BULLYING IN SCHOOLS: A Measurement Validation Study in Brazilian Children and Longitudinal Prediction of Childhood Bullying Behaviour in the UK

Thesis submitted in accordance with the requirements of the University of Liverpool for the degree of Doctor in Philosophy by Carolina Griz

November 2021

Abstract

Bullying is defined as intentional, power imbalanced and repetitive use of aggressive behaviours. Research shows bullying is a global issue, where roughly two in every ten pupils are directly involved in bullying. Furthermore, bullying involvement poses a high risk for developing emotional and psychological problems as well as educational problems. Though bullying studies date back to the 1970s, higher prevalence rates have progressively been reported despite international intervention polices being introduced. Although many previous studies have investigated causes of antisocial behaviour more broadly, fewer have been designed to examine risk and protective factors for engaging in bullying behaviours in particular. Most of these studies have examined predictors of bullying involvement during adolescence with the lower age for samples typically being around 12 years of age. Comparatively few have investigated predictors of earlier bullying involvement and validated measures of bullying have seldom been used. The ability to assess bullying involvement reliably is essential for assessment of outcomes in high quality longitudinal research and it is a key foundation for the identification of children who may benefit from early intervention to prevent behaviours becoming entrenched. In Brazil, unfortunately there is both a lack of robust validated bullying measures, and prevention and intervention initiatives are still incipient. In this context, the present doctoral research aimed to: (i) evaluate the reliability and validity of two bullying measures in Brazil: the Bullying Prevalence Questionnaire (BPQ; Rigby & Slee, 1993) and the University of Illinois Bully Scale (UIBS; Espelage & Holt, 2001); (ii) systematically review the international literature available on childhood factors that contribute to later bullying behaviours; (iii) validate the Forms of Bullying Scale (FBS; Shaw, Dooley, Cross, Zubrick & Waters, 2013) in childhood (ages 9-10) in

the UK; and (iv) use the FBS to examine the role of a range of early socio-demographic variables, maternal relationship circumstances, maternal mental health, child psychological and interpersonal functioning, and parenting environment and practices as possible predictors of bullying behaviours at 9-10 years of age in a representative UK birth cohort, using measures completed at the time of school entry, aged 4-5 years. The University of Illinois Bullying Scale and the Bullying Prevalence Questionnaire were translated into Portuguese and administered to a group of Brazilian adolescents alongside indices of psychopathology and empathy. Exploratory factor analysis replicated the original structure of the UIBS, and construct validity and convergent validity were partially supported. Less encouraging results were attained for the BPQ. These study findings are encouraging and suggest its suitability for use in Brazil, over the BPQ, however a further large-scale study is required to confirm the findings and support its future use in Brazil. The Forms of Bullying Scale (FBS; Shaw et al., 2013) was used in a UK sample of 640 children aged 9-10 years taking part in the Wirral Child Health and Development Study. The results of Exploratory Factor Analysis mirrored the original factor structure of the FBS in adolescents (aged 12-15), being both statistically as well as conceptually robust. Furthermore, concurrent validity results for the FBS were confirmed in relation to traditional bullying, whilst convergent validity was tentatively supported though associations were small. The measure can now be cautiously recommended for future use in this younger age group but convergent validity in this young age group needs future replication. Following validation of the FBS in the WCHADS sample at age 9, the predictive independent effects of early socio-demographic, maternal relationship circumstances, maternal mental health, child psychological and interpersonal functioning, and parenting environment and practices variables assessed at age 5 on later bullying perpetration at age 9 were examined using a hierarchical regression

analysis. Male gender, lower family income, financial problems, higher maternal anxiety, lower parental involvement, and higher inconsistent discipline in early childhood significantly predicted later bullying behaviour. A high proportion (over 90%) of children reporting bullying others at age 9 also reported experiencing victimisation. These findings make a novel contribution to the relatively scarce literature on early childhood predictors of emerging bullying behaviour in middle childhood and, if replicated, may serve to inform the focus of early interventions.

Keywords: school bullying; early prospective predictors; childhood; longitudinal studies; psychometric testing.

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Prefix

Role of Funding Source

Funding supporting this study was provided by CAPES (Brazilian Coordination for the Improvement of Higher Education Personnel) (99999.013068/2013-00). The CAPES Foundation had no role in the study design, collection, analysis, or interpretation of the data, writing the manuscript, or the decision to submit the paper for publication.

Declaration

No portion of the work referred to in the thesis has been submitted in support of an application for another degree or qualification of this or any other university or other institute of learning.

Acknowledgement

I wish to thank first and foremost the CAPES Foundation (the Brazilian agency responsible for the Coordination and Improvement of Higher-Level Education Personnel). Next, Helen, Leonardo and Peter, my supervisors, thank you, thank you, thank you!!!!! Helen – thank you for not giving up on me. It has been a roller-coaster ride, but we have made it to the end. Thank you! To my husband, family and friends, no words could ever express how much I am grateful for your support. José, I could not thank you enough for being a constant source of encouragement; it would truly have been impossible without you. To my mum, dad, and sisters all my love and gratitude for helping to look after my girls and for understanding my absence at several family events. My Liverpool family, Allysson, Rê, Clacla, Rose and Maurício, and LuFraJoMa, thank you for the good times, they definitely lightened the burden. I would also like to thank Sue Higham for always being so accessible and understanding; you were a great source of comfort thru the most challenging times during my PhD studies. Thanks Sarah Hodson, Miriam Refberg, the WCHADS team, and all school staff and students who have participated and contributed to the progress of my research. And lastly, but certainly not least, my girls, I love and adore you above all. I am sorry for the playdates I did not take you, the parties and picnics I did not make, and all the other moments I was not physically present. Please know you are always with me. You are (and will always be) my greatest achievement.

Chapter 1

Introduction to the thesis

The thesis is structured as follows: 1.1 of this first chapter narrates a personal account of my PhD studies and outlines the thesis structure; section 1.2 of this first chapter outlines the developmental and theoretical context for the research on bullying in later childhood and early adolescence in this thesis. Understanding how culture and different developmental stages contour bullying behaviours is paramount to the study of bullying, and in doing so a conceptual framework that encompasses and accentuate fundamental factors for considering the growth and development of children and their circumstances is critical to address the development of bullying as a complex *social* phenomenon. Section 1.2 thus briefly reviews Thomas Weisner's (Weisner, 2002; 2009) Ecocultural Theory which proposes modifications to Bronfenbrenner's socioecological model (Bronfenbrenner,1974) in that several behavioural and mental processes participate in the developmental attainment of culture, and its social manifestations (Weisner, 2002). Wiesner's Ecocultural Theory emphasizes the importance of the ecological and cultural environment that nest the development process, accentuating the relationship between individual processes and sociocontextual conditions and how their interconnection affects developmental processes and outcomes (McWayne, Limlingan, Melzi, & Schick, 2016; Weisner, 2009; Weisner, García Coll, & Chatman-Nelson, 2010).

1.1 My thesis journey and thesis structure

There is no better word to describe my PhD journey: resilience. Through trials and difficulties faced, I have found a way to finish with results that I am proud to share. I hope that one day the work I have done will help children through their childhood and adolescence. I am a Brazilian national, born into a developing country in which sexism and misogyny is something faced daily; becoming a scientist was an uphill battle to find financial support and acknowledgment. Since my Bachelor's degree, I was always passionate about Education studies, a field of study desperately scarce in Brazil. Upon finishing my Masters, I was awarded a research grant to study at the University of Liverpool from the Coordination for the Improvement of Higher Education Personnel (*Coordenação de Aperfeiçoamento de Pessoal de Nível Superior* – CAPES). Moving countries and continents was an intense and rewarding experience in which my husband and I underwent tremendous growth.

The first year of my PhD was at full speed with an ethics application in the United Kingdom. I started building a narrative review on bullying and a systematic review on goal regulation in relation to bullying behaviours. At the end of my first year, I suffered the loss of my grandparents. It took a courage I did not know I had not to go back to Brazil to mourn with my family. At the beginning of my second year, I welcomed the birth of my first child and with that some time had to be taken off from my studies to accommodate all the blessings and struggles of being parents for the first time. Also, during my second year, my primary supervisor at the time, Dr Joanne Dickson, moved back to Australia, during which the future of my thesis and research was uncertain. Thankfully, at the end of my second year, I was assigned a new supervisor, Prof. Helen Sharp, and we reshaped the focus and leading empirical chapter of the thesis.

My third year was focused on reshaping my thesis which involved submission of ethical amendments in the UK, starting from scratch a new systematic review, completing an application for the ethics committee in Brazil and data collection also in Brazil. Data collection in Brazil was part of a cross-cultural validation study which was also planned for my third year. This cross-cultural empirical chapter was set to evaluate the reliability and validity of two bullying measures in Brazil and the UK. Unfortunately, while in Brazil I became acutely ill and underwent surgery which was then followed by a period of hospitalization. Therefore, most disappointingly, full data collection in Brazil could not be completed as planned. Moreover, due to funding restrictions and personal matters, unfortunately, it was not possible to continue in Brazil (or go back at a later date) to continue collecting data. Data collection in the UK was also frustrated. Although a third of all secondary schools in the Wirral were approached, only two schools agreed to take part in the study. Furthermore, though over 700 information packs and consent forms were sent home from school only 19% were returned. From the 133 consent forms returned, 80% of parents consented to their child taking part in the study. UK data is available to only a hundred pupils which represents merely 14% of the initially approached population. Due to the interruption of data collection in Brazil and the small UK sample representativeness the plan for the cross-cultural validation study had to be re-evaluated. It was then decided that the UK data would *not* be used in the thesis, and that the reliability and validity of the two bullying measures investigated would only be evaluated for the Brazil data as a pilot study.

After I was found fit to fly and upon returning to Liverpool at the beginning my fourth year, I joined the Wirral Child Health & Development Study (WCHADS) team just when the age 9 assessment wave was being planned. I contributed to the selection of the bullying measure used and conducted over 50 face-to-face multi-component

research assessments with children and their mothers. My fifth year was marked by the birth of my second daughter and relocating my family back to Brazil (due to funding and Visa restrictions). Moving back and facing difficulties having to readapt to the current belligerent social and political environment in Brazil forced me to suspend my registration for 12 months. The sixth and final year of my PhD studies has been further complicated, to say the least, as the world has had to find a way to cope with the COVID19 pandemic and in Brazil specifically a four-month lockdown. Although my thesis journey has not been easy, I am proud of the results I have achieved.

Chapter 2 is a narrative review of school bullying behaviours and their measurement in empirical studies. It contains a thorough review of the definitions of bullying used from studies around the world. The review describes the criteria used to define bullying, the social actors involved in the dynamics of bullying, the types of bullying described and the approaches to measurement used in empirical studies to measure school bullying behaviours in late childhood and adolescence. This work was the foundation for the selection of the measures for the validation study in Chapter 3.

The third chapter first highlights the scarcity of research and the consequent need for studies on bullying in Brazil. Recently, there has been a growth in numbers of national studies, but still, these are very incipient. Chapter 3 is thus a study designed to assess the reliability and validity of two selected bullying measures in a group of Brazilian youth. As mentioned before data collection was prematurely ended, thus the sample size is smaller than what was desired, posing some limitations to our findings. The results demonstrate even more the need for future studies to corroborate and enhance the conclusions drawn from this study.

Chapter four is a systematic review of studies with a focus on identifying early risk factors for later bullying behaviour. Key areas: demographic, family arrangements,

parental mental health, and psychological and interpersonal variables, were identified in the review and these guided the approach taken in Chapter 5. Chapter five describes a prospective longitudinal empirical study of early predictors of bullying using data collected by myself and other research staff in the Wirral Child Health and Development Study (WCHADS). It also includes the validation of the Forms of Bullying Scale in middle childhood, previously validated for use with 12-15-year-olds. The aim here was to add to the evidence base identifying factors identifiable by age 5 that predict later bullying behaviour at age 9 and which might present opportunities for early intervention in the school or home setting.

Despite all the limitations and tribulations experienced throughout this six-year journey, this thesis reflects the best work possible, and I could not be prouder of all the work I have done.

1.2 Developmental and theoretical context for the study of bullying in late childhood and early adolescence

School bullying, as highlighted by the narrative review of bullying behaviour in Chapter 2, is, as any social manifestation, shaped by cultural prerogatives and social contexts (Eslea et al., 2004; Morrison, 2006; Mooij, 2011). As a complex social phenomenon, it extrapolates the dyad bully-victim (Menesini, Codecasa, Benelli, & Cowie, 2003) whereby the wider school community goals and motivations differ and rearrange the dynamic group process that is bullying. From a very young age, life scripts, gender roles, and age expectations are formed and held by individuals (Mooij, 2011); these influence how people see themselves and interact with one another. As such, the nuances of bullying vary depending on sex, age, (perceived) social support, and sociocultural context (Eslea et al., 2004; Morrison, 2006; Mooij, 2011). Age, for

instance, plays an important role in shaping children's understanding of what constitutes bullying behaviour. A Canadian study, which sampled 1767 students aged 8 – 18, found younger children at around 8 years old most commonly define bullying to include physical aggression, general harassing behaviours, and verbal aggression, whereas relational aggression was more commonly included in their definitions from early adolescence (Vaillancourt et al., 2008). Hence the importance of considering how different developmental stages shape how children construe bullying.

It is broadly accepted that children's repertoire of social-cognitive and interpersonal abilities are sequential processes that develop with age (Berndt & Berndt, 1975; Ferreira, Moura & de Melo Mieto, 2021; Rogoff, 2003). At each developmental stage specific developmental processes are heightened, and contrasting capabilities are observed among children and adolescents (Castro-Sánchez, Zurita-Ortega, Ruiz & Chacón-Cuberos, 2019; Ferreira, Moura & de Melo Mieto, 2021; Rogoff, 2003). In understanding the development of children's aggressive behaviour in general, these abilities and cognitive processes play important roles as potential protective or risk factors given that a person's aggressive behaviour is typically subjected to socio-cognitive control aptitudes (Obsuth, Eisner, Malti & Ribeaud, 2015). For instance, in normal development, children develop a gradual understanding of the social acceptability of aggressive behaviours, gradually internalising a moral code from their interactions with others as well as from the socio-contextual stands which they witness around them (Berndt & Berndt, 1975; Castro-Sánchez et al., 2019; Obsuth et al., 2015).

Particularly related to the development of bullying behaviours, previous studies have investigated the role of a range of social-cognitive and interpersonal abilities in subsequent bullying involvement. For example, positive self-perception bias (Lynch, Kistner, Stephens, & David-Ferdon, 2016), moral disengagement (Wang, Ryoo,

Swearer, Turner, & Goldberg, 2017), poor inhibitory control processes (Verlinden et al., 2014), and narcissistic traits (Reijntjes et al., 2016) have each been found to significantly predict bullying involvement. Knowing whether these individual characteristics are modifiable and whether they arise at an individual level or family/systemic level, at some point in development, is an important element to consider in intervention planning.

Furthermore, regarding bullying behaviours, which are defined as intentional, power imbalanced, and repetitive aggressive behaviours, it is fundamental to account for children's repertoire of social-cognitive and interpersonal abilities given that, for instance, to report bullying behaviours students should be mature enough to attribute aggressive intent and power inequity (Bracken & Crain, 1994). Previous studies have found, for example, young children to be not as able to distinguish between accidental harm and intentional harm from another child (Berndt & Berndt, 1975; Obsuth et al., 2015), and so perception of "bullying" as an intentional act would vary depending on age and socio-cognitive understanding. Hence, the developmental stage of a child may shape understanding of what constitutes bullying behaviours, and thus may influence reporting or endorsement of bullying in research studies or in real life settings. It is therefore important to design new studies and understand past research findings in this context.

In terms of child development *per se*, it is broadly accepted that child development functions within an ecology (Rosa & Tudge, 2013; Velez-Agosto et al., 2017; Weisner, 2015). Complex interconnections between different instances of a child's life interact with one another to foster development. Bronfenbrenner's Bioecological Theory (1974) is one of the most widely known theoretical frameworks in child development. Bronfenbrenner defines ecological theory as the study of human

development in context (Bronfenbrenner, 1974). That is, development happens nested by various systems which support the individual at the centre.

Bronfenbrenner proposes that the strongest influences originate from the microsystem, the closest interactions and relationships formed by the child with their immediate surroundings (Bronfenbrenner, 1974). The microsystem is thus composed by those who most directly affect the child; typically, family members, close friends and peers, and teachers. The second circle and the next level of the ecology, where institutions such as schools and other social spaces (work, church, and neighbourhood) are, is the mesosystem (Bronfenbrenner, 1974). Mesosystems are represented by the interactions and relationships formed by those who have the most meaningful direct connections with the child. Next, the exosystem is encompassed by community contexts and social networks; the exosystem does not directly impact on children but rather exerts some degree of influence on those who most immediately and directly affect them (Bronfenbrenner, 1974). Exosystems are therefore the systemic levels that impact on children and their parents, including, for example, the political and the legal systems, the health care systems, and the educational system. Encircling the exosystem is the macrosystem which includes abstract influences such as religious beliefs (Bronfenbrenner, 1974). The macrosystem is represented by a broad mix of ideas, principles, biases, and theories that drive the systemic level and impact through various levels the child. And lastly, the chronosystem contains both internal and external elements of time and historical content (Bronfenbrenner, 1974). As Bronfenbrenner expressed it, his ecological theory examines not only ‘‘the forces that have shaped human development in the past, but . . . those that may already be operating today to influence what human beings may became tomorrow’’ (Bronfenbrenner & Evans, 2000, p. 117).

Recently, modifications to Bronfenbrenner's model (Bronfenbrenner,1974) have been suggested challenging the peripherical locus social position and social stratification constructs have in the ecology (Gárcia Coll et al., 1996). Gárcia Coll and colleagues (1996) argue, for example, that by neglecting to centre and more explicitly consider the unique socio-contextual ecological circumstances of some children (e.g., the pervasive influence of racism) Bronfenbrenner's Bioecological Theory does not differentiate child development beyond the natural individual differences. Gárcia Coll et al. (1996) argue further that development differentiation in fairness should address the dynamic interactions between the child and both their proximal and distal ecologies, as, they argue, development is largely a function of the interactions and relationships formed by the ecologies. Similarly, Thomas Weisner's Ecocultural Theory (Weisner, 2002; 2009) argues that both social position and social stratification constructs should be at the core centre of developmental theories rather than at the periphery. While Bronfenbrenner's Bioecological Theory (1974) seems to perceive culture as a separate entity (Velez-Agosto et al., 2017) where "individual and 'larger' contexts are conceived as existing separately, related in a hierarchical fashion as the larger contexts affect the smaller ones, which in turn affect the developing person" (p. 46), Weisner's Ecocultural Theory is not limited to immediate situational events. Instead, it emphases the importance sociocultural factors have on influencing human learning and development (Weisner, 2002; 2009).

This perspective on development means that studies based on an ecocultural framework addressing child development directly or indirectly consider child behaviour not as a separate entity, but rather as a product of individual characteristics, community context, and physical, social, and political environments (Weisner, 2015). This is particularly relevant to bullying studies as, despite there being a consistent theoretical

framework which underlies basic bullying concepts, definition and criteria, there are undoubtedly variations from one context to another. Bullying definition and criteria in some countries might emphasise, for example, a particular type of bullying behaviour over others because it is perceived to be more harmful. In Korea, for instance, bullying is typically thought of as "collective ostracism, collective social exclusion, or collective harassment" (Lee, 2010, p. 155), rather than other types of bullying. Furthermore, research evidence shows that the frequency of bullying episodes is associated with age such that around mid-adolescence bullying behaviours typically decrease (Chester et al., 2015; García-Moya et al., 2014; Hong & Espelage, 2012; Olweus, 1993; 1997). With increasing age, sociocultural integration would be internalized, and youth gradually acquire, as mentioned before, more refined interpersonal and social skills (Weisner, 2015) which thus potentially explains the decrease in bullying behaviour occurrences (Deitch-Stackhouse Kenneavy, Thayer, Berkowitz, & Mascari, 2015; Smith, Madsen & Moody, 1999).

Weisner's theory (2002; 2009) asserts that developmental processes and outcomes happen supported by the ecological and cultural environment, and the relationship between individual processes and sociocontextual conditions influences said processes and outcomes (McWayne et al., 2016). Because these processes are contextual, when studying development (or developmental behavioural paths as is here the case – the development of bullying behaviours) it is paramount to determine what sociodemographic, school and family arrangements, psychological and interpersonal characteristics, for example, are present (Super & Harkness, 2002). Development happens, according to Wiesner's perspective, by multifaceted and interactive means where levels within the ecological and cultural environment interact. These levels may act functionally or dysfunctionally within each level and between levels of the ecology.

For example, bullying behaviours may develop which are dysfunctional forms of peer relationships.

From this theoretical perspective, the cultural community where a child is raised places children inside a specific ecocultural context with context-specific developmental pathways (Weisner, 2002). These developmental pathways are internalized since birth as part of children everyday routines; in other words, development happens fostered and mediated by culture which is in turn assimilated naturally by means of a child's routine (e.g., bedtime, homework schedule, helping at home doing chores, time spent playing video games, etc.). According to Weisner, García Coll, and Chatman-Nelson (2010, p. 84), "developmental pathways refer to the different kinds of activities, organized by families and local communities, in which the child could or will engage during development." Though Bronfenbrenner's perspective considers the role played by routines and activities on the microsystem, Weisner, García Coll, and Chatman-Nelson (2010) argue that it does not clearly differentiate or reference these actions as culturally defined or mediated. Instead, as previously mentioned, Bronfenbrenner's perspective has been critiqued for perceiving culture as a separate entity (Velez-Agosto et al., 2017). In Weisner's Ecocultural Theory culture is not viewed as separated from the person and his or her interactions with the microsystem, but as a constant which navigates around and through development (Weisner, 2002). In bullying research, where both sociocultural circumstances and different developmental stages play important roles (Eslea et al., 2004; Morrison, 2006; Mooij, 2011), this is an important developmental and theoretical element which should contextualize bullying studies. For instance, in terms of observing how these developmental pathways are internalized through children's everyday routines, a study has found that spending more time engaged in

stimulating activities with mother at age 5 years was associated with a decreased risk of being a bully two years later at age 7 (Bowes et al, 2009).

Weisner's Ecocultural Theory, by contemplating the sociocultural environment of the child and family, provides opportunities for designing intervention (McWayne et al., 2016). In planning intervention programs, it is paramount to understand what level(s) of the ecology are being dysfunctional and why. García Coll and colleagues (1996) suggest that differences regarded as "a product of personal choices" are actually a product of, for example, social-class influence on child rearing, the effects of maternal employment on children's development and other such predicaments that should not be lightly considered, but rather understood as mechanisms which drastically alter the developmental paths children go through. These specific predicaments are potential targets for intervention. Previous studies, for example, have linked younger maternal age to increased psychosocial problems across the lifespan (Ferguson & Woodward, 1999; Tearne et al., 2015); specifically, an Australian study has found children at age 5 years old who were born to younger mothers to be at a higher increased risk of developmental vulnerability, assessed in terms of physical health and well-being, social competence, emotional maturity, language and cognitive skills, and communication skills and general knowledge (Falster et al., 2018). In terms of intervention, Wiesner's Ecocultural Theory proposes that a child's immediate actors at the micro level are systemically supported, meaning for the example above, that essential structural and cultural assistance to the child's development should be available to those young mothers so that they can support their children's developmental health (Gárcia Coll et al., 1996; Rogoff, 2003; Weisner, García Coll & Chatman-Nelson, 2010). In bullying research particularly, it means that interventions at both family-level and individual child level should be considered and thought of as interconnected when designing them.

In fact, previous studies have observed that anti-bullying interventions which have been employed with parents as well as children have been more successful than those which have targeted school bullying and victimisation at an individual level only (Axford et al., 2015; Vreeman & Carroll, 2007). The identification of modifiable ecocultural elements is important in bullying research as it means interventions are tailored for each specific context, increasing the chances of success.

