.05	-.04	-.45***	-.41***	-.56***	.11		.20*
18. Vic T4	-.25**	-.39***	-.36***	-.34***	-.52***	-.53***	.01	.05	-.04	-.21*	-.21*	-.25	-.19*	-.09	-.21*	-.07	.26**	

Note. * p < .05, ** p < .01, *** p < .001. Below the diagonal are the results for Cohort 1, above the diagonal the results for Cohort 2. pref = social preference, pop = perceived popularity, agg = direct aggression, pros = prosocial behavior, bul = bullying, ass = assisting, rei = reinforcing, def = defending, out = outsider behavior, vic = victimization.

APPENDIX 9B

Table 9.B1. Coefficients for the Effect of Gender on the Growth Factors of the Social Behavior Growth Mixture Model.

	Stable low aggression		Increasing aggression		Decreasing aggression	
	Effect	*t* **statistic**	**Effect**	*t* **statistic**	**Effect**	*t* **statistic**
Gender on						
Direct Aggression intercept	-.10	-2.76	-2.64	-8.86	1.91	4.71
Direct Aggression slope	.02	.18	10.54	8.13	-9.40	-9.10
Prosocial behavior intercept	.34	3.77	.15	.54	.15	.54
Prosocial behavior slope	.02	.09	-1.44	-1.30	.41	.39

Note. All *t* values larger than 1.96 were significantly different from zero ($p < .05$). Gender was dummy coded (0, 1) with girls as the reference category.

APPENDIX 9C

Table 9.C1. Observed (and Expected) Frequencies of the Overlap Between the Social Status and Behavior Trajectories

	Social Behavior Cluster						Total
	Stable low aggression		Increasing aggression		Decreasing aggression		
Social Status Cluster							
Stable average/liked	804	(742)_a	77	(102)_b	80	(118)_b	961
Stable popular	29	(65)_b	22	(9)_a	33	(10)_a	84
Unpopular/disliked	65	(94)_b	25	(13)_a	30	(15)_a	2230
Total	898		124		143		1165

Note. Frequencies with subscript [a] had adjusted standardized residuals larger than 2 and refer to overrepresentations. Frequencies with subscript [b] had adjusted standardized residuals smaller than -2 and refer to underrepresentations.

CHAPTER

10

Adolescents' explicit and implicit evaluation of hypothetical and actual peers with different bullying participant roles

ABSTRACT

This study examined how adolescents evaluate bullying at three levels of specificity: (1) the general concept of bullying, (2) hypothetical peers in different bullying participant roles, and (3) actual peers in different bullying participant roles. Participants were 163 predominantly ethnic majority adolescents in the Netherlands (58% girls, M_{age} = 16.34 years, SD = .79). For the hypothetical peers, we examined adolescents' explicit as well as their implicit evaluations. Adolescents evaluated the general concept of bullying negatively. Adolescents' explicit evaluations of hypothetical and actual peers in the bullying roles depended on their own role, but adolescents' implicit evaluations of hypothetical peers did not. Adolescents' explicit evaluations of hypothetical peers and actual peers were different. Hypothetical bullies were evaluated negatively by all classmates, whereas hypothetical victims were evaluated relatively positively compared to the other roles. However, when adolescents evaluated their actual classmates, the differences between bullies and the other roles were smaller, whereas victims were evaluated the most negatively of all roles. Further research should take into account that adolescents' evaluations of hypothetical peers differ from their evaluations of actual peers.

Bullying is a major problem in schools. It is associated with increased risks for psycho-social maladjustment for both bullies and victims (Kaltiala-Heino, Rimpelä, Rantanen, & Rimpelä, 2000; Nansel et al., 2001; Reijntjes et al., 2010). Bullying takes place when individuals or groups repeatedly and over time attack, humiliate, or exclude victims who cannot defend themselves (Salmivalli, 2010; Solberg & Olweus, 2003). Bullying is a group process in which children can have different roles (Salmivalli, Lagerspetz, et al., 1996). In addition to the *bullies* and *victims*, *assistants* actively join in by helping the bully, *reinforcers* give bullies positive feedback (e.g., by providing an audience or laughing), *defenders* try to stop the bullying or comfort the victim, and *outsiders* refrain from getting involved.

Previous studies placed much emphasis on how youths evaluate bullying behavior, as this is expected to be an important determinant of their own behavior in bullying situations (see e.g., Almeida et al., 2010; Andreou, Vlachou, & Didaskalou, 2005; Boulton et al., 2002; Rigby, 2005; van Goethem et al., 2010). However, children's role in bullying situations is not always in line with their attitudes towards bullying (Salmivalli & Voeten, 2004). To date, most studies have examined children's evaluations of the general concept of bullying, but evaluations of the specific participant roles have not been examined systematically yet. The current study went beyond evaluations of the general concept of bullying by also examining youths' attitudes towards specific roles and, furthermore, how these attitudes depend on their own bullying role. When evaluating the six participant roles, evaluations of hypothetical peers may very well differ from evaluations of actual classmates in these roles. Therefore, we compared adolescents' evaluations of the participant role behaviors in hypothetical situations (hypothetical peers) with their evaluations of the same behaviors in their actual classmates (actual peers). In addition, we studied the difference between explicit and implicit evaluations of bullying involvement by comparing explicit and implicit evaluations of hypothetical peers in each bullying role. Differences between evaluations of hypothetical and actual peers and between explicit and implicit evaluations may help us to understand why adolescents' own bullying involvement is often inconsistent with their attitudes. The results may contribute to anti-bullying programs by increasing adolescents' awareness of potential mismatches between their general evaluations of bullying (role) behaviors and their evaluations of actual peers who engage in them.

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Adolescents' Evaluation of the General Concept of Bullying

Most children and adolescents evaluate bullying negatively and intend to support victims of bullying (Menesini et al., 1997; Salmivalli & Voeten, 2004; van Goethem et al., 2010). However, only 20% of adolescents seem to behave according to their attitude

and actually defend or comfort a victim of bullying (Salmivalli, 2010). In addition, the link between adolescents' evaluations of bullying and their own bullying behavior is weak to moderate at best (Menesini et al., 1997; Rigby, 2004; Scholte et al., 2010). This discrepancy may be explained by the way studies have examined adolescents' evaluation of bullying.

In most studies, adolescents' evaluations of bullying were measured with the "attitude towards bullying" (Salmivalli & Voeten, 2004; Scholte et al., 2010) or "attitudes toward victims" scale (Rigby & Slee, 1991). In these scales, adolescents evaluate multiple aspects of bullying, such as rejection of vulnerable peers, cognitive or affective empathy towards victims, approval of pro-bullying behavior, intervening in bullying situations, and support for victims. Answers to such items usually are aggregated to one score assuming a one-factor scale. We define the evaluations of these aspects of bullying in the "attitude towards bullying" scale as "evaluations of the general concept of bullying". A potential problem of those scales is that they do not take into account that adolescents may evaluate different aspects of bullying differently.

Adolescents' Evaluation of Hypothetical Peers with Different Participant Roles

Although most adolescents have negative attitudes towards the general concept of bullying, a number of them still show pro-bullying behaviors. This may be explained by adolescents' evaluations of specific peers in certain bullying roles. How adolescents evaluate the bullying participant roles has been examined by asking them to evaluate participant role behaviors in hypothetical situations (Almeida et al., 2010; Boulton et al., 2012; Gini, Pozzoli, et al., 2008). Research has shown that adolescents evaluate victims more favorably than bullies (Boulton et al., 2012), and that their attitudes of bullies and defenders are negatively related (Almeida et al., 2010). They also disapproved of pro-bullying behavior and endorsed prosocial behavior of hypothetical bystanders towards a victim in vignette stories (Gini, Pozzoli, et al., 2008). These results indicate that adolescents explicitly seem to evaluate various bullying behaviors differently. However, research has not systematically compared adolescents' evaluations of all six participant roles. This was done in this study, and we hypothesized that adolescents would evaluate hypothetical defenders, outsiders, and victims more positively than hypothetical bullies.

Adolescents' Evaluation of Actual Peers with Different Participant Roles

As indicated, adolescents' explicit evaluations of different bullying behaviors have typically been studied with hypothetical scenarios (Gini, Pozzoli, et al., 2008). In these studies, adolescents usually were not instructed to take specific peers in mind who

behaved according to each role. Thus, they based their evaluation purely on the behavior described in the scenario. However, adolescents may disapprove a behavior but still positively evaluate the peer who engages in the behavior. Adolescents' classmates do not only show bullying behaviors in school; they also display a range of other behaviors that impact how their peers see them. For example, adolescent bullies and followers are not only seen as aggressive, but also as popular by their peers (M. Peeters, Cillessen, & Scholte, 2010; Chapter 7: Pouwels, Lansu, et al., 2016). They also score high on peer-valued characteristics, such as leadership, attention, and humor (Chapter 7: Pouwels, Lansu, et al., 2016; Vaillancourt & Hymel, 2006). The popularity and peer-valued characteristics of bullies and followers may compensate for their bullying behavior. Victims also display other behaviors that are not directly related to their victim role but that impact how their peers see them. Actual victims are often rejected, low in prosocial behavior, or reactively aggressive (Chapter 7: Pouwels, Lansu, et al., 2016). Such characteristics may reduce adolescents' sympathetic attitudes towards actual victims.

There is also some evidence that adolescents justify bullying when they are asked to think back to episodes that they experienced or witnessed themselves (Hara, 2002). For example, victims are blamed for being bullied and adolescents deny that they were harmed. Thus, although adolescents tend to negatively evaluate bullying behavior, they may use several strategies to justify bullying in their own classroom (Salmivalli, 2010). Together, this suggests that the level at which bullying involvement is specified (e.g., the construct in general, hypothetical bullying involvement, or actual bullying involvement) matters for its evaluation. This assumption was tested in this study by examining adolescents' evaluation of hypothetical peers as well as actual peers in each participant role. Evaluations of hypothetical peers who just acted in line with a particular participant role in a bullying situation are assumed to reflect evaluations of the behavior related to the role. Evaluations of actual peers that are made without prompting adolescents to think about them in bullying situations, are assumed to reflect their evaluation of actual classmates in each participant role.

Implicit Evaluation of Different Bullying Participant Roles

In addition to the distinction between hypothetical and actual peers, it is relevant to distinguish explicit and implicit evaluations of bullying. Most studies have examined adolescents' explicit evaluations of the bullying roles. Explicit evaluations are controlled, deliberate, self-reported, and made with awareness (Gawronski & Bodenhausen, 2006; Strack & Deutsch, 2004). Implicit evaluations are automatic, non-deliberate, and outside of one's control (Gawronski & Bodenhausen, 2006; Strack & Deutsch, 2004). Implicit evaluations can be inferred from reaction time tasks such as the Implicit Association

10

Task (IAT) (Greenwald & Banaji, 1995). The IAT captures a person's automatic evaluative associations with a certain concept, of which the person often is unaware (De Houwer, 2006).

Implicit evaluation may play a role when adolescents witness bullying. According to the models by Strack and Deutsch (2004) and Gawronski and Bodenhausen (2006), spontaneous or automatic reactions are more likely to be influenced by implicit evaluations, whereas controlled reactions are likely to be influenced by explicit evaluations. The MODE model states that motivation and opportunity are needed to process information in a deliberative rather than automatic way (Fazio, 1990; Olson & Fazio, 2009). People need to be motivated for deliberative processing. If people are motivated, they also need to have the opportunity to act upon their explicit attitudes. Because cognitive resources are limited, fatigue and distraction may restrict the opportunity to process information deliberatively. Moreover, because cognitive processing takes time, initial responses may be driven by implicit evaluations (Olson & Fazio, 2009).

Similarly, when adolescents witness bullying, their initial response may be driven by their implicit evaluation of bullying, victimization, and defending. For example, their implicit evaluation may determine whether they initially show a facial expression that is disapproving of the bully's behavior. After this primary response, adolescents have time to think about their behavioral response. Motivation and opportunity determine to what extent adolescents' secondary response will be influenced by their explicit evaluation of, for example, the bully. Thus, whereas some adolescents may initially disapprove of bullying, after a few seconds they may provide positive feedback to a bully if they are motivated to make a positive impression on this peer and have sufficient cognitive resources to act upon this motivation.

Research on implicit evaluations of bullying is scarce. Two studies have assessed implicit associations with the general concepts of bullying and victimization (P. J. Rosen et al., 2007; van Goethem et al., 2010). In these studies, adolescents' experiences of victimization were associated with stronger implicit associations of themselves with the role of victim, indicating that their victimization may have become part of their self-concept (P. J. Rosen et al., 2007). Moreover, adolescents' implicit evaluation of bullying predicted their bullying behavior when they explicitly evaluated bullying positively (van Goethem et al., 2010). These studies show that implicit associations with bullying and victimization in general may be related to bullying, but we do not know yet how adolescents implicitly evaluate each bullying participant role.

There is some evidence that adolescents' implicit evaluations of peers depend on their peers' reputation. Lansu et al. (2012) found that popular peers, who tend to engage in aggressive behavior and bullying (Cillessen & Rose, 2005), were positively evaluated at an explicit level, but negatively at an implicit level. This is in line with research showing that negative information more strongly influences automatic processing than positive information (Dijksterhuis & Aarts, 2003; Ito, Larsen, Smith, & Cacioppo, 1998). The negative characteristics of popular peers, such as their display of aggression or bullying, may impact adolescents' implicit evaluations. The positive characteristics of popular adolescents, such as their influence and visibility, may have a stronger impact on adolescents' explicit evaluations. In line with this, it may be that adolescents evaluate the bully role more negatively at the implicit than the explicit level. We tested this assumption by comparing explicit and implicit evaluations of hypothetical peers in each bullying participant role.

Adolescents' own Participant Role Involvement Predicting Bullying Evaluation

The second aim of this study was to examine to what extent adolescents' own bullying involvement is associated with their evaluations of bullying in general, of hypothetical peers in each bullying role, and of actual peers in each bullying role. Peer evaluation is driven not only by the person being evaluated, but also by the person making the evaluation. For example, it has already been shown that victims, defenders, and outsiders evaluate the general concept of bullying more negatively than bullies, assistants, and reinforcers (Pellegrini, Bartini, & Brooks, 1999; Salmivalli & Voeten, 2004). Bullying, reinforcing, or assisting may be rewarding by obtaining higher status in the peer group (Juvonen & Galván, 2008; Reijntjes et al., 2013). Such rewards may lead bullies and their followers to have more favorable views of the general concept of bullying than defenders, outsiders, and victims (Pellegrini et al., 1999).

In addition to the general concept of bullying, adolescents' own bullying involvement also may be associated with their evaluation of the participant roles. The similarity-attraction hypothesis states that people evaluate others who are similar to themselves more positively than others who are different (Byrne, 1971). Indeed, it has been shown that bullies evaluate the bully role more positively than victims do (Menesini et al., 1997). Another study has shown that adolescents' own bullying involvement also affects their implicit peer evaluation of classmates; girls who bully negatively evaluated their classmates at an implicit level (Lansu et al., 2013). These findings suggest that adolescents' evaluation of the participant roles may also depend on their own bullying involvement.

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The Present Study

Most previous studies examined adolescents' evaluation of the general concept of bullying. Although some studies suggest that adolescents may differentiate their evaluation of adolescents in different participant roles (Boulton et al., 2012; Gini, Pozzoli, et al., 2008), a direct comparison of adolescents' evaluation of the six participant roles is lacking. Adolescents' evaluation of the participant roles also may differ depending on whether they are evaluating participant role behavior (hypothetical peers) or their classmates who engage in these behaviors (actual peers) (Salmivalli, 2010). Therefore, the first goal of this study was to examine adolescents' evaluation of bullying at three levels of specificity: the general concept of bullying (1), hypothetical peers in each participant role (2), and actual peers in each participant role (3). In addition to explicit evaluations, examining implicit evaluations of bullying is important to understand bullying behavior (van Goethem et al., 2010). Therefore, we also examined adolescents' implicit evaluation of hypothetical peers.

With regard to the general concept of bullying, we expected that adolescents would evaluate bullying negatively (Menesini et al., 1997; Scholte et al., 2010). Regarding the explicit evaluation of hypothetical peers in the participant roles we expected that defenders would be evaluated most positively, followed by outsiders, followed by victims. Bullies and followers were expected to be evaluated least positively (Gini, Pozzoli, et al., 2008). With regard to the evaluation of actual peers we expected actual bullies and followers to be evaluated more positively than hypothetical bullies and followers because bullying is associated with high status in the classroom in adolescence (Chapter 7: Pouwels, Lansu, et al., 2016). Actual victims were expected to be evaluated more negatively than hypothetical victims because adolescents may blame actual victims for being bullied to justify bullying in their classroom (Salmivalli, 2010). Finally, we expected that bullies and followers in particular would be evaluated negatively at the implicit level, as negative information has more impact on automatic processes than positive information (Dijksterhuis & Aarts, 2003; Ito et al., 1998).

To meet the second goal of the study, we also examined whether adolescents' evaluation of bullying varied by their own participant role involvement at each level of specificity. With regard to the evaluation of the general concept of bullying, we expected that adolescents who are bullies, assistants, or reinforcers would have more positive evaluations of the general concept of bullying than adolescents who are victims, defenders, or outsiders (Pellegrini et al., 1999; Salmivalli & Voeten, 2004). We also expected adolescents' own participant role to be associated with their explicit and implicit evaluation of hypothetical peers and their explicit evaluation of actual

peers (Juvonen & Galván, 2008). In line with the similarity-attraction hypothesis, we hypothesized that adolescents would evaluate hypothetical and actual peers in the same role as themselves most positively (Byrne, 1971).

To address these research questions, data were collected in two phases. Phase 1 consisted of a classroom assessment of participant role involvement and peer liking. A selection of adolescents then participated in Phase 2. This phase consisted of an online assessment in which participants were primed by a video in which six cartoon characters were presented, each representing one bullying participant role. Six single-target Implicit Association Tasks then measured adolescents' implicit evaluation of the cartoon character in each role. Participants also explicitly evaluated each character. Finally, they completed the Anti-Bullying Attitude Scale to measure their evaluation of the general concept of bullying.

METHOD

Participants

Phase 1 was part of Wave 9 of the Nijmegen Longitudinal Study on infant and child social development in the Netherlands (Chapter 7: Pouwels, Lansu, et al., 2016; van Bakel & Riksen-Walraven, 2002) Data were collected in 63 classrooms, ranging from the 9th to the 12th grade, in 24 secondary schools. Average classroom size was 26.10 (range 13-32). Of the 1650 adolescents in the classrooms, 1477 (90%) completed all sociometric measures.

At the end of Phase 1, adolescents could indicate their interest in Phase 2 of the study. Of the 1477 adolescents, 474 (32%) expressed interest in additional information about Phase 2. We invited 284 adolescents to take part in Phase 2 based on their participant roles. We aimed for at least 50 adolescents per role to have comparable group sizes and enough power to compare them on the dependent variables. For some roles, more than 50 adolescents met the criteria. In that case, a random selection was made among those adolescents who received nominations from a relatively high number of classmates. The selection process is presented in Table 10.1.

Of the 284 adolescents who were invited for Phase 2, 188 adolescents (66%) gave assent and their parents gave active consent to participate. Due to technical problems, four adolescents were not able to complete the online computerized assessment. Data from 16 adolescents were not included in the analyses because they did not pass the manipulation check for the participant roles of the hypothetical peers. Three adolescents

10

were excluded from the analyses because they made errors in more than 20% of the trials in the combined blocks of the st-IATs which measured the implicit evaluations. Two adolescents, one bully and one victim, were excluded because their explicit evaluation data of actual bullies or victims, respectively, were missing. Because they were the only bully or victim in their classroom, there were no other classmates with a bully or victim role who they could evaluate. As a result, all analyses were conducted on a sample of 163 adolescents (87% of the Phase 2 sample). Table 10.2 summarizes the demographics of the participants in Phase 1 and the subsample who participated in both Phase 1 and Phase 2. The age and ethnic composition of the total sample and subsample were comparable. The percentage of girls was larger in Phase 2 than in Phase 1. Adolescents from higher educational tracks were more likely to participate in Phase 2 and were overrepresented in this study compared to the national average (Onderwijs in Cijfers, 2014).

Procedure

In Phase 1, the participant roles of bullying and evaluations of actual peers were measured in a 50-minute classroom session using laptops. Two or three experimenters gave participants instructions in which they guaranteed the confidentiality of their answers and gave a definition of bullying (Solberg & Olweus, 2003).

We provided each student with a mini laptop computer from the university to complete the assessment. We separated desks and placed partitioning screens on each desk to give students privacy when responding to the questionnaire. See Chapter 7 (Pouwels, Lansu, et al., 2016) for a detailed description of the procedure of Phase 1.

Phase 2 took place within four months after the classroom assessment ($M_{interval}$ = 70.56 days, SD = 20.03). This phase consisted of a 30-minute online computerized assessment. We sent the link to this assessment by e-mail, and adolescents were asked to complete the task individually in a quiet space at home. During this assessment, we subsequently examined students' implicit and explicit evaluations of hypothetical peers with different bullying roles and their evaluations of the general concept of bullying, followed by a daily diary part. The daily diary information was not included in the current study. The study was approved by the Institutional Review Board of the university. Adolescents received a €5 voucher as compensation for their participation.

Table 10.1. Participants Selected for Phase 2 per Role

	Total Sample Phase 1		Interest Phase 2			Invited Phase 2			Participation Phase 2			Final Analyses Phase 2		
	n total	*n* girls	% of total sample	*n* total	*n* girls	% of total sample	*n* total	*n* girls	*n* total	% of total sample	*n* girls	*n* total	% of total sample	*n* girls
Bully	138	51	32%	44	17	22%	30	10	17	12%	5	15	11%	4
Follower	423	133	29%	122	43	20%	83	26	49	12%	19	41	10%	17
Defender	297	220	41%	122	90	22%	66	48	48	16%	35	47	16%	34
Outsider	377	199	30%	112	67	17%	63	37	43	11%	28	39	10%	25
Victim	161	78	32%	51	27	25%	41	21	27	17%	17	21	13%	14
No role	81	32	28%	23	10	1%	1	0	0	0%	0	0	0%	0
Total	1477	713	32%	474	254	19%	284	142	184	12%	104	163	11%	94

Note. We invited one adolescent without a role because the adolescent scored high on self-reported victimization which was the topic of another study.

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Table 10.2. Demographics of Sample Phase 1 and Subsample Phase 2

	Sample Phase 1 N = 1477	Subsample Phase 2 N = 163
Girls	48.3%	57.7%
M Age (*SD*)	16.38 (.80)	16.34 (.79)
School Level		
Prevocational Track Education (VMBO)	18.6%	11.7%
Intermediate Secondary Education (HAVO)	36.8%	31.9%
College Preparatory Education (VWO)	44.7%	56.4%
Ethnicity		
Caucasian	81.4%	81.6%
Moroccan	1.6%	1.2%
Turkish	1.7%	1.2%
Surinamese	.9%	1.8%
Antillean/Aruban	.9%	.6%
Other ethnic origin within Europe	5.8%	3.7%
Other ethnic origin outside Europe	7.2%	9.2%
Mixed ethnic origin	.4%	.6%

Measures

Participant roles

During the classroom assessment, the participant roles of bullying were assessed with the shortened Participant Role Questionnaire (PRQ) (Chapter 7: Pouwels, Lansu, et al., 2016; Salmivalli & Voeten, 2004). Adolescents were presented with 15 items describing different ways to behave in bullying situations. They were asked to nominate classmates who fit each description. The shortened PRQ has a 3-item scale for each participant role: bully (e.g., "Who starts bullying?"), assistant (e.g., "Who joins in the bullying when someone else has started it"), reinforcer (e.g., "Who comes around to watch the situation when someone is being bullied?"), defender (e.g., "Who tries to make the others stop bullying"), and outsider (e.g., "Who does not take side with anyone"). Victimization was examined with four additional items (e.g., "Who is victimized?", "Who is victimized by being neglected or excluded?") (Chapter 7: Pouwels, Lansu, et al., 2016). Adolescents could nominate an unlimited number of classmates and also had the option to nominate none of their classmates.

In Chapter 7, Pouwels, Lansu, et al. (2016) showed that the shortened PRQ is a reliable and valid measure of the bullying participant roles among Dutch adolescents. One item of the assistant scale was removed as Chapter 7 (Pouwels, Lansu, et al., 2016) found that it was not a reliable and valid indicator of assistant behavior in adolescence. For all other items, the number of nominations received was counted for each adolescent and standardized within classrooms to control for differences in classroom size. Aggregated mean scores were computed for each scale and again standardized within classrooms into Z-scores. Cronbach's α for the scales was .87 (bully), .69 (assistant), .73 (reinforcer), .84 (defender), .78 (outsider), and .85 (victim).

Based on the criteria of Salmivalli, Lagerspetz, et al. (1996), adolescents were categorized to a participant role when they scored above the classroom mean on the corresponding scale ($Z > 0$). If adolescents met the criterion for more than one role, they were categorized to the role with the highest scale score, to ensure that they were categorized to just one role. In line with previous research (e.g., Salmivalli & Voeten, 2004), adolescents were categorized to one role so that we could directly compare students in different roles and compare our findings to other studies. Adolescents who scored below average on all scales were not categorized into any role.

The assistant and reinforcer scale were highly correlated ($r = .61$). In addition, for 15% of the participants, their scores on the assistant and reinforcer scales differed by less than .1, indicating that they scored equally high on both roles. These results indicated that adolescents not always make a clear distinction between the assistant and reinforcer roles. In addition, in eight classrooms no one or only one student was categorized in the assistant or reinforcer role. Distinguishing assistants from reinforcers in these classrooms would result in missing data for adolescents' evaluation of actual peers. Therefore, like other Dutch studies (e.g., Goossens et al., 2006), we combined assistants and reinforcers into one follower group.

Evaluation of the general concept of bullying
Evaluation of the general concept of bullying was assessed with the attitude towards bullying scale (Salmivalli & Voeten, 2004; Scholte et al., 2010). Adolescents rated how much they agreed with 10 statements about bullying (e.g., "Bullying may be fun sometimes" and "It is not that bad if you laugh with others when someone is being bullied") on a 5-point scale (1 = strongly disagree, 5 = strongly agree). After recoding and averaging the items, a higher scale score indicated a more positive attitude towards bullying. Cronbach's α was .77.

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Evaluation of hypothetical peers with different participant roles
In order to examine adolescents' evaluation of hypothetical peers with a specific participant role, we presented them with a movie including two video clips with six cartoon characters, each one representing a participant role. The fragments were partly based on the game of the KiVa anti-bullying program (Kärnä et al., 2011). Girls saw a movie with female cartoon characters; boys with male cartoon characters. The movies were created with the online GoAnimate moviemaker. A description of the video clips can be found in Appendix 10A.

We selected the cartoon characters from a pool of 15 male and 15 female characters. A pilot study was conducted in order to select the most average looking characters from the pool. Each cartoon character was rated by 46 adolescents (20% boys, M_{age} = 17.67 years, SD = 1.07 years) on how likeable, popular, aggressive, and attractive each character came across. We selected the six male and six female cartoon characters who were rated most average on these measures. We randomly assigned the characters to the participant roles. An overview of the appearance of the cartoon characters can be found in Figures 10.B1 and 10.B2.

Adolescents were instructed to watch the first video clip. After the clip, the participant roles of bullying were explained by linking the participant roles to the cartoon characters. We also gave a description of the characteristics of each participant role, supported by snapshots from the video clip. After adolescents read the instruction, they were asked to watch the video again and to pay attention to the participant roles of the cartoon characters. Subsequently, the second clip was shown. This clip included the same characters with the same participant roles in a different situation. After the second clip, a manipulation check was conducted. Adolescents were asked to link the cartoon characters to the bullying roles to ensure that they correctly associated the characters with the roles. When adolescents did not fill out the manipulation check correctly, the second fragment was shown again, followed by an additional manipulation check.

Explicit evaluation of hypothetical peers with different participant roles. To determine adolescents' explicit evaluation of hypothetical peers in each participant role, they rated each cartoon character on the item: "How much do you like someone like this cartoon character?" on a 7-point Likert scale (1 = not at all; 7 = very much).

Implicit evaluation of hypothetical peers with different participant roles. Adolescents completed six movie-primed single-target implicit association tasks (ST-IATs), one for each participant role. The design of the tasks was based on the brief ST-IAT (Bluemke & Friese, 2008). Instead of words, we used pictures of the bullying role cartoon characters

as target stimuli and of positive and negative objects (see Appendix 10B) as evaluative stimuli. Participants were told that they were going to complete a reaction time task. They were asked to categorize pictures as quickly as possible without making errors. To enhance their motivation, adolescents could win a €10 voucher if they were the fastest participant with the fewest errors.

The task was programmed in Inquisit 4.0. A Java applet presented the stimuli to the adolescents and recorded their responses and response latencies in milliseconds. After a participant completed the task, the applet sent the data back to the Web server. An overview of the structure of the ST-IAT is provided in Table 10.3. Adolescents started with a practice block in which they had to categorize the positive and negative pictures by pushing the "a" and "l" buttons on the left and right of the keyboard, respectively. In the next block, in addition to positive and negative pictures, pictures of the cartoon character with a specific bullying participant role were shown. In this first block, both the positive and cartoon character pictures had to be categorized with the left response button. Negative pictures had to be categorized with the right response button. In the second block, the response buttons for the positive and negative pictures remained the same, but the pairing of the cartoon character changed. Both the negative pictures and the cartoon character pictures were now categorized with the right response button. Thus, for each participant role, two combined blocks were presented (1. *participant role + positive stimuli*, 2. *participant role + negative stimuli*).

Table 10.3. Structure of the Single-Target Implicit Association Task

Block	Task description	Left key concepts	Right key concepts	Number of stimuli		
				Positive	Negative	Role
1	Practice block	Positive	Negative	10	10	-
2	Initial block	Positive + bully	Negative	10	15	10
3	Reversed block	Positive	Negative + bully	15	10	10
4	Initial block	Positive + assistant	Negative	10	15	10
5	Reversed block	Positive	Negative + assistant	15	10	10
6	Initial block	Positive + reinforcer	Negative	10	15	10
7	Reversed block	Positive	Negative + reinforcer	15	10	10
8	Initial block	Positive + defender	Negative	10	15	10
9	Reversed block	Positive	Negative + defender	15	10	10
10	Initial block	Positive + outsider	Negative	10	15	10
11	Reversed block	Positive	Negative + outsider	15	10	10
12	Initial block	Positive + victim	Negative	10	15	10
13	Reversed block	Positive	Negative + victim	15	10	10

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Before each block, a written instruction was presented. As a reminder, category labels were listed at the top of the screen during the task. When an error was made, a red cross appeared on the screen. Each block consisted of 35 trials, except for the practice block (20 trials). The inter stimulus interval was 250 ms. Blocks and trials were presented in a random order out of 12 block order versions. Both the order of combined blocks (i.e., roles) and the combination of target stimuli and evaluative stimuli (*positive + target* vs. *negative + target*) in each initial block were counterbalanced across block order versions. Stimuli were presented in a random order within blocks. Shorter response latencies in the participant role and positive stimuli block than in the participant role and negative stimuli block were assumed to indicate stronger positive than negative associations with that role (Bluemke & Friese, 2008).