In sum, in understanding the developmental and theoretical context for the study of bullying in late childhood and early adolescence, Weisner's Ecocultural Theory offers a reference model which places the study of bullying behaviours in context, highlighting that it is important to consider a child's developmental stage and their abilities, and understand the resources, practices, beliefs, goals, institutions, and so on in their cultural community that may interact to provide a protective influence or constitute a risk factor for engaging in bullying.

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Chapter 2

A narrative review of school bullying behaviours and their measurement in empirical studies

The present review aimed to provide an overview of the international empirical literature on bullying involvement that occurs between/amongst children and adolescents aged 11 to 15. It was conducted, to set the context for and inform the measurement choices for a new empirical psychometric validation study of bullying measures in Brazil (reported in Chapter 3 of this thesis). A key aim was to review the range of approaches taken to the definition and assessment of bullying in school children in this adolescent age range, so that appropriate measurement choices could be made for the planned study in Brazil. Thus, the current narrative review aimed to answer the following questions: *a.* How is school bullying defined in the literature? *b.* What are the main types of school bullying observed? and *c*. How has school bullying most commonly been assessed in empirical studies? The review is structured to address these primary questions but first the broader context in terms of prevalence rates, roles identified in the literature on bullying involvement and what is known about the consequences of bullying involvement for mental health will briefly be outlined.

2.1. Definition and prevalence

Research on school bullying commenced only in the 1970s with the studies of the Norwegian Dan Olweus (1978). Bullying is most commonly defined as a subset of aggressive behaviour (Espelage, Bosworth & Simon, 2000) in which a pupil is intentionally intimidated

and/or victimised, repeatedly and over time by peers who are in a more powerful position (Olweus, 1997). As such, three concomitant criteria are thought to define bullying: intentionality, repetition, and power imbalance (Olweus, 1993a; 1997; Rigby, 1996a; Smith & Sharp, 1994; Smith et al., 1999).

Research evidences that bullying behaviours may take several different forms, for instance, aggressive episodes can be physical, verbal, psychological (or relational) and/or sexual (Olweus, 1993a; 1997; Shute, Owens & Slee, 2008; Smith et al., 1999). Evidence from Western studies suggests that at least 15% of any given student-body is directly involved in school bullying behaviours – either as a victim or bully (Nansel et al., 2001; Molcho et al., 2009). Higher rates of involvement in bullying have been observed: 29.5% in Brazil (Marcolino, Cavalcanti, Padilha, Miranda & Clementino, 2018), 42% in New Zealand (Marsh, McGee, Nada-Raja & Williams, 2010) and 25% in the UK (Fisher et al., 2012).

More recently, another form of bullying, through electronic communication, has been identified. Cyber bullying, as it is called, is defined as a "willful and repeated harm inflicted through the use of computers, cell phones, and other electronic devices" (Hinduja & Patchin, 2009, p. 5). It refers to the use of information and communication technology (e-mails, cell phones, pagers, instant messages, digital photos, and Web sites, for example) as resources to hurt others. As mentioned by Buelga, Martínez-Ferrer and Cava (2017), scholars still debate whether cyber bullying is indeed a subtype of traditional bullying (meeting the classic three concomitant criteria set by Olweus (1993a)), or a variation of traditional bullying behaviours identified by particular characteristics (Slonje, Smith & Frisen, 2013), or even a completely different phenomenon from traditional bullying not following the criteria of intentionality, repetition, and power imbalance (Gradinger, Strohmeier & Spiel, 2009). Research reports the rate of cyber

bullying victimisation to be like traditional bullying at around 10-20% (Ybarra, Boyd, Korchmaros & Oppenheim, 2012), with rates varying from 17.4% in Canada (Sampasa-Kanyinga, Roumeliotis & Xu, 2014) and 23% in the United States (Litwiller & Brausch, 2013) for example.

2.1.1. Roles in bullying

Traditionally, three social actors are regarded as being directly involved in school bullying: the perpetrator (the bully), the victim, and the witness (Fante, 2005), all of whom may be either an individual or a group (Elinoff, Chafouleas & Sassu, 2004). A more comprehensive classification, however, identifies six roles: bullies, victims, followers, defenders, witnesses, and outsiders (Salmivalli, Lagerspetz, Björkqvist, Österman & Kaukiainen, 1996; Cowie, 2000; Lopes Neto, 2005; Gini, 2006).

There is evidence that bullies tend to express low empathy, great leadership power (Gini, 2006), positive attitudes towards violence, and a greater likelihood to engage in antisocial and criminal behaviours (Olweus, 1994). Alongside bullies are the followers, students who, evidence suggests, encourage, and support the bullying aggressive behaviours. According to Salmivalli et al. (1996), Olweus (1997), Cowie (2000) and Lopes Neto (2005), these students act as assistants and/or reinforcers, helping (directly or indirectly) the bully and/or reinforcing the aggressive behaviour by showing their support and approval. Typically, the followers do not initiate the bullying themselves (Olweus, 1997), but are merely subordinated by the bully and enjoy his/her protection as well as share his/her popularity and status (Pearce & Thompson, 1998).

Concerning the role of the victims, two sub-categories have been found: the typical passive victims and the proactive victims (Olweus, 1993a, 1997; 2003; Fante, 2005). Passive (or submissive) victims are the most common type of victims, accounting for 80-85% of all

victims (Olweus, 1997). There is evidence that passive victims are more depressed than other students (Kaltiala-Heino, Rimpela, Marttunen, Rimpela & Rantanen, 1999), have lower self-esteem, and are typically more introspective, cautious, and physically weak (Olweus, 1994). Proactive victims, on the other hand, also identified as aggressive victims, have been found to represent the victimised students who due to their peculiar behaviour and/or appearance provoke hostile reactions from their schoolmates (Olweus, 1997). Many of these proactive victims, evidence suggests, are hyperactive students who have poor social skills, being both anxious and aggressive (Griffin & Gross, 2004). Moreover, proactive victims have been found to be less likely to rely on protection and empathy from other students and from schoolteachers (Olweus, 1997; Griffin & Gross, 2004; Fante, 2005).

The smallest group to participate in bullying is represented by the children and adolescents who actively intervene in favour of the victims – the defenders (Salmivalli et al., 1996; Cowie, 2000; Lopes Neto, 2005; Gini, 2006). Evidence from Western countries report that these pupils represent less than 10% of any given student body (Gini, Albiero, Benelli & Altoe, 2008), and have typically been found to show high levels of moral sensibility and empathic reactivity (Gini, 2006).

The biggest group to participate in the dynamics of bullying, on the other hand, is evidenced to be comprised by the witnesses and the outsiders. The witnesses are all those pupils who witness regularly (or have witnessed in the past) bullying behaviours (Lopes Neto, 2005). They account for the majority of the pupils in the schools (Salmivalli et al., 1996; Cowie, 2000; Lopes Neto, 2005), and are commonly "students who are not directly involved in bullying but live in fear of being the next victim" (Lopes Neto, 2005, p. 167-168). The outsiders are described as students who are not involved in bullying at all, neither witnessing, defending nor

encouraging bullying (Salmivalli et al., 1996; Cowie, 2000; Lopes Neto, 2005). This theoretical operationalisation of characterising witnesses and outsiders, nonetheless, is disputed (Olweus, 1991; Lopes Neto, 2005). Olweus (1991), for instance, argues that by running away from bullying, these students (both witnesses and outsiders) are still involved in it, even if so by choosing not to take part or witness. Olweus (1991) calls them "passive bullies": pupils that are aware of the problem, but decide to ignore it, and by doing so, even if not actively supporting or perpetuating the aggressive behaviour themselves, they are still sending out a message of endorsement to both bullies and victims (Lopes Neto, 2005). Nonetheless, most studies have suggested that outsiders and witnesses are not generally in favour of bullying, but rather express high levels of support and sympathy for the victims even if they do not stand up against bullying (Nascimento, 2009). Three main reasons have been identified to explain why witnesses and outsiders do not intervene *i)* the fear becoming the next victims, *ii)* not knowing what to do, and *iii)* being afraid of causing even more trouble to the victims (Hazler, 1996; Gini et al., 2008; O'Connell, Pepler & Craig, 1999; Lopes Neto, 2005; Nascimento, 2009).

It is noteworthy that even though research evidence identifies six bullying roles, bullying studies almost solely focus on victims and bullies. Very scarcely do studies target defenders and witnesses.

2.1.2. Consequences related to bullying

The consequences evidenced related to bullying are varied and affect the whole school community and society at large (Hong & Espelage, 2012; King, Wold, Tudor-Smith & Harel 1996; Lopes Neto, 2005). It has been extensively reported that all those involved in the dynamics of bullying may suffer, in different degrees, from physical and/or psychological problems, which may occur in the short or long term (Copeland, Wolke, Angold, & Costello,

2013; Arseneault, 2018). Research suggests that male victims are more likely than females to minimize the suffering inflicted, claiming, for example, that the aggressive incidents suffered were merely pranks, and that their classmates meant no harm (Fisher, 2010). There is evidence that psychological consequences of experiencing bullying include low self-esteem (King et al., 1996; Olweus, 1993b), negative identity construction (Thornberg, 2010), high levels of stress, fear, and anxiety (Arseneault, 2018; García-Moya, Suominen & Moreno, 2014), feelings of guilt and/or impotence (O'Connell, Pepler & Craig, 1999), as well as depression (García-Moya, Suominen & Moreno, 2014; Olweus, 1993b; Lopes Neto, 2005). In extreme cases, during adolescence, an important period in the development of self-identity and peer relationships (Harter, Low & Whitesell, 2003), there has been evidence of suicide (Brunstein Klomek, Sourander & Gould, 2010; Litwiller & Brausch, 2013) and school shootings followed by suicide by previously passive victims of bullying (Carney, 2000; Harter, Low & Whitesell, 2003). Further studies have also linked bullying victimisation to suicide attempts in youth and suicide deaths in later adulthood (Brunstein Klomek et al., 2009; Meltzer, Vostanis, Ford, Bebbington & Dennis, 2011). Nonetheless, these are reports from a small number of cases and thus the link between bullying victimisation and shootings followed by suicide as well as the association between being a victim and suicide attempts and suicide deaths in later adulthood, should be viewed cautiously.

Many of the same forms of psychological distress observed in victims have also been reported amongst defenders, witnesses, and outsiders (Fried & Fried, 1996). In particular to defenders, witnesses and outsiders feelings of chronic conflict, shame, guilt, sadness, and anger have been reported (Fried & Fried, 1996).

It has also been evidenced that youth who engage in bullying behaviours as perpetrators are more prone to become aggressive adults, adopting deviant and even criminal behaviours (King et al., 1996; Olweus, 1997; Arseneault, 2018). Additionally, these pupils were found to form weaker emotional bonds with others across the lifespan (Olweus, 1994; Arseneault, 2018).

2.1.3. Rationale and need for the current review

In view of the broad range of adverse consequences linked to bullying involvement outlined above, and the relatively high prevalence rates across countries worldwide, it is important to be able to reliably assess the extent and nature of bullying involvement that children experience in different cultural settings, so problems can be identified within school settings and interventions put in place locally to meet the needs of those young people involved. Unfortunately, most of the research on bullying has so far been conducted in western settings. In contrast, research in low- or middle-income settings is less well advanced.

Although bullying studies in Brazil have increased in number over the past decade (e.g., Alcantara et al., 2017; da Silva, de Oliveira, Bandeira, & de Souza, 2012; Sousa et al. 2019), prevention and intervention initiatives are still scarce. According to a nationwide study conducted with a population of over 5000 students, 70% of Brazilian pupils reported witnessing aggressive episodes in general at least once during the school year (Fisher, 2010). Studies have placed the prevalence rate for being victim of bullying in Brazil from around 17% (da Silva, de Oliveira, Bandeira & de Souza, 2012) to as high as 29.5% (Marcolino et al., 2018). And worryingly, a 37% increase in the prevalence of bullying in Brazilian capitals has been report over the years of 2009 to 2015 (Mello, Malta, Santos, Silva & Silva, 2018). In this context, and as a Brazilian national myself, I believe it is very important to work towards a healthier and safer educational system in my country. Therefore, I designed the empirical psychometric validation

study of two bullying measures (reported in Chapter 3 of this thesis) which was conducted in Brazil and this current narrative review was conducted as a first step to ensure that the study design and the assessment of bullying could be informed from previous international literature on school bullying in youth aged 11 to 15 years.

2.2. Focus of the review

The current narrative review focuses on school bullying (i.e., bullying that occurs either within or around school premises and/or involves relationships formed within these educational contexts) and/or cyber bullying (i.e., bullying that occurs within the context of electronic communication, such as via text messages, e-mails, or social media websites). It was also focussed on empirical studies conducted with children and adolescents (mean age within 11 to 15 years of age). This age range was chosen for three reasons. First, it is an important period in terms of developing social relationships with peers and so this is a time when bullying may have a particularly deleterious impact. Second, in international research the number of bullying episodes has been evidenced to increase at the beginning of adolescence (García-Moya, Suominen & Moreno, 2014; Hong & Espelage, 2012), more specifically at around the ages of 11 to 15 years old (Boulton, Trueman & Flemington, 2002; Lopes Neto, 2005; Hong & Espelage, 2012). And third, most of the research conducted on bullying to date has focused on this specific developmental stage, providing a wide source of available literature (e.g., Espelage, Bosworth & Simon, 2000; Herrero, Estevez & Musitu, 2006; Lopez, Perez, Ochoa & Ruiz, 2008; Luk, Wang & Simons-Morton, 2010; Uribe, Orcasita & Aguillón Gómez, 2012; Larrañaga, Yubero, Ovejero & Navarro, 2013; Yin et al., 2017). Literature could only be reviewed if it was published in either English, Portuguese, or Spanish because these are the languages known to the author.

Searches were conducted electronically via online databases such as: Latin American and Caribbean Health Sciences (LILACS), Medline, PsycINFO, the Brazilian Scientific Electronic Library Online (SciELO), and Web of Science. These databases were chosen due to their wide scope across key disciplines regarded as fundamental in the study of school bullying involvement (psychology, psychiatry, sociology, and education), and to ensure inclusion of English, Portuguese, and Spanish language articles. Medline, PsycINFO, and Web of Science archive papers from different continents, from North America to Europe, Asia, and Oceania. The databases LILACS and SciELO archive most of the articles related to humanities, social sciences and natural sciences conducted and published in Latin America.

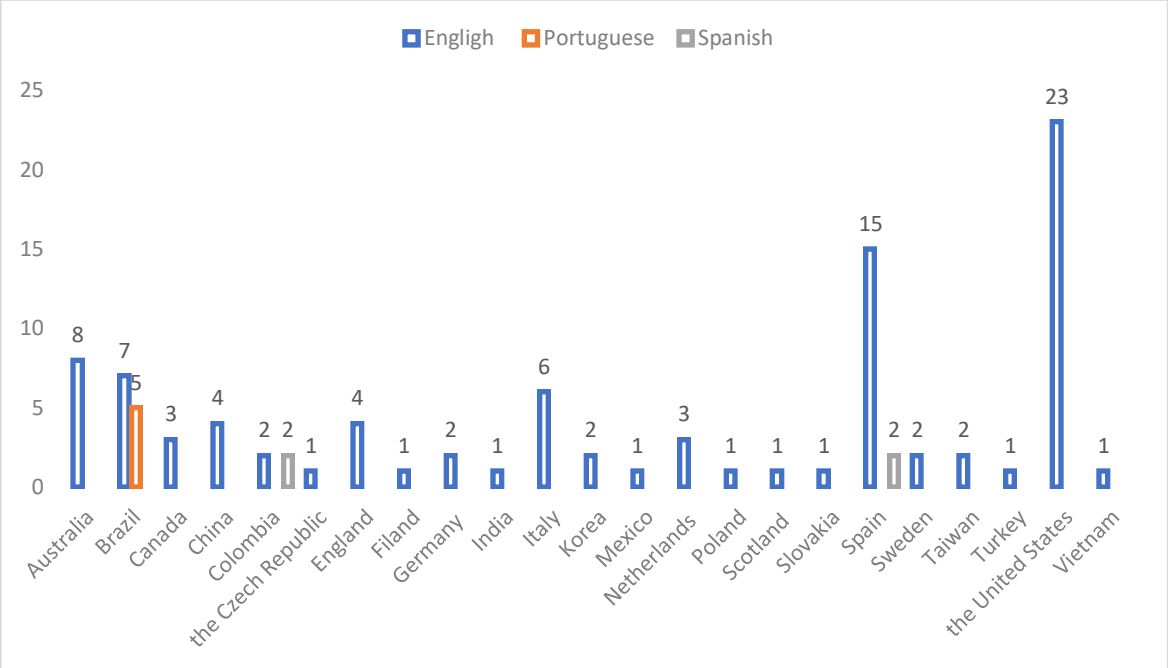
Literature searches were conducted for the period ranging from the inception of the databases up until December 2018 using the following combination of search term: ("bullying" OR "cyber" OR "aggressive behavio*") AND ("school" OR "classroom" OR "playground") AND ("definition" OR "criteria" OR "roles") AND ("instrument*" OR "scale*" OR "test*") AND ("adolesc*" OR "teenager*") [In Portuguese, (bullying OR cyber OR *agressividade*) AND (*escola* OR *sala* OR *aula*) AND (*definição* OR *critério* OR *tipo*) AND (*instrumento* OR *escala* OR *teste*) AND (*adolesc** OR *estudante*)].

Five hundred and eighteen papers were identified using the key words outlined above. At this stage duplicates and empirical studies that did not have school bullying and/or cyber bullying as the primary focus, or a focus on youth between 11 to 15 years of age, and were not written in either English, Portuguese, or Spanish, were excluded. The full texts of the remaining titles were read to confirm if they met inclusion criteria. 95 articles were identified as relevant to the narrative review.

The majority of the papers were written in English (N=86/95; 90.5%). However, over half the sample (N=54; 56.8%) comprised of empirical studies conducted in non-English speaking countries. Figure 1 shows the distribution of the 95 articles included in this narrative review in terms of where data were collected. As it can be seen, studies from 23 different countries[1] are represented. The spread of bullying studies identified suggests that school bullying is a globally recognised issue. It seems that, despite different sociocultural and demographic contexts, regardless of the location of the school (if in capitals or in the countryside), school size, school grades, or if the school is public or private, bullying remains a concern.

Figure 1

Distribution of 95 articles in terms of where data was collected



[1] Three studies reported on data collected at more than one country: 39 North American and European countries in Lian et al. (2018), 11 European countries in Analitis et al. (2009), and six European countries and China in Eslea et al. (2004).

2.2.1. How is school bullying defined in the literature?

2.2.1.1. Research definition of bullying

All 95 articles defined school bullying in similar, if not in identical terms. Authors defined bullying as a subset of aggressive behaviour, characterised by intentionality, where there is an actual or perceived imbalance of power between/amongst pupils and where the aggressive behaviour repeats itself over time (Betts, Spenser, & Gardener, 2017; Ford, King, Priest, & Kavana, 2017; Levasseur, Desbiens, & Bowen, 2017; Analitis et al., 2009; Shaw, Dooley, Cross, Zubrick & Waters, 2013). The most common definition cited throughout, and used, in full or adapted from, in most psychometric instruments is based on Olweus (1997): "a person is being bullied when he or she is exposed, repeatedly and over time, to negative actions on the part of one or more other persons. It is a negative action when someone intentionally inflicts, or attempts to inflict, injury or discomfort upon another." (Smith et al., 1999, p. 10).

From the definition just presented, the majority of authors endorse three *sine qua non* concomitant criteria used to define aggressive behaviours in schools as bullying; these are: intentionality, repetition, and power imbalance (Trompeter, Bussey & Fitzpatrick, 2018; Twardowska-Staszek, Zych & Ortega-Ruiz. 2018; Vieno, Gini & Santinello, 2011). These three criteria are thought to clearly distinguish bullying from other forms of in-school aggressive behaviours.

It is worth mentioning, however, that some scholars do not endorse all these three concomitant criteria, but rather postulate that the aggressive behaviour itself does not need to be repeated nor even need to occur at all to characterise bullying (Vaillancourt et al., 2008). Bullying would be "created not only by what happens but by the threat and fear of what may happen" (Tattum, 1997, p. 223). Studies that have suggested this perspective suggest that "if the incident happens just once, but the fear is lasting, it may be defined as bullying" (Guerin &

Hennessy, 2002, p. 251). Hence, the repetition criterion would not be necessary to classify aggressive behaviours as bullying. The problem with this theorisation, however, is that it leaves open to interpretation what would then specifically characterise a single aggressive episode as bullying. Another review by Cascardi and colleagues (2014) articulates that if bullying behaviour is then simply defined by intentionality and power imbalance, it would be no different from peer aggression for example. Furthermore, as mentioned by Guerin and Hennessy (2002), who critique this perspective, if aggressive behaviours that occur "only once or twice [are] regarded as bullying then many more children will be classified as bullies and victims. Indeed, if such a definition were to be adopted it might be more helpful to regard "bullying behaviour" as part of the repertoire of behaviours which most children exhibit to a greater or lesser extent." (p. 258).

A further point that needs to be made clear regards the power imbalance criterion. What ought to be well understood is the source of said power and its origins. As noted by Guerin and Hennessy (2002), one obvious source of power is physical strength. Subtler, but nevertheless, not less threatening, or dangerous sources of power are the power of "mental strength" (Olweus, 1997, p. 171) and the power (influence) in the classroom: social status / popularity (Olweus, 1993a; 1997; Smith et al., 1999). According to Olweus (1997), power asymmetry is intrinsically linked to the type of bullying used; one must then carefully study the dynamics of each expression of bullying to identify the source of power and its origins. For instance, direct physical forms of bullying are usually underlined by physical strength, in which a strong student bullies another physically weak (and/or young). Social exclusion and rumour spreading, on the other hand, indirect verbal forms of bullying, commonly rely on "mental strength" (Olweus, 1997, p. 171), and do not necessarily demand physical strength to be carried out. By

understanding how the different types and forms of school bullying work, addressing sources of power imbalance, for example, one can better manage aggressive occurrences at school as well as proper plan and execute prevention and intervention programs.

2.2.1.2. Reactive bullying

Another significant point should be made in respect to bullying episodes: they are all intentional in essence (Elinoff, Chafouleas & Sassu, 2004; Olweus, 1993a; 1997; Rigby, 1996a; Smith & Sharp, 1994; Smith et al., 1999): "bullying behaviours are directed at hurting others (hostile) in the absence of provocation (proactive) rather than in response to actions by others (reactive)." (Elinoff, Chafouleas & Sassu, 2004, p. 888). A reviewed study, however, claims to have identified yet another type of school bullying called reactive bullying (Van der Wal, 2004).

The distinction drawn between what is called proactive bullying and reactive bullying is based on: *i)* the bullies' previous experiences with bullying episodes (whether as an aggressor or as a victim); *ii)* the bullies' inner motives (if the aggressive behaviour is proactively or reactively driven); *iii)* and the bullies' motivation (if aiming popularity or to defend themselves, e.g.). From this perspective, "proactive bullying is aggressive behaviour that is deliberately displayed in order to achieve certain goals" (Van der Wal, 2004, p. 117). Reactive bullying is then regarded as a defensive type of aggression (Van der Wal, 2004; Milson & Gallo, 2006). Reactive bullies would be youth previously bullied themselves that now would now be "giving a pay-back" to their offenders or would have learned as victims to bully others to pursue status and popularity goals. According to Van der Wal (2004), reactive bullying happens "in reaction to being bullied [;] […] children either bully back to defend themselves or else they bully others to bolster their own self- image." (p. 117). Either way, the large majority of the scholars still regard reactive bullying as a consequence of bullying, and not as an entirely different category of school

bullying on its own (Elinoff, Chafouleas & Sassu, 2004; Olweus, 1993a; 1997; Rigby, 1996a; Smith & Sharp, 1994; Smith et al., 1999).

From the perspective of intervention, nevertheless, it is unanimously agreed how crucial it is to understand bullies' inner motives and motivation, as well as sort out the differences between proactive and reactive aggressive behaviour. "Reactive "bullies" may, for instance, profit from being trained not to answer bullying with bullying. [While] proactive "bullies" have to learn how to achieve their desired goals by adopting other behavioural patterns. For instance, they can be taught to ask if they can borrow someone else's ball instead of simply taking it away." (Van der Wal, 2004, p. 118). Even so, to call this defensive type of aggression an entire new category of school bullying potentially adds confusion and redundancy to the already current terminology used to refer to bullying.

2.2.1.3. Students' definitions of bullying

Previously, it has been suggested that all three bullying concomitant defining criteria (intentionality, repetition, and power imbalance) ought to be perceived as such by the victim to unambiguously define the aggressive episode as bullying (Tattum, 1997). However, a few of the studies reviewed have found that pupils do not share the same theoretical operationalisation of bullying as do researchers. For instance, studies conducted in Canada (Vaillancourt et al., 2008), Spain (Cuardrado-Gordillo, 2011; 2012; Cuardrado-Gordillo & Férnadez-Antello, 2016) and Sweden (Thornberg, 2010) report that students seldom endorse all the three bullying concomitant defining criteria conceptualized by scholars.

Vaillancourt and colleagues (2008), reporting on data from 1767 Canadian students aged 8 – 18, found only 1.7% of the students who participated in the study regarded intentionality as a criterion, 6% cited repetition as a defining characteristic of bullying, and 26% of the students

mentioned power imbalance as a *conditio sine qua non*. Moreover, younger children related bullying to physical aggression, general harassing behaviours, and verbal aggression in their definitions, whereas relational aggression was more typically mentioned in middle adolescence and more so reported more by girls than boys. Furthermore, Cuardrado-Gordillo's 2011 study found students definition of bullying to be related to bullying roles; for instance, "victims' sole criterion for their conceptualisation and identification of bullying is the 'intent to cause harm' [while] the aggressors, however, stress the criterion of 'power imbalance' rather than 'intent to harm'." (p. 1608).

Further studies have suggested that on defining bullying students centre their argument on the effect the behaviour had (or would have had) on the victim and on the victim's interpretation of the incident rather than on any of the three concomitant criteria (Guerin & Hennessy, 2002). As such, bullying would be, according to these students, a fundamentally subjective experience perceived and defined as such by the victim(s).

2.2.1.4. Social and cultural context in defining bullying

Bullying is widely recognised within the identified papers as "a subtype of violent behaviour that implies negative actions targeted to the physical, psychological, or social dimension and occurs repetitively and intentionally with the aim of hurting the victim, who is at a physical and/or psychological disadvantage" (Carrera-Fernández, Lameiras-Fernández, Rodríguez-Castro, & Vallejo-Medina, 2013, p. 2916). Additionally, bullying is also described within the identified papers as a social manifestation that extrapolates the dyad bully-victim (Menesini, Codecasa, Benelli, & Cowie, 2003); meaning all social actors involved in school bullying incidents play a singular role in shaping bullying expressions. The different roles identified in bullying (bullies, victims, followers, defenders, witnesses, and outsiders) according to

other studies "function within different situations and social contexts" (Gumpel, 2014, p. 379); goals and motivations differ and rearrange the dynamic group process that is bullying. Previous studies have evidenced bullying does not occur in a vacuum, most pupils are not only are aware of it but also are present when bullying occurs (Salmivalli et al., 1996; Cowie, 2000; Brendgen et al., 2013).

From a very young age, life scripts, gender roles, and age expectations are formed and held by individuals (Mooij, 2011). These influence how people see themselves and interact with one another, establishing what is good and what is bad, what is considered right and wrong. As any other form of social manifestation, definitions and perceptions about bullying are highly dependent on cultural settings (Morrison, 2006; Mooij, 2011). The nuances of bullying vary depending on sex, age, (perceived) social support, and context (Eslea et al., 2004; Morrison, 2006; Mooij, 2011). These variables, in turn, vary according to particular cultural prerogatives. Moreover, the English term "bullying" has no translation in many languages. This is the case, for example, for Portuguese (Santos & Kienen, 2014); in Brazil, for instance, bullying behaviours are often dismissed as a "playful joke" (Grossi & dos Santos, 2012; Lopes Neto, 2005) – whether this is due to not fully understanding the meaning of the word "bullying", or due to a particular sociocultural perception of the phenomenon is unclear. The fact is, nonetheless, that bullying in Brazil is commonly underreported (Grossi & dos Santos, 2012). This underreporting might be related to bullying in Brazil being culturally normalized and thus often ignored and underestimated by parents and teachers alike (Lopes Neto, 2005). Furthermore, bullying definition and criteria in some countries might emphasise a particular type of bullying behaviour over others because it is perceived to be more harmful. In Korea, for example, bullying is typically associated with "collective ostracism, collective social exclusion, or collective

harassment" (Lee, 2010, p. 155), rather than other types of bullying, such as physical aggression. Because of these cultural shaped perceptions, although a still consistent theoretical framework underlies basic concepts, definition and criteria about bullying, there are undoubtedly variations from one context to another.

2.3. What are the main types of school bullying observed?

2.3.1 Main types of school bullying

The majority of the studies reviewed (N=64/95; 67.3%) focused only on traditional forms of bullying, as opposed to cyber bullying (e.g., Mooij, 2011; Shakoor et al., 2011). Twenty-one articles (22.1%) addressed both types of bullying behaviours (e.g., Alexius et al., 2018; Sampasa-Kanyinga, Roumeliotis & Xu, 2014; Ybarra et al., 2012). Eleven studies (11.6%) were characterized as validation studies (e.g., Larrañaga et al., 2013; Shaw et al., 2013; Vessey DiFazio & Strout, 2012). The term "validation study" refers to studies that aim to provide psychometric information concerning a specific tool or measure.

Four general forms of school bullying have previously and traditionally been identified: physical, verbal, psychological (or relational) and/or sexual (de Araújo, Coutinho, Miranda, & Saraiva, 2012; Monteiro et al., 2017; Vieno, Gini & Santinello, 2011). Such forms include, for instance, insults, mockery, humiliation, abuse, discrimination, beatings, name-calling, spreading nasty rumours, stealing, social exclusion, withdrawal of friendship, and many other forms that may cause physical, emotional, psychological and/or social harm (O'Connell, Pepler & Craig, 1999; Gini et al., 2008). There is a consensus regarding the four forms of school bullying amongst researchers. It is noteworthy to mention that one study reviewed mentioned a new

type of bullying which was called racist bullying; it refers, for example, to negative remarks about a student's skin-color and/or racial shaming (Vieno, Gini & Santinello, 2011).

The reviewed studies further classify bullying, as general literature does, as direct, when victims are attacked openly (face to-face confrontation), or indirect, when victims are absent or when it occurs via a third party (Rivers & Smith, 1994). Examples of direct bullying behaviours, according to Rivers and Smith (1994), would be direct physical aggressions (such as, beating, kicking, and pushing) and direct verbal aggressions (for instance, face-to-face insults, threats, mockery, and name-calling.). Other studies cite examples of indirect bullying behaviour: social exclusion, isolation, defamation, rumour spreading, and other subtle forms of aggression generally related to social power (Underwood & Rosen, 2011). Because this type of bullying is disguised and masked, the bullying literature regards it as especially hard to identify (Elinoff, Chafouleas & Sassu, 2004). Furthermore, the number of occurrences of indirect bullying behaviour is usually low when compared to other direct forms of bullying – direct physical aggression, direct verbal aggression and sexual harassment (Elinoff, Chafouleas & Sassu, 2004). That is so because indirect bullying incidents are more difficult to measure. However, it does not necessarily mean that indirect bullying happens less. According to Underwood and Rosen (2011), "it appears that children may be less able or unwilling to seek help so far as indirect bullying is concerned. [...] It seems likely that they feel less confident about telling an adult because the evidence of indirect bullying may be more interpretive or subjective." (p. 367). Hence, although it may seem that indirect bullying behaviour happens less because it is more diffuse and harder to identify, and because it is less reported by victims, the real number of occurrences may be camouflaged.

2.3.2. Gender patterns and bullying subtypes

Most researchers agree on a gender pattern in bullying where boys are more prone to physical aggression and girls to relational aggression and cyber bullying. For instance, direct physical aggression and direct verbal aggression are typically more common among boys (Olweus, 2003; Lopes Neto, 2005), at a frequency four times higher when compared to girls (Lopes Neto, 2005). Whereas cyber bullying behaviours, for example, was found in the reviewed literature to be more frequent amongst girls than boys (see Kowalski & Limber, 2007).

Further studies have suggested, however, that gender is unrelated to the form of bullying adopted (Rivers & Smith, 1994; Boulton, Trueman & Flemington, 2002). They argue that the link between gender and specific types of bullying behaviour merely reflects the cultural and social backgrounds in which each study took place, rather than a universal trend (Vaillancourt et al., 2008). However so, it is clear that both girls and boys do engage in bullying behaviours (Underwood & Rosen, 2011).

2.3.3. Cyber bullying

From 95 papers reviewed, ten articles (10.5%) studied cyber bullying exclusively (Lam & Li, 2013; Trompeter, Bussey & Fitzpatrick, 2018). Cyber bullying may be particularly problematic as previous studies have found it can take place anywhere at all times (Underwood & Rosen, 2011). Furthermore, it enables the use of wider range of hostile behaviours, including: "happy slapping", masquerading, outing and trickery, and picture and/or video clip bullying (Shariff, 2008; Hinduja & Patchin, 2009). In addition, once cyber bullying is made public on the internet, it can go viral[2] and reach a very wide audience globally, leaving the victim much more

[2] To say that "something went viral" on the internet means that whatever it was shared online is now being transmitted very rapidly through social media, emails and instant messages, enabling access to its contents to a multitude of people (Berger & Milkman, 2012).

defenceless (Hinduja & Patchin, 2009; Kowalski & Limber, 2007; Trompeter, Bussey & Fitzpatrick, 2018). Moreover, cyber bullying may evoke a sense of anonymity which in turn may trigger feelings of disinhibition amongst bullies who may unleash more unscrupulous types of aggression (Hinduja & Patchin, 2009; Kowalski & Limber, 2007; Trompeter, Bussey & Fitzpatrick, 2018; Shariff, 2008).

Analogously to traditional forms of bullying, studies have further categorised cyber bullying as direct or indirect (Hong et al., 2018). An example of direct cyber bullying would be online threatening, whereas a case of indirect cyber bullying would be anonymously spreading nasty rumours online (Chibbaro, 2007; Hong et al., 2018). The line is drawn based on how clear it is to identify the perpetrator of the cyber bullying. If the person(s) who is cyberbullying is(are) known, then the cyber bullying would be categorised as direct; if, on the other hand, the perpetrator(s) of the cyber bullying is(are) not known, then it would be categorised as indirect cyber bullying (Chibbaro, 2007).

However so, because cyber bullying is not considered an open, face-to-face confrontation *per se*, some researchers have hypothesised that girls might be more prone to engage in this type of behaviour than boys (Kowalski & Limber, 2007; Hinduja & Patchin, 2009). Nevertheless, this theoretical claim does not hold true unanimously and evidence from further studies has shown a higher incidence of male rather than female perpetrators; for instance, a study with older adolescents (mean age 16.8) found Turkish boys, relative to Turkish girls, to be cyber bullies at higher rates. Adopting a Turkish cultural perspective, these findings are understandable; according to Çetin and colleagues (2011), Turkish girls are raised under closer supervision (both from parents and from teachers). They are taught to express more self-conscious and empathetic behaviours, and thus, they rarely play roles of bullies or followers, neither in traditional forms

of bullying nor in cyber bullying (Çetin et al., 2011). The findings highlight the role those cultural perceptions may play in understanding and assessing bullying behaviours.

2.4. How has school bullying involvement most commonly been assessed in empirical studies?

Almost all the included studies used questionnaire measures to assess bullying involvement which relates to the status students take on bullying (Cuardrado-Gordillo, 2011; 2012; Giménez Gualdo, Hunter, Durkin, Arnaiz & Maquilón, 2015; Goldbach, Sterzing & Stuart, 2018). Only four articles (4.2%) did not use scales (or tests) as part of their method. Two studies used interviews (de Araújo et al., 2012; Thornberg, 2010) and other two vignettes (Batanova, Espelage & Mrinalini, 2014; Holfeld, 2014). de Araújo and colleagues (2012), for example, opted to collect data through interviews aiming to "understand the social representations of school violence produced by adolescents" (p. 243). The authors in this study asked pupils to brainstorm terms associated with the stimuli words "school violence" and "victim". The free evocations were then processed by the Tri-Deux-Mots software, through correspondence factor analysis. Similar proceedings were carried out in the other study which conducted interviews as the main method to collect data (Thornberg, 2010). All the other articles identified used questionnaires to measure bullying involvement (N=91, 95.8%).

2.4.1. Measurement instruments

Typically, studies assessing children collect data from multi-source respondents (Gridley Blower, Dunn, Bywater & Bryant, 2019). Furthermore, traditionally, observational measures are considered gold standard for assessing child outcomes (Johnson & Marlow, 2006); however, observational measure methodology is potentially not ideal as bullying behaviours can happen at

multiple locations (Olweus, 1997), including, for example, places such as school restrooms and toilets, where the presence of a researcher would be inappropriate. Observational measure methodology is also very expensive and time-consuming. Thus, in bullying research as the current narrative review seems to suggest, two main measurement strategies are available: self-report and peer nomination.

The majority of the reviewed studies used at least one instrument to assess bullying involvement (N=66/91; 72.5%). Slightly over a quarter of these (N=25/91; 27.4%) used more than one type of measure to assess bullying involvement. From these, eighteen studies collected data concerning bullying involvement using two different types of psychometric scales (Baldry, Farrington & Sorrentino, 2017; Chen & Cheng, 2013; Kowalski & Limber, 2007; Vaillancourt et al., 2008). Five studies used three different measures (Elgar et al., 2014; Espelage, Polanin & Low, 2014). Another two studies used as many as four different instruments to assess bullying involvement (Chu, Fan, Liu, & Zhou.; 2018; Ybarra, Espelage & Mitchell, 2007).

In total, 71 *different* measures were used to assess bullying behaviours in the final 95 articles that encompassed the identified papers. This diversity of measures is problematic in that it limits comparability between study findings, raising issues around whether bullying is being consistently measured and defined, and whether these different measures are effectively capturing the same phenomenon. From the 71 measures identified, 27 were specifically developed for individual studies. Additionally, some instruments were used in more than one study. For instance: 12 different studies used the Olweus Bully/Victim Questionnaire – OBVQ (Olweus, 1996; Solberg & Olweus, 2003) and six other measures were developed based on the Olweus Bully/Victim Questionnaire; five different studies opted for the Peer Relations

Questionnaire (PRQ[3]; Rigby, 1996b) and another study used the Prosocial sub-scale of PRQ; five other studies used the Participant Role Scales (PRS; Salmivalli et al., 1996); three further studies chose the University of Illinois Bully Scale (UIBS; Espelage & Holt, 2001); yet another three different studies chose an adapted version of the Spanish Ombudsman and the UNICEF (*Defensor del Pueblo*/UNICEF, 2007) patterned on the Olweus Bully/Victim Questionnaire (Olweus, 1996; Solberg & Olweus, 2003); three other studies opted for the California Healthy Kids Survey (CHKS, 2006); other two studies used the University of Illinois Victimisation Sub-scale (UIVS; Espelafe & Holt, 2001), another two opted for the Bull-S questionnaire (Cerezo, 2012); further two chose a revised version of the questionnaire applied by Cuardrado and Férnadez (2009); yet another two different studies chose the Child-Adolescent Teasing Scale (CATS) (Vessey, Horowitz, Carlson & Duffy, 2008).

2.4.2. Use of self-report and peer nomination measures

In terms of the design of the instruments, from the 71 different measures used in the identified studies, the vast majority were structured as self-reports (N=66/71; 93%), whereas only five questionnaires (7.0%) were peer nomination strategies. The question as to which measurement strategy is better suited to assess bullying involvement, self-reports, or peer nomination, still goes unanswered. Advocates for both sides put forward valuable arguments and these will now be discussed.

[3] The Peer Relations Questionnaire (PRQ; Rigby, 1996b) refers to a survey package designed to obtain information about bullying in schools. It is a copyrighted measure sold by ACER. It contains: *i)* the PRAQ-R for Junior Students from Reception to Year 5; *ii)* the PRAQ-R for Senior Students; *iii)* the PRAQ-R for Teachers, and *iv)* the PRAQ-R for Parents. The Bullying Prevalence Questionnaire (BPQ) is a free self-report measure developed by Rigby & Slee (1993) to assess bullying involvement in schools. It measures both perpetration and victimization as well as prosocial behaviour. The 20 items of the PRQ for Senior Students (Rigby, 1996b) and the 20 items of BPQ (Rigby & Slee, 1993) are the same; the difference between the two being that the PRQ package contains other instruments which might be useful for multi-respondents and/or intervention studies.

2.4.3. Self-report measures

On one hand, most psychometric instruments used to assess bullying involvement are structured as self-report questionnaires (e.g., the Olweus Bully/Victim Questionnaire (Olweus, 1996; Solberg & Olweus, 2003) and the University of Illinois Scales (Espelage & Holt, 2001)). It has been suggested that self- report measures better embrace, due to their format, all three concomitant criteria defining of bullying: intentionality, repetition, and power imbalance. Among the practical advantages to self-report methods are the ability to quickly obtain data from large numbers of students (Ortega et al., 2001) at relatively low cost and without the more extensive ethical, consent and assent issues related to peer nominations and observational studies (Espelage & Swearer, 2003; Griffin & Gross, 2004).

On the other hand, concerns have been raised regarding the use of self-report questionnaires in respect to how cognitive development affects survey research (Borgers, de Leeuw & Hox, 2000; Gini, Albiero, Benelli & Altoe, 2007). A sufficient independent competency level in three key domains – cognition, language/reading, and social/moral systems – is identified as fundamental if structured psychometric instruments are to be administrated to children (Borgers, de Leeuw & Hox, 2000). Furthermore, other issues with questionnaires, like social desirability have been mentioned (Bohart, 2021; Van de Mortel, 2008).

The most used self-report measure identified was the Olweus Bully/Victim Questionnaire (Olweus, 1996; Solberg & Olweus, 2003) (K=12). The OBVQ has been widely used and validated in different countries and contexts (for instance, Lee (2004) Korean version). The OBVQ classifies pupils into four general bullying behaviours roles: bullies, victims, bully-victims, and uninvolved students (Olweus, 2010). The instrument assesses, except for sexual bullying victimisation, all the main forms of bullying: physical, verbal, and psychological (or

relational) bullying as well as cyber bullying. The psychological (or relational) form of victimisation is further dichotomised into two subcategories: victimisation through social exclusion and victimisation by rumour spreading. Items on the questionnaire read and define cyber victimisation as ‘‘being bullied by others using computers, e-mail messages, and pictures’’ as well as cell phones. Victimisation through social exclusion is described on the questionnaire as ‘‘being left out of things on purpose, excluded from their group of friends, or completely ignored.” (Wang et al., 2010, p. 1105). After reading a definition of bullying, pupils are instructed to indicate the frequency in which they have been exposed to bullying behaviours in the last 2 months.

2.4.4. Peer nomination Measures

Alternatively, bullying research has also used peer nomination measures. Those who advocate for peer nomination strategies, stress that since bullying is a social phenomenon (Morrison, 2006; Mooij, 2011), judgements on bullying would only be holistically accurate when all social actors involved are considered and heard (Eslea et al., 2004). Nomination strategies “represent a valid and reliable method to evaluate social behavior within the peer-group context, because it benefits from the independent judgments of all classmates” (Gini et al., 2007, p. 469).

Critics of peer nomination measurement, nevertheless, question that peer nomination strategies fail to “provide the opportunity for those victimised to report bullying that may not be known other than to the student victimised and the perpetrator.” (Shaw et al., 2013, p. 1023). Furthermore, issues around how different students are affected by bullying behaviours, whether, for instance, they interpret this form of aggressive behaviour differently have also been raised in questioning peer nomination measurements’ validity and accuracy.

The most used peer nomination measure in the final sample was Salmivalli and colleagues' Participant Role Scales (PRS) (1996). The PRS (Salmivalli et al., 1996) is organised into 21 items and assesses six extended bullying behaviours roles: bully, reinforcer, assistant, defender, outsider, and victim. Items corresponding to each role can be further organised into six different sub-scales if the aim of the study is to identify just one or two specific roles. Students are instructed to nominate up to 5 classmates (or schoolmates in general) who frequently behave in ways which fit the behavioural descriptions of bullying situations presented in the scale. For each nomination, pupils are asked to indicate the frequency in which the behaviour is exhibited. Scores are then summed across items to yield an overall bullying behaviour role score per person.

2.4.5. Presenting a definition of bullying prior to the administration of measures

In view of differences found between how researchers define bullying and how students define bullying some researchers recommend that a definition of bullying should be presented to students prior to the completion of bullying measures. Amongst the 91 studies which used measures to assess bullying involvement, a minority (N=13/91; 14.3%) however provided a definition of bullying to young people prior to the actual application of the instrument(s). The remaining studies (N=78/91; 85.7%) either did not provide a definition of bullying or did not mention whether a definition was provided.

It is noteworthy that, from amongst the 13 studies that did provide a definition of bullying, seven presented a theoretical framework (definition and criteria) based on Olweus (1991, 1993, 1996). Another seven psychometric studies provided a definition of bullying but did not reference from whom the definition used was based on.

Two studies set out to investigate the impact of providing a definition of bullying on reported prevalence findings. They conducted two parallel studies where in one study students were to

report on bullying experiences with a preceding definition of bullying presented, and in another study, pupils answered the bullying measures without a definition of bullying (Chen & Cheng, 2013; Ybarra et al., 2012). Preliminary evidence from these empirical studies suggests that providing students with a definition of bullying does not influence reporting rates; similar scores were obtained with and without its use. On the other hand, Vaillancourt and colleagues (2008) reported that when giving a definition of bullying prior to the administration of the measure pupils tended to report higher levels of bullying than those who were not given a definition; Vaillancourt et al. (2008), however, found that this effect was only observed in boys, but not girls. Additional replication studies are needed to further consolidate this finding.

2.5. Discussion

The present narrative review summarised the available literature to address three key questions regarding research on bullying: *i)* criteria used to define bullying, *ii)* main types of school bullying, and *iii)* assessment of bullying involvement. Published literature from inception up until December 2018 of the following databases were reviewed: LILACS, Medline, PsycINFO, SciELO and Web of Science. All empirical studies written in English, Portuguese, or Spanish conducted with children and adolescents with a mean age within 11 to 15 years of age were included if focused on school bullying.

The studies reviewed demonstrated broad agreement on defining bullying. School bullying was defined based on three concomitant criteria (intentionally, perceived power imbalance and repetition) and as such bullying behaviours were described as intentional hostile behaviours (as opposed to accidental or reactive), repeated over time, and where the aggressor is in a more powerful position than the victim is (Monteiro et al., 2017). One study, however, mentioned

another type of school bullying called reactive bullying (Van der Wal, 2004). The difference between "proactive bullying" and "reactive bullying" is based on the bullies' previous experiences with bullying, their motives and motivation (Van der Wal, 2004). Reactive bullying was described as a defensive type of aggression which was vicariously learned from previous bullying experiences and aimed at retaliation and/or status and popularity goals (Van der Wal, 2004; Milson & Gallo, 2006). Nonetheless, the vast majority of the reviewed studies did not acknowledge this type of aggression as bullying. The literature in general also does not recognise reactive bullying as a category of bullying, but rather as a consequence of it (Elinoff, Chafouleas & Sassu, 2004; Olweus, 1993a; 1997; Rigby, 1996a; Smith & Sharp, 1994; Smith et al., 1999). This consensus is important since a precise definition of what school bullying entails ensures conceptual comparability across studies. Unclear definitions of bullying might lead to prevention and intervention programs being unsuccessful, as a more heterogeneous group of children would be targeted.