We prepared the latencies in line with the procedure of Bluemke and Friese (2008). Data analysis was based on correct trials; we omitted the latencies of incorrect trials. Reaction times that were too fast (< 300 ms) or too slow (> 3000 ms) were replaced by these cut-off values (300 ms or 3000 ms). Latencies were standardized to Z-scores within individuals across all blocks, with the exception of the practice blocks. In this way, we controlled for inter-individual differences in adolescents' response latencies and latency variability. Latencies from the first three trials of each block were removed because adolescents' reaction times in these trials were considerably higher on average than in the other trials ($Z > 1$). The data from five adolescents who made errors in more than 20% of the trials within one combined block were removed. Subsequently, average latency scores were calculated for each block.

The ST-IAT effects were calculated by subtracting the average latency score of the *participant role + positive stimuli* block from the average latency score of the *participant role + negative stimuli* block. We performed this step for each combined block, resulting in six ST-IAT effects (bully, assistant, reinforcer, defender, outsider, victim). A positive score implies that an adolescent associated the role faster with positive than with negative stimuli. This can be interpreted as a positive implicit evaluation of the bullying participant role.

Explicit evaluation of classmates by classmates' participant role
To determine adolescents' explicit evaluation of peers they rated how much they liked each classmate on a 6-point Likert scale (1 = not at all; 6 = very much). We then determined adolescents' explicit evaluation of classmates in each role by computing their mean likeability rating of the classmates in each role. This yielded five scores for each adolescent indicating their explicit evaluation of classmates who were bullies, followers, defenders, outsiders, and victims.

RESULTS

Preliminary Analyses

Correlations between all study variables are presented in Table 10.4. Evaluations of the general concept of bullying were positively correlated with their explicit evaluation of hypothetical bullies and followers, and negatively to the explicit evaluation of hypothetical defenders and victims and actual outsiders and victims. Explicit evaluations of hypothetical and actual defenders were significantly correlated. For the other roles, evaluations of hypothetical and actual peers with the same role were not significantly associated. Implicit evaluations were not significantly correlated with most explicit evaluations.

A series of *t*-tests were run to examine gender differences in all study variables. We used a Bonferroni correction to control for multiple testing. Boys viewed the concept of bullying more positively than girls did, $t(125.89) = 3.87, p < .001$. Explicitly, boys evaluated actual followers more positively than girls did, $t(161) = 3.92, p < .001$. Implicitly, girls evaluated hypothetical victims more positively than boys did, $t(145.01) = -3.21, p = .002$.

Evaluations of Bullying

We ran separate analyses for each type of evaluation: general concept of bullying, explicit evaluations of hypothetical and actual peers, and implicit evaluations of hypothetical peers. In previous studies, girls evaluated bullying more negatively and supportive behavior towards victims more positively than boys did (Menesini et al., 1997; Rigby, 2005). Unfortunately, it was not possible to test whether gender moderated our expected associations as the number of participants in the bully and victim roles was small and the sizes of the 'boy bully' ($n = 11$), 'boy victim' ($n = 7$), 'girl bully' ($n = 4$), and 'girl victim' ($n = 14$) cells were too small for moderation analyses. Therefore, rather than testing moderation, we controlled for gender.

Evaluation of the general concept of bullying

The overall mean indicated that adolescents had a negative attitude towards bullying ($M = 1.76, SD = .54$). To examine whether this evaluation differed depending on adolescents' bulling participation role, a 5 (Own Participant Role: Bully, Follower, Defender, Outsider, Victim) ANOVA was run on adolescents' evaluation of the general concept of bullying. Adolescents' own participant role was not significantly related to their evaluation of the general concept of bullying, $F(4, 157) = .90, p = .47, \eta_p^2 = .02$.

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Table 10.4. Correlations Among Evaluations of the General Concept of Bullying, Explicit Evaluations of Hypothetical and Actual Peers, and Implicit Evaluations of Hypothetical Peers (n = 163)

	General concept of bullying	Explicit Hypothetical Peers					Explicit Actual Peers					Implicit Hypothetical Peers				
	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.
Explicit Hypothetical Peers																
2. Bully	.37***															
3. Follower	.30***	.59***														
4. Defender	-.41***	-.55***	-.46***													
5. Outsider	.14	-.07	-.01	.07												
6. Victim	-.38***	-.47***	-.24**	.54***	.06											
Explicit Actual Peers																
7. Bully	.06	.15	.07	.01	-.03	-.02										
8. Follower	.05	.10	.04	.01	.04	-.07	.54***									
9. Defender	-.14	-.01	-.08	.20*	.09	.03	.19*	.41***								
10. Outsider	-.20**	-.16*	-.26**	.31***	.13	.11	.01	.23*	.38***							
11. Victim	-.21**	-.02	-.07	.14	-.02	.13	-.07	.15	.31***	.33***						
Implicit Hypothetical Peers																
13. Bully	.02	-.05	-.11	.02	.05	.13	-.12	-.11	-.06	-.03	-.04					
14. Assistant	-.05	-.10	-.11	.09	.07	.08	.10	.02	.01	-.07	.05	.12				
14. Reinforcer	-.06	-.03	.05	.05	-.04	.20*	.05	.05	.14	-.10	.04	.01	.11			
15. Defender	-.02	-.06	-.10	-.07	.03	.01	.00	-.07	-.01	.02	.00	.13	.06	.11		
16. Outsider	-.09	-.11	-.14	.06	.09	-.01	-.07	-.13	-.07	.02	-.07	-.01	.06	.09	.12	
17. Victim	-.10	-.23**	-.08	.02	.14	.19*	-.12	-.11	-.10	-.07	-.07	.05	.10	.11	-.01	.11

Note. * p < .05; ** p < .01, ** p < .001.

Explicit evaluation of hypothetical versus actual peers with different participant roles

A 5 (Target Participant Role: Bully, Follower, Defender, Outsider, Victim) x 2 (Target Type: Actual vs. Hypothetical) x 5 (Own Participant Role: Bully, Follower, Defender, Outsider, Victim) repeated measures ANOVA was conducted on adolescents' explicit evaluations of hypothetical and actual peers. Target participant role and target type were within-subject factors allowing direct comparisons between the target participant roles and between hypothetical and actual targets. The scales for the evaluations of actual and hypothetical peers had the same anchors but the number of scale points varied: actual peers were rated on a 6-point scale, hypothetical peers on a 7-point scale. The difference was caused by the fact that the actual peer ratings were part of the larger longitudinal study with included other 6-point ratings and an effort was made to keep all ratings scales consistent for the participants. To make the measures comparable, we recoded the ratings of hypothetical peers from a 7-point scale to a 6 point-scale. The anchors were rescaled from 1-7 to 1-6 and the intervals between the scale points were rescaled from 1 to 5/6.

In the ANOVA, Mauchley's test indicated that the assumption of sphericity was violated for target role, $\chi^2(9) = 116.09$, $p < .001$, and for the interaction between target type and target role, $\chi^2(9) = 101.49$ $p < .001$. Therefore, Greenhouse-Geisser corrections of degrees of freedom were used ($\varepsilon = .71$). Results are presented in Table 10.5.

First, we examined whether adolescents differentiated their explicit evaluations by the target peers' participant role, and whether this evaluation further depended on the type of target (hypothetical vs. actual peers). This was the case, as indicated by a significant Target Role x Target Type interaction, $F(2.86, 448.74) = 243.12$, $p < .001$, $\eta_p^2 = .61$.

To interpret the interaction, we first examined the multivariate effects of target role for hypothetical and actual peers separately. The multivariate effect for hypothetical peers was significant, $F(4, 154) = 306.84$, $p < .001$, $\eta_p^2 = .89$. Bonferroni post-hoc comparisons showed that adolescents explicitly evaluated a hypothetical defender more positively than all other characters. They also evaluated the victim character more positively than the outsider, which was evaluated more positively than the followers, which were evaluated more positively than the bully.

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Table 10.5. Explicit Evaluation of Actual and Hypothetical Peers by Classmates' Participant Role and Adolescent's Own Participant Role

	Total $n=163$		Own Participant Role										F(4,157)	η_p^2
			Bully $n=15$		Follower $n=41$		Defender $n=47$		Outsider $n=39$		Victim $n=21$			
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD		
Cartoon Character's Participant Role														
Bully	1.38	.85	1.56	1.03	1.59	1.11	1.20	.47	1.21	.63	1.60	1.09	1.39	.03
Follower	2.08	.76	2.44	.74	2.10	.94	1.98	.65	2.03	.65	2.13	.81	.60	.02
Defender	5.48	.79	5.50$_{a,b}$	.69	5.07$_b$	1.11	5.66$_a$	.59	5.76$_a$	.43	5.37$_{a,b}$	.69	4.86**	.11
Outsider	4.07	.88	4.33	1.14	3.93	.84	4.03	.70	4.18	.95	4.06	1.00	.95	.02
Victim	4.49	1.03	4.33	1.14	4.11	1.18	4.71	.88	4.72	.91	4.45	1.00	1.82	.04
Classmates' Participant Role														
Bully	3.57	1.33	4.12$_{a,b}$	1.34	4.29$_a$	1.27	3.23$_b$	1.35	3.31$_b$	1.15	3.01$_b$	1.04	5.93***	.13
Follower	4.03	.85	4.44$_{a,b}$	.48	4.52$_a$	.73	3.88$_b$	.92	3.81$_b$	.77	3.56$_b$	.78	6.00***	.13
Defender	4.44	.75	4.36	.62	4.36	.80	4.66	.67	4.39	.85	4.27	.68	1.56	.04
Outsider	4.33	.69	4.01	.78	4.24	.75	4.41	.69	4.57	.64	4.14	.45	2.85*	.07
Victim	3.61	1.02	2.68$_b$	1.12	3.69$_a$	1.07	3.63$_a$	.97	3.54$_a$	.78	4.24$_a$	.88	6.16***	.14

Note. * $p < .05$; ** $p < .01$, *** $p < .001$. Means within rows that do not share a subscript were signifcantly different between adolescents with a different participant role in a Bonferroni post-hoc comparison test. Means that were underlined differed significantly between hypothetical peers (cartoon character) and actual peers (classmates) in a Bonferroni post-hoc comparison test.

Table 10.6. Implicit Evaluation of Participant Role Cartoon Characters by Adolescent's Own Participant Role

	Total n = 163		Own Participant Role											$F_{(4,157)}$	η_p^2
			Bully n = 15		Follower n = 41		Defender n = 47		Outsider n = 39		Victim n = 21			
Cartoon Character's Participant Role	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD		
Bully	.03	.38	-.04	.54	-.02	.36	.02	.31	.07	.39	.09	.44	.44	.01
Assistant	.00	.35	-.13	.50	.07	.31	-.01	.35	.01	.30	.00	.36	.94	.02
Reinforcer	.00	.34	-.15	.25	-.01	.35	.07	.41	.02	.30	-.04	.29	.91	.02
Defender	.14	.35	.05	.34	.14	.37	.16	.36	.14	.36	.19	.23	.33	.01
Outsider	.08	.35	.13	.43	-.03	.39	.08	.32	.12	.33	.17	.34	1.28	.03
Victim	.01	.35	-.12	.31	-.02	.37	.03	.32	.02	.37	.07	.38	.28	.01

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The multivariate effect of actual peers (classmates) also was significant, $F(4, 154) = 39.00$, $p < .001$, $\eta_p^2 = .50$. Bonferroni post-hoc comparisons showed a different pattern for adolescents' explicit evaluation of actual peers than for hypothetical peers. Actual peers who were defenders and outsiders were evaluated more positively than all other roles. While hypothetical followers were only evaluated more positively than bullies, actual followers were evaluated more positively than both bullies and victims. Actual victims were evaluated as negatively as actual bullies.

We also compared adolescents' evaluations of hypothetical and actual peers for each role. These multivariate tests showed that hypothetical bullies, followers, and outsiders were evaluated significantly more negatively than their actual counterparts. In contrast, hypothetical defenders and victims were evaluated significantly more positively than their actual counterparts.

Second, we examined whether adolescents' evaluations of hypothetical and actual peers further depended on their own role. Indeed, there was a significant interaction of target role, target type, and own role, $F(11.43, 448.74) = 3.02$, $p = .001$, $\eta_p^2 = .07$. To understand the interaction, we first examined the univariate effect of own role on the evaluations of hypothetical peers. There were no significant effects of own role on the explicit evaluation of the hypothetical bully, follower, outsider, and victim characters. There was a significant effect of own role on the explicit evaluation of the hypothetical defender character (see Table 10.5). Bonferroni post-hoc comparisons showed that adolescents who were defenders themselves and outsiders evaluated the defender character more positively than adolescents who were followers. Adolescents who were bullies and victims did not differ from adolescents in the other roles in their evaluation of the hypothetical defender.

We also examined the univariate effect of own role on the evaluations of classmates (i.e., actual peers) in each role (see Table 10.5). In contrast to the evaluation of hypothetical peers, adolescents' evaluation of classmates who were bullies, followers, outsiders, and victims did depend on their own role, whereas the evaluation of actual defenders did not. Bonferroni post-hoc comparisons revealed that classmates who were bullies or followers were evaluated more positively by adolescents who were followers themselves than by adolescents who were defenders, outsiders, or victims. Adolescents who were bullies did not differ from other adolescents in their evaluation of classmates who were bullies or followers. Whereas there was a significant main effect of own role on the evaluation of actual outsiders, Bonferroni post-hoc comparison tests did not show

significant differences between adolescents who themselves had different participant roles. Finally, victims were evaluated more positively by adolescents who were followers, defenders, outsiders, and victims themselves than by adolescents who were bullies.

We examined multivariate simple effects to determine whether hypothetical and actual peers in each target role were seen differently by adolescents in each role. Significant differences between hypothetical and actual peers are underlined in Table 10.5. Hypothetical bullies and followers were evaluated more negatively than actual bullies and followers by adolescents in all roles. Hypothetical defenders were evaluated more positively than actual defenders by all adolescents. Hypothetical outsiders were evaluated more negatively than actual outsiders by adolescents who were defenders or outsiders. Hypothetical victims were evaluated more positively than actual victims by all adolescents except adolescents who were victims themselves.

In summary, although adolescents evaluated both actual and hypothetical defenders more positively than the other roles, hypothetical defenders were evaluated more positively than actual defenders. Hypothetical victims also were evaluated more positively than actual victims. And although actual and hypothetical bullies and followers were evaluated more negatively than the other roles, actual bullies and followers were evaluated more positively than hypothetical bullies and followers. Adolescents' evaluations of actual peers in all roles except defenders depended on their own role, whereas for hypothetical peers only the evaluation of the defender role depended on adolescents' own role.

Implicit evaluation of hypothetical peers with different participant roles
Adolescents' explicit and implicit evaluations were not directly comparable, because they were examined through different tasks with non-comparable metrics. For adolescents' implicit evaluation of hypothetical peers we therefore conducted a separate 6 (Target Participant Role: Bully, Assistant, Reinforcer, Defender, Outsider, Victim) x 5 (Own Participant Role: Bully, Follower, Defender, Outsider, Victim) repeated measures ANOVA, with target participant role as a repeated measures factor. The correlation between implicit evaluations of the assistant, and reinforcer cartoon character was low. Therefore, we separated implicit evaluations of the assistant and reinforcer target in the analysis, in contrast to the analysis regarding adolescents' explicit evaluation.

There was a significant effect of target participant role, $F(5, 785) = 4.96$, $p < .001$, $\eta_p^2 = .03$. Adolescents implicitly evaluated the defender cartoon character significantly more positively than the assistant, reinforcer, and victim characters (see Table 10.6).

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Finally, we examined whether adolescents' implicit evaluation of hypothetical peers with different participant roles varied by their own participant role. There was no significant interaction between cartoon character role and own role for implicit evaluations.

In summary, adolescents evaluated the defender role most positively, both explicitly and implicitly. Adolescents made differences between the other roles only in their explicit evaluations, not in the implicit evaluations. In addition, unlike their explicit evaluations, adolescents' implicit evaluations of hypothetical peers did not depend on their own role.

DISCUSSION

To gain more insight in the association between bullying involvement and bullying evaluations, this study extended previous research beyond evaluations of the general concept of bullying and hypothetical bullying situations. We examined adolescents' evaluations of bullying at three levels of specificity: the general concept of bullying, hypothetical peers with a specific participant role, and actual peers with a specific participant role. For hypothetical peers, we examined both explicit and implicit evaluations. For each level of specificity, we also examined whether adolescents' evaluations of bullying varied by their own participant role.

Adolescents' Evaluation of the General Concept of Bullying

We first examined adolescents' evaluation of the general concept of bullying. Based on Salmivalli and Voeten (2004), we expected the general concept of bullying to be evaluated more positively by bullies and their followers than by others. However, adolescents' evaluations of bullying did not depend on their own role; all adolescents evaluated the general concept of bullying equally negatively. Could this be an example of moral hypocrisy? People often do not practice what they preach (Stone & Fernandez, 2008). In this study, bullies and followers endorsed the moral standard that bullying is bad, but denied this view in their own behavior. Alternatively, socially desirable answering may be at play (Scholte et al., 2010). The fact that adolescents evaluated bullying negatively is in line with previous research (Boulton et al., 2012; Menesini et al., 1997; Scholte et al., 2010) and fits with Scholte et al.'s (2010) assumption that adolescents' bullying attitudes become more approving until early adolescence, but less positive again when they get older.

Evaluation of Hypothetical versus Actual Peers with Different Bullying Participant Roles

Second, we examined adolescents' evaluation of hypothetical peers with different participant roles. Based on Gini, Pozzoli, et al. (2008) we expected that adolescents would evaluate hypothetical peers in pro-bullying roles relatively negatively and hypothetical peers in the defender role relatively positively. This was confirmed: the more engaged hypothetical peers were in bullying behavior, the more negatively they were evaluated. A hypothetical peer who tried to stop bullying (a defender) was evaluated most positively. Adolescents' explicit evaluations of hypothetical peers in the participant roles were in line with their evaluation of the general concept of bullying.

We also examined adolescents' evaluations of actual peers in each participant role. As expected, adolescents liked classmates in a defender and outsider role more than classmates in a bully role, follower role, and victim role. Moreover, adolescents' explicit evaluations of the participant roles differed between hypothetical and actual peers. In terms of absolute scores, hypothetical bullies and followers clearly were least liked by all adolescents, but actual bullies and followers were not as strongly disliked as the other roles. The difference may be explained by different associations with hypothetical versus actual bullies. In the movie clips, the emphasis was on the negative characteristics of bullies, such as their aggression. In real life, bullying is also related to positively valued status and behavioral characteristics. For example, adolescent bullies and followers score high on peer-valued characteristics and popularity (Chapter 7: Pouwels, Lansu, et al., 2016; Vaillancourt et al., 2003). Although adolescents might disapprove of bullies' aggression, they may value some of their other characteristics, such as good looks, athleticism, status, or leadership skills that may compensate for their aggression (Chapter 7: Pouwels, Lansu, et al., 2016; Vaillancourt et al., 2003).

There was also a difference in the evaluation of victims, as hypothetical victims were liked more than actual victims. Specifically, hypothetical victims were liked less than defenders, but more than outsiders, bullies, and followers. In contrast, actual victims were as disliked as bullies in their classroom. Although adolescents may disapprove of bullying and feel sorry for victims in general, they seem to tolerate or even approve of the bullying of certain victims. They might blame them and believe that they deserve their plight because of their personality or behavior (Hara, 2002). This idea is supported by studies showing that adolescents tend to hold victimized classmates personally responsible for their situation (Schuster, 2001; Teräsahjo & Salmivalli, 2003). Alternatively, it may be adaptive for adolescents to separate themselves from victimized

classmates. Dissociation from victims might reduce their own risk of moving down the status hierarchy (Juvonen & Galván, 2008). That fear is not unrealistic; victimization leads to increased rejection over time (Hodges & Perry, 1999).

Although all adolescents evaluated the general concept of bullying negatively, their evaluation of hypothetical and actual others in different roles depended on their own role. Followers evaluated a defender cartoon character less positively than defenders and outsiders did, whereas bullies did not differ from any other role. As defenders hinder bullying, one could expect that both bullies and followers would evaluate defending behavior less positively than other adolescents would. The fact that this pattern was only found for followers, but not for bullies, may be due to socially desirable answering by bullies. Another explanation is that bullies sometimes defend each other, and thus may sometimes also benefit from defending behavior (Huitsing et al., 2014). The evaluation of the other cartoon characters did not depend on adolescents' own role.

The evaluation of actual peers in different participant roles also depended on adolescents' own role. Classmates who were bullies or followers were evaluated more positively by adolescents who were followers themselves than by adolescents who were defenders, outsiders, and victims. Peers tend to affiliate with classmates who behave the same as themselves in bullying situations (Huitsing & Veenstra, 2012; Salmivalli et al., 1997) and therefore may like them more (Byrne, 1971). Classmates in a victim role were evaluated more negatively by bullies than by adolescents in other roles (including followers). Together, these findings suggest that followers may participate in bullying because they are affiliated with or want to affiliate with the bullies (Olthof & Goossens, 2008), whereas bullies may strategically use aggression to victims they dislike.

Implicit Evaluation of Hypothetical Peers with Different Bullying Participant Roles

At the implicit level, adolescents evaluated the defender role more positively than the victim, assistant, and reinforcer role. In contrast to our hypothesis, adolescents made no further distinction in the evaluation of the other roles. Moreover, contrary to adolescents' explicit evaluations, their implicit evaluations of the roles were not affected by their own role. This indicates that overall, all adolescents implicitly evaluate the defender role positively. This may be explained by the fact that youths are taught that it is good to help others in trouble. Adolescents who have heard this message many times may have formed automatic positive associations with defending. The positive implicit association with defending may not only be formed through teaching. Children are already born with a sense of moral goodness; a tendency to feel empathic concern for others and to help them, despite potential personal costs (Hamlin, 2013). In line with

this, there is some evidence that moral judgment can be the result of multiple systems. In addition to cognitive systems that enable conscious reflection, intuitive affective systems also play a role in moral reasoning (Cushman, Young, & Hauser, 2006; Greene, Nystrom, Engell, Darley, & Cohen, 2004). Consequently, one would expect adolescents to have negative implicit associations with bullies. As adolescents' implicit evaluation of bullies did not differ from their evaluations of the other roles, more research on this association is needed.

Implicit evaluations are likely to influence automatic behavior (Fazio, 1990; Gawronski & Bodenhausen, 2006). This theory is supported by research on prejudice that has shown that people's implicit attitudes towards minority groups predict unfriendly behavior and keeping a distance towards minorities (Dotsch & Wigboldus, 2008; McConnell & Leibold, 2001). Moreover, implicit interpersonal evaluations are related to friendly behavior in a group discussion task and to behavior in an online ball-tossing game, beyond explicit evaluations (Krause, Back, Egloff, & Schmukle, 2014). More research is needed on how adolescents' peer evaluations are related to their social interaction with peers. Adolescents' automatic initial response to bullying is likely driven by their implicit evaluation of defending when they do not have much opportunity to think their response through. However, only some adolescents seem to behave in accordance with their implicit evaluation and actually intervene in bullying (Salmivalli, 2010). When adolescents have more time or opportunity to think about their response they may choose to act upon other more explicit attitudes and considerations (Olson & Fazio, 2009). They could, for example, refrain from defending because of its anticipated costs: to become the next target of bullying (Pöyhönen et al., 2010).

Limitations and Suggestions for Further Research and Practice

This study had some limitations. First, we only controlled for gender in the analyses and were not able to test whether the effects were different for boys and girls due to the limited sample size in Phase 2. Previous research has shown that girls evaluate pro-bullying behavior more negatively than boys do (Boulton et al., 2012; Menesini et al., 1997). Future studies on adolescents' evaluations of the bullying participant roles should further examine gender differences.

Second, hypothetical and actual peers were contextualized in a different way before they were evaluated. Cartoon characters were evaluated after they behaved in line with their role in a bullying scenario. In contrast, actual peers were evaluated without reference to their behavior in bullying situations. We do not know to what degree the differences between actual and hypothetical peers were due to the contextualization

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of their behavior rather than their real-life status. A suggestion for further research is to examine how adolescents evaluate actual peers when they are asked to consider how their real-life peers behave in bullying situations.

Third, the roles of actual peers were derived from nominations aggregated across all peers. Not all adolescents who evaluated a peer in a certain role actually nominated that peer for that particular role. For example, we did not examine at the dyadic level whether adolescents who evaluated actual bullies relatively positively also personally named them as bullies. Further research could address this issue by taking dyadic nominations into account.

Beyond these limitations, several suggestions can be made for further research. Just as at the explicit level, there may be a discrepancy between the evaluation of hypothetical and actual peers at the implicit level. Examining implicit evaluations of actual peers was beyond the scope of this study, because the paradigm is very time consuming. Implicit evaluations of classmates with specific roles may be examined in future studies by means of an approach avoidance task (Lansu et al., 2013). Names or pictures of classmates could then be the target stimuli. By matching the participant roles with the implicit evaluative responses of the peers, implicit evaluations of classmates in each participant role could be examined.

In this study, classroom attitudes and normative beliefs of bullying were not examined because a subsample from each classroom participated in Phase 2. In adolescence, classroom norms of bullying predicted adolescents' individual bullying, reinforcer, and defender behavior after controlling for individual attitudes (Salmivalli & Voeten, 2004; Scholte et al., 2010). Additional studies of adolescents' evaluation of the participant roles of bullying at the individual as well as at the classroom level are needed. Such studies could further extend our knowledge of the evaluation of bullying participant roles at different levels.

Students could be categorized to just one role based on the criterion we used, with the advantage that we could directly compare how these roles differed from each other. However, in real life, some youths are involved in multiple roles (Goossens et al., 2006). We did not take adolescents' secondary role into account because of the relatively small number of students in each role. Future research needs to examine the evaluations of bullying among adolescents with multiple roles. Another related limitation is that assistants and reinforcers were combined into one group to increase its sample size, a

procedure that has been used before (e.g., Goossens et al., 2006). Although these scales were highly correlated, there may have been some differences between these two roles that we were not yet able to examine.

The findings of this study may help understand why adolescents do not always behave according their general bullying attitudes. Adolescents' evaluations of the bullying roles depended on whether they evaluated hypothetical or actual peers. This raises the possibility that studies on adolescents' bullying evaluations by means of general concepts or hypothetical vignettes cannot be translated to real life interactions with peers. The current study has raised important questions about the ecological validity of general self-reported measures of attitudes and hypothetical vignettes. Hypothetical paradigms have been used in a wide range of developmental studies, for example to examine hostile attributions of intent in ambiguous situations, emotional responses to interactions, and intended behavioral reactions to social situations (see e.g., Crick & Dodge, 1996; Graham & Hoehn, 1995). A next step is to develop paradigms that involve actual peers.

The current findings might contribute to the refinement of anti-bullying programs. Many anti-bullying programs aim to change adolescents' attitudes toward bullying in such a way that they become more disapproving of bullying (Olweus, 1994; Salmivalli, Kaukiainen, et al., 2005; Smith & Ananiadou, 2003; Ttofi & Farrington, 2011). However, this study demonstrates that adolescents already have a relatively negative attitude toward bullying behavior. Moreover, all adolescents, regardless of their own role, had relatively positive explicit and implicit associations with defending behavior. Already at an automatic level, youth see defending as positive. Anti-bullying programs do not have to convince youth that defending is the right thing to do. Instead, they may rather focus on the factors that are needed to effectively defend victims, such as empathy or a sense of self-efficacy (Gini, Albiero, Benelli, & Altoe, 2008; Pöyhönen et al., 2010).

It may also be helpful to show adolescents the discrepancy in their evaluations of hypothetical and actual peers: they seem to evaluate hypothetical peers who are victimized less negatively than actual peers who are victimized. From a cognitive dissonance perspective this discrepancy may be the result of inconsistent beliefs (Gawronski, 2012). On the one hand, youths may disapprove bullying but on the other hand may also have a positive impression of the bullies. There are different ways to resolve cognitive dissonance. Youths' motivation to believe in the truth of their desired beliefs may impact how they resolve this inconsistency (Gawronski, 2012). When they are strongly motivated to maintain a positive impression of bullies, they may resolve the inconsistency by justifying the bullies' behavior by holding their classmate victims

responsible for being bullied (Hara, 2002; Hymel, Schonert-Reichl, Bonanno, Vaillancourt, & Rocke Henderson, 2010). As a result, they may evaluate actual victims more negatively than hypothetical victims.

This is not the only way to resolve the inconsistency; adolescents may also question their positive impression of the bullies. To motivate adolescents in this way, they could be encouraged to reflect upon the difference in their evaluations of actual and hypothetical bullies. As a result, they may become more motivated to solve the inconsistency by negatively evaluating all bullying incidents (Fox, Elder, Gater, & Johnson, 2010). Many interventions aim to enhance youths' empathic skills (Ttofi & Farrington, 2011), which may help them to understand and experience what their victimized classmates feel (van Noorden, Haselager, Cillessen, & Bukowski, 2015). This may lead to a more favorable evaluation of actual victims and a more negative evaluation of actual bullies that may reduce pro-bullying behavior and increase defending.

Conclusion

This study has shown that adolescents, regardless of their own participant role, evaluate the general concept of bullying negatively. Both explicitly and implicitly, hypothetical peers with a defender role were evaluated most positively. Adolescents' own role affected their explicit evaluation of actual and hypothetical peers but not their implicit evaluation of hypothetical peers. These results imply that future research on bullying attitudes must take adolescents' own participant role into account. When adolescents evaluated hypothetical peers, bullies were evaluated negatively by all classmates and victims were evaluated more positively than the other roles. However, when they evaluated their own classmates, the differences between bullies and followers and the other roles were smaller and victims were evaluated as negatively as bullies. Therefore, further research should take into account that adolescents' evaluations of actual peers differ from their evaluations of hypothetical peers.

APPENDIX 10A

Description of Video Clips

Two video clips were presented. Text balloons were used to clarify the communication between the characters. Clips with male characters were shown to boys; clips with female characters were presented to girls. A description of the male version of the clips is given below.

Video clip 1 was a bullying situation in which the victim entered the school canteen and ordered a drink. He then sat down with two peers: the bully and the assistant, after which the bully took the initiative to sit somewhere else because he did not want to sit with peers who are 'not sociable'. The assistant walked with the bully. When the bully and assistant had joined two other peers in the school canteen, they started to miscall the victim and to point at him. The reinforcer encouraged the bully by laughing. The victim looked unhappy but did not do anything. After a while, the defender intervened by getting angry with his peers. He walked to the victim and tried to comfort him. The outsider was present in the school canteen but stayed out of the situation.

Video clip 2 was situated in the hallway at school. At the beginning of the clip, the victim entered the hallway and walked to his locker. Next to his locker, the bully and assistant talked to each other. The victim got a book out of his locker. Then, the bully and assistant noticed the victim and the bully compelled the victim to give the book to him. When he got the book in his hands, the bully started ridiculing the victim for reading such a book. The assistant joined the bully. The reinforcer started laughing at and pointing at the victim. The bully threw the book on the ground and stepped on the book. The victim started crying. Then, the defender intervened in the situation and threatened to call the teacher. The bully decided to leave the locker area and the assistant walked away together with the bully. The defender tried to comfort the victim. The outsider was present in the hallway but stayed out of the situation.

APPENDIX 10B

Target Stimuli and Evaluative Stimuli

Figure 10.B1. Target stimuli for boys

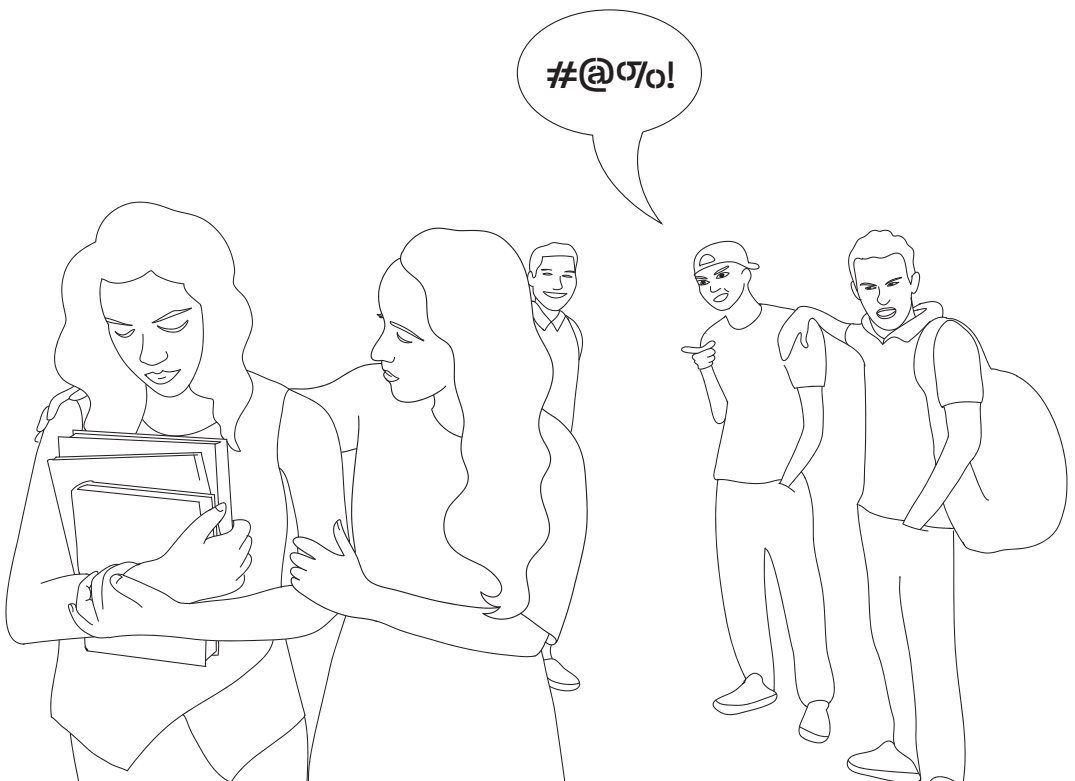**Figure 10.B2.** Target stimuli for girls

Figure 10.B3. Negative evaluative stimuli.

Figure 10.B4. Positive evaluative stimuli

Note. All figures were presented in color in the single-target implicit association task (st-IAT).

General Discussion

The present dissertation provided developmental, methodological, and social-cognitive perspectives on the participant roles of bullying. This discussion integrates the findings of the different chapters. In the first section, I discuss the findings per participant role (i.e., victims, bullies and followers, defenders, and outsiders) by providing an overview of the prevalence and socio-emotional functioning profile of each role and youths' social cognitions related to each role. In the second section, I describe general developmental, methodological, and social-cognitive trends found across the different roles. Within each theme I also discuss limitations and suggestions for further research. The role of gender and social context are also discussed in the second section. In the third section, I conclude with practical implications for anti-bullying programs.

PREVALENCE AND SOCIO-EMOTIONAL PROFILES OF THE PARTICIPANT ROLES

Previous studies on the participant roles have been limited to childhood and early adolescence. This dissertation has a unique focus on the prevalence and socio-emotional profiles of the participant roles in middle adolescence (ages 14 to 18, corresponding with Grades 9 to 12). One underlying theme was the question whether bullying becomes more rewarding in terms of social status with age. Cross-sectional comparisons of age groups and longitudinal analyses clarified how the participant roles are associated with social status and behavior across childhood and adolescence.

Victims

Across the studies in this dissertation, the prevalence of victimization in middle adolescence was 10% to 15%. The stability of peer victimization depended on age and type of informant. In early childhood, peer reports of victimization were relatively unstable (Chapter 3 & 4), whereas self-, teacher-, and other/combined-reports were already stable from early childhood on (Chapter 4). The low stability in early childhood may explain why early childhood peer-reported victimization was not related to later emotional and social problems (Chapter 4). The stability of peer reports increased with age and peer-reports were more stable than self-reports from early adolescence on (Chapter 3).

Across different ages, victims social status profile was characterized by a low peer status. Of all roles, adolescent victims had the lowest peer status. Victims were disliked and unpopular throughout childhood and adolescence (Chapter 4, 7, 8).

11

The likeability of victims was especially low after the transition from primary to secondary school. After this transition, new peer hierarchies are established (Pellegrini & Long, 2002) and youths become more concerned about their peer status (LaFontana & Cillessen, 2010). If youths pursue high status, it is strategic not to associate themselves with unpopular victims, as this might decrease their own status (Juvonen & Galván, 2008). This may explain not only why victims were particularly disliked after the transition from primary to secondary school (Chapter 8), but also why secondary school victims were already unpopular and disliked in primary school, and further decreased in likeability when moving into secondary school (Chapter 9). These findings also correspond with previous research demonstrating that students' sympathy for victims decreases from primary to secondary school (Rigby & Slee, 1991) and that the number of isolated children increases directly after the school transition (Pellegrini & Bartini, 2000b).

In terms of socio-emotional functioning, I first examined how peer victimization in adolescence was associated with concurrent internalizing problems. In adolescence, victims experienced high levels of internalizing problems (Chapter 2 & 7). This is consistent with previous research that suggests that the association between peer victimization and internalizing behavior is especially strong in adolescence (Boivin et al., 2010).

In Chapter 5, I provided a long-term developmental perspective on the association between internalizing behavior and peer victimization. Previous short-term longitudinal research revealed weak concurrent and longitudinal associations between internalizing problems and peer victimization within early childhood (Hanish et al., 2004; van Lier & Koot, 2010; van Lier et al., 2012). Within adolescence, internalizing problems predict later peer victimization more strongly (Sentse et al., 2017; Vaillancourt et al., 2013). But we did not know yet whether internalizing behaviors in early childhood would predict peer victimization in adolescence. Chapter 5 examined this long-term association. The findings revealed that early childhood internalizing behaviors were neither related to the level of peer victimization in middle childhood, nor to the rate of change in victimization from middle childhood to adolescence.

In addition to providing a long-term developmental perspective on the association between internalizing behavior and peer victimization, in Chapter 2 victims' emotional experiences were also examined at a micro level by looking at daily internalizing affect. Although almost no previously self-identified victims indicated that they were victimized during the diary assessment days, they did report elevated levels of daily internalizing affect on those days. It is possible that adolescents' daily internalizing affect was elevated in response to previous victimization episodes (Espinoza et al.,

2013; Nishina, 2012) and may be chronically elevated due to repeated victimization over a prolonged period of time. This corresponds with the finding that victimization has long-term effects. For example, even several years after their victimization declined, adolescents still experience internalizing problems (Jensen-Campbell, Boyd, Arana, & Lee, 2017).

I also provided a long-term developmental perspective on the association of peer victimization with externalizing behaviors. I first examined how early externalizing behavior was related to peer victimization in childhood. Previous studies found a strong association between peer victimization and externalizing behaviors in early childhood (Hanish et al., 2004; Snyder et al., 2003; van Lier & Koot, 2010). These findings were replicated in Chapter 4 by showing that victimization was positively associated with concurrent levels of aggression in Grades 1 and 2. Empirical evidence suggests that the association of peer victimization with externalizing behaviors decreases in strength as children get older (Boivin et al., 2010; Cillessen & Lansu, 2015). Accordingly, I found that the concurrent association between peer victimization and direct aggression was stronger in Grades 1 and 2 than in Grade 3.

I also examined how externalizing behaviors in early childhood and adolescence are related to victimization in adolescence. The decreasing cross-sectional association between externalizing behavior and victimization with age does not necessarily mean that early externalizing behavior cannot be associated with victimization in adolescence. Indeed, in Chapter 5 early externalizing behavior was related to higher peer victimization throughout childhood and early adolescence. This raises the question whether this association is caused by the fact that early externalizing children who are at risk for victimization in adolescence remain highly aggressive and antisocial over time. Indeed, Chapter 7 demonstrated that adolescent victims still exhibited externalizing behaviors – they scored high on aggression. Moreover, both self-reported peer victimization (Chapter 3) and (peer-reported) externalizing behaviors (Chapter 4) are relatively stable from early life on (for long-term stability of externalizing, see Hay et al., 2004; Mesman et al., 2001; Verhulst & van der Ende, 1992). Together, the findings of this dissertation suggest that there may be a group of chronically victimized youths who display externalizing behaviors throughout childhood and adolescence. Further research should examine joint trajectories of victimization and externalizing behavior throughout childhood and adolescence to identify this group.

It should be noted that not all victims may be aggressive to the same extent. This is supported by Chapter 9, in which I found that some adolescent victims had followed trajectories characterized by high levels of direct aggression throughout childhood

11

and adolescence, whereas others had earlier trajectories with low levels of aggression. This is consistent with the idea that there are two types of victims: passive victims and aggressive victims. Passive victims are characterized by withdrawing themselves, behaving submissively, and suffering from internalizing problems. Aggressive victims are characterized by externalizing problems and bullying (Unnever, 2005). The latter type (bully-victims) also have more socio-emotional problems than victims (Stassen Berger, 2007). Accordingly, Chapter 4 showed that the social status of bully-victims was worse than that of victims, as was also shown by Schwartz et al. (2001).

Finally, I examined adolescents' social cognitions related to victimization as these may help us understand their behavior in bullying situations. I examined victims' perceptions of bullying as well as their evaluations of the victim role. In line with the social information processing model, Chapter 6 showed that bully-victims were more likely than victims and uninvolved children to perceive bullying in ambiguous social situations. This finding is consistent with previous studies that found an association between peer victimization and hostile interpretations of intent (for a review, see van Reemst et al., 2016). I added to these findings that victimization is not only related to biased interpretations of aggression in general, but also of bullying specifically. Moreover, as most previous studies did not distinguish bullies, victims, and bully-victims, the findings of this dissertation and by some others (Camodeca et al., 2003; Guy, Lee, & Wolke, in press) suggest that these biased cognitions are particularly found for bully-victims. Further, I showed that biased cognitions may not only influence bully-victims' interpretations of interactions between children, but also their interpretations of a broad range of non-social interactions. This implies that the concept of bullying may be strongly embedded in bully-victims' schemas.

In Chapter 10, adolescents' evaluations of the victim role were examined. Adolescents' disliking of victims is not in line with research on bullying attitudes. This research has shown that most youths evaluate bullying negatively and think that making friends with victims is the right thing to do (Rigby & Slee, 1991; Salmivalli & Voeten, 2004; Scholte et al., 2010). The discrepancy between attitudes in favor of victims and the disliking of victims could be caused by youths' attitudes towards specific victimized classmates. This was not considered in previous studies. In Chapter 10, I therefore examined how adolescents' evaluations (i.e., liking) of actual victimized classmates differed from their evaluation of cartoon character victims. Cartoon character victims were better liked than victimized classmates. This suggests that adolescents may disapprove of bullying in general and feel sorry for victims they do not know, but that actual victims have

certain (behavioral) characteristics that lead to negative evaluations. For example, the internalizing and externalizing problems and low levels of prosocial behaviors of actual victims may explain why they are evaluated negatively.

To summarize, I found that victims were unpopular and disliked throughout childhood and adolescence. They had internalizing problems in adolescence and externalizing problems throughout childhood and adolescence that were related to their negative perceptions of social situations. Adolescents evaluated actual victims more negatively than hypothetical victims.

Bullies and Followers

The prevalence of bullying was 9% and of follower behavior 24% in mid-adolescence (Chapter 7). The findings of this dissertation show that peer status is important for bully/follower behavior in adolescence. Adolescent bullies were highly popular but disliked by their peers. Followers were less popular than bullies, but still more popular than all other roles. Chapter 8 indicated that popularity is especially related to bullying in adolescence, as bullies and followers were more popular in secondary school than in primary school. Although there was a peak in bullies' popularity in adolescence (Chapter 8), a substantial part of the adolescent bullies/followers were already relatively popular in middle childhood and early adolescence (Chapter 9).

In addition to adolescent bullies' status profile, this dissertation also provided more insight in their behavioral profile. This profile consisted of low levels of prosocial behavior and high levels of proactive and reactive aggression (Chapter 7). Followers were more prosocial and less proactively aggressive than bullies, but still less prosocial and more aggressive than the other roles. This suggests that bullies and followers use their aggression in a controlled, manipulative way, consistent with Salmivalli and Nieminen (2002). It also supports the intentional nature of bullying that is part of its definition. Chapter 9 examined adolescent bullies' and followers' behavioral profile earlier in life. A substantial part of the adolescent bullies and followers displayed high levels of direct aggression (i.e., fighting or arguing) in middle childhood that decreased over time. This developmental decrease of aggression in adolescent bullies and followers may reflect a shift from direct aggression to indirect and relational aggression (i.e., gossiping and exclusion).

Why may youths shift from direct to relational aggression? As youths get older, popularity becomes more important (LaFontana & Cillessen, 2010) and adolescents discover that relational aggression (e.g., gossiping and social exclusion) is effective to obtain or maintain popular status in the peer group (Cillessen & Mayeux, 2004;

11

Ojanen & Findley-Van Nostrand, 2014). This effect is particularly strong among popular adolescents, because they may have more social resources to involve their peers in relational aggressive acts (Dawes & Xie, 2014). Although I did not directly examine youths' motivation to be popular, previous research has shown that popular adolescents who have an agentic goal to have status and power in the peer group increase in relational aggression over time (Ojanen & Findley-Van Nostrand, 2014). Moreover, adolescent boys who are popular and prioritize popularity seem to bully to maintain their popularity and unpopular girls who prioritize popularity bully to increase in popularity (Duffy et al., 2017). Adolescents who want more status for themselves may also reinforce or assist a high-status bully (Juvonen & Galván, 2008). Youths' motivation to be popular may therefore explain why relational aggression increases in adolescence and may be most prevalent among bullies and followers. Consistent with this, Chapter 8 demonstrated that bullying and follower behavior were more common in adolescence than in childhood (Chapter 8). This age trend was more pronounced found for girls (Chapter 8), who are particularly likely to display relational bullying and for whom relational aggression is especially effective to increase in popularity (Cillessen & Mayeux, 2004; Crick & Grotpeter, 1995).

Finally, the social-cognitive perspective demonstrated that adolescents evaluated actual bullies and followers (classmates) more positively than cartoon bullies and followers (Chapter 10). The negative evaluations of the latter suggest that adolescents in principle disapprove of bullying. However, in the classroom, bullies also have other characteristics they value, such as leadership, humor, and holding power (Chapter 7; Vaillancourt & Hymel, 2006). This may explain the more positive evaluation of actual bullies and followers than cartoon bullies and followers.

To summarize, bullies and followers were popular and relatively disliked throughout childhood and adolescence. They were especially popular in adolescence. Adolescent bullies had high levels of proactive aggression and low levels of prosocial behavior, and were particularly likely to show high levels of direct aggression earlier in childhood that decreased over time. Adolescents evaluated actual bullies and followers more positively than hypothetical bullies and followers.

Defenders

The prevalence of defending in middle adolescence was 19% (Chapter 7). This dissertation provided a developmental perspective on the status profile of defenders and showed that it depended on age. Adolescent defenders were average in popularity and high in likeability (Chapter 7). The average levels of popularity of defenders were unique to middle adolescence, as childhood defenders were highly popular (Chapter

8). These findings extended those by Caravita et al. (2009) who found a stronger concurrent association between defending and popularity in middle childhood than in early adolescence.

The finding that childhood defenders are more popular than adolescent defenders raises the question whether the same youths are defenders in childhood and adolescence. I did not answer this question directly, but Chapter 9 demonstrated that adolescent defenders were average in popularity throughout childhood and adolescence. Childhood defenders were generally high in popularity. This suggests that the group of defenders consists of different youths, or at least partially different youths, in childhood than in adolescence. The finding that the prevalence of defending is lower in adolescence than in childhood, particularly for boys, is in line with this suggestion (Chapter 8).

Popular adolescents may refrain from defending because it is risky – defending a low-status peer may have a cost for one's own status (Meter & Card, 2015). This may also explain why adolescent defenders are less popular than childhood defenders. Other research has shown that early adolescents who prioritize popularity over other social goals are unlikely to be defenders (Duffy et al., 2017). If popular adolescents do not defend their peers, average status youths remain as defenders, leading to a weaker association between defending and popularity in secondary school than primary school.

Defenders' high social preference was also reflected in how they were evaluated by their peers. Adolescents evaluated both actual and hypothetical defenders positively (Chapter 10). The positive impression of actual defenders may be based on a range of characteristics examined in Chapter 7. Adolescent defenders may be liked because they were prosocial, unaggressive, attractive, and had many friends. Their prosocial profile seems to be stable, as most adolescent defenders were nonaggressive in childhood (Chapter 9).

This dissertation added to the literature by showing that all adolescents, regardless of their role, had positive associations with defending, even on an automatic, implicit level. As implicit attitudes guide automatic behavior (Dotsch & Wigboldus, 2008; Fazio, 1990; Gawronski & Bodenhausen, 2006; Krause et al., 2014), adolescents may have an automatic tendency to defend others. However, the fact that only 19% of the adolescents act upon this attitude suggests that adolescents refrain from defending for other reasons. Based on Chapters 7 and 8, I believe that they may refrain from defending because of its anticipated costs: they may lose peer status as the result of helping an unpopular and disliked victim, as defending is not that strongly correlated to popularity.

To summarize, throughout childhood and adolescence defenders were liked, prosocial, and not aggressive. Defenders were highly popular in middle childhood but average in popularity in adolescence. Adolescents evaluated defending positively, both explicitly and implicitly.

Outsiders

The prevalence of outsider behavior in adolescence was 24% (Chapter 7). In childhood and adolescence, outsiders were neither liked nor disliked. They were relatively unpopular, but not as unpopular as victims (Chapter 8). Adolescent outsiders were average in prosocial behavior and not aggressive (Chapter 7). Like defenders, they were nonaggressive in their earlier development, but they were not overrepresented in a specific earlier trajectory of social status (Chapter 9).

One main goal of interventions that target the group process of bullying, such as KiVa (Kärnä et al., 2011), is to promote defending behavior. In order to achieve this goal, it is important to understand why some youths defend but others do not and remain outsiders. In Chapter 7, the main difference between outsiders and defenders was in peer status and peer-valued characteristics rather than in their behavior. Both groups were prosocial, which is consistent with Pronk et al. (2013) who found that both had the prosocial intent to defend victims. Outsiders are less liked and popular than defenders and have fewer friends (Chapter 7) and that may explain why they do not act upon this intent: perhaps they are afraid to lose more status when defending a victim. That is, they may simply feel that they do not have the support in the peer group to defend, or perhaps they are afraid to become the next target themselves if they defend a victim, as suggested by Pöyhönen et al. (2010).

GENERAL TRENDS, IMPLICATIONS, AND RECOMMENDATIONS FOR FURTHER RESEARCH

Developmental Trends

This dissertation showed that the socio-emotional profiles of the participant roles differ with age. The first part of this dissertation showed that the association of peer victimization with externalizing is stronger in childhood than in adolescence, whereas the association with internalizing is stronger in adolescence than in childhood (Boivin et al., 2010; Hanish et al., 2004; Hodges & Perry, 1999). The second part showed that the group process of bullying is different in adolescence than in childhood, because social status plays a more prominent role in participant role involvement in adolescence. This

is a reflection of the generally greater importance attached to popularity in adolescence than in childhood. These findings highlight the importance of taking age into account when examining youths' socio-emotional functioning in the context of bullying.

In addition to cross-sectional age-comparisons, the long-term developmental perspective of this dissertation further clarified how the participant roles are associated with social status across childhood and adolescence. First, these associations varied depending on the age at which the participant roles were assessed. Socio-emotional functioning in childhood was differently related to participant role involvement in childhood and adolescence. For example, childhood popularity was strongly positively related to defending in middle childhood (Chapter 8) but less strongly to defending in adolescence (Chapter 9). Second, in addition to the age of the bullying participation, the associations also varied depending on the age at which socio-emotional functioning was assessed. Specifically, (early) childhood socio-emotional functioning differs from adolescent socio-emotional functioning in its association with adolescent participant role involvement. For example, adolescent internalizing behavior was related to peer victimization in adolescence (Chapter 2), but childhood internalizing behavior was not related to peer victimization in adolescence (Chapter 5). Taken together, this dissertation highlights the importance of providing a long-term developmental perspective on the socio-emotional profiles of the participant roles.

A limitation of this dissertation and previous research on the participant roles is that there is no (long-term) longitudinal research on the assistant, reinforcer, defender, and victim roles. Our meta-analysis (Chapter 3) demonstrated that children's experiences of peer victimization are relatively stable from early childhood on. However, we know little about the long-term stability of the other participant roles. In addition, insight is needed in transitions between roles. For example, popular boys may switch from a defender role in childhood to a bully role in adolescence. Such transitions may provide insight in age changes in prevalence found in Chapter 8. Longitudinal research on the participant roles may also help us understand age changes in the concurrent associations between the participant roles and socio-emotional functioning. For example, in this dissertation adolescent bullies were more popular than childhood bullies (Chapter 8). However, we do not know whether bullies increased in popularity over time, or whether popular children increased in bullying. That is, were bullies or followers in adolescence already bullies or followers in childhood, and did they gradually increase in popularity from childhood to adolescence? Or were there popular children who did not bully but became bullies in adolescence? Future research should examine youths' socio-emotional functioning and their participant role involvement together over a prolonged period of time.

11

A related suggestion for future research is to extend the long-term developmental perspective of this dissertation by examining how adolescents' participant role involvement is related to their long-term socio-emotional adjustment. Adolescents who are victims or who bully are at risk for mental health problems in adulthood (Matthews, Jennings, Lee, & Pardini, 2017; McDougall & Vaillancourt, 2015). Children who witness bullying develop problems with anxiety (Nishina & Juvonen, 2005). Following youths over time can reveal how follower, defender, and outsider behavior in childhood and adolescence are related to adult adjustment.

The findings of this dissertation also demonstrated that variable-centered approaches may lead to different conclusions than person-centered approaches. For example, variable-centered studies have shown that the association between peer victimization and externalizing problems decreases from childhood to adolescence, but person-centered studies have shown that victims may still experience externalizing problems in adolescence (Chapter 7). Moreover, the pearson's *r* rank-order stability of peer-reported victimization increases by age (Chapter 3), but this does not necessarily reflect developmental continuity in individual students' absolute levels of victimization (Bornstein, Putnick, & Esposito, 2017). Therefore, I recommend that longitudinal studies analyze adolescents' developmental trajectories of social behavior by looking at absolute scores in addition to relative scores. I also recommend combining variable- and person-centered approaches to reveal heterogeneity (e.g., subgroups) in adolescents' developmental trajectories of social functioning.

A final recommendation is to conduct longitudinal studies with more repeated measurement occasions. Longitudinal studies usually include data collection waves across intervals ranging from several months to years. A limitation of such large intervals is that less insight can be provided in the mechanism underlying change, as change often occurs on small time scales (Orobio de Castro, Thomaes, & Reijntjes, 2015). For example, by showing that peer victimization predicts internalizing behaviors in the next year, we do not know when exactly the internalizing behaviors increase. Do victims only experience internalizing problems if they are victimized for several weeks, or is one severe incident already enough to elevate their internalizing affect? And if they show such an response, will their internalizing affect be elevated only on that day or will it remain elevated for multiple days or even longer? In order to get insight in such micro changes, more repeated assessments across small time intervals are needed. The diary assessment in Chapter 2 is an example of such an ecological momentary assessment procedure. Such a design could be extended by measuring, for example, children's daily peer victimization experiences for one week each month for a year.

Methodological Trends

Different informants of peer victimization were used throughout this dissertation. In Chapter 2, the concordance between self- and peer-reports of peer victimization was relatively low. Moreover, children's responses to general measures of the frequency of peer victimization during a certain period of time did not always correspond with their daily experiences (Chapter 2). Further, the stability of peer victimization (Chapter 3) and the associations of victimization with socio-emotional functioning (Chapter 2) depended on the type of informant. Chapter 2 extended previous studies by showing that this association also depends on both the informant of internalizing problems (self vs. peer) and the type of internalizing problems (interpersonal vs. intrapersonal). Taken together, these results support the idea that each informant and measure of peer victimization taps into different aspects of victimization. I therefore recommend to include different informants of peer victimization and internalizing problems in future research.

What are the unique characteristics of each victimization measure? Self-reports tap into subjective experiences of peer victimization that may be biased by past experiences (Chapter 6). Daily diary-reports measure daily experiences of victimization without a memory bias, but may not be representative for a longer period of time (Chapter 2). Peer-reports are likely to tap into children's reputation as a victim in the classroom. In early childhood, peer-reports of victimization may be unreliable as they are not yet stable (Chapter 3 and 4), perhaps because young children lack the perspective taking skills needed to identify peers who are regularly victimized. In adolescence, peer-reports may be biased by as they may reflect stable reputations in the classroom rather than actual bullying incidents (Hymel, Rubin, et al., 1990). A suggestion for future research is to directly test whether reputation bias may explain the stability of peer-reported victimization in adolescence. This could be tested by examining whether the stability of victimization across the transition from primary to secondary school depends on the stability of the reference group (classroom). If reputation bias plays a role, the stability of victimization will be higher when the new classroom contains more familiar peers from the pre-transition classroom.

Traditionally, the distinction between victims and bully-victims has not been made in the participant role approach (Goossens et al., 2006; Salmivalli, Lagerspetz, et al., 1996). As factor analyses did not reveal separate factors for victims and bully-victims, I also did not make the distinction in the studies with the participant role questionnaire (Chapters 7 to 10). The bully-scale of the participant role questionnaire focuses on ringleader bullying behavior (e.g., "Who makes others join in the bullying?"; "Who always finds new ways of harassing the victim?"). Ringleader bullying behavior may be less common for

bully-victims. It is unlikely that bully-victims make peers join in the bullying because they do not have the status or the socio-cognitive skills needed to influence their peers in that way. Because the participant role questionnaire focuses primarily on ringleader bullying, it may be unsuitable to measure the bully-victim role.

Because the participant role questionnaire seems to primarily measure ring-leader bullying, the strong link of bullying with popularity in this dissertation applies to ringleader bullying and cannot be generalized to the behaviors of bully-victims. The findings from this dissertation suggest that the distinction between bullies, victims, and bully-victim cannot be disregarded, as there were differences between victims and bully-victims in socio-emotional functioning and social cognitions (Chapters 4 & 6; see also the section on victims in this discussion). Moreover, ignoring a bully-victim group may lead to incomplete results. In Chapter 7 I did not distinguish victims from bully-victims and found that victims scored high on reactive aggression, but not on proactive aggression. Other studies that made the distinction found that both victims and bully-victims score high on reactive aggression, and bully-victims also display proactive aggression (Camodeca et al., 2002; Salmivalli & Nieminen, 2002; Unnever, 2005). To get more insight in the differences between bullies, victims, and bully-victims, I recommend that a new subscale is added to the participant role questionnaire that measures bully-victim behavior (e.g., "Who responds to being bullied by aggressing against the bullies?").

Social-Cognitive Trends

The differences between evaluations of actual and hypothetical bullies and victims in Chapter 10 highlight the importance of a nuanced view on youths' anti-bullying attitudes. This study suggests that adolescents' attitudes about bullies and victims not only depend on their bullying or victim behavior but also on other characteristics. This has implications for studies using hypothetical vignettes. I recommend that future studies on youths' social cognitions should replicate findings based on hypothetical vignettes or scenarios with paradigms that include actual peers. This also applies to Chapter 6, in which I examined adolescents' perceptions of bullying. In addition to showing adolescents video clips of interactions between movie characters, future research should also present them with videotaped interactions between their own classmates, including interactions in which they are involved themselves. Adolescents should then indicate whether they interpret these interactions as bullying. These alternative designs will make it possible to analyze how social information processing of peer interactions is influenced by the real-life characteristics of peers. For example, are adolescents less likely to interpret a situation as bullying if the bully is popular rather than unpopular?

Are adolescents more likely to attribute blame to a victim with an aggressive reputation and low status than to a victim with a prosocial reputation and a high status? Answering such questions will provide more insight into the role of social information processing in real-life peer interactions.

This dissertation did not address whether social cognitions are related to actual behavior in the classroom. I assumed that adolescents' perceptions of bullying and evaluations of the participant roles influence their actual behavior in bullying situations. However, this was not directly tested, as I related adolescents' cognitions to their participant role status but not to actual observed behavior. This can be done in experimental designs in which adolescents can behaviorally respond to a peer who is the victim of peer provocation (e.g., Cyberball).

A final suggestion for further research is to examine how the age differences in the popularity of the participant roles are related to developmental changes in social motives. In this dissertation, bullies and followers were more popular in adolescence than in childhood, whereas defenders were less popular. I assume that this is related to older youths being more motivated to become popular than younger youths (LaFontana & Cillessen, 2010), and to their beliefs that bullying and follower behavior can lead to popularity, whereas defending a low-status victim is risky for one's status. Further research should directly examine how age-related changes in social motivation and beliefs are related to social status and participant role involvement.

Gender Trends

The prevalence of the participant roles and age differences therein depended on gender (Chapter 7 and 8). Consistent with previous research, bullying, following, and reinforcing were more common among boys, whereas defending and outsider behavior were more common among girls (Salmivalli, Lagerspetz, et al., 1996). These findings are in line with differences in socialization leading to aggression being more normative for boys and prosocial behavior being more normative for girls (Eagly & Wood, 1991).

In Chapter 8, the status profiles of the participant roles were similar for boys and girls, and age differences in these profiles did not vary by participant gender. In contrast, the gender of the reference group did influence the popularity of the roles. Both early adolescent boys and girls especially saw bullies and followers of the other sex as popular. These other-sex peers may be seen as attractive romantic partners as they bridged the maturity gap (Bukowski et al., 2000; Mayeux, 2011). In line with this idea, previous

11

research has revealed that boys who bully same-gender classmates were accepted by girls in early adolescence (Veenstra et al., 2010) but not in childhood (Veenstra et al., 2013).

In the other chapters, I did not examine the role of gender in the association of the participant roles with socio-emotional profiles. In previous studies, age differences in the associations of internalizing and externalizing problems with peer victimization depended on gender (Cillessen & Lansu, 2015; Sentse, Kretschmer, et al., 2015; Sugimura et al., 2017). Future research should take participant gender into account when examining the socio-emotional profiles of the participant roles.