In terms of bullying categories, four general forms of traditional school bullying are typically mentioned in literature (Olweus, 1997; Shute, Owens & Slee, 2008; Smith et al., 1999) and were identified in the studies reviewed: physical, verbal, psychological (or relational) and/or sexual (de Araújo et al., 2012; Monteiro et al., 2017; Vieno, Gini & Santinello, 2011). The studies reviewed demonstrated strong agreement on defining these main types of bullying which include physical aggression, verbal offences and teasing, social isolation and/or indifference, and sexual-related shaming. Furthermore, it was also reported that students endorse these descriptions of bullying (Guerin & Hennessy, 2002). Moreover, the reviewed studies further classified bullying behaviours as direct or indirect; examples of direct and indirect bullying behaviours include respectively: hitting and name-calling and spreading rumours and persuading

others not to play with a peer (Rivers & Smith, 1994). The distinction between direct and indirect bullying behaviours depends on whether both the bully and the victim were present at the time of the incident.

An additional and more recent form of bullying mentioned in the reviewed studies is cyber bullying (Schultze-Krumbholz, Jäkel, Schultze & Scheithauer, 2012; Betts, Spenser & Gardener, 2017). It refers to bullying that occurs via electronic communication (Hinduja & Patchin, 2009), for example bullying that occurs via "e-mail, instant messaging, in a chat room, on a website, or through digital messages or images sent to a cell phone" (Kowalski & Limber, 2007, p. S22). Cyber bullying is thought by some to be potentially more dangerous than traditional forms of bullying as it can happen at all places and times, and reach a wider audience (Trompeter, Bussey & Fitzpatrick, 2018). Furthermore, the studies reviewed stress that the electronic means through which cyber bullying is carried out allow people to maintain their anonymity, and thus cyber bullying is thought to incite more aggressive behaviours which typically would be restrained by social settings (Kowalski & Limber, 2007; Trompeter, Bussey & Fitzpatrick, 2018). Like traditional forms of bullying, cyber bullying can be further categorised as direct or indirect. Examples of direct bullying behaviours include receiving online threats, and examples of indirect bullying behaviours experiencing exclusion during internet use (Hong et al., 2018). The distinction between these two types of cyber bullying is based on how clear it is to identify the bully(ies).

Despite the consistency in relation to the agreed definition of bullying and the main types of bullying identified in the literature there was enormous variability in the measures used to assess bullying involvement. From the literature reviewed 71 *different* measures were identified. The two most used measures were the Olweus Bully/Victim Questionnaire (OBVQ; Olweus,

1996; Solberg & Olweus, 2003), and the Peer Relations Questionnaire (PRQ; Rigby, 1996b). Future studies should try to use measures commonly used in the literature to build a more robust core set of studies with similar measurement. This may entail validating such measures for use in different cultural settings to ensure they operate similarly in that context.

The review also showed that many studies used more than one measure to assess bullying. Although there are benefits to using multiple measures of bullying within one study to better capture the construct, such high degree of measure heterogeneity can create challenges – for example, when different measures produce dissimilar results. The review also revealed that most bullying measures do not assess cyberbullying – a more recent form of bullying identified. As technology is developing rapidly so are the means available to bully on the cyber space. Higher cyber bullying prevalence rates have been reported with every passing year (Buelga, Martínez-Ferrer & Cava, 2017; den Hamer, Konijn & Keijer, 2014; Hinduja & Patchin, 2009; Kowalski & Limber, 2007; Ybarra, & Mitchell, 2004). Consequently, new bullying measures are called for given the advent of cyber bullying. These should not only assess traditional forms of bullying but also be designed to include items capable of measuring a range of cyber bullying behaviours as well (e.g., the Forms of Bullying Scale; Shaw et al., 2013).

The review also highlighted the debate concerning whether to provide a definition of bullying or not prior to the completion of bullying measures. The literature reviewed was mixed in the view taken. Ortega and colleagues (2001), as well as Solberg and Olweus (2003), advocate in favour of providing participants with a proper definition prior to the application of the instrument. Providing participants with a definition of bullying is said to ensure researchers that pupils are indeed referring to bullying behaviours incidents, as opposed to other types of peer aggression, when responding to scale items (Ortega et al., 2001; Solberg & Olweus, 2003).

Another advantage perceived in providing a proper definition of bullying refers to the fact that the three concomitant criteria of bullying (intentionality, repetition, and power imbalance) can be reasonably assumed. Shaw and colleagues (2013, p. 1046) argue that in providing students with a definition of bullying "some degree of common understanding of the phenomenon" is maintained, "increase[ing] the comparability of responses". Moreover, providing pupils with a definition prior to responding to bullying measures would also be specifically beneficial since, as previous mentioned studies show, pupils tend to have their own different definitions of bullying in mind (Guerin & Hennessy, 2002; Vaillancourt et al., 2008; Thornberg, 2010; Cuardrado-Gordillo, 2011; 2012; Underwood & Rosen, 2011).

Nonetheless, those who advocate against the use of definitions in bullying measures argue that giving students a definition of bullying leads to under-reporting (Greif & Furlong, 2006; Kert, Codding, Tryon & Shiyko, 2010). It is assumed that pupils excessively worry and overthink about the concepts of the definition provided instead of focusing on the aggressive behaviour itself, leading to the under-reporting. Moreover, attributing intentionality and assessing power imbalance, according to Gini and colleagues (2007), may be a rather challenging cognitive task for some students who might lack the necessary level of social cognition to make these judgements. Hence, providing students with a definition of bullying prior to responding to bullying measures may actually confuse pupils more than help them, according to Greif and Furlong (2006), Kert et al., (2010) and Gini et al., (2007).

In sum, the reviewed literature demonstrated no consensus over whether providing a definition of bullying prior the administration of bullying measures was best or not. Most of the studies reviewed either did not provide a definition of bullying or did not mention whether a definition was provided. Furthermore, preliminary evidence from individual studies has

demonstrated that the use of a definition had no effect over self-reported bullying involvement (Chen & Cheng, 2013; Huang & Cornell, 2015; Ybarra et al., 2012). Future studies should aim to assess this effect.

2.6. Strengths and Limitations

In terms of limitations which might restrict the findings here presented mainly it is acknowledged that only peer-reviewed papers were searched for. Typically, aside from electronic databases, narrative reviews also include grey literature, conference abstracts, presentations, and other nonstandard sources of information (Rother, 2007). However, the current sample is thought large enough to support robust findings. And, furthermore, as one of the review aims was to examine the direction where the main body of research in this area has gone in, though studies may have been missed, focusing on peer-reviewed literature provides that overview. A strength of this review is the scope of the studies identified which covered all published work written in either English, Portuguese or Spanish from a period ranging from the inception of the databases LILACS, Medline, PsycINFO, SciELO and Web of Science up until December 2018. The 95 empirical studies identified were conducted in 23 different countries and thus represent views and measurement approaches from across the world.

2.7. Conclusions and recommendations for future research

The current review was guided by three key questions: a. How is school bullying defined in the literature? b. What are the main types of school bullying observed? and c. How has school bullying most commonly been assessed in empirical studies? After reviewing a robust range of literature, a clear set of conclusions can be drawn regarding these domains.

First concerning how bullying is defined, the studies reviewed demonstrated broad agreement on defining bullying. School bullying was consistently defined based on three concomitant criteria – intentionally, perceived power imbalance and repetition. Second, in terms of bullying categories, four general types of traditional school bullying were identified in the studies reviewed: physical, verbal, psychological (or relational) and/or sexual. The studies reviewed demonstrated strong agreement on defining these main types of bullying. An additional and more recent form of bullying mentioned in the reviewed studies was cyber bullying. Third, considering measurement strategies, it has become apparent from the review that bullying research should aim to use gold standard measures when assessing bullying involvement (e.g., the Olweus Bully/Victim Questionnaire (Olweus, 1996; Solberg & Olweus, 2003) and the University of Illinois Scales (Espelage & Holt, 2001)). Harmonising the use of measurement strategies across studies is paramount as it enables cross-study comparisons. Furthermore, in view of the cross-cultural differences that shaped school bullying as a social phenomenon, bullying measures should be validated for use within each particular setting/culture. It has also been suggested from the review that self-report measures are often better suited to the assessment of bullying in schools given the cost and ethical challenges of peer nomination methodology. Furthermore, regarding whether providing a definition of bullying prior to the administration of measures is advantageous, although evidence to date does not suggest that the provision of a definition is consistently related to higher levels of disclosure, similarly it is not consistently associated with lower levels either. Until more studies have addressed this question, use of a definition might be recommended to aid understanding and particularly so in cultures where there is not a direct translation of the term bullying (such as in Brazilian Portuguese).

Future bullying studies should thus aim for consistency in terms of use of gold-standard measures to allow for generalisation and to reduce measure heterogeneity across studies. Such measures should be selected based on prior use in other studies and where possible they should be conceptually comprehensive in that they either implicitly or explicitly include items that assess the presence of different forms of bullying including cyberbullying. An example of good practice in developing these measures might be to concurrently use global prevalence questions and a bullying measure to evidence criterion-related validity. From the 95 reviewed studies only six used self-report measures together with global prevalence questions, two of which chose the global prevalence questions developed by Solberg and Olweus (2003). For instance, Shaw and colleagues (2013) developed the Forms of Bullying Scale and used Solberg and Olweus (2003) global prevalence questions to test convergent validity. Furthermore, future bullying studies should locally validate such gold-standard bullying measures in different cultural settings to ensure they function similarly in that context. This is particularly important given that bullying as a phenomenon has been suggested to be context-dependent (Gary, Christopher, Joshua & Ajay, 2003; Morrison, 2006; Mooij, 2011; Gumpel, 2014; Vivolo-Kantor, Martell, Holland & Westby, 2014) and thus the validity and reliability of these instruments may vary in different cultural and linguistic contexts (Geisinger, 1994; van de Vijver & Hambleton, 1996).

2.7. References

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Chapter 3

A study to evaluate the psychometric properties of two validated bullying measures in a Brazilian school population of young adolescents

3.1. Introduction

Bullying is defined as a subset of aggressive behaviour (Espelage, Bosworth & Simon, 2000) in which a pupil is intentionally intimidated and/or victimised, repeatedly and over time by peers who are perceived in a more powerful position (Olweus, 1997). Bullying behaviours differ from other in-school forms of peer aggression notably by the presence of a perceived imbalance of power between the bully and victim, and by the repetitive nature of the incidents (Murray et al., 2019). A clear distinction between the different types of peer aggression behaviours present in school is vital as it impacts on estimated prevalence and on the targeting of prevention and intervention programs (Van der Wal, 2004).

Several studies have reported high bullying prevalence rates, where at least 15% of pupils have been involved in bullying (Nansel et al., 2001; Molcho et al., 2009). In the UK, involvement rate has been reported at around 25% (Fisher et al., 2012). In Brazil, studies have placed prevalence from around 17% (da Silva, de Oliveira, Bandeira, & de Souza, 2012) to as high as 29.5% (Marcolino, Cavalcanti, Padilha, Miranda & Clementino, 2018). The most frequent method used to assess and study bullying behaviours in schools are self-report measures (Ortega et al., 2001). Murray and colleagues (2019) stress that successful prevention and intervention programs are intrinsically dependent on valid and reliable psychometric assessment

of bullying. Measures that yield accurate results are essential for ensuring that anti-bullying prevention and intervention efforts are being correctly evaluated (Murray et al., 2019). Therefore, the use of psychometrically validated measures is *sine qua non* to any study targeting bullying behaviours.

Bullying involvement has been associated with numerous short- and long-term emotional and psychological problems, including anxiety and suicidal behaviour in victims and antisocial personality disorder in bullies (Copeland, Wolke, Angold, & Costello, 2013; Arseneault, 2018). Moreover, disruptions to child learning and development in school are also related to bullying involvement (Arseneault, 2018; Brunstein Klomek, Sourander & Gould, 2010; Hemphill et al., 2012; Litwiller & Brausch, 2013). Whereas victims were found to be at an increased risk for later employment problems, and to have difficulties forming and maintaining social and romantic relationships in adulthood (Arseneault, 2018), involvement in bullying as a bully was found to be a risk factor for later serious antisocial behaviour and delinquency (Ttofi, Farrington, Losel & Loeber, 2011). Therefore, prevention of bullying is important from both a health and an educational perspective.

3.1.1. Assessment of Bullying

To ensure that bullying is measured in a valid and reliable way, bullying measures are ideally expected to meet a set of criteria. Vivolo-Kantor and colleagues (2014) systematically reviewed 42 bullying measures developed or revised between 1985 and 2012 and identified four key criteria for the development and validation of them. First, it is crucial that bullying is conceptualised apart from other in-school peer aggression behaviours to ensure measure items are indeed assessing acts of bullying rather than other types of peer aggression in school. Second, Vivolo-Kantor Martell, Holland, and Westby (2014) advised that sound bullying measures should

include both victimisation and perpetration items; this is important because different social actors are involved in bullying and hence measure scores should allow for the identification of bullies, victims, and bully-victims. Third, Vivolo-Kantor et al. (2014) also argue that as bullying is expressed through a diversity of behaviours, measures should not only be able to identify traditional forms of bullying (e.g., direct physical and verbal) but also indirect forms of bullying such as spreading rumours and social exclusion. Although, more recent instruments have been developed to include measure items for cyberbullying (Cantone et al., 2015; Modecki, Minchin, Harbaugh, Guerra & Runions, 2014; Shaw, Dooley, Cross, Zubrick & Waters, 2013) the focus of the current study was on in-school bullying, and the measures were selected to reflect this focus. Lastly, Vivolo-Kantor et al. (2014) found that most bullying measures are rather lengthy; the average number of items found was 27.4. They suggested that this is potentially problematic, for example, for cohort studies in which numerous constructs are under study and many measures are administered in one assessment. Murray et al. (2019) mention that the use of long measures might further add to participant burden and attrition in longitudinal cohort studies which may lead to loss of data and introduce bias. In summary, the key criteria for the development or selection of bullying measures should ensure they are based on a clear definition of bullying, should include victimisation and perpetration items, and include multiple forms of bullying and use a small number of items.

As for the validation process per se, Vivolo-Kantor et al. (2014) advise that at least the following fundamental psychometric analyses be reported: reliability and convergent validity. Measure reliability indicates the ability of an instrument to coherently assess a given attribute; that is, how well the items of an instrument fit together conceptually (DeVon et al. 2007). Bullying measures are typically context-dependent (Gary, Christopher, Joshua & Ajay, 2003;

Morrison, 2006; Mooij, 2011; Gumpel, 2014; Vivolo-Kantor et al., 2014) meaning that measures developed and validated with one population may not be valid with other population or culture, and hence there is a requirement to check validity and reliability in new populations.

3.1.2. The status of research on bullying in Brazil

Although bullying research dates to late 1970s (Olweus, 1978), the first published study in Brazil assessing school bullying *per se* was just fifteen years ago (Lopes Neto, 2005). In fact, until 1930 there was virtually no educational research in the country (Ferreira, 2009; Sposito, 2001). Regarding violence at school specifically, as early as the 1980s the only forms of school violence studied were those related to public safety where the focus was on investigating vandalism, graffiti, and variations of incivility at school (Sposito, 2001; Zaluar, 1992). Fante (2003; 2005) was one of the first to study bullying and Lopes Neto (2005) was the first to systematically investigate school bullying in Brazil and publish a review about it. Reviewing literature from relevant Brazilian databases and studies, Lopes Neto (2005) found bullying in Brazil to be culturally normalised and thus often ignored or underestimated by parents and teachers alike. Likewise, many Brazilian students themselves perceived bullying as natural and common among peers; according to Lopes Netos (2005), in 2001 close to 70% of a 5,500 sample of pupils believed bullying to be a simple form of joke. As of 2017, only one empirical study had investigated child and adolescent well-being and its relationship to bullying and this was in north-eastern Brazil (Alcantara et al., 2017). Furthermore, by June 2020, SciELO (Scientific Electronic Library Online), one of the largest selections of Brazilian journals and periodicals in subjects related to humanities, social sciences, and natural sciences, had indexed just 231 publication records where the word “bullying” was mentioned in Brazilian studies. Moreover, Brazil’s national policy against bullying (Lei No. 13.185/15; BRASIL, 2015) is just six years old

and it has not been implemented in schools thoroughly. Cross-sectional data from three Brazilian National Surveys of School Health (*Pesquisa Nacional da Saude do Escolar* [PeNSE]) report a 37% increase in the prevalence of bullying in Brazilian capitals from 2009 to 2015 (Mello, Malta, Santos, Silva & Silva, 2018). Thus, there is an urgent need for bullying studies to be conducted in Brazil to inform policy and practice in schools. Following the guidelines set out by Vivolo-Kantor et al. (2014) the current study aimed to evaluate the psychometric characteristics of two measures of school bullying frequently used in international research so that their application could be considered in future studies on bullying in Brazil.

3.1.3. The current study

Very few bullying measures have been validated across different countries (e.g., the Olweus Bully/Victim Questionnaire; Solberg & Olweus, 2003). The present study was designed to evaluate the reliability and validity of two bullying measures in Brazil. Research suggests that the number of school bullying episodes increases between the ages of 11 to 13, gradually decreasing towards mid-adolescence at around 15-16 years old (Chester et al., 2015; García-Moya et al., 2014; Hong & Espelage, 2012). As such this developmental age group, between 11 and 15 years old, was chosen because it reflects the period when bullying is particularly common.

The selection of these measures was guided by this thesis narrative literature review on bullying (see Chapter 2). Moreover, the measures here selected meet the key criteria recommended by Vivolo-Kantor and colleagues (2014) whereby bullying measures should be based on a clear definition of bullying, including both victimisation and perpetration items indexed by multiple forms of bullying and organised in a small number of questions. As such, the present study aimed to determine the factor structure, reliability, and convergent and concurrent

validity of the Bullying Prevalence Questionnaire – BPQ (a component of the Peer Relations Questionnaire battery; Rigby & Slee, 1993[4]) and the University of Illinois Bully Scale – UIBS (Espelage & Holt, 2001) in relation to each other and to measures of child psychopathology and empathy. The BPQ (Rigby & Slee, 1993) was specially developed in Australia for schoolchildren and adolescents aged 12 – 18 years. The UIBS (Espelage & Holt, 2001) was designed in the United States especially for children and adolescents aged 8 to 18 years old. Only the Bully and Victimisation sub-scales of each measure were tested.

Evidence shows that a range of factors influence the validity and reliability of psychometric instruments in different cultural settings and languages (Geisinger, 1994; van de Vijver & Hambleton, 1996). For example, the construct measured may be discrepant across cultures or the distinctive meaning of items may vary across culture and context inducing therefore construct bias and item bias respectively (van de Vijver & He, 2017). Bullying measures have been found to be context-dependent (Gary et al., 2003; Morrison, 2006; Mooij, 2011; Gumpel, 2014; Vivolo-Kantor et al., 2014) and thus the validity and reliability of instruments assessing bullying in different cultural and linguistic contexts can vary. Furthermore, the use of psychometric instruments in different languages typically involves translation and/or adaptation of the instruments which too can induce biases (Brislin, 2016; Flaherty, et al., 1988; Geisinger, 1994; van de Vijver & Hambleton, 1996; van de Vijver & He, 2017); thus, there is a

[4] The Peer Relations Questionnaire (PRQ; Rigby, 1996), the second most used measure among the 95 studies reviewed in Chapter 2, is a survey package designed to assess bullying in schools. The PRQ is copyrighted and sold by ACER, it contains: *i)* the PRAQ-R for Junior Students from Reception to Year 5; *ii)* the PRAQ-R for Senior Students; *iii)* the PRAQ-R for Teachers, and *iv)* the PRAQ-R for Parents. The Bullying Prevalence Questionnaire (BPQ; Rigby & Slee, 1993) is a free self-report measure developed to assess bullying involvement in schools; the 20 items of the PRQ for Senior Students – PRAQ-R (Rigby, 1996) and the 20 items of BPQ (Rigby & Slee, 1993) are the same.

need for back-translations to assess whether the translated measures were sufficiently congruent to the originally developed and validated versions in English.

Cross-cultural translation aims for content, semantic, criterion, and conceptual equivalence between two different languages (Brislin, 2016; Flaherty, et al., 1988). Content equivalence refers to the content of each item in terms of whether it is culturally relevant. Content equivalence is particularly important because some constructs cannot, for cultural reasons, be grasped by individuals of a particular culture (van de Vijver & He, 2017). Regarding bullying studies content equivalence assessment is particularly relevant as there is no translation for the word "bullying" in many languages, including Brazilian Portuguese. Semantic equivalence refers to the level of corresponding meaning that is shared between each item in each culture after translation (Flaherty, et al., 1988). Research shows that despite the most careful translation approaches, there will always be some residual semantic meaning difference (van de Vijver & He, 2017). Another potential problem for researchers studying bullying in different cultural settings and languages regards the definition and criteria locally used to describe bullying behaviours. Definition and criteria typically emphasise a particular type of bullying behaviour over others. In Korea, for instance, bullying is typically associated with "collective ostracism, collective social exclusion, or collective harassment" (Lee, 2010, p. 155), rather than other types of bullying. Because of these cultural shaped perceptions, criterion equivalence assessment is also very relevant in cross-cultural translation. It refers to the degree in which the translated term is consistent with the norm of each culture (Flaherty et al., 1988). Lastly, conceptual equivalence in cross-cultural translation assessments indicates whether a specific construct is analogously meaningful and relevant in two different cultures (Flaherty et al., 1988). Again, as cultural unity and norms vary widely, meaning and relevance too vary from one context to another and this

needs to be accounted for. Aiming to assess content, semantic, criterion, and conceptual equivalence, the present study adapted Brislin's back-translation model (Brislin, 2016). Brislin's back-translation model has been widely used in cross-cultural studies (Costa et al., 2007; Lee et al., 2009).

In examining the structure of the selected bullying measures in Brazil, Exploratory Factor Analysis (EFA) was selected, rather than Confirmatory Factor Analysis (CFA), since the factor structure of the measures was previously untested in Brazil **(**Geisinger, 1994; van de Vijver & Hambleton, 1996). Additionally, it was anticipated that factor structure and loadings may differ from those of the original validations of these measures, as their culture specific meaning was expected to differ in Brazil (Gary et al., 2003; Morrison, 2006; Mooij, 2011; Gumpel, 2014; Vivolo-Kantor et al., 2014). Furthermore, as other cross-cultural studies have emphasised the challenges of translation and back-translation methods and how they may alter the way in which items perform (Brislin, 2016; Flaherty, et al., 1988; Geisinger, 1994; van de Vijver & Hambleton, 1996; van de Vijver & He, 2017), meant that no a priori hypothesis was made about the number of factors that would be identified. In terms of wider validity, it was hypothesised that:

a. Each sub-scale in the Bullying Prevalence Questionnaire (whether representing bullying perpetration or victimisation) would be highly correlated with its counterpart ($r \geq 0.5$) in the University of Illinois Bully Scale.

b. Bullying perpetration would be associated with lower empathy, higher externalising, and higher internalising behaviour scores. The strength of these associations was expected to be moderate $0.3 \leq r \leq 0.49$.

c. Bullying victimisation would be associated with higher depression, internalising behaviour, and peer problem scores. The strength of these associations was expected to be moderate $0.3 \leq r \leq 0.49$.

3.2. Method

3.2.1. Ethics

This study was granted ethical approval by the institutional ethical board of the *Centro Universitário Unieuro*/DF in Brazil (CAAE reference number 65268317.9.0000.5056). Head teachers and parents were fully informed about the study, and students were given the opportunity not to participate. Written parental/guardian consent and pupil assent was required prior to participation.

3.2.2. Participants

Data was collected in Brazil, in the city of Camaragibe, State of Pernambuco with school children and adolescents aged between 11 and 15 years, enrolled in a secondary school in Brazil (*Ensino Fundamental II*). The age range selected was chosen in line with empirical findings which show that bullying is more prevalent in late childhood / early-to-middle adolescence (Espelage, Van Ryzin & Holt, 2018; Gendron, Williams & Guerra, 2011; Nation et al., 2008; García-Moya et al., 2014). Three hundred and fourteen information packages containing: (i) the Parent Information Sheet, (ii) the Participant (Pupil) Information Sheet, and (iii) the Parent Informed Consent Form were sent home in May 2017. Two hundred and ten consent forms were returned to school (66.8%); no student was denied participation. Data collection was planned for the first and second weeks of June 2017 during a free study period appointed by the school. Unfortunately, full data collection could not be carried out as planned and the author could only

make one visit at the school to collect data[5]. Seventy-six school students equivalent to UK Year 7 – Year 10 therefore participated in the study but due to school timetabling the vast majority were Years 8 students (see Table 1 – Demographic Characteristics).