Contextual Trends

With the exception of Chapter 4, the findings of this dissertation were based on predominantly Caucasian samples from the Netherlands. These findings may not be generalized to more ethnically diverse samples or samples from low income urban areas in the US. The risk factors for peer victimization may depend on the social context, as they are related to deviations from social norms that are context dependent. For example, in Chapter 4 high levels of prosocial and internalizing behaviors were risk factors for early childhood peer victimization in a sample of Latino and African American children from low-income urban areas. However, in Chapter 7, in a Dutch sample, prosocial behavior was a protective factor for peer victimization, as victims exhibited low rather than high levels of prosocial behavior. The finding that internalizing behavior may put young children at risk for victimization in a low-income urban area may also be unique to this context. Previous research suggests that the association between internalizing behavior and peer victimization is relatively weak in early childhood samples from Canada and the US that are representative of their populations in terms of ethnicity and socio-economic status (Hanish et al., 2004; van Lier & Koot, 2010; van Lier et al., 2012). In inner-city low-income areas, the prevalence of violence is high and pathological adaptation to this community violence may take place (Ng-Mak, Salzinger, Feldman, & Stueve, 2004). Specifically, youths may become desensitized to it and therefore experience relatively few internalizing behaviors, while they display high levels of aggression. This suggests that internalizing and prosocial behaviors may be less normative in inner-city low-income areas. Highly internalizing and prosocial children may therefore be at risk for victimization in this context.

There may be heterogeneity in the associations of the participant roles with socio-emotional functioning not only between populations, but also within the population of Dutch secondary school students. For example, classrooms differ in the extent to which bullies are popular (Dijkstra et al., 2008). A suggestion for further research is to

examine how age-related differences in social status profiles of the participant roles depend on classroom characteristics that have been previously related to bullying, such as status hierarchies (Garandeau et al., 2013), bullying attitudes and norms (Salmivalli & Voeten, 2004; Scholte et al., 2010), and prestige norms (Berger & Caravita, 2016). When examining longitudinal trajectories of students' participant role involvement and their related status profiles, it may be especially important to take these classroom characteristics into account. This makes it possible to disentangle longitudinal changes related to changing contextual factors from longitudinal changes due to development of individual characteristics, such as increases in motivations to be popular.

A limitation of this dissertation was that I did not take the dynamic nature of bullying into account as students were only assigned to one participant role. However, in real life, students may have different roles depending on who is involved in the bullying (e.g., a popular or unpopular victim). These variations have been modeled with a social network approach (Huitsing et al., 2014; Huitsing & Veenstra, 2012). In addition to being a bully or victim, children may also have a secondary role. For example, bullies of the same victims tend to defend each other (Huitsing et al., 2014). A suggestion for further research is to use social network analysis to determine whether students have different roles depending on the status of the victim. That is, not only youths with a low status are victimized, but also youths with a high status. Bullies who target high-status victims show a larger increase in social status (Andrews et al., 2017). However, throughout this dissertation I consistently found that victims have a low rather than high peer status. This may be due to the fact that high-status students who are victimized may have a primary role of bully rather than victim. Only low-status students may therefore have been identified as victim. It may therefore be promising to examine participant involvement with dyadic nominations to identify by whom bully-victims are bullied and against whom they direct their own aggression.

Further research should also take into account how adolescents' participant role involvement depends on the specific type of bullying. For example, the prevalence of relational bullying, such as gossiping, neglecting, and excluding, is high in adolescence (Yeager et al., 2015). A recent study indicated that participant role involvement in overt aggression differs substantially from involvement in relational aggression (Casper, Card, Bauman, & Toomey, 2017). For example, the correlation between reinforcing overt aggression and reinforcing relational aggression was moderate ($r = .24$, $p < .001$). Relational bullying is particularly dynamic; adolescents may have a different role depending on the type of bullying (overt or relational) and their role may change from one situation to the next.

11

In addition to relational bullying, cyberbullying is an important problem in adolescence now that many adolescents have mobile phones and easy internet access (Kowalski, Giumetti, Schroeder, & Lattanner, 2014). Numerous studies have examined bystander behavior in cyberbullying. But it is unclear whether the participant roles apply to the online context (Allison & Bussey, 2016). Youths who witness cyberbullying often do not intervene (Allison & Bussey, 2016), just as adolescents often do not defend victims of traditional bullying (Chapter 7). Research on the participant roles and their associated status goals and profiles may provide a framework to explore why many adolescents do not intervene in cyberbullying.

PRACTICAL IMPLICATIONS

In the Netherlands, there are currently many programs that aim to reduce bullying in school. The policy of the Dutch Ministry of Education, Culture, and Science is that all schools need to implement an evidence-based effective anti-bullying program to prevent and intervene in bullying. Therefore, the Ministry commissioned an evaluation of 61 Dutch anti-bullying programs (Wienke, Anthonijsz, Abrahamse, Daamen, & Nieuwboer, 2015). Of these, 13 programs were temporarily approved or evaluated as promising but not yet approved. Although these programs specifically target primary school students, 4 programs are sometimes also implemented in the first grades of secondary school. These prevention programs either focus on a specific group of students, such as victims (e.g., "Sta sterk"), or on improving social relationships in general rather than preventing bullying specifically ("Kanjertraining" or "School Wide Positive Behavior Support"). Thus, there currently are no evidence-based school-wide anti-bullying programs available in the Netherlands that specifically address bullying in secondary school.

Effective anti-bullying programs for secondary schools are also lacking in other countries. A recent meta-analysis of a wide range of anti-bullying programs across the world showed that anti-bullying programs are less effective in secondary schools than in primary schools (Yeager et al., 2015). Researchers and policy makers agree that bullying should be targeted at the level of the entire peer group. Anti-bullying programs that target the group process (e.g., KiVa) effectively reduced bullying and victimization in primary schools by increasing bystander support for victims. However, they are less successful in secondary school (Kärnä et al., 2013).

The present dissertation shows that there is a need for evidence-based anti-bullying programs for secondary schools, as bullying and peer victimization are still common in early and middle adolescence (Chapters 2, 7, and 8). Especially among girls the
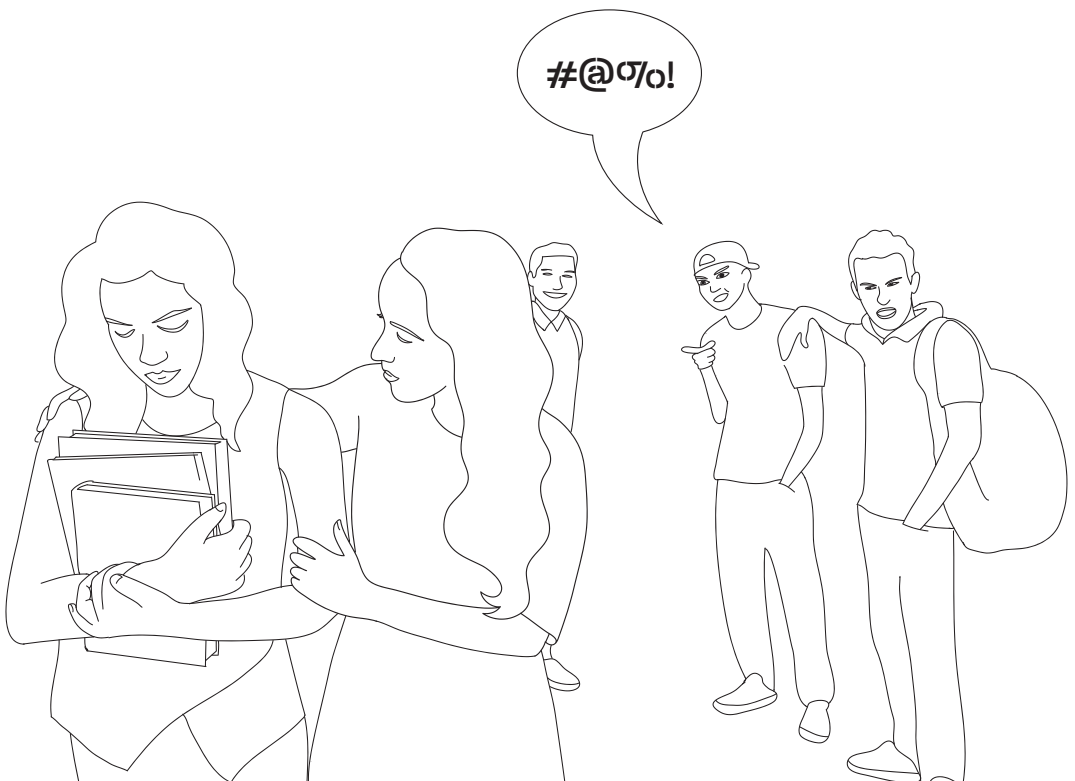
prevalence of bullying is high in this developmental phase (Chapter 8). The prevalence rates are alarming, as adolescent victims experience internalizing and externalizing problems (Chapters 2 and 7).

The studies on the group process of bullying in adolescence in this dissertation have implications for anti-bullying programs in adolescence. A possible explanation for the low efficacy of anti-bullying programs in adolescence is that bullying is more rewarding in this developmental period (Chapters 7 and 8). This makes bullying harder to change in adolescence, as bullies may not want to give up their popularity. This is supported by the finding that anti-bullying programs are less successful in reducing bullying among popular youths than among unpopular youths (Garandeau et al., 2014). Moreover, as defending may be less rewarding in adolescence than in childhood in terms of peer status, adolescents who pursue to be popular may refrain from defending, even if they believe that it is the right thing to do. Therefore, this dissertation suggests that addressing the association between popularity and the participant roles is key to making prevention and intervention programs more effective in adolescence. One promising way to address this association is to teach adolescents alternative, prosocial ways to become popular (Ellis et al., 2016).

In addition to targeting bullying in adolescence, it may be especially effective to prevent adolescent peer victimization already at an early age. Given the consequences of chronic peer victimization, it has been argued that anti-bullying programs should be targeted at young children before victimization stabilizes (Chapter 3) and detrimentally impacts long-term functioning (Hanish & Guerra, 2004; Rueger et al., 2011). It is therefore especially important to understand the development of peer victimization from early childhood on (Kamper-DeMarco & Ostrov, 2017). The developmental perspective on peer victimization in this dissertation revealed that although children who are identified as a victim by their peers may not yet be at risk for chronic victimization, self-reported victimization is already relatively stable from early childhood on (Chapter 3). Due to interactive and cumulative continuity (Caspi & Moffitt, 1995), victimization in early childhood may lead to adolescent victimization. This highlights the importance of identifying children who feel victimized in early childhood; the first time when children experience peer victimization (Kamper-DeMarco & Ostrov, 2017).

Children's functioning in early childhood forms the basis for their social relationships and well-being throughout their subsequent development (Hay et al., 2004). In line with this idea, this dissertation showed that children who exhibited externalizing behavior (according to their teachers) in early childhood were at risk for being victimized both early and later in life, especially if they had low levels of ego-resiliency (Chapter 5).

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It is therefore important to teach young children to behave in non-aggressive ways, so that they do not learn the rewards of bullying and do not get caught in a cycle of reciprocal aggression (bullying and victimization). As externalizing behaviors are more malleable in early childhood than in adolescence, early intervention of externalizing behavior probably yields higher returns than programs that target peer victimization in adolescence (Heckman, 2006; Shaw & Taraban, 2017).

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English Summary
Nederlandse Samenvatting
References
Curriculum Vitae
Publications
Dankwoord (Acknowledgements)

ENGLISH SUMMARY

In this dissertation, peer victimization was placed in the context of the group process of bullying by examining six bullying participant roles. *Victims* are repeatedly victimized over a prolonged period of time and often have difficulties defending themselves. *Bullies* start bullying and make others join in bullying. *Assistants* join the bully in attacking the victim. *Reinforcers* are not actively involved in the bullying, but reinforce the bully, for example, by providing an audience and laughing at the victim. *Defenders* actively intervene and try to stop the bullying, tell the teacher about it, or try to comfort the victim. Finally, *outsiders* do not take sides with either the bully or the victim or stay away from bullying situations (Salmivalli, Lagerspetz, et al., 1996). In nine empirical studies, I examined three perspectives regarding the bullying participant roles: *developmental, methodological, and social-cognitive perspectives.*

Developmental Perspectives

To begin, this dissertation provided an overview of the prevalence and socio-emotional functioning profile of each participant role. Previous studies on the participant roles have been limited to childhood and early adolescence. This dissertation has a unique focus on middle adolescence (ages 14 to 18, corresponding with Grades 9 to 12). One underlying theme was the question whether bullying becomes more rewarding in terms of social status with age. Cross-sectional comparisons of age groups and longitudinal analyses clarified how the participant roles are associated with social status and behavior across childhood and adolescence.

These studies showed that the prevalence of victimization in middle adolescence was 10% to 15% (Chapters 2 & 7). Self-reported victimization was equally and moderately stable across childhood and adolescence (Chapter 3), whereas the stability of peer-reported victimization increased from childhood to adolescence (Chapter 3 & 4). Most victims were unpopular and disliked by their peers throughout childhood and adolescence (Chapters 4, 7 & 8). In addition, they demonstrated externalizing problems throughout childhood and adolescence (Chapters 4 & 7), whereas they experienced internalizing problems only in adolescence (Chapters 2 & 7). High levels of externalizing behavior and low peer status in early and middle childhood were related to subsequent peer victimization in adolescence (Chapters 5 & 9), whereas early internalizing behaviors were not related to subsequent victimization in adolescence (Chapter 5).

The prevalence of bullying in middle adolescence was 9% and the prevalence of assisting and reinforcing (following) was 24% (Chapter 7). The profiles of adolescent bullies, assistants, and reinforcers were relatively similar. On average, adolescent

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bullies and followers were popular and disliked by their peers throughout childhood and adolescence (Chapters 7 & 9). Bullies and followers were even more popular with peers in adolescence than in childhood (Chapter 8). In general, adolescent bullies and followers showed high levels of proactive aggression and low levels of prosocial behavior (Chapter 7). Moreover, they were particularly likely to show high levels of direct aggression (fighting and arguing) earlier in childhood that decreased over time (Chapter 9).

The prevalence of defending in adolescence was 19% (Chapter 7). Most adolescent defenders were liked by their peers, prosocial, and low on aggression throughout childhood and adolescence (Chapters 7 & 9). On average, defenders were high in popularity with peers in middle childhood but average in popularity in adolescence (Chapter 8).

The prevalence of outsiders in middle adolescence was 24% (Chapter 7). On average, outsiders were neither liked nor disliked in childhood and adolescence (Chapters 7 & 8). Compared to the other roles, adolescent outsiders were relatively unpopular with peers, but not as unpopular as victims. Most adolescent outsiders were average in prosocial behavior and not aggressive throughout childhood and adolescence (Chapters 7 & 9).

Overall, the cross-sectional age comparisons showed that the socio-emotional profiles of the participant roles in adolescence differ from those in childhood. In adolescence bullies seem to be rewarded more by popularity with peers than in childhood, whereas defenders seem to be rewarded less. The long-term developmental perspective showed that the longitudinal associations between victimization and socio-emotional functioning depended on both the age at which victimization was assessed and the age at which socio-emotional functioning was assessed. Although the number of longitudinal studies on victimization has increased over the last few years, longitudinal research on the participant roles is scarce. Long-term developmental studies that follow children from early childhood through late adolescence are needed to further enhance our understanding of the role of early childhood socio-emotional functioning in participant role involvement later in life. Moreover, it is important to further understand how adolescent participant role involvement is related to later socio-emotional functioning.

Methodological Perspectives

The methodological contribution of this dissertation to the study of peer victimization consisted of the use of a multi-method approach. Throughout this dissertation, multiple methods and informants of peer victimization were used: self-reports, daily diary-reports,

peer-reports, and teacher-reports. Chapter 2 examined the concordance between self-reports, which measure the subjective experience of victimization, and peer-reports, which measure students' reputation as a victim among their peers. The concordance between self-reports and peer-reports was relatively low. Moreover, our daily diary study showed that adolescents' responses to general measures of the frequency of peer victimization over a prolonged period of time did not always correspond with their daily experiences (Chapter 2). Further, the stability of peer victimization (Chapter 3) and the associations of victimization with socio-emotional functioning (Chapter 2) depended on the source of information on victimization and internalizing problems. Thereby, this dissertation supports the idea that different informants and measures of peer victimization tap into different aspects of victimization.

The methodological contribution to the study of the participant roles consisted of the comparison of different criteria for assigning adolescents to the roles (Chapter 7). I first assigned adolescents to a role if they scored above average on that role compared to their classmates. Within each role, I then compared the social status and behavior profiles of adolescents who were nominated by at least 10% of their peers with adolescents who were nominated by less than 10% of their peers. The behavior and status profiles of adolescents in each role were more extreme for adolescents who were nominated by more than 10% of their peers than for those who were nominated by less than 10% of their peers. Thus, although the general patterns were the same, the criteria for assigning adolescents to the roles influence the strength of the results.

Social-Cognitive Perspectives

Finally, I examined social-cognitive processes in the group process of bullying by examining youths' interpretations of bullying (Chapter 6) and their evaluation of the participant roles (Chapter 10). The rationale for these research questions was that social cognitions guide social behaviors and therefore can clarify why adolescents behave in certain ways in bullying situations.

Chapter 6 investigated how children's own experiences of victimization and bullying were related to their perceptions of bullying in social interactions between humans, animals, and abstract figures. Victims who were also involved in bullying themselves (bully-victims) were more likely to interpret ambiguous human, animal, and abstract figure video fragments as bullying than non-aggressive victims and uninvolved children. This suggests that the concept of bullying may be so strongly embedded in bully-victims' social schemas that it guides the interpretation of a broad range of social and

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non-social interactions. Further research is needed to examine whether bully-victims respond with aggression to situations that they interpret as bullying, and whether such aggressive responses contribute to remaining victimized.

Chapter 10 investigated how adolescents evaluated bullying at three levels of specificity: (a) the general concept of bullying, (b) hypothetical peers (cartoon characters) in different bullying participant roles, and (c) actual peers (classmates) in different bullying participant roles. On average, all adolescents evaluated the general concept of bullying negatively. Evaluations of hypothetical and actual peers differed. Specifically, adolescents evaluated actual classmates who were bullies and followers more positively than hypothetical bullies and followers. In contrast, actual victims were evaluated less positively than hypothetical victims. These differences highlight the importance of a nuanced view on youths' anti-bullying attitudes. Adolescents' attitudes about classmates in bully and victim roles may depend not only on these classmates' bullying or victimization, but also on other characteristics of these classmates, such as their popularity or aggressive behavior.

Practical Implications

The prevalence rates of peer victimization and bullying in adolescence reported in this dissertation are alarming, as findings across studies showed that adolescent victims have internalizing and externalizing problems. This dissertation has to two main practical implications that may contribute to decreases in bullying and victimization in adolescence. First, there is a need for the development of anti-bullying programs that are specifically targeted at adolescents. There currently are no evidence-based school-wide anti-bullying programs available in the Netherlands that specifically address bullying in secondary school. Part 2 of this dissertation suggests that addressing the association between popularity and the participant roles is important if we want to increase the effectiveness of bullying and victimization prevention and intervention programs in adolescence. One promising way to address this association is to teach adolescents alternative, prosocial ways to become popular (Ellis et al., 2016).

Second, it is important that the prevention of victimization begins already at an early age, so that risk of victimization in adolescence decreases. Given the consequences of chronic victimization, it is important to address victimization among young children before it stabilizes (Chapter 3) and impacts long-term functioning (Hanish & Guerra, 2004; Rueger et al., 2011). In this dissertation, children with externalizing problems in early childhood were at risk for being victimized both concurrently and later in life. It is

therefore important to teach young children to behave in non-aggressive ways, so that they do not learn the rewards of bullying and do not get caught in a cycle of reciprocal aggression (bullying and victimization).

NEDERLANDSE SAMENVATTING

In dit proefschrift wordt slachtofferschap in de context van het groepsproces van pestgedrag geplaatst door zes pestrollen te bestuderen. *Slachtoffers* worden herhaaldelijk en langdurig gepest en hebben vaak moeite om zichzelf te verdedigen. *Pesters* beginnen met pesten en zorgen ervoor dat anderen mee gaan pesten. *Assistenten* helpen de pester met het pesten van het slachtoffer. *Aanmoedigers* pesten zelf niet actief mee, maar belonen de pester, bijvoorbeeld door het pestgedrag te aanschouwen en het slachtoffer uit te lachen. *Verdedigers* grijpen actief in en proberen het pesten te stoppen, schakelen de leerkracht in of proberen het slachtoffer te troosten. *Buitenstaanders* houden zich afzijdig en kiezen voor zowel dader als slachtoffer geen partij (Salmivalli, Lagerspetz, et al., 1996). In negen empirische onderzoeken heb ik drie perspectieven op de pestrollen behandeld: *ontwikkelings-, methodologische,* en *sociaal-cognitieve perspectieven*.

Ontwikkelingsperspectieven

Om te beginnen biedt dit proefschrift een overzicht van de prevalentie en het sociaal-emotioneel functioneringsprofiel van elke pestrol. Voorgaande onderzoeken naar de pestrollen hebben zich beperkt tot de kindertijd en vroege adolescentie. Dit proefschrift heeft een unieke focus op het midden van de adolescentie (leeftijdscategorie van 14 tot 18 jaar, overeenkomstig met de 3e t/m 6e klas van het voortgezet onderwijs). Een onderliggende vraag was of pestgedrag meer belonend wordt in termen van peer status naarmate jongeren ouder worden. Cross-sectionele vergelijkingen van verschillende leeftijdsgroepen en longitudinale analyses hebben verduidelijkt hoe de pestrollen samenhangen met sociale status en gedrag door de kindertijd en adolescentie heen.

Deze onderzoeken tonen aan dat in het midden van de adolescentie 10 tot 15% van de jongeren slachtoffer is van pestgedrag (Hoofdstukken 2 & 7). Zelf-gerapporteerd slachtofferschap blijft matig stabiel gedurende de hele kindertijd en adolescentie (Hoofdstuk 3), terwijl de stabiliteit van slachtofferschap dat gerapporteerd wordt door leeftijdsgenoten toeneemt van de kindertijd naar de adolescentie (Hoofdstukken 3 en 4). De meeste slachtoffers worden als onpopulair en onaardig gezien door hun klasgenoten gedurende hun kindertijd en adolescentie (Hoofdstuk 4, 7, en 8). Daarnaast laten slachtoffers in zowel de kindertijd als adolescentie externaliserende problemen zien (bv. agressie, Hoofdstukken 4 & 7), terwijl zij alleen in de adolescentie internaliserende problemen ervaren (bv. sociale angst, depressieve symptomen en teruggetrokken gedrag, Hoofdstuk 2 & 7). Een lage peer status en hoge mate van externaliserend

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gedrag in de (vroege) kindertijd zijn gerelateerd aan later slachtofferschap in de adolescentie (Hoofdstukken 5 & 9), terwijl internaliserende problemen op jonge leeftijd niet gerelateerd zijn aan later slachtofferschap in de adolescentie (Hoofdstuk 5).

In het midden van de adolescentie is 9% van de jongeren een pester en 24% een assistent of aanmoediger (volger, Hoofdstuk 7). De profielen van adolescenten met een rol als pester, assistent of aanmoediger lijken veel op elkaar. Gemiddeld genomen worden adolescenten die pesten en die pesters assisteren of aanmoedigen populair en onaardig gevonden gedurende de kindertijd en adolescentie (Hoofdstukken 7 en 9). Pesters en volgers zijn zelfs populairder in de adolescentie dan in de kindertijd (Hoofdstuk 8). In het algemeen laten adolescenten die pesten en die pesters volgen veel proactief agressief gedrag zien en weinig prosociaal gedrag (Hoofdstuk 7). Bovendien is de kans groot dat zij een hoge mate van directe agressie (ruzie maken en vechten) vertoonden in de kindertijd. Die directe agressie nam echter af naarmate zij ouder werden (Hoofdstuk 9).

In het midden van de adolescentie is 19% van de jongeren een verdediger (Hoofdstuk 7). De meeste adolescenten met een rol als verdediger worden aardig gevonden door hun klasgenoten en zijn prosociaal en niet agressief gedurende hun kindertijd en adolescentie (Hoofdstuk 7 & 9). In het algemeen zijn verdedigers erg populair onder hun klasgenoten in hun kindertijd, maar slechts gemiddeld populair in de adolescentie (Hoofdstuk 8).

In het midden van de adolescentie is 24% van de jongeren een buitenstaander (Hoofdstuk 7). Gemiddeld genomen worden adolescenten met een rol als buitenstaander niet bijzonder aardig, maar ook niet bijzonder onaardig gevonden door hun klasgenoten in zowel de kindertijd als in de adolescentie (Hoofdstukken 7 & 8). In vergelijking met de andere rollen zijn adolescenten met een rol als buitenstaander onpopulair, maar niet zo onpopulair als slachtoffers. De meeste adolescenten met een rol als buitenstaander laten een gemiddeld niveau van prosociaal gedrag gezien en weinig agressie gedurende hun kindertijd en adolescentie (Hoofdstukken 7 & 9).

Samengevat tonen de cross-sectionele leeftijdsvergelijkingen aan dat de sociaal-emotionele profielen van de pestrollen in de adolescentie verschillen van de profielen van de pestrollen in de kindertijd. Pesters lijken in de adolescentie meer beloond te worden in de vorm van populariteit dan in de kindertijd, terwijl verdedigers minder beloond lijken te worden. Het ontwikkelingsperspectief toont aan dat de longitudinale verbanden tussen slachtofferschap en sociaal emotioneel welzijn zowel afhangen van de leeftijd waarop slachtofferschap wordt gemeten als de leeftijd waarop sociaal

emotioneel functioneren wordt gemeten. Hoewel het aantal longitudinale studies naar slachtofferschap in de laatste jaren is toegenomen, zijn longitudinale studies naar de andere pestrollen schaars. Er zijn meer langlopende longitudinale studies nodig die kinderen volgen van de vroege kindertijd tot in de late adolescentie om de rol van vroegkinderlijk sociaal emotioneel functioneren in de ontwikkeling van pestrolgedrag op latere leeftijd te verduidelijken. Ook is het belangrijk om meer inzicht te krijgen in hoe het aannemen van een bepaalde pestrol in de adolescentie samenhangt met sociaal-emotioneel functioneren op latere leeftijd.

Methodologische Perspectieven

De methodologische bijdrage van dit proefschrift aan onderzoek naar slachtofferschap bestaat uit een multi-methodologische benadering. Om slachtofferschap te meten is er door dit proefschrift heen gebruik gemaakt van verschillende meetinstrumenten en informanten: zelfrapportages, dagboekstudies, rapportages door klasgenoten (peers) en leerkrachtrapportages. Hoofdstuk 2 richt zich op de overeenstemming tussen zelfrapportages, die de subjectieve ervaring van slachtoffers meten, en peerrapportages, die meten in hoeverre leerlingen een reputatie als slachtoffer hebben bij hun klasgenoten. De overeenstemming tussen zelfrapportages en peerrapportages van slachtofferschap is laag. Bovendien laat onze dagboekstudie zien dat de antwoorden die adolescenten geven op algemene meetinstrumenten, die de frequentie van slachtofferschap gedurende een tijdsperiode van enkele maanden meten, niet altijd overeenkomen met hun dagelijkse ervaringen (Hoofdstuk 2). Daarnaast hangen ook de stabiliteit van slachtofferschap (Hoofdstuk 3) en de verbanden tussen slachtofferschap en sociaal emotioneel functioneren (Hoofdstuk 2) af van de informatiebron van slachtofferschap en internaliserende problemen. Op basis van het bovenstaande kan worden gesteld dat dit proefschrift het idee ondersteunt dat verschillende informanten en meetinstrumenten van slachtofferschap andere aspecten van slachtofferschap meten.

De methodologische bijdrage aan onderzoek naar de pestrollen bestaat uit de vergelijking van verschillende criteria om adolescenten aan de pestrollen toe te wijzen (Hoofdstuk 7). Om te beginnen heb ik adolescenten toegewezen aan een bepaalde rol indien zij in vergelijking met hun klasgenoten bovengemiddeld scoorden op deze rol. Vervolgens heb ik binnen elke rol de sociale status en gedragsprofielen vergeleken van adolescenten die door minimaal 10% van hun klasgenoten genomineerd waren op een bepaalde rol met adolescenten die door minder dan 10% van hun klasgenoten genomineerd waren op deze rol. De gedrags- en statusprofielen van adolescenten in elke rol zijn extremer voor adolescenten die genomineerd werden door meer dan

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10% van hun klasgenoten dan voor adolescenten die door minder dan 10% van hun klasgenoten genomineerd werden. Kortom, hoewel de algemene patronen hetzelfde zijn, beïnvloeden de criteria om adolescenten toe te wijzen aan verschillende pestrollen de sterkte van de resultaten.

Sociaal-Cognitieve Perspectieven

Tot slot heb ik sociaal-cognitieve processen onderzocht die een rol spelen in het groepsproces van pestgedrag door te onderzoeken hoe jongeren pestsituaties interpreteren (Hoofdstuk 6) en de pestrollen evalueren (Hoofdstuk 10). Het idee achter de bestudering van deze processen is dat sociale cognities ten grondslag liggen aan sociale gedragingen en daarom kunnen verduidelijken waarom adolescenten zich op een bepaalde manier gedragen in pestsituaties.

In hoofdstuk 6 heb ik onderzocht of de ervaringen die kinderen hebben met pesten of gepest worden van invloed zijn op de mate waarin zij pestgedrag waarnemen in sociale interacties tussen mensen, dieren, en abstracte figuren. Slachtoffers die zelf ook anderen pesten (agressieve slachtoffers) nemen meer pestgedrag waar in ambigue videofragmenten van mensen, dieren en abstracte figuren dan niet agressieve slachtoffers en kinderen die niet betrokken zijn als dader of slachtoffer in pestsituaties. Deze resultaten suggereren dat het concept van pestgedrag zo sterk verweven is in de sociale schema's van agressieve slachtoffers dat het gebruikt wordt om een breed scala aan sociale en niet-sociale interacties te interpreteren. Vervolgonderzoek is nodig om uit te zoeken of agressieve slachtoffers agressief reageren op situaties die zij als pesten interpreteren en of zulke agressieve reacties er aan bijdragen dat zij gepest blijven worden.

Hoofdstuk 10 richt zich op hoe adolescenten pesten evalueren op drie verschillende specificiteitsniveaus: (a) pesten als een algemeen concept, (b) hypothetische peers (cartoon poppetjes) in verschillende pestrollen en (c) daadwerkelijke peers (klasgenoten) in verschillende pestrollen. Gemiddeld genomen evalueren adolescenten pesten als algemeen concept negatief. Evaluaties van hypothetische en daadwerkelijke peers verschillen van elkaar. Adolescenten evalueren hun eigen klasgenoten met een rol als pester en volger positiever dan cartoon poppetjes in een rol als pester en volger. Daarentegen worden klasgenoten in een slachtofferrol minder positief geëvalueerd dan hypothetische slachtoffers. Deze verschillen benadrukken dat het belangrijk is om een genuanceerde blik te werpen op wat adolescenten van pestgedrag vinden. Wat adolescenten vinden van klasgenoten in een daderrol en slachtofferrol hangt

waarschijnlijk niet alleen af van de mate waarin deze klasgenoten pesten of gepest worden, maar ook van andere eigenschappen van deze klasgenoten, zoals hun populariteit of agressie.

Praktische Implicaties

De prevalenties van slachtofferschap en pestgedrag in de adolescentie die in dit proefschrift naar voren komen zijn zorgwekkend, omdat verschillende onderzoeken uit dit proefschrift hebben aangetoond dat adolescenten die gepest worden internaliserende en externaliserende problemen hebben. Er komen twee belangrijke implicaties voor de praktijk naar voren uit dit proefschrift, die mogelijk bij kunnen dragen aan een afname van pestgedrag en slachtofferschap in de adolescentie. Ten eerste is er behoefte aan de ontwikkeling van anti-pest programma's die zich specifiek richten op de adolescentie. Er zijn momenteel geen universele anti-pestprogramma's in Nederland die zich richten op hele klassen in het voortgezet onderwijs en die bewezen effectief zijn. Deel 2 van dit proefschrift suggereert dat het belangrijk is om te focussen op de samenhang tussen populariteit en de pestrollen indien we de effectiviteit van preventie en interventie programma's in de adolescentie willen verhogen. Een veelbelovende aanpak die zich richt op deze samenhang is om jongeren alternatieve, prosociale manieren aan te leren om populair te worden (Ellis et al., 2016).

Ten tweede is het belangrijk dat er al in de eerste jaren van de basisschool ingezet wordt op de preventie van slachtofferschap, zodat de kans dat kinderen in het voortgezet onderwijs gepest worden wordt verkleind. Vanwege de gevolgen van chronisch slachtofferschap is het belangrijk om al op jonge leeftijd te focussen op slachtofferschap, voordat het stabiliseert (Hoofdstuk 3) en een schadelijke impact heeft op het lange termijn functioneren van kinderen (Hanish & Guerra, 2004; Rueger et al., 2011). Uit dit proefschrift blijkt dat kinderen die al op jonge leeftijd externaliserend gedrag vertonen het risico lopen om zowel in de vroege kindertijd als op latere leeftijd gepest te worden. Het is daarom belangrijk om jonge kinderen te leren hoe zij zich minder agressief kunnen gedragen, zodat zij zelf geen pesters worden en ook om te voorkomen dat zij verstrikt raken in een cyclus van wederzijds agressief gedrag (pesten en gepest worden) met leeftijdgenoten.

REFERENCES

Achenbach, T. M. (1991). *Integrative guide for the 1991 CBCL/4-18, YSR, and TRF profiles*. University of Vermont: Department of Psychiatry.

Adler, P. A., & Adler, P. (1995). Dynamics of inclusion and exclusion in preadolescent cliques. *Social Psychology Quarterly, 58*, 145-162. doi:10.2307/2787039

Ahmed, E. (2006). Understanding bullying from a shame management perspective: Findings from a three-year follow-up study. *Educational and Child Psychology, 23*, 25-30.

Allison, K. R., & Bussey, K. (2016). Cyber-bystanding in context: A review of the literature on witnesses' responses to cyberbullying. *Children and Youth Services Review, 65*, 183-194. doi:10.1016/j.childyouth.2016.03.026

Almeida, A., Correia, I., & Marinho, S. (2010). Moral disengagement, normative beliefs of peer group, and attitudes regarding roles in bullying. *Journal of School Violence, 9*, 23-36. doi:10.1080/15388220903185639

Andreou, E., & Metallidou, P. (2004). The relationship of academic and social cognition to behaviour in bullying situations among Greek primary school children. *Educational Psychology, 24*, 27-41. doi:10.1080/0144341032000146421

Andreou, E., Vlachou, A., & Didaskalou, E. (2005). The roles of self-efficacy, peer interactions and attitudes in bully-victim incidents: Implications for intervention policy-practices. *School Psychology International, 26*, 545-562. doi:10.1177/0143034305060789

Andrews, N. C. Z., Hanish, L. D., & Santos, C. E. (2017). Does an aggressor's target choice matter? Assessing change in the social network prestige of aggressive youth. *Aggressive Behavior, 43*, 364-374. doi:10.1002/ab.21695

Angold, A., Costello, E. J., Messer, S. C., Pickles, A., Winder, F., & Silver, D. (1995). The development of a short questionnaire for use in epidemiological studies of depression in children and adolescents. *International Journal of Methods in Psychiatric Research, 5*, 237-249.

Arsenault, L., Walsh, L., Trzesniewski, K., Newcombe, A. C., & Moffitt, T. E. (2006). Bullying victimization uniquely contributes to adjustment problems in young children. A nationally representative cohort study. *Pediatrics, 118*, 130-138. doi:10.1542/peds.2005-2388

Arsenio, W. F., & Lemerise, E. A. (2001). Varieties of childhood bullying: Values, emotion processes, and social competence. *Social Development, 10*, 59–73. doi:10.1111/1467-9507.00148

Attar, B. K., Guerra, N. G., & Tolan, P. H. (1994). Neighborhood disadvantage, stressful life events, and adjustment in urban elementary-school children. *Journal of Clinical Child Psychology, 23*, 391-400. doi:10.1207/s15374424jccp2304_5

Bagwell, C. L., & Schmidt, M. E. (2011). The friendship quality of overtly and relationally victimized children. *Merrill-Palmer Quarterly, 57*, 158-185. doi:10.1353/mpq.2011.0009

Barker, E. D., Arseneault, L., Brendgen, M., Fontaine, N., & Maughan, B. (2008). Joint development of bullying and victimization in adolescence: Relations to delinquency and self-harm. *Journal of the American Academy of Child and Adolescent Psychiatry, 47*, 1030-1038. doi:10.1097/CHI.ObO13e31817eec98

Barker, E. D., Boivin, M., Brendgen, M., Fontaine, N., Arsenault, L., Vitaro, F., . . . Tremblay, R. E. (2008). Predictive validity and early predictors of peer-victimization trajectories in preschool. *Archives of General Psychiatry, 65*, 1185-1192. doi:10.1001/archpsyc.65.10.1185

Baron-Cohen, S. (2000). Theory of mind and autism: A fifteen year review. In S. Baron-Cohen, H. Tager-Flusberg & D. J. Cohen (Eds.), *Understanding other minds: Perspectives from developmental cognitive neuroscience* (2nd ed., pp. 3-20). New York: Oxford Univeristy Press.

Bates, D., Maechler, M., Bolker, B., & Walker, S. (2016). lme4: Linear mixed-effects models using Eigen and S4. R package version 1.1-12. https://cran.r-project.org/web/packages/lme4/lme4.pdf.

Baumeister, R. F., & Leary, M. R. (1995). The need to belong: desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin, 3*, 497-529. doi:10.1037/0033-2909.117.3.497

Bellmore, A. D., & Cillessen, A. H. N. (2006). Reciprocal influences of victimization, perceived social preference, and self-concept in adolescence. *Self and Identity, 5*, 209-229. doi:10.1080/15298860600636647

Benedict, R. H. B., & Zgaljardic, D. J. (1998). Practice effects during repeated administrations of memory tests with and without alternate forms. *Journal of Clinical and Experimental Neuropsychology, 20*, 339-352. doi:10.1076/jcen.20.3.339.822

R

Berger, C., & Caravita, S. C. S. (2016). Why do early adolescents bully? Exploring the influence of prestige norms on social and psychological motives to bully. *Journal of Adolescence, 46*, 45-56. doi:10.1016/j.adolescence.2015.10.020

Biebl, S. J. W., DiLalla, L. F., Davis, E. K., Lynch, K. A., & Shinn, S. O. (2011). Longitudinal associations among peer victimization and physical and mental health problems. *J Pediatr Psychol, 36*, 868-877. doi:10.1093/jpepsy/jsr025

Biggs, B. K., Vernberg, E., Little, T. D., Dill, E. J., Fonagy, P., & Twemlow, S. W. (2010). Peer victimization trajectories and their association with children's affect in late elementary school. *International Journal of Behavioral Development, 34*, 136-146. doi:10.1177/0165025409348560

Björkqvist, K., Lagerspetz, K. M. J., & Kaukiainen, A. (1992). Do girls manipulate and boys fight? developmental trends in regard to direct and indirect aggression. *Aggressive Behavior, 18*, 117-127. doi:10.1002/1098-2337(1992)18:2<117::AID-AB2480180205>3.0.CO;2-3

Block, J. H., & Block, J. (1980). The role of ego-control and ego-resiliency in the organization of behavior. In A. Collins (Ed.), *Development of cognition, affect, and social relations: The Minnesota symposia on child psychology* (Vol. 13). New York: Psychology Press.

Bluemke, M., & Friese, M. (2008). Reliability and validity of the Single-Target IAT (ST-IAT): assessing automatic affect towards multiple attitude objects. *European Journal of Social Psychology, 38*, 977-997. doi:10.1002/ejsp.487

Boivin, M., Hymel, S., & Bukowski, W. M. (1995). The roles of social withdrawal, peer rejection, and victimization by peers in predicting loneliness and depressed mood in childhood. *Development and Psychopathology, 7*, 765-785. doi:10.1017/S0954579400006830

Boivin, M., Petitclerc, A., Feng, B., & Barker, E. D. (2010). The developmental trajectories of peer victimization in middle to late childhood and the changing nature of their behavioral correlates. *Merrill-Palmer Quarterly, 56*, 231-260. doi:10.1353/mpq.0.0050

Bolger, N., Davis, A., & Rafaeli, E. (2003). Diary methods: Capturing life as it is lived. *Annual Review of Psychology, 54*, 579-616. doi:10.1146/annurev.psych.54.101601.145030

Borenstein, M., Hedges, L. V., Higgins, J. P. T., & Rothstein, H. R. (2010). A basic introduction to fixed-effect and random-effects models for meta-analysis. *Research Synthesis Methods, 1*, 97-111. doi:10.1002/jrsm.12

Bornstein, M. H., Putnick, D. L., & Esposito, G. (2017). Continuity and stability in development. *Child Development Perspectives, 11*, 113-119. doi:10.1111/cdep.12221

Bosacki, S., Dane, A., Marini, Z., & YLC-CURA. (2007). Peer relationships and internalizing problems in adolescents: mediating role of self-esteem. *Emotional and Behavioural Difficulties, 12*, 261-282. doi:10.1080/13632750701664293

Boulton, M. J. (1999). Concurrent and longitudinal relations between children's playground behavior and social preference, victimization, and bullying. *Child Development, 70*, 994-954. doi:10.1111/1467-8624.00068

Boulton, M. J., Chau, C., Whitehand, C., Amataya, K., & Murray, L. (2009). Concurrent and short-term longitudinal associations between peer victimization and school and recess liking during middle childhood. *British Journal of Developmental Psychology, 79*, 207-221. doi:10.1348/000709908X336131

Boulton, M. J., Lloyd, J., Down, J., & Marx, H. (2012). Predicting undergraduates' self-reported engagement in traditional and cyberbullying from attitudes. *Cyberpsychology, Behavior, and Social Networking, 15*, 141-147. doi:10.1089/cyber.2011.0369

Boulton, M. J., & Smith, P. K. (1994). Bully/victim problems in middle-school children: Stability, self-perceived competence, peer perceptions and peer acceptance. *British Journal of Developmental Psychology, 12*, 315-329. doi:10.1111/j.2044-835X.1994.tb00637.x

Boulton, M. J., Smith, P. K., & Cowie, H. (2010). Short-term longitudinal relationships between children's peer victimization/bullying experiences and self-perceptions: Evidence for reciprocity. *School Psychology International, 31*, 296-311. doi:10.1177/0143034310362329

Boulton, M. J., Trueman, M., & Flemington, I. (2002). Associations between secondary school pupils' definitions of bullying, attitudes towards bullying, and tendencies to engage in bullying: Age and sex differences. *Educational Studies, 28*, 353-370. doi:10.1080/0305569022000042390

Bouman, T., van der Meulen, M., Goossens, F. A., Olthof, T., Vermande, M. M., & Aleva, E. A. (2012). Peer and self-reports of victimization and bullying: Their differential association with internalizing problems and social adjustment. *Journal of School Psychology, 50*, 759-774. doi:10.1016/j.jsp.2012.08.004

Bradley, R. H., & Corwyn, R. F. (2002). Socioeconomic status and child development. *Annual Review of Psychology, 53*, 371-399. doi:10.1146/annurev.psych.53.100901.135233

Brame, B., Nagin, D. S., & Tremblay, R. E. (2001). Developmental trajectories of physical aggression from school entry to late adolescence. *The Journal of Child Psychology and Psychiatry and Allied Disciplines, 42*, 503-512. doi:10.1017/S0021963001007120

Brendgen, M., Vitaro, F., Bukowski, W. M., Doyle, A. B., & Markiewicz, D. (2001). Developmental profiles of peer social preference over the course of elementary school: Associations with trajectories of externalizing and internalizing behavior. *Developmental Psychology, 37*, 308-320. doi:10.1037/0012-1649.37.3.308

Bretherton, I., Ridgeway, D., & Cassidy, J. (1990). Assessing internal working models of the attachment relationship. In M. T. Greenberg, D. Cicchetti & M. Cummings (Eds.), *Attachment in the preschool years: Theory, research, and intervention* (pp. 273-308). Chicago: The University of Chicago Press.

Broidy, L. M., Brame, B., Fergusson, D., Horwood, J. L., Laird, R., Moffitt, T. E., . . . Vitaro, F. (2003). Developmental trajectories of childhood disruptive behaviors and adolescent delinquency: A six-site, cross-national study. *Developmental Psychology, 39*, 222-245. doi:10.1037/0012-1649.39.2.222

Browning, C., Cohen, R., & Warman, D. M. (2003). Peer social competence and the stability of victimization. *Child Study Journal, 33*, 73-90.

Bukowski, W. M., & Sippola, L. K. (2001). Groups, individuals, and victimization: A view of the peer system. In J. Juvonen & S. Graham (Eds.), *Peer harassment in school: The plight of the vulnerable and victimized*. New York: The Guilford Press.

Bukowski, W. M., Sippola, L. K., & Newcomb, A. F. (2000). Variations in patterns of attraction to same- and other-sex peers during early adolescence. *Developmental Psychology, 36*, 147-154. doi:10.t037//0012-1649.36.2.147

Burk, L. R., Armstrong, J. M., Park, J. H., Zahn-Waxler, C., Klein, M. H., & Essex, M. J. (2011). Stability of early identified aggressive victim status in elementary school and associations with later mental health problems and functional impairments. *Journal of Abnormal Child Psychology, 39*, 225-238. doi:10.1007/s10802-010-9454-6

Byrne, D. (1971). *The attraction paradigm*. New York: Academic Press.

Camodeca, M., & Goossens, F. A. (2005). Aggression, social cognitions, anger and sadness in bullies and victims. *Journal of Child Psychology and Psychiatry, 46*, 186-197. doi:10.1111/j.1469-7610.2004.00347.x

Camodeca, M., Goossens, F. A., Schuengel, C., & Terwogt, M. M. (2003). Links between social information processing in middle childhood and involvement in bullying. *Aggressive Behavior, 29*, 116-127. doi:10.1002/ab.10043

Camodeca, M., Goossens, F. A., Terwogt, M. M., & Schuengel, C. (2002). Bullying and victimization among school-age children: Stability and links to proactive and reactive aggression. *Social Development, 11*, 332-345. doi:10.1111/1467-9507.00203

Cantin, S., Martel-Olivier, E., & Poulin, F. (2010). Friends' characteristics as risk and protective factors for peer victimization: A longitudinal study. *Revue de Psychoeducation, 39*, 143-163.

Canty, A., & Ripley, B. (2016). boot: Bootstrap functions. R package version 1.3-18. https://cran.r-project.org/web/packages/boot/boot.pdf.

Caravita, S. C. S., & Cillessen, A. H. N. (2012). Agentic or communal? Associations between interpersonal goals, popularity, and bullying in middle childhood and early adolescence. *Social Development, 21*, 376-395. doi:10.1111/j.1467-9507.2011.00632.x

Caravita, S. C. S., Di Blasio, P., & Salmivalli, C. (2009). Unique and interactive effects of empathy and social status on involvement in bullying. *Social Development, 18*, 140-163. doi:10.1111/j.1467-9507.2008.00465.x

Carbone-Lopez, K., Esbensen, F. A., & Brick, B. T. (2010). Correlates and consequences of peer victimization: Gender differences in direct and indirect forms of bullying. *Youth Violence and Juvenile Justice, 8*, 332-350. doi:10.1177/1541204010362954

Card, N. A. (2012). *Applied meta-analysis for social science research*. New York: Guilford.

Card, N. A., & Hodges, E. V. E. (2008). Peer victimization among schoolchildren: Correlations, causes, consequences, and considerations in assessment and intervention. *School Psychology Quarterly, 23*, 451-461. doi:10.1037/a0012769

Card, N. A., & Little, T. D. (2006). Proactive and reactive aggression in childhood and adolescence: A meta-analysis of differential relations with psychosocial adjustment. *International Journal of Behavioral Development, 30*, 446-480. doi:10.1177/0165025406071904

R

Card, N. A., Stucky, B. D., Sawalani, G. M., & Little, T. D. (2008). Direct and indirect aggression during childhood and adolescence: A meta-analytic review of gender differences, intercorrelations, and relations to maladjustment. *Child Development, 79*, 1185-1229. doi:10.1111/j.1467-8624.2008.01184.x

Casper, D. M., Card, N. A., Bauman, S., & Toomey, R. B. (2017). Overt and relational aggression participant role behavior: Measurement and relations with sociometric status and depression. *Journal of Research on Adolescence, 27*, 661-673. doi:10.1111/jora.12306

Caspi, A., Elder, G. H., & Bern, D. J. (1987). Moving against the world: Life-course patterns of explosive children. *Developmental Psychology, 23*, 308-313. doi:10.1037/0012-1649.23.2.308

Caspi, A., & Moffitt, T. E. (1995). The continuity of maladaptive behavior: From description to understanding in the study of antisocial behavior. In D. Cicchetti & D. Cohen (Eds.), *Manual of developmental psychopathology* (Vol. Risk, disorder, and adaptation). New York: Wiley.

Caspi, A., Roberts, B. W., & Shiner, R. L. (2005). Personality development: stability and change. *Annual Review of Psychology, 56*, 453-484. doi:10.1146/annurev.psych.55.090902.141913

Cicchetti, D., & Rogosch, F. (2002). A developmental psychopathology perspective on adolescence. *Journal of Consulting and Clinical Psychology, 70*, 6-20. doi:10.1037//0022-006X.70.1.6

Cillessen, A. H. N., & Borch, C. (2006). Developmental trajectories of adolescent popularity: A growth curve modelling analysis. *Journal of Adolescence, 29*, 935-959. doi:10.1016/j.adolescence.2006.05.005

Cillessen, A. H. N., & Lansu, T. A. M. (2015). Stability, correlates, and time-covarying associations of peer victimization from Grade 4 to 12. *Journal of Clinical Child and Adolescent Psychology, 44*, 456-470. doi:10.1080/15374416.2014.958841

Cillessen, A. H. N., & Mayeux, L. (2004). From censure to reinforcement: Developmental changes in the association between aggression and social status. *Child Development, 75*, 147-163. doi:10.2307/3696572

Cillessen, A. H. N., & Rose, A. J. (2005). Understanding popularity in the peer system. *Current Directions in Psychological Science, 14*, 102-105. doi:10.1111/j.0963-7214.2005.00343.x

Closson, L. M., & Hymel, S. (2016). Status differences in target-specific prosocial behavior and aggression. *Journal of Youth and Adolescence, 45*, 1836-1848. doi:10.1007/s10964-016-0481-7

Cohen, J. (1977). *Statistical power analysis for the behavioral sciences*. Hillsdale, NJ: Lawrence Erlbaum Associates.

Cohen, J., & Cohen, P. (1983). *Applied multiple regression/correlation for the behavioral sciences*. Hillsdale, NJ: Erlbaum.

Cohn, J. F. (2010). Advances in behavioral science using automated facial image analysis and synthesis. *IEEE Signal Processing Magazine, 27*, 128-133. doi:10.1109/MSP.2010.938102

Coie, J. D., & Dodge, K. A. (1983). Continuities and changes in children's social status: A five-year longitudinal study. *Merrill-Palmer Quarterly, 29*, 261-282.

Coie, J. D., & Dodge, K. A. (1998). Aggression and antisocial behavior. In W. Damon & N. Eisenberg (Eds.), *Handbook of child psychology: Vol. 3. Social, emotional, and personality development* (pp. 779-862). New York: Wiley.

Coie, J. D., Dodge, K. A., & Coppotelli, H. (1982). Dimensions and types of social status. *Developmental Psychology, 18*, 557-570. doi:10.1037/0012-1649.18.4.557

Coie, J. D., Lochman, J. E., Terry, R., & Hyman, C. (1992). Predicting early adolescent disorder from childhood aggression and peer rejection. *Journal of Consulting and Clinical Psychology, 60*, 783-792. doi:10.1037/0022-006X.60.5.783

Coie, J. D., Terry, R., Lenox, K., Lochman, J. E., & Hyman, C. (1995). Childhood peer rejection and aggression as predictors of stable patterns of adolescent disorder. *Development and Psychopathology, 7*, 697-713. doi:10.1017/S0954579400006799

Connolly, J., Craig, W., Goldberg, A., & Pepler, D. (2004). Mixed-gender groups, dating, and romantic relationships in early adolescence. *Journal of Research on Adolescence, 14*, 185-207. doi:10.1111/j.1532-7795.2004.01402003.x

Cook, C. R., Williams, K. R., Guerra, N. G., Kim, T. E., & Sadek, S. (2010). Predictors of bullying and victimization in childhood and adolescence: A meta-analytic investigation. *School Psychology Quarterly, 25*, 65-83. doi:10.1037/a0020149

Côté, S., Tremblay, R. E., Nagin, D., Zoccolillo, M., & Vitaro, F. (2002). The development of impulsivity, fearfulness, and helpfulness during childhood: Patterns of consistency and change in the trajectories of boys and girls. *Journal of Child Psychology and Psychiatry, 43*, 609-618. doi:10.1111/1469-7610.00050

Côté, S., Vaillancourt, T., LeBlanc, J. C., Nagin, D. S., & Tremblay, R. E. (2006). The development of physical aggression from toddlerhood to pre-adolescence: a nation wide longitudinal study of Canadian children. *Journal of Abnormal Child Psychology, 34*, 71-85. doi:10.1007/s10802-005-9001-z

Crapanzano, A. M., Frick, P. J., Childs, K., & Terranova, A. M. (2011). Gender differences in the assessment, stability, and correlates to bullying roles in middle school children. *Behavioral Sciences and the Law, 29*, 677-694. doi:10.1002/bsl.1000

Crick, N. R., & Dodge, K. A. (1994). A review and reformulation of social information-processing mechanisms in children's social adjustment. *Psychological Bulletin, 115*, 74-101. doi:10.1037/0033-2909.115.1.74

Crick, N. R., & Dodge, K. A. (1996). Social information-processing mechanisms in reactive and proactive aggression. *Child Development, 67*, 993-1002. doi:10.1111/j.1467-8624.1996.tb01778.x

Crick, N. R., & Grotpeter, J. K. (1995). Relational aggression, gender, and social-psychological adjustment. *Child Development, 66*, 710-722. doi:10.2307/1131945

Crick, N. R., & Grotpeter, J. K. (1996). Children's treatment by peers: Victims of relational and overt aggression. *Development and Psychopathology, 8*, 367-380. doi:10.1017/S0954579400007148

Crick, N. R., Grotpeter, J. K., & Bigbee, M. A. (2002). Relationally and physically aggressive children's intent attributions and feelings of distress for relational and instrumental peer provocations. *Child Development, 73*. doi:10.1017/S0954579400006520

Crick, N. R., Nelson, D. A., Morales, J. R., Cullerton-Sen, C., Casas, J. F., & Hickman, S. E. (2001). Relational victimization in childhood and adolescence: I hurt you through the grapevine. In J. Juvonen & S. Graham (Eds.), *Peer harrasment in school: The plight of the vulnerable and victimized* (pp. 196-214). New York: The Guilford Press.

Curran, P. J., Bauer, D. J., & Willoughby, M. T. (2006). Testing and probing interactions in hierarchical linear growth models. In C. S. Bergeman & S. M. Boker (Eds.), *The Notre Dame Series on Quantitative Methodology* (Vol. 1, pp. 99-129). Mahwah, NJ: Lawrence Erlbaum Associates.

Cushman, F., Young, L., & Hauser, M. (2006). The role of conscious reasoning and intuition in moral judgment: Testing three principles of harm. *Psychological Science, 17*, 1082-1089. doi:10.1111/j.1467-9280.2006.01834.x

Davidson, L. M. (2009). A longitudinal analysis of social support, victimization, and outcomes. *Dissertation Abstracts International: Section B. Sciences and Engineering, 69*, 6407.

Davison, A. C., & Hinkley, D. V. (1997). *Bootstrap methods and their applications*. Cambridge: Cambridge University Press.

Dawes, M., & Xie, H. (2014). The role of popularity goal in early adolescents' behavior and popularity status. *Developmental Psychology, 50*, 489-597. doi:10.1037/a0032999

de Bruyn, E. H., & Cillessen, A. H. N. (2006). Popularity in early adolescence: Prosocial and antisocial subtypes. *Journal of Adolescent Research, 21*, 607-627. doi:10.1177/0743558406293966

de Bruyn, E. H., Cillessen, A. H. N., & Wissink, I. B. (2010). Associations of peer acceptance and perceived popularity with bullying and victimization in early adolescence. *The Journal of Early Adolescence, 30*, 543-566. doi:10.1177/0272431609340517

De Houwer, J. (2006). What are implicit measures and why are we using them? In R. W. Wiers & A. W. Stacy (Eds.), *Handbook of implicit cognition and addiction* (pp. 11-28). Thousand Oaks, CA: Sage.

Desjardins, T. L., & Leadbeater, B. J. (2011). Relational victimization and depressive symptoms in adolescence: moderating effects of mother, father, and peer emotional support. *Journal of Youth and Adolescence, 40*, 531-544. doi:10.1007/s10964-010-9562-1

Dijksterhuis, A., & Aarts, H. (2003). On wildebeests and humans: The preferential detection of negative stimuli. *Psychological Science, 14*, 14-18. doi:10.1111/1467-9280.t01-1-01412

Dijkstra, J. K., Lindenberg, S., & Veenstra, R. (2007). Same-gender and cross-gender peer acceptance and peer rejection and their relation to bullying and helping among preadolescents: Comparing predictions from gender-homophily and goal-framing approaches. *Developmental Psychology, 43*, 1377-1389. doi:10.1037/0012-1649.43.6.1377

Dijkstra, J. K., Lindenberg, S., & Veenstra, R. (2008). Beyond the class norm: bullying behavior of popular adolescents and its relation to peer acceptance and rejection. *Journal of Abnormal Child Psychology, 36*, 1289-1299. doi:10.1007/s10802-008-9251-7

R

Dijkstra, J. K., Lindenberg, S., Verhulst, F. C., Ormel, J., & Veenstra, R. (2009). The relation between popularity and aggressive, destructive, and norm-breaking behaviors: Moderating effects of athletic abilities, physical attractiveness, and prosociality. *Journal of Research on Adolescence, 19*, 401-413. doi:10.1111/j.1532-7795.2009.00594.x

Dodge, K. A. (2006). Translational science in action: Hostile attributional style and the development of aggressive behavior problems. *Development and Psychopathology, 18*, 791-814. doi:10.1017/S0954579406060391

Dodge, K. A., & Coie, J. D. (1987). Social-information-processing factors in reactive and proactive aggression in children's peer groups. *Journal of Personality and Social Psychology, 53*, 1146-1158. doi:10.1037/0022-3514.53.6.1146

Dodge, K. A., Lochman, J. E., Harnish, J. D., Bates, J. E., & Pettit, G. S. (1997). Reactive and proactive aggression in school children and psychiatrically impaired chronically assaultive youth. *Journal of Abnormal Psychology, 106*, 37-51. doi:10.1037/0021-843X.106.1.37

Dodge, K. A., Pettit, G. S., & Bates, J. E. (1994). Socialization mediators of the relation between socioeconomic status and child conduct problems. *Child Development, 65*, 649-665. doi:10.1111/j.1467-8624.1994.tb00774.x

Dohrenwend, B. S., & Dohrenwend, B. P. (1981). Socioenvironmental factors, stress, and psychopathology. *American Journal of Community Psychology, 9*, 123-164. doi:10.1007/BF00896364

Dotsch, R., & Wigboldus, D. H. J. (2008). Virtual prejudice. *Journal of Experimental Social Psychology, 44*, 1194-1198. doi:10.1016/j.jesp.2008.03.003

Duffy, A. L., Penn, S., Nesdale, D., & Zimmer-Gembeck, M. J. (2017). Popularity: Does it magnify associations between popularity prioritization and the bullying and defending behavior of early adolescent boys and girls? *Social Development, 26*, 263–277. doi:10.1111/sode.12206

Dumas, J. E., Neese, D. E., Prinz, R. J., & Blechman, E. A. (1996). Short-term stability of aggression, peer rejection, and depressive symptoms in middle childhood. *Journal of Abnormal Child Psychology, 24*, 105-119. doi:10.1007/bf01448376

Eagly, A. H., & Wood, W. (1991). Explaining sex differences in social behavior: A meta-analytic perspective. *Personality and Social Psychology Bulletin, 17*, 306-315. doi:10.1177/0146167291173011

Eisenberg, N., Chang, L. E. I., Ma, Y. U. E., & Huang, X. (2009). Relations of parenting style to Chinese children's effortful control, ego resilience, and maladjustment. *Development and Psychopathology, 21*, 455-477. doi:10.1017/S095457940900025X

Eisenberg, N., Zhou, Q., Spinrad, T. L., Valiente, C., Fabes, R. A., & Liew, J. (2005). Relations among positive parenting, children's effortful control, and externalizing problems: A three-wave longitudinal study. *Child Development, 76*, 1055-1071. doi:10.1111/j.1467-8624.2005.00897.x

Ellis, B. J., Volk, A. A., Gonzalez, J.-M., & Embry, D. D. (2016). The meaningful roles intervention: An evolutionary approach to reducing bullying and increasing prosocial behavior. *Journal of Research on Adolescence, 26*, 622-637. doi:10.1111/jora.12243

Enzman, D. (2007). SPSS-Macro TetCorr version 2.3. Retrieved January, 2013, from http://www.ottersbek.de/software/r_tetra.sps

Erikson, E. (1986). *Identity, youth and crisis*. New York: Norton.

Esbensen, F. A., & Carson, D. C. (2009). Consequences of being bullied: Results from a longitudinal assessment of bullying victimization in a multisite sample of American students. *Youth and Society, 41*, 209-233. doi:10.1177/0044118x09351067

Eslea, M., Menesini, E., Morita, Y., O'Moore, M., Mora-Merchán, J. A., Pereira, B., & Smith, P. K. (2004). Friendship and loneliness among bullies and victims: Data from seven countries. *Aggressive Behavior, 30*, 71-83. doi:10.1002/ab.20006

Espinoza, G., Gonzales, N. A., & Fuligni, A. J. (2013). Daily school peer victimization experiences among Mexican-American adolescents: Associations with psychosocial, physical and school adjustment. *Journal of Youth and Adolescence, 42*, 1775-1788. doi:10.1007/s10964-012-9874-4

Fazio, R. H. (1990). Multiple processes by which attitudes guide behavior: The mode model as an integrative framework. In P. Z. Mark (Ed.), *Advances in experimental social psychology* (Vol. 23, pp. 75-109): Academic Press.

Fekkes, M. (2005). *Bullying among elementary school children*. (Doctoral dissertation), Leiden University, Leiden, The Netherlands.