3.2.3. Inclusion Criteria

Study participants thus met the study criteria if: (i) between 11 and 15 years old; (ii) enrolled in *Ensino Fundamental II* (the equivalent in the UK to secondary school) in the city of Camaragibe; (iii) fluent in Portuguese; (iv) had obtained parental informed consent to participate (Parent Informed Consent Form signed by parent or guardian – See Appendix C) and v) had agreed to voluntarily take part in the study completing the Participant Informed Assent Form (See Appendix E) online.

3.2.4. Design

Internet-based, cross-sectional study with a convenience sample, using multiple self-report measures.

3.2.5. Measures

3.2.5.1. Demographic measures

Before students were provided with the link to access the psychometric measures, they were asked to answer demographic questions concerning age, gender, nationality, ethnicity, and school grade.

[5] While in Brazil I became acutely ill and had to undergo surgery which was then followed by a period of hospitalisation. Therefore, most disappointingly, full data collection could not be completed as planned. Unfortunately, due to funding restrictions and personal matters, it was not possible to continue in Brazil (or go back at a later date) to continue collecting data.

3.2.5.2. Bullying and psychopathology measures

Both bullying measures (the BPQ and the UIBS) as well as the Toronto Empathy Questionnaire (TEQ) were translated from English to Brazilian Portuguese by the author. The other two psychopathology measures used in the study were already validated in Brazil.

3.2.5.2.1. Back-translations

In assessing content, semantic, criterion, and conceptual equivalence, the present study adapted and used Brislin's back-translation model (Brislin, 2016), which has been widely used in cross-cultural studies (Costa et al., 2007; Lee, Li, Arai & Puntilo, 2009). First, the author first translated the English versions of the questionnaires into Brazilian Portuguese. Second, and blind to any prior knowledge of their original content in English, two bilingual associates, all native Brazilian Portuguese speakers who have lived in an English-speaking country since a young-age, back-translated the bullying measures (the BPQ and the UIBS) and the empathy measure (the TEQ) from Brazilian Portuguese to English. Both versions (the original and the back-translated documents) were then compared for equivalence by the author. Additionally, aiming for caution, a native English speaker further evaluated all three versions (the original, the forward and backward translations) for congruency. Appendices L, M and N contain the translations.

3.2.5.3. The Bullying Prevalence Questionnaire (Rigby & Slee, 1993)

The BPQ is a self-report psychometric measure developed to assess bullying involvement in schools including both perpetration and victimisation experiences (e.g., *"I give soft kids a hard time"* and *"I get hit and pushed around by others."*, respectively). The measure includes 20 items subdivided into three sub-scales: the Bullying sub-scale (six items), the Victimisation sub-scale (five items) and the Prosocial sub-scale (four items). An additional five items are filler

items and not statistically linked to the structural factor of the scale. As per the main goal of the present study and the hypotheses drawn, only the Bully and Victimisation sub-scales were tested.

Measure questions inquire about the frequency of physical, verbal, and indirect bullying. Questions are rated on a Likert scale ranging from 1 = "*Never*", 2 = "*Once in a while*", 3 = "*Pretty often*" and 4 = "*Very often*". There are no specified cut-off points for the BPQ, instead higher scores in each scale indicate more involvement in bullying behaviours or more victimisation experiences. The BPQ has shown good psychometric properties in previous contexts. Cronbach's alpha coefficient for each of the sub-scales are mean 0.76 for the Bullying sub-scale and mean 0.82 for the Victimisation sub-scale (Rigby & Slee, 1993). Moreover, the BPQ was validated against measures of self-esteem (Rosenberg, 1986), happiness (Andrews & Withey, 1976), and students' "liking for school" (Rigby & Slee, 1993, p. 36). Children who reported being victims of bullying were found to have lower levels of self-esteem when compared to other pupils (Rigby & Slee, 1993). Furthermore, a negative correlation was found between tending to bully others and happiness and liking school; no relationship was found between being a bully and self-esteem (Rigby & Slee, 1993).

Back-translation examination indicated no significant content, semantic, criterion, and conceptual equivalence bias for most items. However, there were items that posed translation challenges. The BPQ items 4 and 19 contain English expressions ("soft kids" and "pushed around", respectively) that have no literal translation to Brazilian Portuguese. Therefore, the expression "soft kids" was omitted from the translation and the item used was "*Eu implico com outro(s) colega(s)*", and "pushed around" was translated to its closest corresponding meaning in Brazilian Portuguese "*Outro(s) colega(s) me batem ou abusam comigo*". These items were then backtranslated to: BPQ item 4 "I pick on my classmates" (Translator 1) and "I like to pick fights

with my school peers" (Translator 2); and BPQ item 19 "Other kids hit and take advantage of me" (Translator 1) and "Some of my peers harm me physically or make fun of me" (Translator 2). Though some information is lost by omitting the expression "soft kids" in "I give soft kids a hard time", and by not literately translating the expression "pushed around" in "I get hit and pushed around by others.", the overall idea of indexing bullying behaviour was maintained in the translated version. Back-translation examination by a native English speaker supported this assertion. Likewise, the choice of replacing instead of literally translating the expression "pushed around" in "I get hit and pushed around by others" was not deemed to cause significant bias. Regarding the BPQ item 11, to avoid linguistic awkwardness and aiming for better content and semantic understanding in Portuguese, the word "make" in "I like to make others scared of me" was omitted instead of literally translated. The translated item was "*Eu gosto que os outros tenham medo de mim*" which was backtranslated to "I like it when other kids are afraid of me" (Translator 1) and "I like when others are fearful of me" (Translator 2). Again, back-translation examination yielded no significant concerns. Appendix L contains the translations and back-translation of items.

3.2.5.4. The University of Illinois Bully Scale (Espelage & Holt, 2001)

The UIBS is a self-report psychometric scale that measures the frequency of bullying behaviour, victimisation and fighting. The scale contains 18 items subdivided into three sub-scales: (i) the Bullying sub-scale (nine items), addresses how often a pupil engaged in bullying behaviours; (ii) the Victimisation sub-scale (four items) and assesses both physical and verbal types of bullying victimisation; and (iii) the Physical Fighting sub-scale (five items) (Espelage & Holt, 2001). For example, measure items read: "*I excluded other students from my clique of friends*" which indexes bullying behaviour, "*I got hit and pushed by other students*" assesses

victimisation, and "*I got in a physical fight*" measures the tendency to take part in physical fighting (Espelage & Holt, 2001). Analogously to the BPQ, only the Bully and Victimisation sub-scales were tested in the current study.

Pupils were asked to indicate the extent to which, in the last 30 days, they were involved in each behaviour by answering to items organised in a Likert scale ranging from 0 = "*never*", 1 = "*1 or 2 times*", 2 = "*3 or 4 times*", 3 = "*5 or 6 times*", or 4 = "*7 or more times*". No cut-off scores are used in the UIBS, instead higher scores in each scale indicates more involvement in bullying behaviours or more victimisation experiences.

The UIBS has shown good psychometric properties in previous contexts: internal consistency (Cronbach α mean: 0.83, and retest stability: mean 0.88. Cronbach's alpha coefficient for each of the sub-scales are 0.87 for the Bullying sub-scale and 0.88 for the Victimisation sub-scale; Espelage & Holt, 2001). The validity of the UIBS Bullying sub-scale has been supported by associations with a poorer sense of belonging at school, and more negative peer influence (Espelage & Holt, 2001). The validity of the UIBS Victimisation sub-scale is supported by associations with higher levels of depression and anxiety.

Back-translation examination indicated no significant content, semantic, criterion, and conceptual equivalence bias. Nonetheless, it is relevant to mention that the expression "other students" present in items 4, 5, 6 and 7 was purposely omitted from translation. Before the administration of the measures, students were clearly instructed to answer all questions specifically about their relationship with school peers. Therefore, and because a literal translation was felt to be linguistically awkward, the expression "other students" was omitted and left implied. Back-translation examination confirmed the implied meaning was indeed comprehended. Appendix M contains the translation and back-translation of items.

3.2.5.5. The Strengths and Difficulties Questionnaire (Goodman, 1997)

The SDQ version used in the present study was translated to Portuguese and adapted for Brazilian culture by Fleitlich et al. (2000). The SDQ assesses psychological skills and problems such as: emotional symptoms, conduct problems, hyperactivity/inattention, and prosocial behaviour (Goodman, 1997). The questionnaire has 25 items comprising of five sub-scales and each sub-scale has five items. Items are rated on a Likert scale ranging from 0 = "*Not true*", 1 = "*Somewhat true*", 2 = "*Certainly true*". The total summed score, which excludes the prosocial sub-scale, yields results ranging 0 – 40. The externalising score ranges 0 – 20 and corresponds to the summed results of the conduct and hyperactivity sub-scales. The internalising score ranges 0 – 20 and corresponds to the summed results of the emotional and peer problems sub-scales. To address study hypotheses, only the SDQ Peer problems sub-scale, the Externalising behaviour problems sub-scale, and the Internalising behaviour problems sub-scale were used.

The SDQ has been widely used across numerous countries and languages and has shown good psychometric properties: internal consistency (Cronbach α mean: 0.73, cross-informant correlation: mean 0.34, and retest stability: mean 0.62; Goodman, 2001). Moreover, regarding construct validity, the SDQ was validated against the Development and Well- Being Assessment (DAWBA; Goodman & Ford, 2000). Criterion validity was further assessed with structured non-clinical independent interviewers as well as conducted by independent mental health professionals (MHP) who assigned DSM-IV diagnoses. Psychometric assessment on the SDQ Brazilian Portuguese version, including data on validity and reliability, was conducted by Woerner and colleagues (2004). Internal consistency was assessed via Cronbach's alpha coefficients and the reported mean was 0.80 (Woerner et al., 2004). Additionally, construct

validity for the SDQ Brazilian Portuguese version was supported by evidence of positive associations with measures of mental health problems (Woerner et al., 2004).

3.2.5.6. The Patient Health Questionnaire (Kroenke, Spitzer & Williams, 2001)

The PHQ-9 version used in present study had already been translated to Portuguese and adapted for Brazilian culture by Pfizer Inc[6]. The PHQ-9 is a nine-item self-report measure for screening, diagnosing, monitoring, and measuring the severity of depression (Kroenke, Spitzer & Williams, 2001). Students were asked to indicate how often they have been bothered by a range of problems over the last 30 days (i.e., "*Poor appetite or overeating*"; "*Trouble concentrating on things, such as studying and watching TV*") on a Likert scale ranging from 0 = "*Not at all*", 1 = "*Several days*", 2 = "*More than half the days*", and 3 = "*Nearly every day*". The PHQ-9 has been widely used across numerous countries and languages and has shown good psychometric properties, including when administered to young people: internal consistency (Cronbach α means across two independent samples: 0.87, and retest stability: mean 0.84; Kroenke, Spitzer & Williams, 2001). Moreover, regarding construct validity, the PHQ-9 was validated against a 20-item Short-Form General Health Survey, self-reports of sick days and clinic visits, and symptom-related difficulties. Additionally, criterion validity with structured interviews conducted by an independent mental health professional (MHP) has been demonstrated (Kroenke, Spitzer & Williams, 2001). The PHQ-9 Brazilian Portuguese version was found to differentiate between depressed from non-depressed respondents, with higher scores in depressed individuals (diagnoses based on the SCID-IV; de Lima Osório, Vilela Mendes, Crippa & Loureiro., 2009).

[6] See https://www.phqscreeners.com/images/sites/g/files/g10060481/f/201412/PHQ9_Portuguese%20for%20Brazil.pdf

3.2.5.7. The Toronto Empathy Questionnaire (Spreng, McKinnon, Mar & Levine, 2009)

The TEQ contains 16 questions covering a wide range of attributes associated with theoretical aspects of empathy (Spreng et al., 2009). Pupils were asked to indicate how often they felt or acted a certain way (e.g., "*I remain unaffected when someone close to me is happy*"; "*I find that I am "in tune" with other people's moods*"). The TEQ has shown good psychometric properties in previous contexts; in terms of internal consistency, Spreng and colleagues (2009) report a Cronbach α mean = 0.85, retest stability (mean 0.81), and convergent and discriminant validity validated against the Interpersonal Reactivity Index (IRI; Davis, 1983) and the Autism Quotient (Baron-Cohen, Wheelwright, Skinner, Martin & Clubley, 2001). The TEQ correlated positively with behavioural measures of social decoding, self-report measures of empathy, and negatively with a measure of Autism symptomatology (Spreng et al., 2009).

Back-translation examination indicated no significant content, semantic, criterion, and conceptual equivalence bias. Nonetheless, it is important to mention that in avoiding linguistic awkwardness and aiming for better content and semantic understanding, some items were not translated *ipsis litteris* (TEQ items 5, 9 and 14). Though some information is undeniably lost by this approach, the general perceived idea of identifying empathic and non-empathic behaviour was preserved in the translated version. Back-translation examination supported this. Appendix N contains the translations.

3.2.5.8. Procedure

Where Head Teachers agreed to their schools participating, they were asked to provide researchers with confirmation. After this, an information package containing: (i) the Parent Information Sheet, (ii) the Participant (Pupil) Information Sheet, and (iii) the Parent Informed

Consent Form was sent home to all school children who met inclusion criteria. Packages contained all necessary information for parents and participants to make an informed decision about whether to participate.

Parents were asked to return the Parent Informed Consent Form enclosed in the information package to the school, if they consented to their child participating in the online study. Parents had 15 days to return the form to the school. In cases where the form was not returned to school, it was assumed parents did not consent. Where parents provided consent, the pupils were contacted by the researcher. These students were invited to take part in the study during a given school day, when most convenient for the schools (see Appendix C for a copy of the Parent Information Sheet and Parent Informed Consent Form).

The online study took place in the school computer lab at a day and time appointed by the school (a free study period). Students were provided the web link to access the survey. When participants accessed the link, prior to completing the measures, they were required to complete the online Participant Informed Assent Form. Participants were given an opportunity to ask questions before agreeing to take part (see Appendix E for a copy of the Participant (Pupil) Information Sheet and Assent Form).

3.2.5.9. Statistical Procedure

Prior to data analysis commencing, missing data for the psychopathology measures was imputed using single imputation via the Expectation-Maximization (EM) algorithm (Dempster et al., 1977) to estimate missing values. Although single-imputation approaches can artificially reduce the variance in the data, which can be problematic and hence a limitation (Horton & Kleinman, 2007) given the small number of cases of missing data found ($< 10\%$) it is reasonable to assume that the use of the Expectation-Maximization (EM) algorithm single-

imputation approach would not have a major impact. Concerning the two bullying measures (the BPQ and the UIBS), missing data was not imputed since these measures were the focus of evaluation so imputing missing data could potentially conceal the true nature of the findings. Nonetheless, missing data for the two bullying measures was actually minimal (six missing item entries for the BPQ and one for the UIBS).

Recommendations regarding the appropriate sample size to use for conducting a factor analysis are ambiguous and very diverse. Depending on conditions that vary from the number of factors, the number of variables per factor, the level of communality and so on, different sample size recommendations follow. So much so that Mundfrom, Shaw and Tian Lu Ke (2005) argue that the number and variety of conditions are in fact too diverse to actually indicate an absolute minimum number of participants. Nonetheless, a ratio of 5:1 participants per measure item is generally accepted as a minimum when running factor analysis in order to derive a stable factor solution (Gorsuch, 1983; Munro, 2005). The largest measure under evaluation by the current study has 20 items, and 100 participants would therefore be considered an appropriate sample size to use in factor analysis.

Suitability of the data for Exploratory Factor Analysis (EFA) was checked by reviewing communality, Kaiser–Meyer–Olkin (KMO) and Bartlett's test of sphericity. Parallel Analysis (PA; Horn, 1965) was used to determine how many factors to extract from the EFA. The use of Parallel Analysis (PA) has been suggested to be the most accurate process for deciding the number of factors to retain (Ledesma & Valero-Mora, 2007; Velice, Eaton & Fava, 2011), superior to both Kaiser's criterion and the scree test for identifying factors (Zwick & Velicer, 1986). As SPSS 25 (IBM Corp, 2013) does not incorporate Parallel Analysis (PA), the R statistical package (R Core Team, 2020) was used instead. Operating the R function fa.parellel()

of the psych package (Revelle, 2019), random eigenvalues from a random set of data were generated based on the same number of variables and the same number of cases as the present study, then these random eigenvalues were compared to the study's actual eigenvalues. The factors with eigenvalues higher than the random eigenvalues were retained (Horn, 1965). According to Horn (1965), a factor that explains more variance than chance is more significant than its counterpart and thus Parallel Analyses (PA) works by ratifying the fidelity of the factors retained.

Exploratory Factor Analysis (EFA) was next conducted using a principal axis analysis as the extraction method and direct oblimin rotation. Although the original BPQ validation study used an orthogonal rotation method – varimax (Rigby & Slee, 1993), in the current study an oblique rotation approach was used as the base of the analyses. Based on evidence supporting a dual bully-victim profile (Olweus, 2010), it was assumed that the measure variables would be correlated and yield interrelated factors, thus direct oblimin was used for rotation. Nonetheless, aiming for caution, a parallel EFA (with the same final nine items) was also run using varimax for rotation. In comparing both matrixes no significant discrepancy was found and so the statistical procedure continued with the oblique rotation approach. $A > 0.35$ threshold was used for factor loadings (Tabachnick & Fidell, 2013).

Following the Exploratory Factor Analysis (EFA), Cronbach's alpha was calculated for each sub-scale to assess internal reliability. Convergent and concurrent validity were also evaluated. Before executing these analyses, normality tests were conducted to assess the distribution of the data. Afterwards, bivariate associations between the bullying measures sub-scales, the BPQ and the UIBS, were individually computed, and each Bully and Victimisation sub-scale was analysed against its counterpart. Similarly, concurrent validity was also assessed

by examining bivariate associations between each Bully and Victimisation sub-scale and the measures of psychopathology separately. The appropriate correlation coefficient (Pearson's or Spearman's) was computed based on variable distribution.

Finally, since the sample size for EFA in this study was small, and the resultant factor structure possibly unreliable, the internal consistency of the BPQ and UIBS subscales was also examined as they were originally developed, with all items included in the subscales. Concurrent validity and convergent validity were also examined for these original subscales to enable a descriptive comparison of performance between the scale composition derived from EFA with that derived from the previously published version.

Although a hundred participants were considered the minimal appropriate sample size for the study, for the reasons already explained, data collection was interrupted, and the final sample size was smaller than expected. As such, aiming for caution, we conducted post-hoc sensitivity analyses to consider whether the achieved sample size could be deemed adequate for testing convergent and concurrent validity using tests of association. Results from the sensitivity analysis (Cohen, 1988; Erdfelder, Faul, & Buchner, 2005) run on G*Power 3 (Faul, Erdfelder, Lang & Buchner, 2007) indicated that the final study sample of 76 participants was found to reach 80% power and able to detect a correlation as low as $r = 0.23$. Therefore, the final sample size, though smaller than the expected, was considered adequate for the correlational analyses to follow.

3.3. Results

3.3.1. Demographic characteristics

The final sample included 76 students. Students aged 11 – 15 (M = 12.35 years old) comprised the sample. About half of the sample were females. Most students were 7° ano (UK Year 8). The schools were responsible for scheduling data collection when most convenient. All Ensino Fundamental II students (the equivalent in the UK to secondary school) were approached. In practice, however, most of the participants recruited were from 7° ano (UK Year 8). This likely relates to the availability of free study for that year group during the running of the study. Sample characteristics are reported in Table 1.

Brazilian nationals represented most of the sample. Foreigners account for less than 1% of the population in Brazil (IBGE, 2010) and thus not many foreigners were expected. Moreover, close to half sample were white, followed by *pardo*, *índio* (native Brazilian) and black students. Pardo is the official term for the miscegenated population in Brazil. It literally means "brown" or "grey" (Travassos & Williams, 2004). The characteristics of the sample are provided in Table 1.

Table 1.

Demographic characteristics

Variable	Category	Number (percentage)
Gender (N/%female)		41 (53.9%)
Age (M/range)		12.35y/11-15
Nationality (N/%)	American	1 (1.3%)
	Brazilian	73 (96.1%)
	Dutch	1 (1.3%)
	Portuguese	1 (1.3%)
Ethnicity (N/%)	Black	3 (3.9%)

Ethnicity (N/%)	*Índio* (Native Brazilian)	8 (10.5%)
	Pardo	27 (35.5%)
	White	33 (43.4%)
	Other	5 (6.6%)
School Grade (N/%)	6° *ano* (UK Year 7)	1 (1.3%)
	7° *ano* (UK Year 8)	73 (96.1%)
	8° *ano* (UK Year 9)	1 (1.3%)
	9° *ano* (UK Year 10)	1 (1.3%)

3.3.2. Exploratory factor analysis and reliability analysis

3.3.2.1. The Bullying Prevalence Questionnaire (Rigby & Slee, 1993)

Since the goal of factor analysis is to try and explain the variance across the common factors, communality was first assessed. Communalities are defined as each variable's proportion of variability that is explained by the factors (Child, 2006). Removing items with low communalities, which typically share little variance with the underlying construct(s), allows for a stronger factor solution (Child, 2006). When assessing communality, SPSS (IBM Corp, 2013) calculates two communalities' estimates: the initial communalities estimate gives the variance in each variable accounted for by all factors, whereas the extraction communalities estimate gives the variance in each variable accounted for by the extracted factors specifically (see Table 2). The latter thus indicates that the factors represent the variables well. Adopting Child's (2006) threshold of < 0.2, in the current study two BPQ items with a low initial communality value item 4 (from the Bullying sub-scale) and item 9 (from the Bullying sub-scale) were removed (see Table 2). Item 4 reads "I give soft kids a hard time" (Eu implico com outro(s) colega(s)) and item 9 "I am part of a group that goes around teasing others" (Faço parte de um grupo na escola que abusa de outro(s) colega(s)).

Further, the KMO statistic suggested adequate item inter-correlation (0.658), and the Bartlett's test of sphericity was significant $x^2(55) = 223.932, p < 0.01$), suggesting EFA was appropriate. The first five eigenvalues were: 3.313, 1.791, 1.198, 1.119, and 0.871. Two factors surpassed Horn's parallel analysis threshold and were thus retained. All nine items had loadings > 0.350, except for BPQ item 14 which loaded 0.131 and thus was not included in the final measure factor structure.

Table 2.