Fekkes, M., Pijpers, F. I. M., & Verloove-Vanhorick, S. P. (2005). Bullying: who does what, when and where? Involvement of children, teachers, and parents in bullying behavior. *Health Education Research, 20*, 81-91. doi:10.1093/her/cyg100

Fox, C. L., Elder, T., Gater, J., & Johnson, E. (2010). The association between adolescents' beliefs in a just world and their attitudes to victims of bullying. *British Journal of Educational Psychology, 80*, 183-198. doi:10.1348/000709909X479105

Frith, U., & Hill, E. (2004). *Autism: Mind and brain*. New York: Oxford Univeristy Press.

Garandeau, C. F., & Cillessen, A. H. N. (2006). From indirect aggression to invisible aggression: A conceptual view on bullying and peer group manipulation. *Aggression and Violent Behavior, 11*, 612-625. doi:10.1016/j.avb.2005.08.005

Garandeau, C. F., Lee, I. A., & Salmivalli, C. (2013). Inequality matters: Classroom status hierarchy and adolescents' bullying. *Journal of Youth and Adolescence, 43*, 1123-1133. doi:10.1007/s10964-013-0040-4

Garandeau, C. F., Lee, I. A., & Salmivalli, C. (2014). Differential effects of the KiVa anti-bullying program on popular and unpopular bullies. *Journal of Applied Developmental Psychology, 35*, 44-50. doi:10.1016/j.appdev.2013.10.004

Gawronski, B. (2012). Back to the future of dissonance theory: Cognitive consistency as a core motive. *Social Cognition, 30*, 652-668. doi:10.1521/soco.2012.30.6.652

Gawronski, B., & Bodenhausen, G. V. (2006). Associative and propositional processes in evaluation: An integrative review of implicit and explicit attitude change. *Psychological Bulletin, 132*, 692-731. doi:10.1037/0033-2909.132.5.692

Gazelle, H., & Ladd, G. W. (2003). Anxious solitude and peer exclusion: A diathesis-stress model of internalizing trajectories in childhood. *Child Development, 74*, 257-278. doi:10.1111/1467-8624.00534

Georgiou, S. N., & Fanti, K. A. (2010). A transactional model of bullying and victimization. *Social Psychology of Education, 13*, 295-311. doi:10.1007/s11218-010-9116-0

Georgiou, S. N., & Stavrinides, P. (2008). Bullies, victims and bully-victims: Psychosocial profiles and attribution styles. *School Psychology International, 29*. doi:10.1177/0143034308099202

Gibb, B. E., & Alloy, L. B. (2006). A prospective test of the hopelessness theory of depression in children. *Journal of Clinical Child and Adolescent Psychology, 35*, 264-274. doi:10.1207/s15374424jccp3502_10

Giesbrecht, G. F., Leadbeater, B. J., & Macdonald, S. W. (2011). Child and context characteristics in trajectories of physical and relational victimization among early elementary school children. *Development and Psychopathology, 23*, 239-252. doi:10.1017/S0954579410000763

Gini, G., Albiero, P., Benelli, B., & Altoe, G. (2008). Determinants of adolescents' active defending and passive bystanding behavior in bullying. *Journal of Adolescence, 31*, 93-105. doi:10.1016/j.adolescence.2007.05.002

Gini, G., Pozzoli, T., Borghi, F., & Franzoni, L. (2008). The role of bystanders in students' perception of bullying and sense of safety. *Journal of School Psychology, 46*, 617-638. doi:10.1016/j.jsp.2008.02.001

Goldbaum, S., Craig, W. M., Pepler, D., & Connolly, J. (2003). Developmental trajectories of victimization. *Journal of Applied School Psychology, 19*, 139-156. doi:10.1300/J008v19n02_09

Goossens, F. A., Olthof, T., & Dekker, P. (2006). New participant role scales: Comparison between various criteria for assigning roles and indications for their validity. *Aggressive Behavior, 32*, 343-357. doi:10.1002/ab.20133

Goossens, F. A., Vermande, M. M., & van der Meulen, M. (2012). Pesten: Definitie, sekseverschillen, prevalentie, verloop en consequenties. In F. Goossens, M. M. Vermande & M. van der Meulen (Eds.), *Pesten op school: Achtergronden en interventies* (pp. 13-36). Den Haag: Boom Lemma uitgevers.

Graham, S., & Hoehn, S. (1995). Children's understanding of aggression and withdrawal as social stigmas: An attributional analysis. *Child Development, 66*, 1143-1161. doi:10.1111/j.1467-8624.1995.tb00928.x

Graham, S., & Juvonen, J. (1998). Self-blame and peer victimization in Middle School: An attributional analysis. *Developmental Psychology, 34*, 587-599. doi:10.1037/0012-1649.34.3.587

Grant, K. E., Katz, B. N., Thomas, K. J., O'Koon, J. H., Meza, C., DiPasquale, A.-M., . . . Bergen, C. (2004). Psychological symptoms affecting low-income urban youth. *Journal of Adolescent Research, 19*, 613-634. doi:10.1177/0743558403260014

Greene, J. D., Nystrom, L. E., Engell, A. D., Darley, J. M., & Cohen, J. D. (2004). The neural bases of cognitive conflict and control in moral judgment. *Neuron, 44*, 389-400. doi:10.1016/j.neuron.2004.09.027

Greenwald, A. G., & Banaji, M. R. (1995). Implicit social cognition: Attitudes, self-esteem, and stereotypes. *Psychological Review, 102*, 4-27. doi:10.1037//0033-295X.102.

R

Grodewald, A. L. (2011). The interrelations among rumination, depression, and social stress in children and adolescents: A longitudinal study. *Dissertation Abstracts International: Section B. Sciences and Engineering, 71*, 7762.

Guldberg, H. (2009). *Reclaiming childhood: freedom and play in an age of fear*. London: Routledge.

Guy, A., Lee, K., & Wolke, D. (in press). Differences in the early stages of social information processing for adolescents involved in bullying. *Aggressive Behavior, 43*, 578-587. doi:10.1002/ab.21716

Halekoh, U., & Højsgaard, S. (2016). pbkrtest: Parametric bootstrap and Kenward Roger Based methods for mixed model comparison. R package version 0.4-6. https://cran.r-project.org/web/packages/pbkrtest/pbkrtest.pdf.

Haltigan, J. D., & Vaillancourt, T. (2014). Joint trajectories of bullying and peer victimization across elementary and middle school and associations with symptoms of psychopathology. *Developmental Psychology, 50*, 2426–2436. doi:10.1037/a0038030

Hamlin, J. K. (2013). Moral judgment and action in preverbal infants and toddlers: Evidence for an innate moral core. *Current Directions in Psychological Science, 22*, 186-193. doi:10.1177/0963721412470687

Hanish, L. D., Eisenberg, N., Fabes, R. A., Spinrad, T. L., Ryan, P., & Schmidt, S. (2004). The expression and regulation of negative emotions: Risk factors for young children's peer victimization. *Development and Psychopathology, 16*, 335-353. doi:10.10170S0954579404044542

Hanish, L. D., & Guerra, N. G. (2000). The roles of ethnicity and school context in predicting children's victimization by peers. *American Journal of Community Psychology, 28*, 201-223. doi:10.1023/A:1005187201519

Hanish, L. D., & Guerra, N. G. (2002). A longitudinal analysis of patterns of adjustment following peer victimization. *Development and Psychopathology, 14*, 69-89. doi:10.1017/S0954579402001049

Hanish, L. D., & Guerra, N. G. (2004). Aggressive victims, passive victims, and bullies: Developmental continuity or developmental change? *Merrill-Palmer Quarterly, 50*, 17-38. doi:10.1353/mpq.2004.0003

Hara, H. (2002). Justifications for bullying among Japanese schoolchildren. *Asian Journal of Social Psychology, 5*, 197-204. doi:10.1111/1467-839X.00104

Hawker, D. S. J., & Boulton, M. J. (2000). Twenty years' research on peer victimization and psychosocial maladjustment: A meta-analytic review of cross-sectional studies. *Journal of Child Psychology and Psychiatry, 41*, 441-455. doi:10.1111/1469-7610.00629

Hawkins, D. L., Pepler, D. J., & Craig, W. M. (2001). Naturalistic observations of peer interventions in bullying. *Social Development, 10*, 512-527. doi:10.1111/1467-9507.00178

Hawley, P. H. (2003). Prosocial and coercive configurations of resource control in early adolescence: A case for the well-adapted machiavellian. *Merrill-Palmer Quarterly, 49*, 279-309. doi:10.1353/mpq.2003.0013

Hay, D. F., Payne, A., & Chadwick, A. (2004). Peer relations in childhood. *Journal of Child Psychology and Psychiatry, 45*, 84-108. doi:10.1046/j.0021-9630.2003.00308.x

Hayes, A. F. (1978). *Statistics for the social sciences* (2nd ed.). London: Holt, Rinehart and Winston.

Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. New York: Guilford.

Heckman, J. J. (2006). Skill formation and the economics of investing in disadvantaged children. *Science, 312*, 1900-1902. doi:10.1126/science.1128898

Heider, F., & Simmel, M. (1944). An experimental study of apparent behavior. *American Journal of Psychology, 57*, 243–259.

Higgins, E. T. (1996). Knowledge activation: Accessibility, applicability, and salience. In E. T. Higgins & A. W. Kruglanski (Eds.), *Social psychology: Handbook of basic principles*. New York: Guilford Press.

Hodges, E. V. E., Boivin, M., Vitaro, F., & Bukowski, W. M. (1999). The power of friendship: Protecting against an escalating cycle of peer victimization. *Developmental Psychology, 35*, 94-101. doi:10.1037/0012-1649.35.1.94

Hodges, E. V. E., Malone, M. J., & Perry, D. G. (1997). Individual risk and social risk as interacting determinants of victimization in the peer group. *Developmental Psychology, 33*, 1032-1039. doi:10.1037/0012-1649.33.6.1032

Hodges, E. V. E., & Perry, D. G. (1999). Personal and interpersonal antecedents and consequences of victimization by peers. *Journal of Personality and Social Psychology, 76*, 677-685. doi:10.1037/0022-3514.76.4.677

Hofer, C., Eisenberg, N., & Reiser, M. (2010). The role of socialization, effortful control, and ego resiliency in French adolescents' social functioning. *Journal of Research on Adolescence, 20*, 555-582. doi:10.1111/j.1532-7795.2010.00650.x

Hoffman, M. L. (1977). Sex differences in empathy and related behaviors. *Psychological Bulletin, 84*, 712-722. doi:10.1037/0033-2909.84.4.712

Hoglund, W. L., & Leadbeater, B. J. (2007). Managing threat: Do social-cognitive processes mediate the link between peer victimization and adjustment problems in early adolescence? *Journal of Research on Adolescence, 17*, 525–540. doi:10.1111/j.1532-7795.2007.00533.x

Holt, M. K., & Espelage, D. L. (2007). Perceived social support among bullies, victims, and bully-victims. *Journal of Youth and Adolescence, 36*, 984-994. doi:10.1007/s10964-006-9153-3

Houbre, B., Tarquinio, C., & Lanfranchi, J. (2010). Expression of self-concept and adjustment against repeated aggressions: The case of a longitudinal study on school bullying. *European Journal of Psychology of Education, 25*, 105-123. doi:10.1007/s10212-009-0005-x

Hox, J. J. (2002). *Multi-level analysis: Techniques and applications*. London: Erlbaum.

Huesmann, L. R., Eron, L. D., Lefkowitz, M. M., & Walder, L. O. (1984). Stability of aggression over time and generations. *Developmental Psychology, 20*, 1120-1134. doi:10.1037/0012-1649.20.6.1120

Huitsing, G., Snijders, T. A. B., van Duijn, M. A. J., & Veenstra, R. (2014). Victims, bullies, and their defenders: A longitudinal study of the co-evolution of positive and negative networks. *Development and Psychopathology, 26*, 645-659. doi:10.1017/S0954579414000297

Huitsing, G., & Veenstra, R. (2012). Bullying in classrooms: Participant roles from a social network perspective. *Aggressive Behavior, 38*, 494-509. doi:10.1002/ab.21438

Hunter, J. E., & Schmidt, F. L. (1990). Dichotomization of continuous variables: The implications for meta-analysis. *Journal of Applied Psychology, 75*, 334-349. doi:10.1037/0021-9010.75.3.334

Hymel, S., McClure, R., Miller, M., Shumka, E., & Trach, J. (2015). Addressing school bullying: Insights from theories of group processes. *Journal of Applied Developmental Psychology, 37*, 16-24. doi:10.1016/j.appdev.2014.11.008

Hymel, S., Rubin, K. H., Rowden, L., & LeMare, L. (1990). Children's peer relationships: Longitudinal prediction of internalizing and externalizing problems from middle to late childhood. *Child Development, 61*, 2004-2021. doi:10.2307/1130854

Hymel, S., Schonert-Reichl, K. A., Bonanno, R. A., Vaillancourt, T., & Rocke Henderson, N. (2010). Bullying and morality: Understanding how good kids can behave badly. In S. Jimerson, S. M. Swearer & D. L. Espelage (Eds.), *International handbook of school bullying: An international perspective* (pp. 101-118). New York: Routledge.

Hymel, S., & Swearer, S. M. (2015). Four decades of research on school bullying. *American Psychologist, 70*, 293-299. doi:10.1037/a0038928

Hymel, S., Wagner, E., & Butler, L. J. (1990). Reputational bias: View from the peer group. In S. R. Asher & J. D. Coie (Eds.), *Peer rejection in childhood* (pp. 156-186). New York: Cambridge University Press.

Ickes, W., Gesn, P. R., & Graham, T. (2000). Gender differences in empathic accuracy: Differential ability or differential motivation? *Personal Relationships, 7*, 95-109. doi:10.1111/j.1475-6811.2000.tb00006.x

Ito, T. A., Larsen, J. T., Smith, N. K., & Cacioppo, J. T. (1998). Negative information weighs more heavily on the brain: The negativity bias in evaluative categorizations. *Journal of Personality and Social Psychology, 75*, 887-900. doi:10.1037/0022-3514.75.4.887

Iyer, R. V., Kochenderfer-Ladd, B. J., Eisenberg, N., & Thompson, M. (2010). Peer victimization and effortful control: Relations to school engagement and academic achievement. *Merrill-Palmer Quarterly, 56*, 361-387. doi:10.1353/mpq.0.0058

Jansen, D. E. M. C., Veenstra, R., Ormel, J., Verhulst, F. C., & Reijneveld, S. A. (2011). Early risk factors for being a bully, victim, or bully/victim in late elementary and early secondary education. The longitudinal TRAILS study. *BMC Public Health, 11*, 440. doi:10.1186/1471-2458-11-440

Jensen-Campbell, L. A., Boyd, E. Q., Arana, A. A., & Lee, S. (2017). Does escaping victimization in elementary school lead to improved health in high school: a comparison of victimization profile groups. *Journal of Applied Biobehavioral Research*. doi:10.1111/jabr.12074

Jiang, X. L., & Cillessen, A. H. N. (2005). Stability of continuous measures of sociometric status: a meta-analysis. *Developmental Review, 25*, 1-25. doi:10.1016/j.dr.2004.08.008

Joiner, T. E., Perez, M., Wagner, K. D., Berenson, A., & Marquina, G. S. (2001). On fatalism, pessimism, and depressive symptoms among Mexican-American and other adolescents attending an obstetrics-gynecology clinic. *Behaviour Research and Therapy, 39*, 887-896. doi:10.1016/S0005-7967(00)00062-0

Jung, T., & Wickrama, K. A. S. (2008). An introduction to Latent Class Growth Analysis and Growth Mixture Modeling. *Social and Personality Psychology Compass, 2*, 302-317. doi:10.1111/j.1751-9004.2007.00054.x

Juon, H. S., & Ensminger, M. E. (1997). Childhood, adolescent, and young adult predictors of suicidal behaviors: A prospective study of Blacks. *The Journal of Child Psychology and Psychiatry and Allied Disciplines, 38*, 553-563. doi:10.1111/j.1469-7610.1997.tb01542.x

Jutengren, G., Kerr, M., & Stattin, H. (2011). Adolescents' deliberate self-harm, interpersonal stress, and the moderating effects of self-regulation: A two-wave longitudinal analysis. *Journal of School Psychology, 49*, 249-264. doi:10.1016/j.jsp.2010.11.001

Juvonen, J., & Galván, A. (2008). Peer influence in involuntary social groups: Lessons from research on bullying. In M. J. Prinstein & K. A. Dodge (Eds.), *Understanding peer influence in children and adolescents* (pp. 225-244). New York: Guilford Press.

Juvonen, J., & Ho, A. Y. (2008). Social motives underlying antisocial behavior across middle school grades. *Journal of Youth and Adolescence, 37*, 747-756. doi:10.1007/s10964-008-9272-0

Juvonen, J., Nishina, A., & Graham, S. (2000). Peer harassment, psychological adjustment, and school functioning in early adolescence. *Journal of Educational Psychology, 92*, 349-359. doi:10.10371t~022-0663.92.2.349

Kaltiala-Heino, R., Rimpelä, M., Rantanen, P., & Rimpelä, A. (2000). Bullying at school: an indicator of adolescents at risk for mental disorders. *Journal of Adolescence, 23*, 661-674. doi:10.1006/jado.2000.0351

Kamper-DeMarco, K. E., & Ostrov, J. M. (2017). Prospective associations between peer victimization and social-psychological adjustment problems in early childhood. *Aggressive Behavior, 43*, 471-482. doi:10.1002/ab.21705

Kärnä, A., Voeten, M., Little, T. D., Alanen, E., Poskiparta, E., & Salmivalli, C. (2013). Effectiveness of the KiVa antibullying program: Grades 1-3 and 7-9. *Journal of Educational Psychology, 105*, 535-551. doi:10.1037/a0030417

Kärnä, A., Voeten, M., Little, T. D., Poskiparta, E., Kaljonen, A., & Salmivalli, C. (2011). A large-scale evaluation of the KiVa antibullying program: Grades 4–6. *Child Development, 82*, 311-330. doi:10.1111/j.1467-8624.2010.01557.x

Kärnä, A., Voeten, M., Poskiparta, E., & Salmivalli, C. (2010). Vulnerable children in varying classroom contexts: Bystanders' behaviors moderate the effects of risk factors on victimization. *Merrill-Palmer Quarterly, 56*, 261-282. doi:10.1353/mpq.0.0052

Kawabata, Y., & Crick, N. R. (2011). The significance of cross-racial/ethnic friendships: Associations with peer victimization, peer support, sociometric status, and classroom diversity. *Developmental Psychology, 47*, 1763-1775. doi:10.1037/a0025399

Kawabata, Y., Crick, N. R., & Hamaguchi, Y. (2010). Forms of aggression, social-psychological adjustment, and peer victimization in a Japanese sample: The moderating role of positive and negative friendship quality. *Journal of Abnormal Child Psychology, 38*, 471-484. doi:10.1007/s10802-010-9386-1

Kempes, M., Matthys, W., Vries, H., & Engeland, H. (2005). Reactive and proactive aggression in children. A review of theory, findings and the relevance for child and adolescent psychiatry. *European Child & Adolescent Psychiatry, 14*, 11-19. doi:10.1007/s00787-005-0432-4

Kert, A. S., Codding, R. S., Tryon, G. S., & Shiyko, M. (2010). Impact of the word "bully" on the reported rate of bullying behavior. *Psychology in the Schools, 47*, 193-204. doi:10.1002/pits.20464

Khatri, P., Kupersmidt, J. B., & Patterson, C. (2000). Aggression and peer victimization as predictors of self-reported behavioral and emotional adjustment. *Aggressive Behavior, 26*, 345-358. doi:10.1002/1098-2337(2000)26:5<345::AID-AB1>3.0.CO;2-L

Kihlstrom, J. F., Eich, E., Sandbrand, D., & Tobias, B. A. (2000). Emotion and memory: Implications for self-reports. In A. A. Stone, J. S. Turkkan, C. A. Bachrach, J. B. Jobe, H. S. Kurtzman & V. S. Cain (Eds.), *The science of self-report: Implications for research and practice* (pp. 81-100). Mahwah, NJ: Lawrence Erlbaum.

Knack, J. M., Tsar, V., Vaillancourt, T., Hymel, S., & McDougall, P. (2012). What protects rejected adolescents from also being bullied by their peers? The moderating role of peer-valued characteristics. *Journal of Research on Adolescence, 22*, 467-479. doi:10.1111/j.1532-7795.2012.00792.x

Kochel, K. P., Ladd, G. W., & Rudolph, K. D. (2012). Longitudinal associations among youths' depressive symptoms, peer victimization, and low peer acceptance: An interpersonal process perspective. *Child Development, 83*, 637-650. doi:10.1111/j.1467-8624.2011.01722.x

Kochenderfer-Ladd, B., & Skinner, K. (2002). Children's coping strategies: Moderators of the effects of peer victimization? *Developmental Psychology, 38*, 267-278. doi:10.1037/0012-1649.38.2.267

Kochenderfer-Ladd, B., & Wardrop, J. L. (2001). Chronicity and instability of children's peer victimization experiences as predictors of loneliness and social satisfaction trajectories. *Child Development, 72*, 134-151. doi:10.1111/1467-8624.00270

Kochenderfer, B. J., & Ladd, G. W. (1996a). Peer victimization: Cause or consequence of school maladjustment? *Child Development, 67*, 1305-1317. doi:10.1111/j.1467-8624.1996.tb01797.x

Kochenderfer, B. J., & Ladd, G. W. (1996b). Peer victimization: Manifestations and relations to school adjustment in kindergarten. *Journal of School Psychology, 34*, 267-283. doi:10.1016/0022-4405(96)00015-5

Kochenderfer, B. J., & Ladd, G. W. (1997). Victimized children's responses to peers' aggression: Behaviors associated with reduced versus continued victimization. *Development and Psychopathology, 9*, 59-73. doi:10.1017/S0954579497001065

Koeppel, M., & Bouffard, L. A. (2012). The long-term health consequences of bullying victimization. Retrieved September, 2012, from http://www.crimevictimsinstitute.org/publications/?mode=view&item=32

Kokko, K., Tremblay, R. E., Lacourse, E., Nagin, D. S., & Vitaro, F. (2006). Trajectories of prosocial behavior and physical aggression in middle childhood: links to adolescent school dropout and physical violence. *Journal of Research on Adolescence, 16*, 403-428. doi:10.1111/j.1532-7795.2006.00500.x

Koski, J. E., Xie, H., & Olson, I. R. (2015). Understanding social hierarchies: The neural and psychological foundations of status perception. *Social Neuroscience, 10*, 527-550. doi:10.1080/17470919.2015.1013223

Kowalski, R. M., Giumetti, G. W., Schroeder, A. N., & Lattanner, M. R. (2014). Bullying in the digital age: A critical review and meta-analysis of cyberbullying research among youth. *Psychological Bulletin, 140*, 1073-1127. doi:10.1037/a0035618

Krause, S., Back, M. D., Egloff, B., & Schmukle, S. C. (2014). Implicit interpersonal attraction in small groups. *Social Psychological and Personality Science, 5*, 671-679. doi:10.1177/1948550613517723

Kremer, P. K. (2011). Quality of teacher-student relationships: Moderator of the effects of peer victimization. *Dissertation Abstracts International: Section B. Sciences and Engineering, 72*, 75.

Kunda, Z. (2001). Concepts: Representing social knowledge. In Z. Kunda (Ed.), *Social cognition: Making sense of people* (pp. 15-52). Cambridge, MA: The MIT Press.

La Greca, A. M., & Lopez, N. (1998). Social anxiety among adolescents: Linkages with peer relations and friendships. *Journal of Abnormal Child Psychology, 26*, 83-94. doi:10.1023/A:1022684520514

Ladd, G. W., Ettekal, I., & Kochenderfer-Ladd, B. (2017). Peer victimization trajectories from kindergarten through high school: Differential pathways for children's school engagement and achievement? *Journal of Educational Psychology, 109*, 826-841. doi:10.1037/edu0000177

Ladd, G. W., & Kochenderfer-Ladd, B. (2002). Identifying victims of peer aggression from early to middle childhood: Analysis of cross-informant data for concordance, estimation of relational adjustment, prevalence of victimization, and characteristics of identified victims. *Psychological Assessment, 41*, 74-96. doi:10.1037//1040-3590.14.1.74

Ladd, G. W., & Troop-Gordon, W. (2003). The role of chronic peer difficulties in the development of children's psychological adjustment problems. *Child Development, 74*, 1344-1367. doi:10.1111/1467-8624.00611

LaFontana, K. M., & Cillessen, A. H. N. (1998). The nature of children's stereotypes of popularity. *Social Development, 7*, 301-320. doi:10.1111/1467-9507.00069

LaFontana, K. M., & Cillessen, A. H. N. (2010). Developmental changes in the priority of perceived status in childhood and adolescence. *Social Development, 19*, 130-147. doi:10.1111/j.1467-9507.2008.00522.x

Lansford, J. E., Malone, P. S., Dodge, K. E., Crozier, J. C., Pettit, G. S., & Bates, J. E. (2006). A 12-year prospective study of patterns of social information processing problems and externalizing behaviors. *Journal of Abnormal Child Psychology, 34*, 709-718. doi:10.1007/s10802-006-9057-4

Lansu, T. A. M., & Cillessen, A. H. N. (2015). Associations of group level popularity with observed behavior and influence in a dyadic context. *Journal of Experimental Child Psychology, 140*, 92-104. doi:10.1016/j.jecp.2015.06.016

Lansu, T. A. M., Cillessen, A. H. N., & Bukowski, W. M. (2013). Implicit and explicit peer evaluation: Associations with early adolescents' prosociality, aggression, and bullying. *Journal of Research on Adolescence, 23*, 762-771. doi:10.1111/jora.12028

Lansu, T. A. M., Cillessen, A. H. N., & Karremans, J. C. (2012). Implicit associations with popularity in early adolescence: An approach-avoidance analysis. *Developmental Psychology, 48*, 65-75. doi:10.1037/a0025681

R

Lansu, T. A. M., Cillessen, A. H. N., & Sandstrom, M. J. (2014). From classroom to dyad: Actor and partner effects of aggression and victim reputation. *Social Development, 23*, 651-665. doi:10.1111/sode.12055

Lansu, T. A. M., van Noorden, T. H. J., & Deutz, M. H. F. (2017). How children's victimization relates to distorted versus sensitive social cognition: Perception, mood, and need fulfillment in response to Cyberball inclusion and exclusion. *Journal of Experimental Child Psychology, 154*, 131-145. doi:10.1016/j.jecp.2016.10.012

Leadbeater, B. J., & Hoglund, W. L. G. (2009). The effects of peer victimization and physical aggression on changes in internalizing from first to third grade. *Child Development, 80*, 843-859. doi:10.1111/j.1467-8624.2009.01301.x

Leadbeater, B. J., Kuperminc, G. P., Blatt, S. J., & Hertzog, C. (1999). A multivariate model of gender differences in adolescents' internalizing and externalizing problems. *Developmental Psychology, 35*, 1268-1282. doi:10.1037/0012-1649.35.5.1268

Lease, A. M., Kennedy, C. A., & Axelrod, J. L. (2002). Children's social constructions of popularity. *Social Development, 11*, 87-109. doi:10.1111/1467-9507.00188

Lease, A. M., Musgrove, K. T., & Axelrod, J. L. (2002). Dimensions of social status in preadolescent peer groups: Likability, perceived popularity, and social dominance. *Social Development, 11*, 508-533. doi:10.1111/1467-9507.00213

Ledingham, J. E., Younger, A., Schwartzman, A., & Bergeron, G. (1982). Agreement among teacher, peer, and self-ratings of children's aggression, withdrawal, and likability. *Journal of Abnormal Child Psychology, 10*, 363-372. doi:10.1007/bf00912327

Lemerise, E. A., & Arsenio, W. F. (2000). An integrated model of emotion processes and cognition in social information processing. *Child Development, 71*, 107-118. doi:10.1111/1467-8624.00124

Lohre, A., Lydersen, S., Paulsen, B., Maehle, M., & Vatten, L. J. (2011). Peer victimization as reported by children, teachers, and parents in relation to children's health symptoms. *BMC Public Health, 11*, 278-284. doi:10.1186/1471-2458-11-278

Lunde, C., Frisén, A., & Hwang, C. P. (2007). Ten-year-old girls' and boys' body composition and peer victimization experiences: Prospective associations with body satisfaction. *Body Image, 4*, 11-28. doi:10.1016/j.bodyim.2006.10.002

Maas, C. J. M., Hox, J. J., & Lensvelt-Mulders, G. J. L. M. (2004). Longitudinal meta-analysis. *Quality and Quantitiy, 38*, 381-389. doi:10.1023/B:QUQU.0000043125.43736.c4

Mahady Wilton, M. M., Craig, W. M., & Pepler, D. J. (2000). Emotional regulation and display in classroom victims of bullying: Characteristic expressions of affect, coping styles and relevant contextual factors. *Social Development, 9*, 226-245. doi:10.1111/1467-9507.00121

Malti, T., Perren, S., & Buchmann, M. (2010). Children's peer victimization, empathy, and emotional symptoms. *Child Psychiatry and Human Development, 41*, 98-113. doi:10.1007/s10578-009-0155-8

Marcoen, A., Goossens, L., & Caes, P. (1987). Lonelines in pre- through late adolescence: Exploring the contributions of a multidimensional approach. *Journal of Youth and Adolescence, 16*, 561-577. doi:10.1007/BF02138821

Marks, P. E. L., Babcock, B., Cillessen, A. H. N., & Crick, N. R. (2013). The effects of participation rate on the internal reliability of peer nomination measures. *Social Development, 22*, 609-622. doi:10.1111/j.1467-9507.2012.00661.x

Marsh, H. W., Nagengast, B., Morin, A. J. S., Parada, R. H., Craven, R. G., & Hamilton, L. R. (2011). Construct validity of the multidimensional structure of bullying and victimization: An application of exploratory structural equation modeling. *Journal of Educational Psychology, 103*, 701-732. doi:10.1037/a0024122

Martin, K., Huebner, E. S., & Valois, R. F. (2008). Does life satisfaction predict victimization experiences in adolescence? *Psychology in the Schools, 45*, 705-714. doi:10.1002/pits.20336

Marvin, R. S., Greenberg, M. T., & Mossler, D. G. (1976). The early development of conceptual perspective taking: Distinguishing among multiple perspectives. *Child Development, 47*, 511-514. doi:10.2307/1128810

Matthews, K. A., Jennings, J. R., Lee, L., & Pardini, D. A. (2017). Bullying and being bullied in childhood are associated with different psychosocial risk factors for poor physical health in men. *Psychological Science, 28*, 808-821. doi:10.1177/0956797617697700

Maunder, R. E., Harrop, A., & Tattersall, A. J. (2010). Pupil and staff perceptions of bullying in secondary schools: comparing behavioural definitions and their perceived seriousness. *Educational Research, 52*, 263-282. doi:10.1080/00131881.2010.504062

Mayeux, L. (2011). Effects of popularity and gender on peers' perceptions of prosocial, antisocial, and jealousy-eliciting behaviors. *Merrill-Palmer Quarterly, 57*, 349-374. doi:10.1353/mpq.2011.0020

McConnell, A. R., & Leibold, J. M. (2001). Relations among the Implicit Association Test, discriminatory behavior, and explicit measures of racial attitudes. *Journal of Experimental Social Psychology, 37*, 435-442. doi:10.1006/jesp.2000.1470

McDougall, P., & Vaillancourt, T. (2015). Long-term adult outcomes of peer victimization in childhood and adolescence: Pathways to adjustment and maladjustment. *American Psychologist, 70*, 300-310. doi:10.1037/a0039174

McGugan, M. J. (2007). *A developmental perspective on children who bully and are victimized by peers.* (Master's thesis). Retrieved from http://hdl.handle.net/1974/865

McLaughlin, K. A., Hatzenbuehler, M. L., & Hilt, L. M. (2009). Emotion dysregulation as a mechanism linking peer victimization to internalizing symptoms in adolescents. *Journal of Consulting and Clinical Psychology, 77*, 894-904. doi:10.1037/a0015760

McLoyd, V. C. (1990). The impact of economic hardship on Black families and children. Psychological distress, parenting, and socioemotional development. *Child Development, 61*, 311-346. doi:10.1111/j.1467-8624.1990.tb02781.x

Meeus, W., van De Schoot, R., Keijsers, L., Schwartz, S. J., & Branje, S. (2010). On the progression and stability of adolescent identity formation: A five-wave longitudinal study in early-to-middle and middle-to-late adolescence. *Child Development, 81*, 1565-1581. doi:10.1111/j.1467-8624.2010.01492.x

Menesini, E., Eslea, M., Smith, P. K., Genta, M. L., Giannetti, E., Fonzi, A., & Costabile, A. (1997). Cross-national comparison of children's attitudes towards bully/victim problems in school. *Aggressive Behavior, 23*, 245-257. doi:10.1002/(SICI)1098-2337(1997)23:4<245::AID-AB3>3.0.CO;2-J

Menzer, M. M., Oh, W., McDonald, K. L., Rubin, K. H., & Dashiell-Aje, E. (2010). Behavioral correlates of peer exclusion and victimization of East Asian American and European American young adolescents. *Asian American Journal of Psychology, 1*, 290-302. doi:10.1037/a0022085

Mesman, J., Bongers, I. L., & Koot, H. M. (2001). Preschool developmental pathways to preadolescent internalizing and externalizing problems. *The Journal of Child Psychology and Psychiatry and Allied Disciplines, 42*, 679-689. doi:10.1017/S0021963001007351

Meter, D. J., & Card, N. A. (2015). Effects of defending: The longitudinal relations among peer-perceived defending of victimized peers, victimization, and liking. *Social Development, 24*, 734-747. doi:10.1111/sode.12129

Mikami, A. Y., Boucher, M. A., & Humphreys, K. (2005). Prevention of peer rejection through a classroom-level intervention in middle school. *Journal of Primary Prevention, 26*, 5-23. doi:10.1007/s10935-004-0988-7

Miller, A. L., Gouley, K. K., Seifer, R., Zakriski, A., Eguia, M., & Vergnani, M. (2005). Emotion knowledge skills in low-income elementary school children: Associations with social status and peer experiences. *Social Development, 14*, 637-651. doi:10.1111/j.1467-9507.2005.00321.x

Moffitt, T. E. (1993). Adolescence-limited and life-course-persistent antisocial behavior: A developmental taxonomy. *Psychological Review, 100*, 674-701. doi:10.1037/0033-295X.100.4.674

Monks, C. P., Smith, P. K., & Swettenham, J. (2003). Aggressors, victims, and defenders in preschool: Peer, self-, and teacher reports. *Merrill-Palmer Quarterly, 49*, 453-469. doi:10.1353/mpq.2003.0024

Morales, J. R., & Guerra, N. G. (2006). Effects of multiple context and cumulative stress on urban children's adjustment in elementary school. *Child Development, 77*, 907–923. doi:10.1111/j.1467-8624.2006.00910.x.

Morrow, M. T., Hubbard, J. A., Barhight, L. J., & Thomson, A. K. (2014). Fifth-grade children's daily experiences of peer victimization and negative emotions: Moderating effects of sex and peer rejection. *Journal of Abnormal Child Psychology, 42*, 1089-1102. doi:10.1007/s10802-014-9870-0

Morrow, M. T., Hubbard, J. A., Rubin, R. M., & McAuliffe, M. D. (2008). The relation between childhood aggression and depressive symptoms: The unique and joint mediating roles of peer rejection and peer victimization. *Merrill-Palmer Quarterly, 54*, 316-340. doi:10.1353/mpq.0.0000

Murray-Close, D., & Crick, N. R. (2006). Mutual antipathy involvement: Gender and associations with aggression and victimization. *School Psychology Review, 35*, 472-492.

Muthén, L. K., & Muthén, B. O. (1998-2012). *Mplus: User's guide* (7th ed.). Los Angelos, CA: Muthén & Muthén.

Nagin, D., & Tremblay, R. E. (1999). Trajectories of boys' physical aggression, opposition, and hyperactivity on the path to physically violent and nonviolent juvenile delinquency. *Child Development, 70*, 1181-1196. doi:10.1111/1467-8624.00086

R

Nansel, T. R., Craig, W., Overpeck, M. D., Saluja, G., & Ruan, W. J. (2004). Cross-national consistency in the relationship between bullying behaviors and psychosocial adjustment. *Archives of Pediatrics and Adolescent Medicine, 158*, 730-736. doi:10.1001/archpedi.158.8.730

Nansel, T. R., Overpeck, M., Pilla, R. S., Ruan, W., Simons-Morton, B., & Scheidt, P. (2001). Bullying behaviors among US youth: Prevalence and association with psychosocial adjustment. *The Journal of the American Medical Association, 285*, 2094-2100. doi:10.1001/jama.285.16.2094

Nantel-Vivier, A., Pihl, R. O., Côté, S., & Tremblay, R. E. (2014). Developmental association of prosocial behaviour with aggression, anxiety and depression from infancy to preadolescence. *Journal of Child Psychology and Psychiatry, 55*, 1135-1144. doi:10.1111/jcpp.12235

Nelson, D. A., & Crick, N. R. (1999). Rose-colored glasses: Examining the social information-processing of prosocial young adolescents. *The Journal of Early Adolescence, 19*, 17-38. doi:10.1177/0272431699019001002

Newcomb, A. F., Bukowski, W. M., & Pattee, L. (1993). Children's peer relations: A meta-analytic review of popular, rejected, neglected, controversial, and average sociometric status. *Psychological Bulletin, 113*, 99-128. doi:10.1037/0033-2909.113.1.99

Ng-Mak, D. S., Salzinger, S., Feldman, R. S., & Stueve, C. A. (2004). Pathologic adaptation to community violence among Inner-City youth. *American Journal of Orthopsychiatry, 74*, 196-208. doi:10.1037/0002-9432.74.2.196

Nishina, A. (2012). Microcontextual characteristics of peer victimization experiences and adolescents' daily well-being. *Journal of Youth and Adolescence, 41*, 191-201. doi:10.1007/s10964-011-9669-z

Nishina, A., & Juvonen, J. (2005). Daily reports of witnessing and experiencing peer harassment in middle school. *Child Development, 76*, 435-450. doi:10.1111/j.1467-8624.2005.00855.x

Nishino, Y., Ujiie, T., Ninomiya, K., Igarashi, A., Inoue, H., & Yamamoto, C. (2011). Longitudinal study of the relationship between victimization and later emotional problems among Japanese junior high school students. *Journal of Aggression, Conflict and Peace Research, 3*, 115-121. doi:10.1108/17596591111132945

Nylund, K., Asparouhov, T., & Muthén, B. O. (2007). Deciding on the number of classes in Latent Class Analysis and Growth Mixture Modeling: A Monte Carlo simulation study. *Structural Equation Modeling: A Multidisciplinary Journal, 14*, 535-569. doi:10.1080/10705510701575396

Nylund, K., Bellmore, A., Nishina, A., & Graham, S. (2007). Subtypes, severity, and structural stability of peer victimization: What does latent class analysis say? *Child Development, 78*, 1706-1722. doi:10.2307/4620733

Obsuth, I., Eisner, M., Malti, T., & Ribeaud, D. (2015). The developmental relation between aggressive behaviour and prosocial behaviour: A 5-year longitudinal study. *BMC Psychology, 3*, 16-30. doi:10.1186/s40359-015-0073-4

Ogasawara, H. (2010). Accurate distribution and its asymptotic expansion for the tetrachoric correlation coefficient. *Journal of Multivariate Analysis, 101*, 936-948. doi:10.1016/j.jmva.2009.12.011

Ojanen, T., & Findley-Van Nostrand, D. (2014). Social goals, aggression, peer preference, and popularity: Longitudinal links during middle school. *Developmental Psychology, 50*, 2134-2143. doi:10.1037/a0037137

Ojanen, T., Grönroos, M., & Salmivalli, C. (2005). An interpersonal circumplex model of children's social goals: Links with peer-reported behavior and sociometric status. *Developmental Psychology, 41*, 699-710. doi:10.1037/0012-1649.41.5.699

Oldenburg, B., Barrera, D., Olthof, T., Goossens, F. A., van der Meulen, M., Vermande, M. M., . . . Veenstra, R. (2015). Peer and self-reported victimization: Do non-victimized students give victimization nominations to classmates who are self-reported victims? *Journal of School Psychology, 53*, 309-321. doi:10.1016/j.jsp.2015.05.003

Oldenburg, B., Bosman, R., & Veenstra, R. (2016). Are elementary school teachers prepared to tackle bullying? A pilot study. *School Psychology International, 37*, 64-72. doi:10.1177/0143034315623324

Olson, M. A., & Fazio, R. H. (2009). Implicit and explicit measures of attitudes: The perspective of the MODE model. In R. H. Petty, R. H. Fazio & P. Brinol (Eds.), *Attitudes: Insights from the new implicit measures* (pp. 19-63). New York: Psychology Press.

Olthof, T., & Goossens, F. A. (2008). Bullying and the need to belong: Early adolescents' bullying-related behavior and the acceptance they desire and receive from particular classmates. *Social Development, 17*, 24-46. doi:10.1111/j.1467-9507.2007.00413.x

Olthof, T., Goossens, F. A., Vermande, M. M., van der Meulen, M., & Aleva, E. A. (2011). Bullying as strategic behavior: Relations with desired and acquired dominance in the peer group. *Journal of School Psychology, 49*, 339-359. doi:10.1016/j.jsp.2011.03.003

Olweus, D. (1979). Stability of aggressive reaction patterns in males: a review. *Psychological Bulletin, 86*, 852-875. doi:10.1037/0033-2909.86.4.852

Olweus, D. (1991). Bully/victim problems among schoolchildren: Basic facts and effects of a school-based intervention program. In K. H. Rubin & D. Pepler (Eds.), *The development and treatment of childhood aggression* (pp. 411-448). Hillsdale, N.J.: Erlbaum.

Olweus, D. (1994). Bullying at school: Basic facts and effects of a school based intervention program. *Journal of Child Psychology and Psychiatry, 35*, 1171-1190. doi:10.1111/j.1469-7610.1994.tb01229.x

Onderwijs in Cijfers. (2014). Leerlingenaantallen voortgezet onderwijs. Retrieved on May 26, 2015, from http://www.onderwijsincijfers.nl/kengetallen/voortgezet-onderwijs/deelnemersvo/leerlingen-aantallen

Orobio de Castro, B., Thomaes, S., & Reijntjes, A. (2015). Using experimental designs to understand the development of peer relations. *Journal of Research on Adolescence, 25*, 1-13. doi:10.1111/jora.12103

Orobio de Castro, B., Veerman, J. W., Koops, W., Bosch, J. D., & Monshouwer, H. J. (2002). Hostile attribution of intent and aggressive behavior: A meta-analysis. *Child Development, 73*, 916-934. doi:10.1111/1467-8624.00447

Oshri, A., Rogosch, F. A., Burnette, M., & Cicchetti, D. (2011). Developmental pathways to adolescent cannabis abuse and dependence: Child maltreatment, emerging personality, and internalizing versus externalizing psychopathology. *Psychology of Addictive Behaviors, 25*, 634-644. doi:10.1037/a0023151

Ostrov, J. M. (2008). Forms of aggression and peer victimization during early childhood: A short-term longitudinal study. *Journal of Abnormal Child Psychology, 36*, 311-322. doi:10.1007/s10802-007-9179-3

Ostrov, J. M. (2010). Prospective associations between peer victimization and aggression. *Child Development, 81*, 1670-1677. doi:10.1111/j.1467-8624.2010.01501.x

Overbeek, G., Zeevalkink, H., Vermulst, A., & Scholte, R. H. J. (2010). Peer victimization, self-esteem, and ego resilience types in adolescents: A prospective analysis of person-context interactions. *Social Development, 19*, 270-284. doi:10.1111/j.1467-9507.2008.00535.x

Ozdemir, M., & Stattin, H. (2011). Bullies, victims, and bully-victims: a longitudinal examination of the effects of bullying-victimization experiences on youth well-being. *Journal of Aggression, Conflict and Peace Research, 3*, 97-102. doi:10.1108/17596591111132918

Parkhurst, J. T., & Hopmeyer, A. (1998). Sociometric popularity and peer-perceived popularity: Two distinct dimensions of peer status. *The Journal of Early Adolescence, 18*, 125-144. doi:10.1177/0272431698018002001

Paul, J. J., & Cillessen, A. H. N. (2003). Dynamics of peer victimization in early adolescence. *Journal of Applied School Psychology, 19*, 25-43. doi:10.1300/J008v19n02_03

Peeters, F., Berkhof, J., Delespaul, P., Rottenberg, J., & Nicolson, N. A. (2006). Diurnal mood variation in major depressive disorder. *Emotion, 6*, 383-391. doi:10.1037/1528-3542.6.3.383

Peeters, M., Cillessen, A. H. N., & Scholte, R. H. J. (2010). Clueless or powerful? Identifying subtypes of bullies in adolescence. *Journal of Youth and Adolescence, 39*, 1041-1052. doi:10.1007/s10964-009-9478-9

Peets, K., Poyhonen, V., Juvonen, J., & Salmivalli, C. (2015). Classroom norms of bullying alter the degree to which children defend in response to their affective empathy and power. *Developmental Psychology, 51*, 913-920. doi:10.1037/a0039287

Pellegrini, A. D., & Bartini, M. (2000a). An empirical comparison of methods of sampling aggression and victimization in school settings. *Journal of Educational Psychology, 92*, 360-366. doi:10.1037//0022-0663.92.2.360

Pellegrini, A. D., & Bartini, M. (2000b). A Longitudinal study of bullying, victimization, and peer affiliation during the transition from primary school to middle school. *American Educational Research Journal, 37*, 699-725. doi:10.3102/00028312037003699

Pellegrini, A. D., Bartini, M., & Brooks, F. (1999). School bullies, victims, and aggressive victims: Factors relating to group affiliation and victimization in early adolescence. *Journal of Educational Psychology, 91*, 216-224. doi:10.1037/0022-0663.91.2.216

Pellegrini, A. D., & Long, J. D. (2002). A longitudinal study of bullying, dominance, and victimization during the transition from primary school through secondary school. *British Journal of Developmental Psychology, 20*, 259-280. doi:10.1348/026151002166442

Perren, S., & Alsaker, F. D. (2006). Social behavior and peer relationships of victims, bully-victims, and bullies in kindergarten. *Journal of Child Psychology and Psychiatry, 47*, 45-57. doi:10.1111/j.1469-7610.2005.01445.x

R

Perren, S., & Alsaker, F. D. (2009). Depressive symptoms from kindergarten to early school age: Longitudinal associations with social skills deficits and peer victimization. *Child and Adolescent Psychiatry and Mental Health, 3*, 28-37. doi:10.1186/1753-2000-3-28

Perren, S., Ettekal, I., & Ladd, G. W. (2013). The impact of peer victimization on later maladjustment: mediating and moderating effects of hostile and self-blaming attributions. *Journal of Child Psychology and Psychiatry, 54*, 46–55. doi:10.1111/j.1469-7610.2012.02618.x

Perren, S., Gutzwiller-Helfenfinger, E., Malti, T., & Hymel, S. (2012). Moral reasoning and emotion attributions of adolescent bullies, victims, and bully-victims. *British Journal of Developmental Psychology, 30*, 511-530. doi:10.1111/j.2044-835X.2011.02059.x

Perry, D. G., Kusel, S. J., & Perry, L. C. (1988). Victims of peer aggression. *Developmental Psychology, 24*, 807-814. doi:10.1037//0012-1649.24.6.807

Perry, D. G., Perry, L. C., & Boldizar, J. P. (1990). Learning of aggression. In M. Lewis & S. M. Miller (Eds.), *Handbook of developmental psychopathology* (pp. 135-146). New York: Plenum.

Peskin, M. F., Tortolero, S. R., Markham, C. M., Addy, R. C., & Baumler, E. R. (2007). Bullying and victimization and internalizing symptoms among low-income black and hispanic students. *Journal of Adolescent Health, 40*, 372-275. doi:10.1016/j.jadohealth.2006.10.010

Peters, E., Riksen-Walraven, J. M., Cillessen, A. H. N., & de Weerth, C. (2011). Peer rejection and HPA activity in middle childhood: Friendship makes a difference. *Child Development, 82*, 1906-1920. doi:10.1111/j.1467-8624.2011.01647.x

Polasky, S. A. (2010). Coping with school bullying: An examination of longitudinal effects of coping on peer victimization and adjustment. *Dissertation Abstracts International: Section B. Sciences and Engineering, 72*, 76.

Poulin, F., & Boivin, M. (2000). Reactive and proactive aggression: Evidence of a two-factor model. *Psychological Assessment, 12*, 115-122. doi:10.1037/1040-3590.12.2.115

Pouwels, J. L., & Cillessen, A. H. N. (2013). Correlates and outcomes associated with aggression and victimization among elementary-school children in a low-income urban context. *Journal of Youth and Adolescence, 42*, 190-205. doi:10.1007/s10964-012-9875-3

Pouwels, J. L., Lansu, T. A. M., & Cillessen, A. H. N. (2016). Participant roles of bullying in adolescence: Status characteristics, social behavior, and assignment criteria. *Aggressive Behavior, 42*, 239-253. doi:10.1002/ab.21614

Pouwels, J. L., Salmivalli, C., Saarento, S., van den Berg, Y. H. M., Lansu, T. A. M., & Cillessen, A. H. N. (2017). Predicting adolescents' bullying participation from developmental trajectories of social status and behavior. *Child Development*. doi:10.1111/cdev.12794

Pouwels, J. L., Scholte, R. H. J., van Noorden, T. H. J., & Cillessen, A. H. N. (2016). Interpretations of bullying by bullies, victims, and bully-victims in interactions at different levels of abstraction. *Aggressive Behavior, 42*, 54-65. doi:10.1002/ab.21605

Pouwels, J. L., Souren, P. M., Lansu, T. A. M., & Cillessen, A. H. N. (2016). Stability of peer victimization: A meta-analysis of longitudinal research. *Developmental Review, 40*, 1-24. doi:10.1016/j.dr.2016.01.001

Pöyhönen, V., Juvonen, J., & Salmivalli, C. (2010). What does it take to stand up for the victim of bullying? The interplay between personal and social factors. *Merrill-Palmer Quarterly, 56*, 143-163. doi:10.1353/mpq.0.0046

Pöyhönen, V., Juvonen, J., & Salmivalli, C. (2012). Standing up for the victim, siding with the bully or standing by? Bystander responses in bullying situations. *Social Development, 21*, 722-741. doi:10.1111/j.1467-9507.2012.00662.x

Preacher, K. J., Curran, P. J., & Bauer, D. J. (2006). Computational tools for probing interaction effects in multiple linear regression, multilevel modeling, and latent curve analysis. *Journal of Educational and Behavioral Statistics, 31*, 437-448. doi:10.3102/10769986031004437

Price, J. M., & Dodge, K. A. (1989). Reactive and proactive aggression in childhood: Relations to peer status and social context dimensions. *Journal of Abnormal Child Psychology, 17*, 455-471. doi:10.1007/bf00915038

Prinstein, M. J., Cheah, C. L., & Guyer, A. E. (2005). Peer victimization, cue interpretation, and internalizing symptoms: Preliminary concurrent and longitudinal findings for children and adolescents. *Journal of Clinical Child and Adolescent Psychology, 34*, 11–24. doi:10.1207/s15374424jccp3401_2

Prinstein, M. J., & Cillessen, A. H. N. (2003). Forms and functions of adolescent peer aggression associated with high levels of peer status. *Merrill-Palmer Quarterly, 49*, 310-342. doi:10.1353/mpq.2003.0015

Pronk, J., Goossens, F. A., Olthof, T., de Mey, L., & Willemen, A. M. (2013). Children's intervention strategies in situations of victimization by bullying: Social cognitions of outsiders versus defenders. *Journal of School Psychology, 51*, 669-682. doi:10.1016/j.jsp.2013.09.002

Qualter, P., Rotenberg, K., Barrett, L., Henzi, P., Barlow, A., Stylianou, M., & Harris, R. A. (2013). Investigating hypervigilance for social threat of lonely children. *Journal of Abnormal Child Psychology, 41*, 325–338. doi:10.1007/s10802-012-9676-x

R Core Team. (2016). R: A language and environment for statistical computing. R Foundation for Statistical Computing. Vienna, Austria http://www.R-project.org/.

Rancourt, D., & Prinstein, M. J. (2010). Peer status and victimization as possible reinforcements of adolescent girls' and boys' weight-related behaviors and cognitions. *J Pediatr Psychol, 35*, 354-367. doi:10.1093/jpepsy/jsp067

Rasbash, J., Charlton, C., Browne, W. J., Healy, M., & Cameron, B. (2011). *MLwiN Version 2.23*. University of Bristol, Centre for Multilevel Modelling.

Rasbash, J., Steele, F., Browne, W. J., & Goldstein, H. (2012). *A user's guide to MLwiN, v2.26*. Bristol, UK: University of Bristol, Centre for Multilevel Modelling.

Raudenbush, S. W. (2002). *Hierarchical linear models: Applications and data analysis methods* (2nd ed.). Thousand Oaks, CA: Sage.

Reijntjes, A., Kamphuis, J. H., Prinzie, P., Boelen, P. A., van der Schoot, M., & Telch, M. J. (2011). Prospective linkages between peer victimization and externalizing problems in children: A meta-analysis. *Aggressive Behavior, 37*, 215-222. doi:10.1002/ab.20374

Reijntjes, A., Kamphuis, J. H., Prinzie, P., & Telch, M. J. (2010). Peer victimization and internalizing problems in children: A meta-analysis of longitudinal studies. *Child Abuse & Neglect, 34*, 244-252. doi:10.1016/j.chiabu.2009.07.009

Reijntjes, A., Vermande, M. M., Olthof, T., Goossens, F. A., van de Schoot, R., Aleva, L., & van der Meulen, M. (2013). Costs and benefits of bullying in the context of the peer group: A three wave longitudinal analysis. *Journal of Abnormal Child Psychology, 41*, 1217-1229. doi:10.1007/s10802-013-9759-3

Reitz, E., Deković, M., & Meijer, A. M. (2005). The structure and stability of externalizing and internalizing problem behavior during early adolescence. *Journal of Youth and Adolescence, 34*, 577-588. doi:10.1007/s10964-005-8947-z

Rigby, K. (2004). Addressing bullying in schools: Theoretical perspectives and their implications. *School Psychology International, 25*, 287-300. doi:10.1177/0143034304046902

Rigby, K. (2005). Why do some children bully at school?: The contributions of negative attitudes towards victims and the perceived expectations of friends, parents and teachers. *School Psychology International, 26*, 147-161. doi:10.1177/0143034305052910

Rigby, K., & Slee, P. T. (1991). Bullying among Australian school children: Reported behavior and attitudes toward victims. *The Journal of Social Psychology, 131*, 615-627. doi:10.1080/00224545.1991.9924646

Roberts, B. W., & DelVecchio, W. F. (2000). The rank-order consistency of personality traits from childhood to old age: A quantitative review of longitudinal studies. *Psychological Bulletin, 26*, 3-25. doi:10.1037//0033-2909.126.1.3

Rodkin, P. C., Farmer, T. W., Pearl, R., & Van Acker, R. (2000). Heterogeneity of popular boys: Antisocial and prosocial configurations. *Developmental Psychology, 36*, 14-24. doi:10.1037/0012-1649.36.1.14

Romero, P. A. (2006). *Personal and interpersonal antecedents of victimization across the transition to high school.* (Doctoral dissertation), St. John's University, New York, NY.

Rosen, L. H., Underwood, M. K., Beron, K. J., Gentsch, J. K., Wharton, M. E., & Rahdar, A. (2009). Persistent versus periodic experiences of social victimization: predictors of adjustment. *Journal of Abnormal Child Psychology, 37*, 693-704. doi:10.1007/s10802-009-9311-7

Rosen, P. J., Milich, R., & Harris, M. J. (2007). Victims of their own cognitions: Implicit social cognitions, emotional distress, and peer victimization. *Journal of Applied Developmental Psychology, 28*, 211-226. doi:10.1016/j.appdev.2007.02.001

Rosen, P. J., Milich, R., & Harris, M. J. (2012). Dysregulated negative emotional reactivity as a predictor of chronic peer victimization in childhood. *Aggressive Behavior, 38*, 414-427. doi:10.1002/ab.21434

Rosenberg, M. (1965). *Society and the adolescent self-image*. Princeton, NJ: Princeton University Press.

Rozin, P., & Royzman, E. B. (2001). Negativity bias, negativity dominance, and contagion. *Personality and Social Psychology Review, 5*, 296-320. doi:10.1207/s15327957pspr0504_2

R

Rubin, K. H., Bukowski, W. M., & Laursen, B. (2009). *Handbook of peer interactions, relationships and groups*. New York: The Guilford Express.

Rubin, K. H., Bukowski, W. M., & Parker, J. G. (1998). Peer interactions, relationships, and groups. In W. Damon & N. Eisenberg (Eds.), *Handbook of child psychology: Vol. 3. Social, emotional, and personality development* (5th ed., pp. 619-700). New York: Wiley.

Rubin, K. H., Bukowski, W. M., & Parker, J. G. (2006). Peer interactions, relationships, and groups. In N. Eisenberg (Ed.), *Handbook of child psychology: Vol. 3. Social, emotional, and personality development* (6 ed., pp. 571-645). New York: Wiley.

Rubin, K. H., & Daniels-Beirness, T. (1983). Concurrent and predictive correlates of sociometric status in kindergarten and Grade 1 children. *Merrill-Palmer Quarterly, 29*, 337-351.

Rudolph, K. D., Troop-Gordon, W., Hessel, E. T., & Schmidt, J. D. (2011). A latent growth curve analysis of early and increasing peer victimization as predictors of mental health across elementary school. *Journal of Clinical Child and Adolescent Psychology, 40*, 111-122. doi:10.1080/15374416.2011.533413

Rueger, S. Y., Malecki, C. K., & Demaray, M. K. (2011). Stability of peer victimization in early adolescence: Effects of timing and duration. *Journal of School Psychology, 49*, 443-464. doi:10.1016/j.jsp.2011.04.005

Saarento, S., Kärnä, A., Hodges, E. V. E., & Salmivalli, C. (2013). Student-, classroom-, and school-level risk factors for victimization. *Journal of School Psychology, 51*, 421-434. doi:10.1016/j.jsp.2013.02.002

Sainio, M., Veenstra, R., Huitsing, G., & Salmivalli, C. (2011). Victims and their defenders: A dyadic approach. *International Journal of Behavioral Development, 35*, 144-151. doi:10.1177/0165025410378068

Salmivalli, C. (2010). Bullying and the peer group: A review. *Aggression and Violent Behavior, 15*, 112-120. doi:10.1016/j.avb.2009.08.007

Salmivalli, C., & Helteenvuori, T. (2007). Reactive, but not proactive aggression predicts victimization among boys. *Aggressive Behavior, 33*, 198-206. doi:10.1002/ab.20210

Salmivalli, C., Huttunen, A., & Lagerspetz, K. M. J. (1997). Peer networks and bullying in schools. *Scandinavian Journal of Psychology, 38*, 305-312. doi:10.1111/1467-9450.00040

Salmivalli, C., & Karhunen, J., & Lagerspetz, K. M. J. (1996). How do the victims respond to bullying? *Aggressive Behavior, 22*, 99-109. doi:10.1002/(sici)1098-2337(1996)22:2<99::aid-ab3>3.0.co;2-p

Salmivalli, C., Kaukiainen, A., & Voeten, M. (2005). Anti-bullying intervention: Implementation and outcome. *British Journal of Educational Psychology, 75*, 465-487. doi:10.1348/000709905X26011

Salmivalli, C., Lagerspetz, K., Björkqvist, K., Österman, K., & Kaukiainen, A. (1996). Bullying as a group process: Participant roles and their relations to social status within the group. *Aggressive Behavior, 22*, 1-15. doi:10.1002/%28SICI%291098-2337%281996%2922:1%3C1::AID-AB1%3E3.0.CO;2-T

Salmivalli, C., Lappalainen, M., & Lagerspetz, K. M. J. (1998). Stability and change of behavior in connection with bullying in schools: A two-year follow-up. *Aggressive Behavior, 24*, 205-218. doi:10.1002/%28SICI%291098-2337%281998%2924:3%3C205::AID-AB5%3E3.0.CO;2-J

Salmivalli, C., & Nieminen, E. (2002). Proactive and reactive aggression among school bullies, victims, and bully-victims. *Aggressive Behavior, 28*, 30-44. doi:10.1002/ab.90004

Salmivalli, C., Ojanen, T., Haanpää, J., & Peets, K. (2005). "Im OK but you're not" and other peer-relational schemas: Explaining individual differences in children's social goals. *Developmental Psychology, 41*, 363-375. doi:10.1037/0012-1649.41.2.363

Salmivalli, C., & Voeten, M. (2004). Connections between attitudes, group norms, and behaviour in bullying situations. *International Journal of Behavioral Development, 28*, 246-258. doi:10.1080/01650250344000488

Sandstrom, M. J., Cillessen, A. H. N., & Eisenhower, A. (2003). Children's appraisal of peer rejection experiences: Impact on social and emotional adjustment. *Social Development, 12*, 530-550. doi:10.1111/1467-9507.00247

Sandstrom, M. J., & Herlan, R. D. (2007). Threatened egotism or confirmed inadequacy? How children's perceptions of social status influence aggressive behavior toward peers. *Journal of Social and Clinical Psychology, 26*, 240-267. doi:10.1521/jscp.2007.26.2.240

Sapouna, M., Wolke, D., Vannini, N., Watson, S., Woods, S., Schneider, W., . . . Aylett, R. (2012). Individual and social network predictors of the short-term stability of bullying victimization in the United Kingdom and Germany. *British Journal of Educational Psychology, 82*, 225-240. doi:10.1111/j.2044-8279.2011.02022.x

Schäfer, M. (2005). Bullying roles in changing contexts: The stability of victim and bully roles from primary to secondary school. *International Journal of Behavioral Development, 29*, 323-335. doi:10.1177/01650250544000107

Schäfer, M., & Albrecht, A. (2004). "Tit for tat?" - Prevalence and stability of bullying in primary school classes. *Psychologie in Erziehung und Unterricht, 51*, 136-150.