Bullying Prevalence Questionnaire – BPQ Communalities

BPQ	Initial	Extraction
BPQ3 I get called names by others.	0.678	0.768
BPQ4 I give soft kids a hard time.	0.171	0.164
BPQ8 I get picked on by others.	0.421	0.437
BPQ9 I am part of a group that goes round teasing others.	0.188	0.356
BPQ11 I like to make others scared of me.	0.513	0.492
BPQ12 Others leave me out of things on purpose.	0.238	0.269
BPQ14 I like to show others that I'm the boss.	0.221	0.298
BPQ16 I enjoy upsetting wimps someone I can easily beat.	0.469	0.936
BPQ17 I like to get into a fight with someone I can easily beat.	0.363	0.547
BPQ18 Others make fun of me.	0.624	0.706
BPQ19 I get hit and pushed around by others.	0.441	0.499

Note. Extraction Method: Principal Axis Factoring

The first factor (the Victimisation sub-scale – comprising 5 items) accounted for 30.6% of the variance and the second factor (the Bullying sub-scale – comprising 3 items) accounted for 14.5%. The results were similar to the original two-factor structure of this scale (Rigby & Slee, 1993). However, the pattern of factor loadings differed. All five of the original five Victimisation items (items 3, 8, 12, 18 and 19) loaded onto a Victimisation sub-scale in the current study. However, only half (three) of the original six Bullying perpetration items (11, 16 and 17) loaded adequately onto a Bullying sub-scale (see Table 3) in the current study. Item 14 did not load adequately at this stage and two other items (Items 4 and 9) had been excluded prior to this stage due to low commonality values as described previously. The three Bullying perpetration items that were retained illustrate clear psychological (or relational), verbal, and physical forms of bullying behaviours, respectively items 11, 16 and 17. These are bullying behaviours typically performed in a direct manner (as opposed to indirect bullying which happens when victims are absent or when it occurs via a third party; Rivers & Smith, 1994). Furthermore, items 11 "I like to make others scared of me" (Eu gosto que os outros tenham medo de mim), 16 "I enjoy upsetting wimps someone I can easily beat" (Gosto de abusar colega(s) quando sei que são mais fracos que eu), and 17 "I like to get into a fight with someone I can easily beat" (Gosto de brigar quando sei que sou mais forte) describe bullying that is carried out individually, as opposed to in a group. The other three items that were included in the original BPQ Bullying sub-scale, but that were not retained in the final Bullying sub-scale factor in the current study, illustrate bullying more indirectly and/or bullying behaviours that happen in a group; for instance: Item 4 reads "I give soft kids a hard time" (Eu implico com outro(s) colega(s)), item 9 "I am part of a group that goes around teasing others" (Faço parte de um grupo na escola que abusa de outro(s)

colega(s)), and item 14 “I like to show others that I’m the boss” (Eu gosto de mostrar que quem manda na escola sou eu).

Table 3.

Bullying Prevalence Questionnaire – BPQ Structure Matrix

BPQ	Factor 1	Factor 2
BPQ3 I get called names by others.	0.849	
BPQ18 Others make fun of me.	0.824	
BPQ19 I get hit and pushed around by others.	0.700	
BPQ8 I get picked on by others.	0.628	
BPQ12 Others leave me out of things on purpose.	0.354	
BPQ11 I like to make others scared of me.		0.753
BPQ16 I enjoy upsetting wimps someone I can easily beat.		0.661
BPQ17 I like to get into a fight with someone I can easily beat.		0.573
BPQ14 I like to show others that I'm the boss.		0.131

Note. Extraction Method: Principal Axis Factoring.
Rotation Method: Oblimin with Kaiser Normalization.

Internal reliability was checked for both BPQ sub-scales individually. The Bullying sub-scale, in the current sample, comprising items 11, 16 and 17, was found to have a Cronbach’s $\propto = 0.700$, and the Victimisation sub-scale comprising the original items 3, 8, 12, 18 and 19 had a Cronbach’s $\propto = 0.809$. As the BPQ Bullying sub-scale factor structure found in the current study differed from the originally validated subscale, Cronbach’s alpha was calculated with the original items in this sample to compare the alphas and reflect upon relative internal reliability.

The Bullying sub-scale originally comprised six items: items 4, 9, 11, 14, 16 and 17, and was found to have a Cronbach's $\propto = 0.506$ in the current study, which is poor.

3.3.2.2. The University of Illinois Bully Scale (Espelage & Holt, 2001)

The original UIBS Bullying sub-scale comprises nine items and the Victimisation sub-scale four items. Examining item communality values, all UIBS items surpassed the 0.2 threshold (Child, 2006) and hence none were removed (see Table 4). The KMO statistic suggested adequate item inter-correlation (0.729), and the Bartlett's test of sphericity was significant $x^2(78) = 504.301, p < 0.01$), suggesting EFA was appropriate. The first five eigenvalues were: 4.559, 2.417, 1.256, 0.938, and 0.837. Two factors surpassed Horn's parallel analysis threshold and were retained.

Table 4.

University of Illinois Bully Scale – UIBS Communalities

UIBS	Initial	Extraction
UIBS1 I upset other students for the fun of it.	0.562	0.347
UIBS2 In a group I teased other students.	0.330	0.162
UIBS4 Other students picked on me.	0.739	0.757
UIBS5 Other students made fun of me.	0.732	0.739
UIBS6 Other students called me names.	0.737	0.838
UIBS7 I got hit and pushed by other students.	0.434	0.244
UIBS8 I helped harass other students.	0.627	0.640
UIBS9 I teased other students.	0.656	0.433
UIBS14 I was mean to someone when I was angry.	0.452	0.220
UIBS15 I spread rumours about other students.	0.445	0.358
UIBS16 I started (instigated) arguments or conflicts.	0.676	0.530
UIBS17 I encouraged people to fight.	0.666	0.525

UIBS	Initial	Extraction
UIBS18 I excluded other students from my clique of friends.	0.685	0.562

Note. Extraction Method: Principal Axis Factoring

The first factor (representing the Bullying sub-scale) accounted for 32.9% of the variance and the second factor (the Victimisation sub-scale) accounted for 15.8%. The two factors here found are like those originally identified for this scale by Espelage and Holt (2001). However, the pattern of item loadings differed. Three items were found to cross-load on both factors (> 0.32; Costello & Osborne, 2005) (see Table 5), though, overall, distinct factor patterns appeared to still be present. Items 2 and 14, originally indexing bullying behaviours, cross-loaded highly on both factors. Nonetheless, based on conceptual grounds and on their higher loadings on the first factor, they were considered to find a better fit on the Bullying sub-scale, and thus they were retained. Item 4 was also found to cross-load though was ultimately retained in the Victimisation sub-scale. Although loading highly on the Bullying sub-scale, item 4 loaded twice as high on the second factor (the Victimisation sub-scale) which was expected as it was conceptually congruent with the literature.

Table 5.

University of Illinois Bully Scale – UIBS Structure Matrix

UIBS	Factor 1	Factor 2
UIBS8 I helped harass other students.	0.798	
UIBS18 I excluded other students from my clique of friends.	0.748	
UIBS17 I encouraged people to fight.	0.724	

UIBS	Factor 1	Factor 2
UIBS16 I started (instigated) arguments or conflicts.	0.724	
UIBS9 I teased other students.	0.657	
UIBS1 I upset other students for the fun of it.	0.589	
UIBS15 I spread rumours about other students.	0.586	
UIBS14 I was mean to someone when I was angry.	0.411	0.341
UIBS2 In a group I teased other students.	0.328	0.323
UIBS6 Other students called me names.		0.903
UIBS5 Other students made fun of me.		0.859
UIBS4 Other students picked on me.	0.430	0.852
UIBS7 I got hit and pushed by other students.		0.494

Note. Extraction Method: Principal Axis Factoring.
Rotation Method: Oblimin with Kaiser Normalization.

In summary, in the current study the Victimisation sub-scale factor comprised of the original four items for that scale with loading values > 0.350. Likewise, the Bullying sub-scale factor loaded all the original items with loadings > 0.350, except for one item (item 2) which l loaded 0.328 (see Table 5). Finally, internal reliability for both the bullying and the victimisation sub-scales (with item 2 excluded) was found to be adequate (Cronbach's $\propto \geq 0.7$; Kline, 1999). The Bully factor yield a Cronbach's $\propto = 0.838$, and the Victim factor a Cronbach's $\propto = 0.860$. Since item 2 only marginally fell short of the item loading threshold set at > 0.350, internal consistency for the Bullying sub-scale (including that item) was calculated to see if its inclusion lowered the internal consistency for the sub-scale markedly. Cronbach's alpha was found to be good at $\propto = 0.836$ (cf $\propto = 0.838$) so the item was retained to enable the scale to remain identical to the original structure.

3.3.2.3. Convergent and Concurrent validity

In terms of convergent validity, it was hypothesised that: each bullying or victimisation sub-scale would be highly correlated with its counterpart ($r \geq 0.5$). Although there is no definite rule for interpreting correlation coefficients, generally, correlation coefficients between 0.1 and 0.2 are thought to represent weak or small associations, while coefficients between 0.3 and 0.4 are considered indicative of moderate correlations, and correlation coefficients $\geq$ 0.5 thought to represent strong or large associations (Cohen, 1988).

In the current study, results from the bivariate correlations between the bullying measures yielded moderate to strong correlations, with the correlation between the two Bullying sub-scales being moderate ($\text{rho} = 0.343, \text{p} = 0.003$), and between the correlations between Victimisation sub-scales being strong ($\text{rho} = 0.768, \text{p} < 0.001$). As the present factor structure of the BPQ Bullying sub-scale did not mirror the originally suggested scale structure, the bivariate correlation for the original BPQ subscale was also calculated to provide a comparison. Despite the measure's lower internal consistency, the correlation between the two original Bullying sub-scales was stronger, with the correlation coefficient being $\text{rho} = 0.527, \text{p} < 0.001$. So, despite its lower internal consistency, scores on this original bullying subscale were more strongly associated with UIBS bullying.

In terms of concurrent validity, it was hypothesised that bullying perpetration would be moderately ($0.3 \leq r \leq 0.49$) associated with lower empathy, higher externalising, and higher internalising behaviour scores, and bullying victimisation would be moderately associated with higher depression, internalising behaviour, and peer problem scores. To test concurrent validity, bivariate correlations between the BPQ sub-scales and each of the psychopathology measures were calculated. The Bullying sub-scale of the BPQ was significantly correlated, as anticipated,

with externalising problems and lower empathy. Higher bullying scores were associated with higher SDQ Externalising Problems factor ($rho = 0.304, p = 0.008$) and with lower empathy (TEQ) scores ($rho = -0.302, p = 0.008$). However, no significant association was found between the Bullying sub-scale of the BPQ and SDQ Internalising Problems factor ($rho = -0.010, p = 0.929$). The Victimisation sub-scale of the BPQ was significantly associated, as predicted, with the SDQ Internalising Problems factor ($rho = 0.340, p = 0.004$), with the SDQ Peer Problems sub-scale ($rho = 0.340, p = 0.004$), and with depression PHQ-9 scores ($rho = 0.273, p = 0.021$).

Again, as the factor structure found for the BPQ Bullying sub-scale did not map onto the originally validated scale, aiming for caution, bivariate correlations between the original BPQ Bullying sub-scale and each of the psychopathology measures were calculated again. The pattern of associations was very similar. The Bullying sub-scale of the BPQ was again found to be significantly and moderately correlated with externalising problems ($rho = 0.357, p = 0.002$) and lower empathy ($rho = -0.389, p < 0.001$). And again, no significant association was found between the Bullying sub-scale of the BPQ and SDQ Internalising Problems factor ($rho = -0.006, p = 0.959$).

Bivariate correlations were next examined between the UIBS sub-scales and each of the psychopathology measures individually. Analogously to the BPQ, the strength of these associations was expected to be moderate. The Bullying sub-scale of the UIBS was significantly and positively correlated, as expected, with the SDQ Externalising Problems factor ($rho = 0.315, p = 0.006$) and with the SDQ Internalising Problems factor ($rho = 0.288, p = 0.012$), and negatively associated with empathy ($rho = -0.259, p = 0.025$). The Victimisation sub-scale of the UIBS was significantly associated, as anticipated, with the SDQ Internalising

Problems factor ($rho = 0.332, p = 0.003$), with the SDQ Peer Problems sub-scale ($rho = 0.282, p = 0.013$), and with depression PHQ-9 scores ($rho = 0.291, p = 0.011$).

3.4. Discussion

The present study aimed to determine the factor structure, reliability, convergent and concurrent validity of the BPQ (Rigby & Slee, 1993) and the UIBS (Espelage & Holt, 2001) in relation to each other and to measures of child psychopathology and empathy. Though no fixed hypothesis was made regarding the number of factors, it was expected that the bullying measures would cohere similarly. More so, it was hypothesised that each sub-scale (bullying and victimisation) would be correlated with the other bullying involvement measure used. In addition, bullying perpetration was hypothesised to be associated with externalising and internalising behaviour scores and lower empathy, and bullying victimisation associated with greater depression, internalising behaviour scores and peer problems.

Although it was considered that a minimum sample of 100 participants was an appropriate sample size to use in factor analysis, the present study, for reasons already discussed, sampled only 76 subjects. Small sample sizes have been associated with sampling error, and the factor analysis solutions derived may be both less stable and less reliable compared to the factorial structure derived from a larger population (Costello & Osborne, 2004; MacCallum, Widaman, Preacher & Hong, 1999). Moreover, small sample sizes impose bias which "limits the extent to which data is representative of a larger population and generates factor structures which elude replication" (Lingard & Rowlinson, 2005, p. 2). The current results should therefore be treated with caution, but still provide a useful pilot of the measures within a Brazilian sample, though further replication is needed.

The present findings gave tentative support for a two-factor structure of the BPQ and UIBS within a Brazilian sample of school children. The pattern of item loadings, however, varied from those found in the original validation studies for the BPQ. The internal reliability for the bullying and victimisation sub-scales of both measures, assessed by Cronbach's alpha, was found to be within acceptable values, and the hypothesised convergent and concurrent validity of these scales was *partially* supported. The findings in relation to the factor structure and internal reliability of each measure will now be considered in turn.

3.4.1. The Bullying Prevalence Questionnaire

Regarding the BPQ factor structure, the present findings support the two-factor latent content structure of the sub-scales. All five original items loaded onto the BPQ Victimisation sub-scale factor (items 3, 8, 12, 18 and 19). However, for the BPQ Bullying sub-scale only 3 items (items 11, 16 and 17) from the original six items were appropriate to include. Questionnaire items four and nine were removed early at the start of the statistical procedure because of their small communality value (< 0.2). Typically, small communality values indicate that a variable has little in common with other variables and should thus be removed, aiming for precision (Munro, 2005). According to Beavers and colleagues (2013), small communality coefficients arise most commonly when the sample size is limited, as in the current study. Another possible explanation is tied to translation bias. Brazil is a large country, and several linguistic regionalisms exist (Charles, 1948). Linguistic regionalisms refer to the tendency speakers of a specific geographic area have to favour a pronunciation, meaning and use of a word (Pedersen, 1996). Item four "I give soft kids a hard time" (*Eu implico com outro(s) colega(s)*) and item nine "I am part of a group that goes around teasing others" (*Faço parte de um grupo na escola que abusa de outro(s) colega(s)*) might not have accounted for much

variance due to linguistic regionalism misinterpretation. In North-eastern Brazil, where data was collected and where the author is from, the words "*implico*" and "*abuso*" have very different colloquial meanings from those established in the formal dictionary. They typically mean, in North-eastern Brazil, "annoy", "irritate", "aggravate". Indeed, back-translation examination confirmed adequate semantic, criterion and conceptual equivalence (see Appendix L). Nonetheless, the independent associates who back-translated the measures were aged 26 and over, whereas the bullying measures were administrated to youth (11 – 15 years old). It might be thus that the younger generations have interpreted the words "*implico*" and "*abuso*" differently. Moreover, some of the participants might not have been originally from North-eastern Brazil and hence not share the same semantic, criterion or conceptual knowledge.

Additionally, another bullying item, "I like to show others that I'm the boss" (BPQ14 *Eu gosto de mostrar que quem manda na escola sou eu*), was excluded from the final bullying factor structure because its loading weight was markedly below the < 0.350 threshold. This item is notably distinct to others in the BPQ Bullying sub-scale. The remaining items describe direct efforts to hurt others physically or emotionally, whereas item 14 describes something more indirect. The lower loading of this item may suggest that this form of behaviour is seen as more distinct to the other more direct examples of bullying captured in the BPQ. Empirical evidence shows that within Brazilian culture relational bullying in the form of social exclusion is viewed more distinctly to physical and verbal bullying (Medeiros et al., 2015; Santos, Gouveia, Soares, Cavalcanti & Gouveia, 2014; Santos, Perkoski & Kienen, 2015). This finding indicates that studies investigating bullying behaviours in Brazil might benefit from using psychometric instruments that distinctively differentiate all forms of bullying. Nonetheless, aware of cross-cultural translation bias, the translation of item 14 as a possible cause for the small loading

weight should also be considered. However, upon examination no indication of semantic, criterion or conceptual bias was observed (see Appendix L).

Regarding the items' commonalities and the final Bullying sub-scale factor structure, the final BPQ Bullying sub-scale included items 11 "I like to make others scared of me" (*Eu gosto que os outros tenham medo de mim*), 16 "I enjoy upsetting wimps someone I can easily beat" (*Gosto de abusar colega(s) quando sei que são mais fracos que eu*), and 17 "I like to get into a fight with someone I can easily beat" (*Gosto de brigar quando sei que sou mais forte*). Four general forms of school bullying have traditionally been identified: physical, verbal, psychological (or relational) and/or sexual (de Araújo, Coutinho, Miranda, & Saraiva, 2012; Monteiro et al., 2017; Vieno, Gini & Santinello, 2011). The three item BPQ Bullying sub-scale clearly captured physical and psychological (or relational) forms of bullying, respectively in item 17 and item 11. As for item 16, which refers to "upsetting wimps", a variety of bullying behaviours can follow under this descriptor, for instance: insults, mockery, humiliation, and name-calling – most of which are typically verbal forms of bullying. Furthermore, the final three items retained better fit the category of direct bullying aggression, when victims are attacked openly as opposed to indirect bullying when victims are absent or when it occurs via a third party (Rivers & Smith, 1994). Indirect bullying, the bullying literature suggests, is harder to identify and consequently the reported frequency of indirect bullying behaviour occurrences is usually found low when compared to other direct forms of bullying (Elinoff, Chafouleas & Sassu, 2004). So, it might be that the students' comprehension and definition of bullying was more focused on direct physical, verbal, and psychological items. This could potentially explain why items 11, 16 and 17 were retained, for they better explained and more strongly defined bullying perpetration as a factor, having more in common amongst themselves, whilst the other

bullying items describing more indirect reference to bullying behaviours, as in item four "I give soft kids a hard time" (*Eu implico com outro(s) colega(s)*) were not retained. Furthermore, while bullying behaviours can be carried out either individually or in a group (Elinoff, Chafouleas & Sassu, 2004), a bullying dyad (bully – victim) is more commonly cited. This could explain why the BPQ Bullying item 9 "I am part of a group that goes around teasing others" (*Faço parte de um grupo na escola que abusa de outro(s) colega(s)*) was also not retained, having little in common with other bullying item variables that describe individual proactive aggressive behaviour.

Regarding internal reliability both BPQ sub-scales yielded Cronbach's $\propto \geq 0.7$ which is congruent with the good psychometric properties reported by Rigby and Slee (1993). The reliability of a measurement assesses its consistency and several factors, such as a small number of items can be responsible for low coefficients (Tavakol & Dennick, 2011). Despite the small final number of items found in the Bullying BPQ sub-scale, internal reliability was found to be adequate, more reliable even than if the original sub-scale structure was $\propto = 0.700$. This 3-item subscale appeared to comprise items reflecting direct individual use of verbal or physical bullying behaviour. In contrast, items 4, 9 and 14 from the original measure, which reflect more indirect forms of bullying behaviour as part of a group (I am part of a group that goes around teasing others) or might reflect social dominance displays but may not be construed explicitly as bullying (I like to show others that I'm the boss; I give soft kids a hard time), were not endorsed as part of the same bullying subscale within Brazilian culture. If this cultural explanation for the differential interpretation of items is true, then the exclusion of these bullying items from the original sub-scale may be justified for use in Brazil. However, further confirmation of this finding is needed in future studies.

In sum, internal reliability of the original Bullying BPQ sub-scale was examined and although the internal consistency was poor and far lower than that gained with the 3-item subscale derived from EFA in the current study, total score on the original subscale evidenced a stronger association with the Bullying UIBS sub-scale, so there was evidence of higher validity. Future work will be required in larger samples to test out whether the factor solution and internal consistency derived in the current study was limited by the small sample size or whether the cultural explanations given for possible differences in the factor solution might receive further support.

3.4.2. The University of Illinois Bullying Scale

The overall factor structure of the UIBS in the current Brazilian study was found to replicate that of the original scale. There were small differences since several items cross-loaded on the Bullying and the Victimisation sub-scales although they loaded most strongly on the theoretically congruent factor. One item yielded a slightly lower loading weight than the pre-set threshold (< 0.350) however it was retained since the internal consistency of the sub-scale was almost identical to that obtained if the item was removed. In summary, the two UIBS factors were clearly distinguishable and congruent with literature on bullying behaviours. These findings are discussed in more detail below.

Items 2, 4 and 14 were found to cross-load on the two factors (> 0.32; Costello & Osborne, 2005). Item 2 loaded poorly onto both factors (< 0.35). There are a few possible explanations for this profile of loadings which differ a little from the pattern reported in the original US validation report for the scale (Espelage & Holt, 2001). Item 2 ("In a group I teased other students") is the only item that refers to engaging in bullying behaviour as part of a group. Item 14 also differs to others in that it refers to bullying behaviour when angry ("I was mean to

someone when I was angry"). It may be that both these items therefore capture a more reactive response in situations where mutual teasing or being mean occurs, which could explain why the items also loaded onto the Victimisation sub-scale of the measure. It may also be that the cross-loading reflects responses from children who have a dual profile, one of a bully-victim. These results in a Brazilian sample may be indicative of subtle differences in how different forms of bullying behaviour are conceptualised compared to the population the measure was initially validated in the United States (Espelage & Holt, 2001). The current study was conducted in Camaragibe in North-eastern Brazil about one hour away from the location of another study which has evidenced that bully-victims (those with both sets of experiences) account for as high as 42.9% of the student-body involved in bullying (Alcantara et al., 2017). This specific characteristic of the population may have contributed to the greater tendency for items to cross-load. Finally, the translation of these items was contemplated as a possible cause for the cross-loadings however back-translation examination indicated no source of semantic, criterion or conceptual bias (see Appendix L). The cross-loading for item 4 ("Other students picked on me") which was translated to "*Implicaram comigo*" and back-translated to "They picked on me" (Translator 1) and "Some of my peers pick fights with me" (Translator 2). Future large-scale studies examining the performance of the UIBS in a Brazilian setting are required to replicate the findings reported here and could perhaps shed light on these findings.

Regarding internal reliability, the UIBS original validation study reported Cronbach's $\propto$ means for the UIBS sub-scales $= 0.830$ (Espelage & Holt, 2001). In the present study internal reliability was found to be very similar at 0.836 and 0.860 for the Bullying and Victimisation sub-scales respectively.

3.4.3. Criterion validity and concurrent validity

The hypothesis for criterion-related validity was that each UIBS sub-scale would be highly correlated with its counterpart in the BPQ at $r \geq 0.5$ (Cohen, 1988). In relation to concurrent validity, it was also predicted that bullying perpetration on each scale would be associated with externalising and internalising behaviour scores and lower empathy, and that bullying victimisation would be associated with greater depression, internalising behaviour scores and peer problems. The strength of these associations was expected to be moderate (Cohen, 1988).

The Victimisation sub-scales for the two bullying involvement measures were found to be strongly correlated ($\mathrm{rho} = 0.768, \mathrm{p} < 0.001$), as predicted, but the Bullying sub-scales were only moderately correlated ($\mathrm{rho} = 0.343, \mathrm{p} = 0.003$), thus partially supporting the hypothesis concerning convergent validity. Since the study's factor structure of the BPQ Bullying sub-scale did not map onto the originally validated measure, a second bivariate correlation analysis was run using the original BPQ Bullying sub-scale. The correlation between the two original Bullying sub-scales was stronger than that observed for the factor structure found in the study, with the correlation coefficient being $\mathrm{rho} = 0.527, \mathrm{p} < 0.001$; which thus would meet the study's criterion-related validity hypothesis.

In relation to testing concurrent validity, though most of the bullying research has reported Odds Ratios (OR) to inform about bullying associations (Ball et al., 2008; Bowes et al., 2009; Hemphill et al., 2012; Le et al., 2017), other studies have used bivariate correlations to assess the strength of association between bullying roles and psychopathology and interpersonal characteristics. For most of these, correlation magnitudes of $\mathrm{r} \geq 0.3$ were found to be adequate to infer a meaningful association (Garbin, Teruel, Costa, Saliba & Garbin, 2019; Hawker & Boulton, 2000; Kelly, 2018; Monteiro et al., 2017; Richard et al., 2021).

Considering $r \geq 0.3$ as evidence of a reliable meaningful association, the current study results found both Bullying sub-scales were positively and moderately correlated with SDQ Externalising Problems. Indeed, wider research has reported conduct problems associated with bullying perpetration and these may both precede and follow engagement in bullying (Arseneault, 2018; Lösel & Bender, 2014). Moreover, as predicted, a significant association between the UIBS Bullying sub-scale and the SDQ Internalising Problems component was found. The BPQ Bullying sub-scale, however, was found not to be significantly associated with internalising behaviour scores. This is the only element of hypothesis 3 that was not supported. Furthermore, because the factor structure found for the BPQ Bullying sub-scale did not map onto the originally validated measure, bivariate correlations between the original BPQ Bullying sub-scale and each of the psychopathology measures were also calculated. Congruent with the study findings on concurrent validity for the subscale scores derived from EFA, no significant association was found between the original Bullying sub-scale of the BPQ and SDQ Internalising Problems component either. Also, the strength of the correlations using either the study's factor structure or the originally validated measure was similarly moderate for associations between bullying and externalising behavioural problems, and between bullying and lower levels of empathy.

Although research consistently finds an association between bullying perpetration and externalising behavioural problems, such as delinquency and aggression, findings for an association with internalising problems are more mixed. A few studies have reported a significant correlation between internalising behaviour problems and being a bully (Duncan, 1999; Kaltiala-Heino & Rimpela, 2000a; 2000b; Kumpulainen Räsänen & Puura, 2001), however, other studies have not (Bowes et al., 2009; Jansen, Veenstra, Ormel, Verhulst &

Reijneveld, 2011). Regarding empathy, both Bullying sub-scales significantly and negatively correlated with the TEQ, supporting the study hypothesis that bullying is associated with lower levels of empathy for others. High empathic levels, expressed by a good ability to feel or pick up on the emotions others are feeling, have been evidenced as a protective factor against engaging in bullying (Espelage, Van Ryzin & Holt, 2018; Stavrinides, Georgiou & Theofanous, 2010).

Concerning the Victimisation sub-scales, both the UIBS and BPQ were significantly and moderately positively correlated with SDQ Internalising Problems. The BPQ Victimisation sub-scale was also moderately correlated with the SDQ Peer Problems sub-scale, though the association found between the latter and the UIBS Victimisation sub-scale was weaker ($\mathrm{rho} = 0.282, \mathrm{p} = 0.013$). Furthermore, both the UIBS and the BPQ Victimisation sub-scales were significantly and positively correlated with PHQ depression, though correlations were slightly weaker, $\mathrm{rho} = 0.291, \mathrm{p} = 0.011$ and $\mathrm{rho} = 0.273, \mathrm{p} = 0.021$ respectively, thus partially supporting hypothesis 3. Past research which has suggested the psychological consequences of bullying victimisation to include high levels of anxiety and depression (Ganesan et al., 2021; Hawker & Boulton, 2000; Kidger et al., 2015; Ledwell & King, 2015), as well as low self-esteem (Hawker & Boulton, 2000; Olweus, 1993), negative identity construction (Thornberg, 2010) and overall quality of life (Garbin et al., 2019). Moreover, especially for girls, self-harming behaviour has also been reported linked to bullying victimisation (Kidger et al., 2015; Karanikola, Lyberg, Holm & Severinsson, 2018). The finding that the Victimisation sub-scales were significantly correlated with the SDQ Peer Problems sub-scale is also in line with the literature (Fabiano et al., 2010; Ttofi & Farrington, 2008). This is unsurprising given that bullying is a form of peer aggression and thus denotes peer problems.

3.5. Limitations

Guidance estimated that a minimum of 100 participants was necessary to yield robust psychometric results. Due to the author's ill health, however, data collection was abruptly interrupted, and the present study sampled 76 subjects. The low sample size might have affected the findings from exploratory factor analysis and subscale composition as discussed above. In addition, the cultural validity of three of the original BPQ bullying subscale items that did not load onto the BPQ bullying subscale in Brazil is also questionable. Furthermore, it was notable that there were more difficulties posed during the translation of items within the BPQ. In contrast, the translation of items for the UIBS was not problematic and the factor structure was found to replicate the original scale. Despite these limitations, the present findings are useful in that they can inform the development of a full-scale research project in Brazil.

A further limitation of the current study was the homogeneous age distribution of the sample which could be a potential source of bias. Most of the study volunteers were 7° *ano* (UK Year 8) students. The schools were responsible for scheduling data collection when most convenient to them; though several dates spread across different free study periods were pre-arranged, the researcher was only able to collect data once. As such, the age and school grade sample distribution are far more homogeneous than originally intended, and thus the present results are unlikely be generalisable right across middle adolescence. Additionally, the ethnic distribution of the sample is atypical of Brazil as a whole. In the last national census in 2010, the population of Brazil was 195.7 million, and only 896,917 of them were self-declared *índios* (native Brazilians) (IBGE, 2010). Yet in the current sample native Brazilian students accounted here for a tenth of all participants. According to data from the National Household Sample Survey (*Pesquisa Nacional por Amostra de Domicílios* – PNAD), 45.22% of Brazilians declare

themselves white, 45.06% *pardo* (“brown” or “grey”) (Travassos & Williams, 2004), 8.86% black, 0.47% yellow and 0.38% *índio* (native Brazilian) (IBGE, 2016). Therefore, the distribution here found is atypical and may limit the generalisation of the findings to the Brazilian population.

Overall, these limitations highlight the need for the performance of the BPQ and UIBS bullying measures to be psychometrically assessed with large sample of youth recruited in Brazil, ensuring a more heterogeneous sampling frame that can represent the range of ages and national demographics of the Brazilian adolescent population as a whole.

3.6. Conclusion

The validity of any study rests in part on the reliability and accuracy of the measures it relies on. Though both the BPQ and the UIBS demonstrated good internal reliability, only partial support was found for the convergent and concurrent validity of the measures. The results from factor analysis of the UIBS in the Brazilian sample replicated the original validated structure and there were no significant challenges in terms of difficulties posed during the translation process. In addition, the UIBS was also found to show the most consistent pattern of associations with the measures of psychopathology. In contrast, the Bullying sub-scale of the BPQ was found to perform differently in Brazil. Factor analysis results did not map onto the original scale with only three out of the original six items retained and it did not show the hypothesised association with internalising problems. There were more difficulties in translating the BPQ than there were for the UIBS which might explain why the UIBS was found more suited for use in Brazil. Nonetheless, although the results for the UIBS are encouraging and suggest its suitability for use in Brazil, over the BPQ, further use of these scales in Brazil cannot be recommended until a

more comprehensive study is done. Further research sampling a larger and more heterogeneous population is needed to further evaluate the psychometric properties of the measures here investigated. Additionally, regarding bullying behaviours in general, findings here suggest that relational bullying may be viewed more distinctly to physical bullying in Brazil, and thus studies investigating bullying behaviours within Brazilian culture could benefit from using psychometric instruments that distinctively differentiate all forms of bullying. Moreover, given that bullying measures are found to be context-dependent, future research should focus on locally developing and validating bullying scales that are culturally and linguistically meaningful.

3.7. References

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Chapter 4

A systematic review of early prospective predictors of bullying behaviour

Abstract
Bullying is defined as intentional, power imbalanced and repetitive use of in school peer aggressive behaviours. Research shows bullying is a global issue, where roughly two in every ten pupils are directly involved in bullying. Furthermore, bullying involvement poses a high risk for developing emotional and psychological problems as well as educational problems. Although, much is known about the consequences of bullying, there are fewer studies designed to investigate what factors lead to bullying behaviour. The current review therefore aimed to synthesise the extant literature on prospective early childhood predictors of being a bully (i.e., actively engaging in bullying as a perpetrator) in general population samples. Literature searches were conducted via the following electronic databases: Medline, PsycINFO and Web of Science. Studies were included if (i) they assessed school bullying, (ii) adopted a prospective or longitudinal research design, (iii) assessed childhood predictors of bullying measured at ages 12 years or younger, and (iv) were written in English, Portuguese, or Spanish. Twenty-eight papers comprise the final number of reviewed studies. The wide variety of bullying measures, the mixed range in terms of how studies modelled the longitudinal effects, and the high degree of heterogeneity of the predictor(s) investigated hinder a robust and congruent quantitative synthesis among studies. Therefore, a meta-analysis approach was not possible, and a narrative synthesis approach was chosen instead. Results indicated that being male was found to pose a higher risk for actively engaging in bullying. Evidence also suggests that students who were exposed to violence or hostility of others such as domestic violence, harsh parenting, physical punishment or being friends with other students who exhibit antisocial behaviours are at higher risks of engaging in bullying behaviours. Having an uncertain or changing home environment, expressed by having divorced parents or living in homes characterised by low parental involvement were similarly reported as risk factor predictive of bullying behaviours. Externalising difficulties and low self-control were reported to increase the risk for engaging in bullying. There was mixed evidence for earlier ADHD and internalising problems being linked to increased chances of engaging in bullying. Preliminary evidence also suggests early adolescents (aged 13 – 15) to be more prone to bullying behaviours. Longitudinal studies with a robust approach to the measurement of bullying behaviour in this area are lacking. More studies, starting early in life, are required to clarify the effect of many of the predictors here reviewed on the likelihood of later bullying behaviour. Particularly so regarding socio-economic environmental factors and internalising problems, so as to better inform the appropriate targeting of early interventions. This review was registered retrospectively at PROSPERO (CRD42018102648).

Keywords: school bullying; early prospective predictors; middle childhood; longitudinal studies; psychometric testing.

4.1. Introduction

Bullying is defined as a subset of aggressive behaviour (Espelage, Bosworth & Simon, 2000) in which a pupil is intentionally intimidated or victimised, repeatedly, and over time, by peers who are in a more powerful position (Olweus, 1997). Studies indicate that about 15% of any given student-body is directly involved in bullying either as a victim or as a bully (Molcho et al., 2009). Bullying involvement has been associated with numerous emotional and psychological problems, including anxiety and suicidal behaviour in victims and antisocial personality disorder in bullies (Copeland, Wolke, Angold, & Costello, 2013). Moreover, disruptions to child learning and development in school are related to bullying involvement (Hemphill et al., 2012). Therefore, prevention of bullying is important from both a health and an educational perspective. Although several studies have focused on causes of antisocial behaviour more broadly, fewer studies have investigated what factors contribute to engaging in bullying behaviours in particular. In contrast, there is a vast literature focussed on the consequences of bullying (Li, 2007; Olweus, 1993a). Better understanding of why bullying occurs will help guide prevention efforts. Longitudinal data is particularly well suited to identifying early prospective childhood mechanisms that could explain why some children become bullies. The current paper is the first to systematically review early childhood predictors of being a bully.

Although some research on predictors of bullying exists, most of this literature focuses on middle and high schools' pupils aged 12 and over (Chester et al., 2015; Hong & Espelage, 2012; Olweus, 1993b; 1997). This leaves neglected the study of school bullying earlier in childhood from 5 to 11 years. Furthermore, bullying which starts in childhood may potentially continue into older age (Hemphill et al., 2012), and so studying bullying in earlier age groups is important to gain better understanding of its developmental trajectory. The literature suggests that the

number of school bullying episodes reported increases significantly between the ages of 11 to 13, gradually decreasing towards mid-adolescence at around 15-16 years old (Chester et al., 2015; García-Moya et al., 2014; Hong & Espelage, 2012; Olweus, 1993b; 1997). Although some of the likely reasons why bullying typically fades away are known (e.g., due to the ongoing development of social and interpersonal skills students acquire over time) (Deitch-Stackhouse et al., 2015; Smith, Madsen & Moody, 1999), the reasons why bullying incidents start increasing at 11 years old are not as clear. From a preventive perspective identifying factors that contribute to early bullying behaviours is crucial and may help in the development and targeting of interventions to prevent bullying from becoming more entrenched in adolescence.

The current review aimed to synthesise the extent literature on prospective early childhood predictors of being a bully (i.e., actively engaging in bullying as a perpetrator) in general population samples. Unlike cross-sectional designs, longitudinal research allows the temporal characteristics of the relationship between early risk factors and bullying to be investigated, including how potential risk factors and bullying interact within an individual (as opposed to just between individuals). Adjusting for baseline confounding variables helps further increase the plausibility of causal associations (Higgins & Green, 2008). The present review therefore focuses solely on longitudinal research. We also focus on predictors within the general population, and therefore excluded data from samples belonging to particular clinical or diagnostic groups (e.g., studies with attention deficit hyperactivity disorder, obese pupils, and etc) because there are likely unique processes and predictors specific to these populations.

4.2. Method

4.2.1. Search Strategy

This review was registered retrospectively at PROSPERO (CRD42018102648) on July 6th, 2018.

Two literature searches were conducted: a first from the earliest date available till May 2017 and a second from April 2017 to December 2019. Both searches were conducted electronically via the following electronic databases: Medline, PsycINFO and Web of Science. These databases were chosen due to their coverage of research within key disciplines (e.g., psychology, psychiatry, sociology, pedagogy). The following keywords and Boolean operators were used: (longitudinal or prospective or cohort or "follow-up") AND (child* OR adolesc* OR "young person" OR teenag*) AND (bully*).

4.2.2. Inclusion and exclusion criteria

Studies were included if (*i*) they assessed school bullying, (*ii*) adopted a prospective or longitudinal research design, (*iii*) assessed childhood predictors of bullying (i.e., measured at ages 12 years or younger), and (*iv*) were written in English, Portuguese, or Spanish (because these are the languages known to the research team). Bullying could be assessed either in childhood or adolescence (studies that assessed bullying at time points later than 12 years and/or reported a mean age older than 12 would be included if they also studied predictors assessed at time-points before the age of 12). Bullying was defined in terms of intentionality, power imbalance and repetition of aggressive behaviours that occur either within or around school premises or involve relationships formed within these educational contexts (Olweus, 1997). Papers were excluded if they (*i*) only used qualitative research designs, (*ii*) were non-empirical papers (e.g., reviews and editorials), or (*iii*) were evaluations of intervention or prevention

programs. As the present review focused on processes in the general population, study samples that were restricted and targeted only one specific gender or any particular sub-clinical group (e.g., children diagnosed with attention deficit hyperactivity disorder, obese/overweight youth, disabled children) were not considered eligible (e.g., Agel, Marcenes, Stansfeld & Bernabé, 2014). This decision was made because distinct processes may be involved in these populations that may differ to those of relevance in the general population.

4.2.3. Screening process

Titles and abstracts were initially screened for potentially eligible studies by the first author (CG). Studies that did not appear to meet the inclusion criteria were excluded at this stage. Afterwards, the full texts of the remaining titles were read by the first author to ascertain they met inclusion criteria.

Table 6 contains a summary of the study characteristics which includes information about the (*i)* study details (authors, data of publication and country where the study was conducted), (*ii)* sample source; (*iii*) participant characteristics (sample N, mean age at baseline, sample gender and ethnicity); (*iv*) measure(s) of bullying (type of measurement used and when they were assessed) and (*v)* predictor(s) measured (what was investigated and when they were assessed).

4.2.4. Data Synthesis

A meta-analysis approach was not possible as the identified studies varied greatly in terms of how they modelled the longitudinal effects. Additionally, the included studies also varied a lot in terms of the choice of predictor(s) investigated and measure of bullying behaviour used. Therefore, given the data available, a narrative synthesis approach was chosen. Furthermore, due to the high degree of heterogeneity in terms of the predictor(s) investigated, many of which were

investigated in individual studies only, the strength of associations between bullying and the predictors in this review is only reported where some degree of congruency was observed.

4.2.5. Risk of Bias Assessment

The first author (CG) and a second researcher (MR) independently assessed the 28 final included papers for risk of bias using an adapted tool developed by the Agency for Healthcare Research and Quality (Plassman, Williams, Burke, Holsinger & Benjamin, 2010). This tool has previously been utilised in other reviews including Taylor, Hutton, and Wood (2015). It assesses risk of bias across several domains including: the representativeness and description of the cohort, the robustness of the methods utilised to measure bullying and the predictor(s), the appropriateness of the follow-up period length, whether missing data was observed and, when so, if appropriately minimised, and whether analyses were appropriate and included consideration of confounding variables. Domains are rated as "Yes" (indicating low risk of bias), "No" (indicating high risk of bias), "Partially" (indicating a medium risk of bias) or "Unclear". Where ratings were discrepant between reviewers, the research team discussed and resolved the rating.

4.3. Results

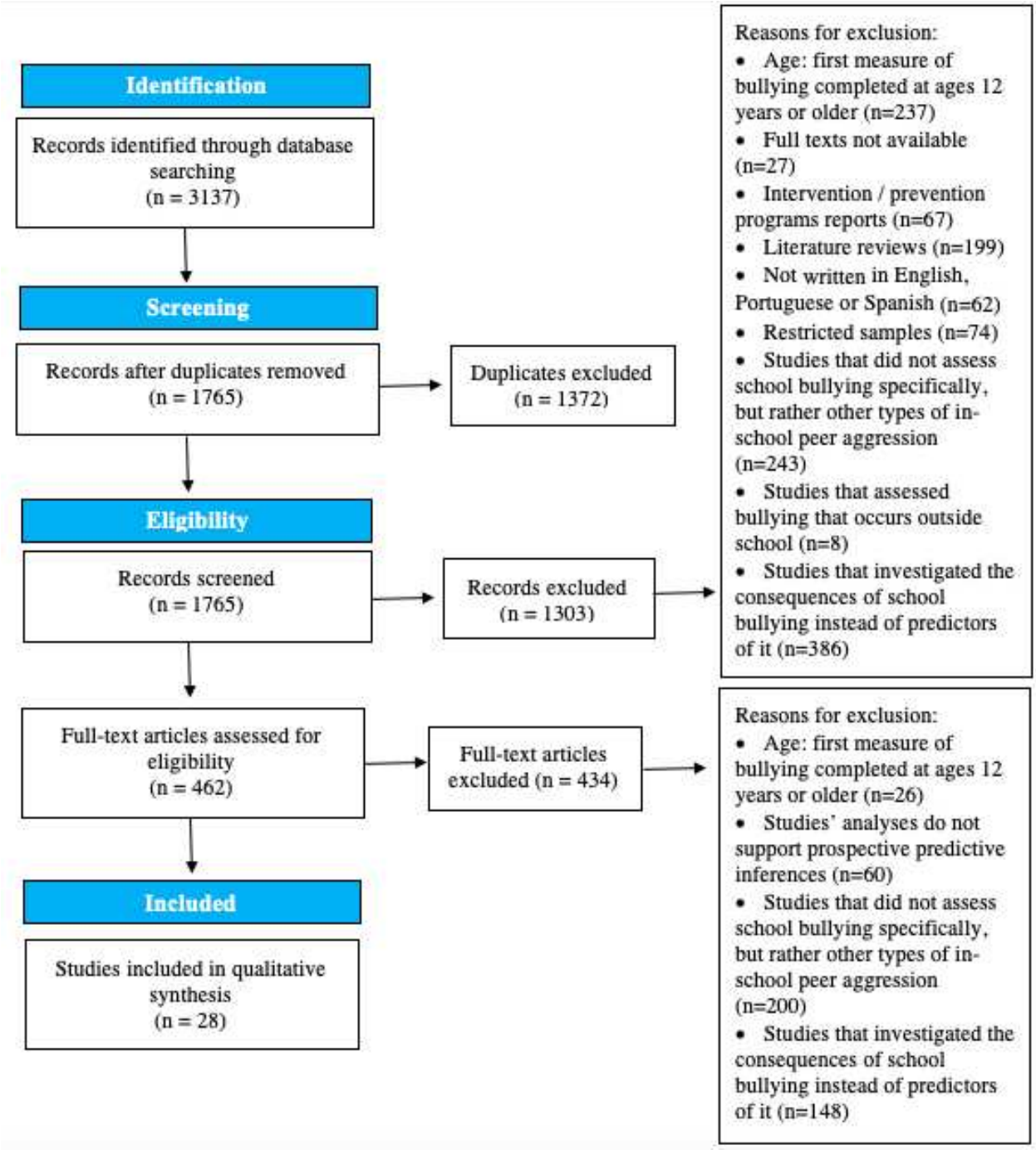
4.3.1. Study characteristics

The review identified 28 eligible articles. Figure 2 details the screening process.

All the papers that met the inclusion criteria were written in English. Data was collected in 11 different countries; with American studies being most common (N=7), followed by South Korean studies (N=5).

Figure 2

Flow diagram of included studies



Sample sizes ranged from 124 (see Terranova, Morris & Boxer, 2008) to 7299 participants (see Gendron, Williams & Guerra, 2011). Assessment of predictors and bullying behaviours were collected at ages which ranged from 5 years (see Bowes et al., 2009; Shakoor et al., 2012) to 14.7 years old (see Le et al., 2017) across the multiple time points data was collected. Self-report measures of bullying were most used (n=19), followed by peer nomination strategies (n=7), mother's report (n=3), parents' report (n=1), teacher's report (n=2), and interviews (n=2). Some studies used a combination of these strategies (e.g., Kretschmer, Veenstra, Dekovic & Oldehinkel, 2017; Shakoor et al., 2012). Table 6 details the study characteristics of the final 28 articles that met inclusion criteria.

Table 6

Summary of Study Characteristics

Sample source	Authors, years & country	Participant characteristics	Bullying measure	Predictors measured
1. Data stem from the Environmental Risk (E-Risk) Longitudinal Twin Study	Ball et al. (2008) The UK (England and Wales)	N = 1116 (51.1% female). Mean age at baseline = not reported. Data collected at age 5, 7 and 10. Ethnicity not reported.	Child Behaviour Checklist with mothers and teachers (see Achenbach, 1991a; 1991b).	Genetic and environmental factors influence.
2. Data stem from the Environmental Risk (E-Risk) Longitudinal Twin Study	Bowes et al. (2009) The UK (England and Wales)	N = 2232 (51% female). Mean age at baseline = not reported. Data collected at ages 5 and 7. Ethnicity not reported.	During interviews at age 7 years mothers and teachers were asked whether children had been bullying others responding ‘‘never’’ (0), ‘‘yes’’ (1), or ‘‘frequent’’ (2).	Data collected at ages 5 School: total number of children in school, percentage of children eligible for free school meals. Neighbourhood factors: neighbourhood vandalism, problems with neighbours, family socioeconomic disadvantage, And family factors: mothers’ depression, parent’s antisocial behaviour, domestic violence, maternal warmth, stimulating activities, child maltreatment, child internalizing and externalising behaviour problems.
3. Data stem from the Environmental Risk (E-Risk) Longitudinal Twin Study	Shakoor et al. (2012) The UK (England and Wales)	N = 2232 (gender % not reported). Mean age at baseline = not reported. Ethnicity not reported.	At ages 5-, 7-, and 10, early involvement in bullying assessed during interviews with mothers. Age 12 victimisation assessed via mother’s and children’s reports. Age 12 bullying measured by the Child Behaviour Checklist (see Achenbach, 1991a) and Teacher`s Report Form (see Achenbach, 1991b).	Data collected at age 5 years (ToM and IQ) and 7 and 10 years old (emotional and behavioural problems). Theory of mind understanding and IQ, emotional and behavioural problems.