Schäfer, M., Hörmann, C., Bonhagen, A., & Krumsiek, J. (2009, August). *Classroom networks and stability of bullying roles.* Paper presented at the European Conference on Developmental Psychology (ECDP), Vilnuis, Lituania.

Schäfer, M., & Korn, S. (2004). Bullying als gruppenphänomen. *Zeitschrift für Entwicklungspsychologie und Pädagogische Psychologie, 36*, 19-29. doi:10.1026/0049-8637.36.1.19

Schäfer, M., Korn, S., Brodbeck, F. C., Wolke, D., & Schulz, H. (2005). Bullying roles in changing contexts: The stability of victim and bully roles from primary to secondary school. *International Journal of Behavioral Development, 29*, 323-335. doi:10.1177/01650250544000107

Schäfer, M., Werner, N. E., & Crick, N. R. (2002). A comparison of two approaches to the study of negative peer treatment: General victimization and bully/victim problems among German schoolchildren. *British Journal of Developmental Psychology, 20*, 281-306. doi:10.1348/026151002166451

Scholl, B. J., & Tremoulet, P. D. (2000). Perceptual causality and animacy. *Trends in Cognitive Sciences, 4*, 299–309. doi:10.1016/s1364-6613

Scholte, R. H. J., Burk, W. J., & Overbeek, G. (2013). Divergence in self- and peer-reported victimization and its association to concurrent and prospective adjustment. *Journal of Youth and Adolescence, 42*, 1789-1800. doi:10.1007/s10964-012-9896-y

Scholte, R. H. J., Engels, R. C. M. E., Overbeek, G., de Kemp, R. A. T., & Haselager, G. J. T. (2007). Stability in bullying and victimization and its association with social adjustment in childhood and adolescence. *Journal of Abnormal Child Psychology, 35*, 217-228. doi:10.1007/s10802-006-9074-3

Scholte, R. H. J., Overbeek, G., ten Brink, G., Rommes, E., de Kemp, R. A. T., Goossens, L., & Engels, R. C. M. E. (2009). The significance of reciprocal and unilateral friendships for peer victimization in adolescence. *Journal of Youth and Adolescence, 38*, 89-100. doi:10.1007/s10964-008-9287-6

Scholte, R. H. J., Sentse, M., & Granic, I. (2010). Do actions speak louder than words? Classroom attitudes and behavior in relation to bullying in early adolescence. *Journal of Clinical Child and Adolescent Psychology, 39*, 789-799. doi:10.1080/15374416.2010.517161

Schreier, A., Wolke, D., Thomas, K., Horwood, J., Hollis, C., Gunnell, D., . . . Harrison, G. (2009). Prospective study of peer victimization in childhood and psychotic symptoms in a nonclinical population at age 12 years. *Archives of General Psychiatry, 66*, 527-536. doi:10.1001/archgenpsychiatry.2009.23.

Schuster, B. (2001). Rejection and victimization by peers: Social perception and social behavioral mechanisms. In J. Juvonen & S. Graham (Eds.), *Peer harassment in school: The plight of the vulnerable and victimized*. New York: The Guilford Press.

Schwartz, D., Dodge, K. A., & Coie, J. D. (1993). The emergence of chronic peer victimization in boys' play groups. *Child Development, 64*, 1755-1772. doi:10.1111/j.1467-8624.1993.tb04211.x

Schwartz, D., Dodge, K. A., Coie, J. D., Hubbard, J. A., Cillessen, A. H. N., Lemerise, E. A., & Bateman, H. (1998). Social-cognitive and behavioral correlates of aggression and victimization in boys' play groups. *Journal of Abnormal Child Psychology, 26*, 431-440. doi:10.1023/a:1022695601088

Schwartz, D., Gorman, A. H., Nakamoto, J., & Toblin, R. L. (2005). Victimization in the peer group and children's academic functioning. *Journal of Educational Psychology, 97*, 425-435. doi:10.1037/0022-0663.97.3.425

Schwartz, D., McFadyen–Ketchum, S. A., Dodge, K. A., Pettit, G. S., & Bates, J. E. (1998). Peer group victimization as a predictor of children's behavior problems at home and in school. *Development and Psychopathology, 10*, 87-99. doi:10.1017/S095457949800131X

Schwartz, D., Proctor, L., & Chien, D. (2001). The aggressive victim of bullying. Emotional and behavioral dysregulation as a pathway to victimization by peers. In J. Juvonen & S. Graham (Eds.), *Peer harassment in school: The plight of the vulnerable and victimized* (pp. 147-174). New York: The Guilford Press.

Schwarz, G. (1978). Estimating the dimension of a model. *The Annals of Statistics*, 461-464. doi:10.1214/aos/1176344136

Scientific Software International. (2014). Log likelihood values and negative deviances. from http://www.ssicentral.com/hlm/help6/faq/Log_likelihood_values_and_negative_deviances.pdf

Sentse, M., Kiuru, N., Veenstra, R., & Salmivalli, C. (2014). A social network approach to the interplay between adolescents' bullying and likeability over time. *Journal of Youth and Adolescence, 43*, 1409-1420. doi:10.1007/s10964-014-0129-4

R

Sentse, M., Kretschmer, T., & Salmivalli, C. (2015). The longitudinal interplay between bullying, victimization, and social status: age-related and gender differences. *Social Development, 24*, 659-677. doi:10.1111/sode.12115

Sentse, M., Prinzie, P., & Salmivalli, C. (2017). Testing the direction of longitudinal paths between victimization, peer rejection, and different types of internalizing problems in adolescence. *Journal of Abnormal Child Psychology, 45*, 1013-1023. doi:10.1007/s10802-016-0216-y

Sentse, M., Scholte, R. H. J., Salmivalli, C., & Voeten, M. (2007). Person–group dissimilarity in involvement in bullying and its relation with social status. *Journal of Abnormal Child Psychology, 35*, 1009-1019. doi:10.1007/s10802-007-9150-3

Sentse, M., Veenstra, R., Kiuru, N., & Salmivalli, C. (2015). A longitudinal multilevel study of individual characteristics and classroom norms in explaining bullying behaviors. *Journal of Abnormal Child Psychology, 43*, 943-955 doi:10.1007/s10802-014-9949-7

Serdiouk, M., Rodkin, P. C., Madill, R., Logis, H., & Gest, S. (2015). Rejection and victimization among elementary school children: The buffering role of classroom-level predictors. *Journal of Abnormal Child Psychology, 43*, 5-17. doi:10.1007/s10802-013-9826-9

Shaw, D. S., & Taraban, L. E. (2017). New directions and challenges in preventing conduct problems in early childhood. *Child Development Perspectives, 11*, 85-89. doi:10.1111/cdep.12212

Sijtsema, J. J., Veenstra, R., Lindenberg, S., & Salmivalli, C. (2009). Empirical test of bullies' status goals: Assessing direct goals, aggression, and prestige. *Aggressive Behavior, 35*, 57-67. doi:10.1002/ab.20282

Singer, J. D., & Willet, B. W. (2003). *Applied longitudinal data analysis: Modeling change and event occurrence.* New York: Oxford University Press.

Smeekens, S., Riksen-Walraven, J. M., & van Bakel, H. J. A. (2007). Multiple determinants of externalizing behavior in 5-year-olds: A longitudinal model. *Journal of Abnormal Child Psychology, 35*, 347-361. doi:10.1007/s10802-006-9095-y

Smith, P. K., & Ananiadou, K. (2003). The nature of school bullying and the effectiveness of school-based interventions. *Journal of Applied Psychoanalytic Studies, 5*, 189-209. doi:10.1023/A:1022991804210

Smith, P. K., Ananiadou, K., & Cowie, H. (2003). Interventions to reduce school bullying. *Canadian Journal of Psychiatry, 48*, 591-599. doi:10.1177/070674370304800905

Smith, P. K., Madsen, K. C., & Moody, J. C. (1999). What causes the age decline in reports of being bullied at school? Towards a developmental analysis of risks of being bullied. *Educational Research, 41*, 267-285. doi:10.1080/0013188990410303

Smith, P. K., Shu, S., & Madsen, K. (2001). Characteristics of victims of school bullying: Developmental changes in coping strategies and skills. In J. Juvonen & S. Graham (Eds.), *Peer harassment in school: The plight of the vulnerable and victimized* (pp. 332-352). New York: The Guilford Press.

Smith, P. K., Talamelli, L., Cowie, H., Naylor, P., & Chauhan, P. (2004). Profiles of non-victims, escaped victims, continuing victims and new victims of school bullying. *British Journal of Educational Psychology, 74*, 565-581. doi:10.1348/0007099042376427

Snijders, T., & Bosker, R. (1999). *Multi-level analysis: An introduction to basic and advanced multi-level modeling.* London: Sage.

Snyder, J., Brooker, M., Patrick, M. R., Snyder, A., Schrepferman, L., & Stoolmiller, M. (2003). Observed peer victimization during early elementary school: Continuity, growth, and relation to risk for child antisocial and depressive behavior. *Child Development, 74*, 1881-1898. doi:10.1046/j.1467-8624.2003.00644.x

Solberg, M. E., & Olweus, D. (2003). Prevalence estimation of school bullying with the Olweus Bully/Victim Questionnaire. *Aggressive Behavior, 29*, 239-268. doi:10.1002/ab.10047

Solberg, M. E., Olweus, D., & Endresen, I. M. (2007). Bullies and victims at school: Are they the same pupils? . *British Journal of Educational Psychology, 77*, 441-464. doi:10.1348/000709906X105689

Sourander, A., Helstelä, L., Helenius, H., & Piha, J. (2000). Persistence of bullying from childhood to adolescence: a longitudinal 8-year follow-up study. *Child Abuse & Neglect, 24*, 873-881. doi:10.1016/S0145-2134(00)00146-0

Spence, S. H., De Young, A., Toon, C., & Bond, S. (2009). Longitudinal examination of the associations between emotional dysregulation, coping responses to peer provocation, and victimisation in children. *Australian Journal of Psychology, 61*, 145-155. doi:10.1080/00049530802259076

Stassen Berger, K. (2007). Update on bullying at school: Science forgotten? *Developmental Review, 27*, 90-126. doi:10.1016/j.dr.2006.08.002

Steinberg, L., & Morris, A. S. (2001). Adolescent development. *Journal of Cognitive Education and Psychology, 21*, 55-87.

Stoltz, S., Cillessen, A. H. N., van den Berg, Y. H. M., & Gommans, R. (2016). Popularity differentially predicts reactive and proactive aggression in early adolescence. *Aggressive Behavior, 42*, 29-40. doi:10.1002/ab.21603

Stoltz, S., Londen, M., Deković, M., Orobio de Castro, B., & Prinzie, P. (2012). Effectiveness of individually delivered indicated school-based interventions on externalizing behavior. *International Journal of Behavioral Development, 36*, 381-388. doi:10.1177/0165025412450525

Stone, J., & Fernandez, N. C. (2008). To practice what we preach: The use of hypocrisy and cognitive dissonance to motivate behavior change. *Social and Personality Psychology Compass, 2*, 1024-1051. doi:10.1111/j.1751-9004.2008.00088.x

Storch, E. A., Bagner, D. M., Geffken, G. R., & Baumeister, A. L. (2004). Association between overt and relational aggression and psychosocial adjustment in undergraduate college students. *Violence and Victims, 19*, 689-700. doi:10.1891/vivi.19.6.689.66342

Storch, E. A., Crisp, H., Roberti, J. W., Bagner, D. M., & Masia-Warner, C. (2005). Psychometric evaluation of the social experience questionnaire in adolescents: Descriptive data, reliability, and factorial validity. *Child Psychiatry and Human Development, 36*, 167-176. doi:10.1007/s10578-005-3495-z

Storch, E. A., Masia-Warner, C., Crisp, H., & Klein, R. G. (2005). Peer victimization and social anxiety in adolescence: a prospective study. *Aggressive Behavior, 31*, 437-452. doi:10.1002/ab.20093

Strack, F., & Deutsch, R. (2004). Reflective and impulsive determinants of social behavior. *Personality and Social Psychology Review, 8*, 220-247. doi:10.1207/s15327957pspr0803_1

Strohmeier, D., Wagner, P., Von Eye, A., & Spiel, C. (2010). Stability and constancy of bully-victim behavior: looking at variables and individuals. *Journal of Psychology, 218*, 185-193. doi:10.1027/0044-3409/a000028

Sugimura, N., Berry, D., Troop-Gordon, W., & Rudolph, K. D. (2017). Early social behaviors and the trajectory of peer victimization across the school years. *Developmental Psychology, 53*, 1447-1461. doi:10.1037/dev0000346

Sutton, J., & Smith, P. K. (1999). Bullying as a group process: An adaptation of the participant role approach. *Aggressive Behavior, 25*, 97-111. doi:10.1002/%28SICI%291098-2337%281999%2925:2%3C97::AID-AB3%3E3.0.CO;2-7

Sutton, J., Smith, P. K., & Swettenham, J. (1999a). Bullying and 'Theory of Mind': A critique of the 'Social Skills Deficit' view of anti-social behaviour. *Social Development, 8*. doi:10.1111/1467-9507.00083

Sutton, J., Smith, P. K., & Swettenham, J. (1999b). Social cognition and bullying: Social inadequacy or skilled manipulation. *British Journal of Developmental Psychology, 17*, 435-450. doi:10.1348/026151099165384

Sweeting, H., Young, R., West, P., & Der, G. (2006). Peer victimization and depression in early–mid adolescence: A longitudinal study. *British Journal of Educational Psychology, 76*, 577-594. doi:10.1348/000709905X49890

Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics* (5th ed.). Boston, MA: Pearson.

Teräsahjo, T., & Salmivalli, C. (2003). "She is not actually bullied." the discourse of harassment in student groups. *Aggressive Behavior, 29*, 134-154. doi:10.1002/ab.10045

Toblin, R. L., Schwartz, D., Hopmeyer Gorman, A., & Abou-ezzeddine, T. (2005). Social–cognitive and behavioral attributes of aggressive victims of bullying. *Journal of Applied Developmental Psychology, 26*, 329-346. doi:10.1016/j.appdev.2005.02.004

Tolan, P. H., Guerra, N. G., & Kendal, P. C. (1995). A developmental-ecological perspective on antisocial behavior in children and adolescents: Toward a unified risk and intervention framework. *Journal of Consulting and Clinical Psychology, 63*, 579-584. doi:10.1037//0022-006X.63.4.579

Toner, M. A., & Heaven, P. C. L. (2005). Peer-social attributional predictors of socio-emotional adjustment in early adolescence: a two-year longitudinal study. *Personality and Individual Differences, 38*, 579-590. doi:10.1016/j.paid.2004.05.013

Topper, L. R., Castellanos-Ryan, N., Mackie, C., & Conrod, P. J. (2011). Adolescent bullying victimisation and alcohol-related problem behaviour mediated by coping drinking motives over a 12 month period. *Addictive Behaviors, 36*, 6-13. doi:10.1016/j.addbeh.2010.08.016

Trach, J., Hymel, S., Waterhouse, T., & Neale, K. (2010). Bystander responses to school bullying: A cross-sectional investigation of grade and sex differences. *Canadian Journal of School Psychology, 25*, 114-130. doi:10.1177/0829573509357553

R

Troop-Gordon, W., & Kopp, J. (2011). Teacher-child relationship quality and children's peer victimization and aggressive behavior in late childhood. *Social Development, 20*, 536-561. doi:10.1111/j.1467-9507.2011.00604.x

Troop-Gordon, W., & Ladd, G. W. (2015). Teachers' victimization-related beliefs and strategies: Associations with students' aggressive behavior and peer victimization. *Journal of Abnormal Child Psychology, 43*, 45-60. doi:10.1007/s10802-013-9840-y

Troop-Gordon, W., & Ranney, J. D. (2014). Popularity among same-sex and cross-sex peers: A process-oriented examination of links to aggressive behaviors and depressive affect. *Developmental Psychology, 50*, 1721-1733. doi:10.1037/a0036417

Ttofi, M. M., & Farrington, D. P. (2011). Effectiveness of school-based programs to reduce bullying: a systematic and meta-analytic review. *Journal of Experimental Criminology, 7*, 27-56. doi:10.1007/s11292-010-9109-1

Unnever, J. D. (2005). Bullies, aggressive victims, and victims: Are they distinct groups? *Aggressive Behavior, 31*, 153-171. doi:10.1002/ab.20083

Vaillancourt, T., Brittain, H. L., McDougall, P., & Duku, E. (2013). Longitudinal links between childhood peer victimization, internalizing and externalizing problems, and academic functioning: Developmental cascades. *Journal of Abnormal Child Psychology, 41*, 1203-1215. doi:10.1007/s10802-013-9781-5

Vaillancourt, T., Duku, E., Becker, S., Schmidt, L. A., Nicol, J., Muir, C., & MacMillan, H. (2011). Peer victimization, depressive symptoms, and high salivary cortisol predict poorer memory in children. *Brain Cogn, 77*, 191-199. doi:10.1016/j.bandc.2011.06.012

Vaillancourt, T., & Hymel, S. (2006). Aggression and social status: The moderating roles of sex and peer-valued characteristics. *Aggressive Behavior, 32*, 396-408. doi:10.1002/ab.20138

Vaillancourt, T., Hymel, S., & McDougall, P. (2003). Bullying is power: Implications for school-based intervention strategies. *Journal of Applied School Psychology, 19*, 157-176. doi:10.1300/J008v19n02_10

Vaillancourt, T., McDougall, P., Hymel, S., Krygsman, A., Miller, J., Stiver, K., & Davis, C. (2008). Bullying: Are researchers and children/youth talking about the same thing? *International Journal of Behavioral Development, 32*, 486-495. doi:10.1177/0165025408095553

van Bakel, H. J. A., & Riksen-Walraven, J. M. (2002). Parenting development of one-year-olds: Links with parental, contextual, and child characteristics. *Child Development, 73*, 256-273. doi:10.1111/1467-8624.00404

van den Berg, Y. H. M., Burk, W. J., & Cillessen, A. H. N. (2015). Identifying subtypes of peer status by combining popularity and preference: A cohort-sequential approach. *The Journal of Early Adolescence, 35*, 1108-1137. doi:10.1177/0272431614554704

van den Berg, Y. H. M., & Cillessen, A. H. N. (2012). Computerized sociometric and peer assessment: An empirical and practical evaluation. *International Journal of Behavioral Development, 37*, 68-76. doi:10.1177/0165025412463508

van den Berg, Y. H. M., Deutz, M. H. F., Smeekens, S., & Cillessen, A. H. N. (2017). Developmental pathways to preference and popularity in middle childhood. *Child Development, 88*, 1629-1641. doi:10.1111/cdev.12706

van den Berg, Y. H. M., Lansu, T. A. M., & Cillessen, A. H. N. (2015). Measuring social status and social behavior with peer and teacher nominations. *Social Development, 24*. doi:10.1111/sode.12120

van Goethem, A. A. J., Scholte, R. H. J., & Wiers, R. W. (2010). Explicit- and implicit bullying attitudes in relation to bullying behavior. *Journal of Abnormal Child Psychology, 38*, 829-842. doi:10.1007/s10802-010-9405-2

van Hoof, A., Raaijmakers, Q. A. W., van Beek, Y., Hale III, W. W., & Aleva, L. (2008). A multi-mediation model on the relations of bullying, victimization, identity, and family with adolescent depressive symptoms. *Journal of Youth and Adolescence, 37*, 772-782. doi:10.1007/s10964-007-9261-8

van Lier, P. A. C., & Crijnen, A. A. M. (2005). Trajectories of peer-nominated aggression: Risk status, predictors and outcomes. *Journal of Abnormal Child Psychology, 33*, 99-112. doi:10.1007/s10802-005-0938-8

van Lier, P. A. C., & Koot, H. M. (2010). Developmental cascades of peer relations and symptoms of externalizing and internalizing problems from kindergarten to fourth-grade elementary school. *Development and Psychopathology, 22*, 569-582. doi:10.1017/S0954579410000283

van Lier, P. A. C., Vitaro, F., Barker, E. D., Brendgen, M., Tremblay, R. E., & Boivin, M. (2012). Peer victimization, poor academic achievement, and the link between childhood externalizing and internalizing problems. *Child Development, 83*, 1775-1788. doi:10.1111/j.1467-8624.2012.01802.x

van Lieshout, C. F. M., & Haselager, G. J. T. (1994). The big five personality factors in Q-sort descriptions of children and adolescents. In C. F. Halverson, G. A. Kohnstamm & R. P. Martin (Eds.), *The developing structure of temperament and personality from infancy to adulthood* (pp. 293-318). Hillsdale, NJ: Erlbaum.

van Lieshout, C. F. M., Scholte, R. H. J., Van Aken, M. A. G., Haselager, G. J. T., & Riksen-Walraven, J. M. (2000). The gifted personality: Resilient children and adolescents, their adjustment and their relationships. In C. F. M. van Lieshout & P. G. Heymans (Eds.), *Developing talent across the life span* (pp. 103-125). Hove, UK: Psychology Press.

van Noorden, T. H. J., Haselager, G. J. T., Cillessen, A. H. N., & Bukowski, W. M. (2015). Empathy and involvement in bullying in children and adolescents: A systematic review. *Journal of Youth and Adolescence, 44*, 637-657. doi:10.1007/s10964-014-0135-6

van Reemst, L., Fischer, T. F. C., & Zwirs, B. W. C. (2016). Social information processing mechanisms and victimization: A literature review. *Trauma, Violence, and Abuse, 17*, 3-25. doi:10.1177/1524838014557286

van Roekel, E., Goossens, L., Verhagen, M., Wouters, S., Engels, R. C. M. E., & Scholte, R. H. J. (2014). Loneliness, affect, and adolescents' appraisals of company: An experience sampling method study. *Journal of Research on Adolescence, 24*, 350-363. doi:10.1111/jora.12061

van Roekel, E., Scholte, R. H. J., & Didden, R. (2010). Bullying among adolescents with autism spectrum disorders: Prevalence and perception. *Journal of Autism and Developmental Disorders, 40*, 63-73. doi:10.1007/s10803-009-0832-2

Veenstra, R., Lindenberg, S., Munniksma, A., & Dijkstra, J. K. (2010). The complex relation between bullying, victimization, acceptance, and rejection: Giving special attention to status, affection, and sex differences. *Child Development, 81*, 480-486. doi:10.1111/j.1467-8624.2009.01411.x

Veenstra, R., Lindenberg, S., Oldehinkel, A. J., De Winter, A. F., Verhulst, F. C., & Ormel, J. (2005). Bullying and victimization in elementary achools: A comparison of bullies, victims, bully/victims, and uninvolved preadolescents. *Developmental Psychology, 41*, 672-682. doi:10.1037/0012-1649.41.4.672

Veenstra, R., Lindenberg, S., Oldehinkel, A. J., De Winter, A. F., Verhulst, F. C., & Ormel, J. (2008). Prosocial and antisocial behavior in preadolescence: Teachers' and parents' perceptions of the behavior of girls and boys. *International Journal of Behavioral Development, 32*, 243-251. doi:10.1177/0165025408089274

Veenstra, R., Lindenberg, S., Zijlstra, B. J. H., De Winter, A. F., Verhulst, F. C., & Ormel, J. (2007). The dyadic nature of bullying and victimization: Testing a dual-perspective theory. *Child Development, 78*, 1843-1854. doi:10.1111/j.1467-8624.2007.01102.x

Veenstra, R., Verlinden, M., Huitsing, G., Verhulst, F. C., & Tiemeier, H. (2013). Behind bullying and defending: Same-sex and other-sex relations and their associations with acceptance and rejection. *Aggressive Behavior, 39*, 462-471. doi:10.1002/ab.21495

Verhulst, F. C., & van der Ende, J. (1992). Six-year stability of parent-reported problem behavior in an epidemiological sample. *Journal of Abnormal Child Psychology, 20*, 595-610. doi:10.1007/bf00911243

Vervoort, M. H. M., Scholte, R. H. J., & Overbeek, G. (2010). Bullying and victimization among adolescents: The role of ethnicity and ethnic composition of school class. *Journal of Youth and Adolescence, 39*, 1-11. doi:10.1007/s10964-008-9355-y

Volk, A. A., Dane, A. V., & Marini, Z. A. (2014). What is bullying? A theoretical redefinition. *Developmental Review, 34*, 327-343. doi:10.1016/j.dr.2014.09.001

Wienke, D., Anthonijsz, I., Abrahamse, S., Daamen, W., & Nieuwboer, A. (2015). *Beoordeling anti-pestprogramma's: Rapportage van de commissie voor het Ministerie van Onderwijs, Cultuur, and Wetenschap (OCW)*. Utrecht: Nederlands Jeugdinstituut.

Williford, A. P., Brisson, D., Bender, K. A., Jenson, J. M., & Forrest-Bank, S. (2011). Patterns of aggressive behavior and peer victimization from childhood to early adolescence: a latent class analysis. *Journal of Youth and Adolescence, 40*, 644-655. doi:10.1007/s10964-010-9583-9

Wohlwill, J. F. (1973). *The study of behavioral development*. New York: Academic Press.

Wolke, D., Woods, S., Bloomfield, L., & Karstadt, L. (2000). The association between direct and relational bullying and behaviour problems among primary school children. *The Journal of Child Psychology and Psychiatry and Allied Disciplines, 41*, 989-1002. doi:10.1111/1469-7610.00687

Wolke, D., Woods, S., & Samara, M. (2009). Who escapes or remains a victim of bullying in primary school? *British Journal of Developmental Psychology, 27*, 835-851. doi:10.1348/026151008X383003

Woods, S., Wolke, D., Nowicki, S., & Hall, L. (2009). Emotion recognition abilities and empathy of victims of bullying. *Child Abuse & Neglect, 33*, 307–311. doi:10.1016/j.chiabu.2008.11.002

R

Yeager, D. S., Fong, C. J., Lee, H. Y., & Espelage, D. L. (2015). Declines in efficacy of anti-bullying programs among older adolescents: Theory and a three-level meta-analysis. *Journal of Applied Developmental Psychology, 37*, 36-51. doi:10.1016/j.appdev.2014.11.005

Yeung, R. S., & Leadbeater, B. J. (2007). Does hostile attributional bias for relational provocations mediate the short-term association between relational victimization and aggression in preadolescence? *Journal of Youth and Adolescence, 36*, 973-983. doi:10.1007/s10964-006-9162-2

Younger, A. J., Schwartzman, A. E., & Ledingham, J. E. (1985). Age-related changes in children's perceptions of aggression and withdrawal in their peers. *Developmental Psychology, 21*, 70-75. doi:10.1037/0012-1649.22.4.531

Zimmer-Gembeck, M. J., Geiger, T. C., & Crick, N. R. (2005). Relational and physical aggression, prosocial behavior, and peer relations: Gender moderation and bidirectional associations. *The Journal of Early Adolescence, 25*, 421-452. doi:10.1177/0272431605279841

Ziv, Y., Leibovich, I., & Shechtman, Z. (2013). Bullying and victimization in early adolesence: Relations to social information processing patterns. *Aggressive Behavior, 39*. doi:10.1002/ab.21494

CURRICULUM VITAE

Loes Pouwels was born on the 10th of June 1990 in Vierlingsbeek, the Netherlands. After finishing secondary education (VWO) at Scholengemeenschap Stevensbeek, she started studying Pedagogical Sciences at Radboud University, Nijmegen in 2008. During her bachelor she spent three months at the University of Turin, Italy, to work with Prof. dr. Silvia Ciairano. After obtaining her Bachelor's degree in Pedagogical Sciences (cum laude) in 2011, Loes graduated cum laude from the Research Master Behavioral Science in 2013. She received a research talent grant from the Netherlands Organisation for Scientific Research (NWO), which gave her the opportunity to start her PhD Project in September 2013. She studied the group process of bullying at the Behavioural Science Institute at Radboud University, under supervision of Prof. dr. Toon Cillessen and Dr. Tessa Lansu. During this period, Loes visited Prof. dr. Christina Salmivalli at the University of Turku, Finland, and Prof. dr. Laura Hanish at Arizona State University, USA, resulting in joint papers. Since September 2017, Loes is working as an Assistant Professor at the Department of Psychology, Education and Child Studies at Erasmus University Rotterdam.

C

PUBLICATIONS

Accepted

Otten, R. Cladder-Micus, M., **Pouwels, J. L.,** Hennig, M., Schuurmans, A., Hermans, R. (2014). Facing temptation in the bar: Counteracting the effects of self-control failure on young adults' ad lib alcohol intake. *Addiction*, *109,* 746-753. doi:10.1111/add.12446

Pouwels, J. L., & Cillessen, A. H. N. (2013). Correlates and outcomes associated with aggression and victimization among elementary-school children in a low-income urban context. *Journal of Youth and Adolescence, 42,* 190-205. doi:10.1007/s10964-012-9875-3

Pouwels, J. L., Lansu, T. A. M., & Cillessen, A. H. N. (2016). Participant roles of bullying in adolescence: Status characteristics, social behavior, and assignment criteria. *Aggressive Behavior, 42,* 239-253. doi:10.1002/ab.21614.

Pouwels, J. L., Lansu, T. A. M., & Cillessen, A. H. N. (2016). Peer victimization in adolescence: Concordance between measures and associations with global and daily internalizing problems. *Journal of Adolescence, 53,* 195-206. doi:10.1016/j.adolescence.2016.10.0040

Pouwels, J. L., Lansu, T. A. M., & Cillessen, A. H. N. (2017). Adolescents' explicit and implicit evaluation of hypothetical and actual peers with different bullying participant roles. *Journal of Experimental Child Psychology, 159,* 219-241. doi:10.1016/j.jecp.2017.02.008

Pouwels, J. L., Salmivalli, C., Saarento, S., van den Berg, Y. H. M., Lansu, T. A. M., & Cillessen, A. H. N. (2017). Predicting adolescents' bullying participation from developmental trajectories of social status and behavior. *Child Development*. doi:10.1111/cdev.12794

Pouwels, J. L., Scholte, R. H. J., van Noorden, T. H. J., & Cillessen, A. H. N. (2016). Interpretations of bullying by bullies, victims, and bully-victims in interactions at different levels of abstraction. *Aggressive Behavior, 42,* 54-65. doi:10.1002/ab.21605

Pouwels, J. L., Souren, P. M., Lansu, T. A. M., & Cillessen, A. H. N. (2016). Stability of peer victimization: A meta-analysis of longitudinal research. *Developmental Review*, *40,* 1-24. doi:10.1016/j.dr.2016.01.001

Submitted

Pouwels, J. L., Lansu, T. A. M., & Cillessen, A. H. N. (revised/resubmitted). A developmental perspective on popularity and the group process of bullying.

Pouwels, J. L., van Noorden, T. H. J., Lansu, T. A. M., & Cillessen, A. H. N. (revised/resubmitted). The participant roles of bullying in different grades: Prevalence and social status profiles.

Pouwels, J. L., Hanish, L. D., Smeekens, S., van den Berg, Y. H. M., & Cillessen, A. H. N. (submitted). Predicting the development of peer victimization across childhood and adolescence from early childhood internalizing, externalizing, and ego-resiliency.

Tyborowska, A. Volman, I., Niermann, H. C. M., **Pouwels, J. L.,** Smeekens, S. Cillessen, A. H. N., Toni, I., & Roelofs, K. (submitted). Early-life and pubertal stress differentially modulate grey matter development in human adolescents: A prospective longitudinal study.