Sample source	Authors, years & country	Participant characteristics	Bullying measure	Predictors measured
4. Data stem from the Korean Youth Panel Study (KYPS)	Cho et al. (2017) South Korea	N = 2844 (46% female). Mean age at baseline = not reported. Data collected at age 11, 12, 13, 14 and 15. Ethnicity not reported	Data collected at ages 11, 12 and 13, 14 and 15 years old. A three-item self-report measure on a continuous scale developed for the study.	Data on delinquency was collected at age 11, data on deviant peer affiliation was collected at age 12, data on security of attachment to parent was collected at age 11, data on self-control was collected at age 12. Sociodemographic characteristics.
5. Data stem from the Korean Youth Panel Study (KYPS)	Cho (2018) South Korea	N = 2844 (46% female). Mean age at baseline = not reported. Data collected at age 11, 12, 13, 14 and 15. Ethnicity not reported.	Data collected at ages 11, 12 and 13, 14 and 15 years old. Three-item self-report measure on a continuous scale developed for the study. One-item self-report item developed for the study (see Cho et al., 2007).	Data collected at ages 11, 12 and 13, 14 and 15 years old. Deviant peer affiliations and self-control.
6. Data stem from the Korean Youth Panel Study (KYPS)	Cho et al. (2019) South Korea	N = 2844 (46% female). Mean age at baseline = not reported. Data collected at age 11, 12, 13, 14 and 15. Ethnicity not reported.	Data collected at ages 11, 12 and 13, 14 and 15 years old. A three-items self-report measure on a continuous scale developed for the study (see Cho et al., 2007).	Data collected at ages 11, 12 and 13, 14 and 15 years old. Delinquent peer association, parental attachment, and self-control.
7. Data stem from the Korean Youth Panel Study (KYPS)	Hong et al. (2017) South Korea	N = 2168 (46.7% female). Mean age at baseline = 10.94 Ethnicity not reported.	Data collected at ages 13 – 14 Self-report measure: School Violence Perpetration Questionnaire developed by the Korean National Youth Policy Institute (see NYPI, 2010).	Data collected at ages 10 – 11 Punitive parenting Data collected at ages 12 – 13 Socially withdrawn behaviour and deviant peer affiliation.

Sample source	Authors, years & country	Participant characteristics	Bullying measure	Predictors measured
8. Data stem from the Generation R Study	De Vries et al. (2018) The Netherlands	N = 1298 (51.3% female). Mean age at baseline = not reported. Data collected from birth. 64% Dutch.	Data collected at age 7.5 peer nomination measure.	Data on parental hostility and harsh disciplinary practices was collected at 20-weeks' gestation and at age 3 years old Data on family distress was collected at 20-weeks' gestation and at age 6 years old.
9. Elementary school children part of the Dutch PEERS study (embedded in the Generation R Study (Jaddoe et al., 2012)	Verlinden et al. (2014a) The Netherlands	N = 1377 (51.7% female). Age at baseline = 4 years. 59.6 % of Dutch national origin.	Data collected with Dutch schoolchildren at grades 1–2 (mean age=7.68 years) PEERS Measure for victimization and bullying (see Verlinden et al., 2014b).	Data collected at age 4.1 years (executive function) and 6 years old (IQ). Executive function (inhibition, shifting, emotional control, working memory or planning/ organization), and IQ.
10. Fifteen middle schools within the state of Illinois	Espelage et al. (2018) The US	N = 1565 (48% female). Mean age at baseline = 11 years. 22% White, 31% Black, 33% Hispanic, and 11% as Biracial.	Data collected at ages 11 – 15.5. Self-report measure: the 9-item University of Illinois Bully Scale (see Espelage & Holt, 2001).	Data on family relations, victimisation, empathic concern, impulsivity, and depression was collected at ages 11. Data on delinquency, deviant peer affiliation and school belonging was collected at ages 15.5.
11. Data stem from the Partnering for Health Student Outcomes (PHSO)	Forster et al. (2019) The US	N = 632 (gender % not reported). Mean age at baseline = not reported. 23% White, 21% Black, 19% Hispanic, 14% Asian or Pacific Islander, slightly under 2% American Indian or Alaska Native and 21% Multiracial.	Data collected with US 6th grade students in the fall and spring of the academic year 2015–2016. Self-report measure adapted from the California Healthy Kids Survey (see Austin & Duerr, 2004).	Data collected with US 6th grade students in the fall of 2016. Student school engagement.

Sample source	Authors, years & country	Participant characteristics	Bullying measure	Predictors measured
12. Seventy-eight schools and community centres (Data stem from a larger prevention initiative study when no intervention was in place)	Gendron et al. (2011) The US	N = 7299 (52.2% female). Mean age at baseline = not reported. Data collected from the fall (T1) and spring (T2) of the 2006–2007 and 2007–2008 academic years. 33% were 10–12 years old, 49% 13–15 years, and 18% were 16–19 years. 59% non-Latino White, 24% Latino, 4% Black, 3% Asian or Pacific Islander, 2% Native American, 8.0% other.	Data collected at ages 10 – 12 and 13 – 15 Adapted eight-item self-report scale (see Espelage, Holt & Henkel, 2003)	Data collected at ages 10 – 12 and 13 – 15 Self-esteem, approving normative beliefs about bullying, and school climate.
13. Data stem from the International Youth Development Study	Hemphill et al. (2012) Australia	N = 696 (51.8% female). Mean age at baseline = 12.9 years. Ethnicity not reported.	Data collected at ages 12.9 and 15.2 A single-item self-report measure developed for study, measured at Grade 7 and 9. The item was based on questions asked in the Gatehouse Bullying Scale (Bond et al., 2007).	Data collected at ages 12.9 Self-reported measures of individual, family, peer group, and family risk factors in Grade 7 obtained from a modified version of the Communities that Care survey.
14. Students in a large US Midwestern city	Kawabata et al. (2014) The US	N = 597 (49.9% female) Age at baseline = 9—11 years. 30.6% European-American, 30% African- American, 12.2% Latino, 13.1% Hmong, 3.8% Asian, 3.3% Native American, and 7% others.	Data collected at three time points during one calendar year: the fall of Grade 4 (Time 1), the spring of Grade 4 (Time 2), and the fall of Grade 5 (Time 3). Peer nomination: Relational Aggression and Physical Aggression (see Crick & Grotpeter, 1995). Peer nomination: Relational Victimization and Physical Victimization (see Crick & Bigbee, 1998).	Data collected at three time points during one calendar year: the fall of Grade 4 (Time 1), the spring of Grade 4 (Time 2), and the fall of Grade 5 (Time 3). Adaptive, maladaptive, mediational, and bidirectional processes of relational and physical aggression, victimisation, and peer liking.

Sample source	Authors, years & country	Participant characteristics	Bullying measure	Predictors measured
15. Public middle and high schools' students from two urban areas of the Red River Delta	Le et al. (2017) Vietnam	N = 1424 (44.9% female). Ethnicity not reported.	Data collected six months apart in 2014 and 2015 with high school students aged 12 – 17 (Mean age=14.7). Traditional and Cyber Bullying Victimization and Perpetration self-report Measure (see Le et al., 2016).	Data collected six months apart in 2014 and 2015 with high school students aged 12 – 17 (Mean age=14.7). Reaction when seeing bullying events; supervision of online activities; family, friend, and school social support; witnessing parents serious arguing or fighting; perceptions of students and teachers trying to stop bullying at school; depressive symptoms; psychological distress; self-esteem; suicidal ideation.
16. Data stem from the Dutch Tracking Adolescents' Individual Lives Survey (TRAILS)	Jansen et al. (2011) The Netherlands	N = 1959 (55.7% female baseline). Mean age at baseline = 11.6 years. Ethnicity not reported.	Data collected at ages 11.6 and 13.5. Peer nomination measure.	Data collected at ages 11.6 and 13.5. Preschool behaviour was reported retrospectively by parents who reported on behavioural, emotional, and motor skills at ages 4-5. Family characteristics and parental mental health were assessed at age 11.6 Preschool behaviours: aggressiveness: hot temper, disobedience, bullying, and bossiness; motor functioning: ball dexterity, ability of keeping one's balance, and making flexible; anxiety: compulsiveness, easily depressed, anxiously, afraid to go to school, victimisation, shyness, and exclusion. Family characteristics: socio-economic status, family breakup. Parental mental health: depression, anxiety, substance abuse, and antisocial behaviour.

Sample source	Authors, years & country	Participant characteristics	Bullying measure	Predictors measured
17. Data stem from the Dutch Tracking Adolescents' Individual Lives Survey (TRAILS)	Kretschmer et al. (2017) The Netherlands	N = 2230 (51% female) Mean age at baseline = 11.1 years. Ethnicity not reported.	Parents completed the Child Behavior Checklist (see Achenbach & Rescorla, 2001) at ages 11.1 years, 13.6 and 16.3. Adolescents aged 13.6 and 16.3 completed the Youth Self-Report (YSR) At ages 13.6-, 16.3- and 19.1-years old participants completed the Adult Self-Report (see ASR; Achenbach et al., 2003). The YSR was also included at T1 (11.1 years), but items then were phrased differently. A subsample of participants at T1 (11.1 years) and T2 (13.6) also answered to a peer nominations measure.	Data collected at age 11.1 years old. Self-control, family dysfunction, and peer popularity and peer rejection.
18. Eight public elementary schools in a small US metropolitan community in the South-eastern	Lynch et al. (2016) The US	N = 712 (54.2% female). Mean age at baseline = 9.4 years. 69.5% Caucasian, 26.8% African American, 3.7% of other ethnic/racial groups (i.e., Asian, Hispanic, Indian).	Data collected at US grades 3 through 5. Children`s Social Behaviour Scale (see CSBS-P; Crick, 1997).	Data collected at US grades 3 through 5. Perceived acceptance, perceptual bias and peer rejection.
19. Data stem from the NICHD Study of Early Child Care and Youth Development	Malm and Henrich (2019) The US	N = 828 mother-child dyads (gender % not reported). Mean age at baseline = not reported. Ethnicity not reported.	Data collected at US grades 3, 5 and 6. Self-report measure entitled in the NICHD data as Peer Social Support, Bullying & Victimization (see Ladd Kochenderfer & Coleman, 1997).	Data collected at US grades 3, 5 and 6. Maternal depression (CES-D), child–parent relationship as assessed (CPRS), marital or partner relationships (PAIR) and maternal employment status Data collected at US grades 3 and 5. Perceived maternal social support.

Sample source	Authors, years & country	Participant characteristics	Bullying measure	Predictors measured
20. Primary school students	Reijntjes et al. (2016) The Netherlands	N = 394 (51% female). Mean age at baseline = 10.3 years. 83 % Caucasian (native Dutch), remaining participants from Turkey, Morocco, Surinam, or another European country.	Data collected at T1 at the start of the academic year of 2006 and followed through the last 3 years of Dutch elementary school. Bullying Role Nomination Procedure (see Olthof et al., 2011).	Data collected at T1 at the start of the academic year of 2006 and followed through the last 3 years of Dutch elementary school. Narcissism and resource control.
21. Data stem from the KiVa anti-bullying program evaluation.	Sentse et al. (2015) Finland	N = 2051 (51% female). 97.5% Caucasian (native Finns) and 2.5% immigrants.	Data collected in May 2007 (pre-test; grades 3 to 5), December 2007 and May 2008 in grades 4 to 6 in 78 Finish schools (mean age=11.1). Bullying Behaviour (Waves 1, 2, and 3): The Participant Role Questionnaire (PRQ) (see Salmivalli & Voeten, 2004). Anti-Bullying Attitudes (Wave 2): items from the Provictim Scale (see Rigby & Slee 1991).	Data collected in May 2007 (pre-test; grades 3 to 5), December 2007 and May 2008 in grades 4 to 6 in 78 Finish schools (mean age=11.1). Individual characteristics (social standing in the classroom) and descriptive and injunctive classroom norms (behaviour and attitudes, respectively).
22. Public elementary schools	Stavrinides et al. (2010) Cyprus	N = 205 (52.7% female). Ethnicity not reported.	Data collected six months apart with grade 6 Cyprus students (mean age=11.7) Revised Bullying and Victimization Questionnaire (see Olweus, 1993c).	Data collected six months apart with grade 6 Cyprus students (mean age=11.7). Empathy.
23. Public elementary schools in urban and rural areas of Cyprus	Stavrinides et al. (2011) Cyprus	N = 238 (58% female). Ethnicity not reported.	Data collected six months apart with Cyprus pupils' grades 5 and 6 (mean age=11.4). Revised Bullying and Victimization Questionnaire (see Olweus, 1993c).	Data collected six months apart with Cyprus pupils' grades 5 and 6 (mean age=11.4). Adjustment difficulties and school achievement.

Sample source	Authors, years & country	Participant characteristics	Bullying measure	Predictors measured
24. Middle school students in Louisiana	Terranova et al. (2008) The US	N = 124 (53% female). 61% Caucasian, 17% African American, 19% as multiple ethnicities, and 3% as either American Indian, Asian/Pacific Islander, or Hispanic/Latino.	Data collected in the fall and spring of a school year with 5 grade US students (mean age=10.3). The Child Social Behaviour Scale (see Crick & Grotpeter, 1995).	Data collected in the fall and spring of a school year with 5 grade US students (mean age=10.3). Effortful Control and Fear Reactivity
25. Nine schools in a mid-western city in the United States	Wang et al. (2017) The US	N = 1180 (52.9% female). Mean age at baseline = 12.2 years. 80.2% Caucasian/ White, 7.1% Black/African American, 5.4% Latino/Hispanic, 2.4% Asian American, and 1.7% other.	Data collected with 5th to 9th graders US students over three time points. Pacific-Rim Bullying measure (see Konishi et al., 2009).	Data collected with 5th to 9th graders US students over three time points. Moral disengagement.
26. Primary and secondary schools	Wang et al. (2014) Hong Kong	N = 1058 (52.6% female). Mean age at baseline = not reported. Ethnicity not reported.	Data collected longitudinally from the 3rd and 4th grades to the 7th and 8th grades (M age = 9.5 years). Peer nomination measure.	Data collected longitudinally from the 3rd and 4th grades to the 7th and 8th grades (M age = 9.5 years). Withdrawal and rejection.
27. Five primary schools in Kwangju	Yang et al. (2013) South Korea	N = 1344 (47% female). Mean age at baseline = not reported. Ethnicity not reported.	Data collected at age 10 and reassessment at ages 12-13. The Peer-Victimization Scale (PVS) and the Bullying Behaviour Scale (BBS).	Data collected at age 10 and reassessment at ages 12-13. Individual and psychological factors: depression, self-esteem, coping strategies, psychopathology, ADHD, Height and weight, socio-demographic characteristics, and parent's psychopathology.

Sample source	Authors, years & country	Participant characteristics	Bullying measure	Predictors measured
28. Two schools in an urban area of Queensland	Zimmer-Gembeck & Duffy (2014) Australia	N = 358 (50.8% female). Mean age at baseline = not reported. 90% White/Australian or New Zealander, and 10% Asian, Aboriginal Australian, Maori, Middle Eastern, or from other sociocultural backgrounds.	Data collected over a school year, separated by 8 months, with pupils Grades 5–7 aged 9-13 years. Relational aggression and victimisation: ten self-report items (see Crick and Grotpeter, 1995)	Data collected over a school year, separated by 8 months, with pupils Grades 5–7 aged 9-13 years. Emotional sensitivity in the form of rejection sensitivity, fear of negative evaluation, and intimacy avoidance.

4.3.2. Risk of Bias Assessment

The result of the risk of bias assessment is displayed in Table 7. None of the papers justified their sample sizes. The lack of sample size justification represents a problem as insufficient sample sizes will lead to low statistical power and an inflated risk of Type II error, which in turn limits the conclusions that can be drawn from studies. A number of studies also provided inadequate information about the demographic characteristics of the sample, such as ethnicity ($k = 14$) or sex ($k = 3$). This is problematic as it is less clear which populations the findings may generalize to. Eleven studies did not use measures of bullying with established psychometric properties. Instead, researchers used measures specifically developed or adapted for the study, or single questions regarding bullying involvement with no mention of the psychometric properties of the instrument in question. Furthermore, information about the psychometric validity of the bullying measure used was unclear in seven studies. Moreover, for quite a few of the identified studies data collection involved face-to-face contact with the researcher with no attempt at blinding or masking. As many studies were part of large longitudinal developmental cohort studies, samples were typically representative of the population of interest, follow-up periods were appropriate, and the risk of self-selection bias was deemed minimum. Most studies also adopted appropriate analytic strategies and accounted for potential confounding variables in analyses. The majority of the studies did not exceed 20% missing data or when they did, they used statistical methods to reduce the bias associated with missing data such as multiple imputation.

Table 7

Risk of Bias Assessment

Authors	Unbiased cohort selection	Power calculation conducted to determine sample size required	Adequate description of the cohort	Validated method for ascertaining bullying	Validated methods for assessing predictors	Outcome assessments blind to participant status	Adequate follow-up period	Missing data minimal	Adequate handling of missing data	Appropriate analytic methods
1. Ball et al. (2008)[7]	Yes	No	No	No	Unclear	No	Yes	Yes	Yes	Yes
2. Bowes et al. (2009)	Yes	No	No	No	Unclear	No	Yes	Yes	Yes	Yes
3. Shakoor et al. (2012)	Yes	No	No	No	Unclear	No	Yes	Yes	Yes	Yes

[7] Ball et al. (2008), Bowes et al. (2009), and Shakoor et al. (2012) studies have all used the same sample: the Environmental Risk (E-Risk) Longitudinal Twin Study.

Authors	Unbiased cohort selection	Power calculation conducted to determine sample size required	Adequate description of the cohort	Validated method for ascertaining bullying	Validated methods for assessing predictors	Outcome assessments blind to participant status	Adequate follow-up period	Missing data minimal	Adequate handling of missing data	Appropriate analytic methods
4. Cho et al. (2017)[8]	Yes	No	Yes	No	Unclear	Unclear	Yes	Yes	Yes	Yes
5. Cho (2018)	Yes	No	Yes	No	Unclear	Unclear	Yes	Yes	Yes	Yes
6. Cho et al. (2019)	Yes	No	Yes	No	Unclear	Unclear	Yes	Yes	Yes	Yes
7. Hong et al. (2017)	Yes	No	Yes	No	Unclear	Unclear	Yes	Yes	Yes	Yes

[8] Cho et al. (2017), Cho (2018), Cho et al. (2019), and Hong et al. (2017) studies have all used the same sample: the Korean Youth Panel Study (KYPS).

Authors	Unbiased cohort selection	Power calculation conducted to determine sample size required	Adequate description of the cohort	Validated method for ascertaining bullying	Validated methods for assessing predictors	Outcome assessments blind to participant status	Adequate follow-up period	Missing data minimal	Adequate handling of missing data	Appropriate analytic methods
8. de Vries et al. (2018)[9]	Yes	No	No	Yes	Yes	No	Yes	Yes	Yes	Yes
9. Verlinden et al. (2014a)	Yes	No	No	Yes	Yes	No	Yes	Yes	Yes	Yes
10. Espelage et al. (2018)	Yes	No	Yes	Yes	Yes	Yes	Yes	Unclear	Yes	Yes
11. Forster at al. (2019)	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes

[9] de Vries et al. (2018) and Verlinden et al. (2014a) studies have all used the same sample: the Generation R Study.

Authors	Unbiased cohort selection	Power calculation conducted to determine sample size required	Adequate description of the cohort	Validated method for ascertaining bullying	Validated methods for assessing predictors	Outcome assessments blind to participant status	Adequate follow-up period	Missing data minimal	Adequate handling of missing data	Appropriate analytic methods
12. Gendron et al. (2011)	Yes	No	Yes	Unclear	Yes	Yes	Yes	Yes	Yes	Yes
13. Hemphill et al. (2012)	Yes	No	Yes	No	Yes	Unclear	Yes	Yes	Yes	Yes
14. Kawabata et al. (2014)	Yes	No	Yes	Yes	No	Yes	Unclear	No	Yes	Yes
15. Le et al. (2017)	Yes	No	Yes	Unclear	Unclear	Unclear	Yes	Yes	Yes	Yes
16. Jansen et al. (2011)[10]	Yes	No	Yes	Unclear	Unclear	No	Yes	Yes	Yes	Yes

[10] Jansen et al. (2011) and Kretschmer et al. (2017) studies have all used the same sample: the Dutch Tracking Adolescents' Individual Lives Survey (TRAILS).

Authors	Unbiased cohort selection	Power calculation conducted to determine sample size required	Adequate description of the cohort	Validated method for ascertaining bullying	Validated methods for assessing predictors	Outcome assessments blind to participant status	Adequate follow-up period	Missing data minimal	Adequate handling of missing data	Appropriate analytic methods
17. Kretschmer et al. (2017)	Yes	No	Yes	Unclear	Unclear	No	Yes	Yes	Yes	Yes
18. Lynch et al. (2016)	Yes	No	Yes	No	Unclear	No	Yes	Yes	Yes	Yes
19. Malm & Henrich (2019)	Yes	No	Yes	Yes	Partially	Unclear	Yes	Yes	Yes	Yes
20. Reijntjes et al. (2016)	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
21. Sentse et al. (2015)	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes

Authors	Unbiased cohort selection	Power calculation conducted to determine sample size required	Adequate description of the cohort	Validated method for ascertaining bullying	Validated methods for assessing predictors	Outcome assessments blind to participant status	Adequate follow-up period	Missing data minimal	Adequate handling of missing data	Appropriate analytic methods
22. Stavrinides et al. (2010)	Yes	No	Yes	Yes	Yes	Unclear	Yes	No	Yes	Yes
23. Stavrinides et al. (2011)	Yes	No	Unclear	Yes	Partially	Unclear	Yes	Unclear	Yes	Yes
24. Terranova et al. (2008)	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
25. Wang et al. (2017)	Yes	No	Yes	Yes	Yes	Unclear	Yes	Yes	Yes	Yes
26. Wang et al. (2014)	Yes	No	No	Unclear	Partially	Yes	Yes	Yes	Yes	Yes

Authors	Unbiased cohort selection	Power calculation conducted to determine sample size required	Adequate description of the cohort	Validated method for ascertaining bullying	Validated methods for assessing predictors	Outcome assessments blind to participant status	Adequate follow-up period	Missing data minimal	Adequate handling of missing data	Appropriate analytic methods
27. Yang et al. (2013)	Yes	No	Yes	Unclear	Yes	Yes	Yes	Yes	Yes	Yes
28. Zimmer-Gembeck & Duffy (2014)	Yes	No	Yes	Unclear	Unclear	Yes	Yes	Yes	Yes	Yes

4.3.3. Demographic Variables Associated with Bullying

Seven studies out of eleven that examined the association between gender and bullying involvement found that being male poses a higher risk for engaging in bullying (Ball et al., 2008; Forster et al., 2019; Gendron, Williams & Guerra, 2011; Jansen, Veenstra, Ormel, Verhulst & Reijneveld, 2011; Reijntjes et al., 2016; Stavrinides, Georgiou & Theofanous, 2010; Yang et al., 2013). Furthermore, being male was found to be associated with bullying even after adjusting for several other psychological and interpersonal factors, as well as when controlling for family and school predictors ($\mathrm{OR} = 1.5, 95\%\ \mathrm{CI}\ 1.2 - 1.9$; Yang et al., 2013).

Surprisingly, few of the studies (N=4) differentiated between the different types of bullying, traditional (direct/overt bullying *or* indirect/relational bullying) *vs.* cyber bullying, and their association with gender. The findings reported were mixed. Lynch and colleagues (2016) found that gender significantly predicted indirect/relational bullying, with girls displaying greater increases in this behaviour over a 6-months period than boys ($\beta = 0.11, p = 0.001$). Whereas Terranova and colleagues (2008) reported gender to be differentially associated with different types of bullying, with boys scoring higher than girls on direct/overt bullying sub-scales, but they found no differences for indirect/relational bullying sub-scales. Similarly, Hemphill and colleagues (2012), found boys more involved in traditional forms of bullying than girls, though no gender differences were observed for cyber bullying perpetration. In contrast, Forster et al. (2019) reported no gender differences associated with either type of bullying direct/overt or indirect/relational.

Regarding this discrepancy observed among the studies reviewed, it is important to note that across studies bullying involvement was measured differently. The question as to which measurement strategy is better suited to assess bullying involvement, third-person reports, self-

reports, or peer nomination, is one under debate (Espelage & Swearer, 2003; Eslea et al., 2004; Gini, Albiero, Benelli & Altoe, 2007; Ortega et al., 2001; Salmivalli, Lagerspetz, Björkqvist, Österman and Kaukiainen, 1996; Shaw, Dooley, Cross, Zubrick & Waters, 2013), and advocates for all sides put forward valuable arguments. Nevertheless, the difference in measurement approach may account for conflicting results. While Lynch, Kistner, Stephens, & David-Ferdon (2016) measured bullying with a peer nomination measure, Forster et al. (2019), Hemphill et al. (2012), and Terranova et al. (2008) assessed bullying involvement by self-report. It has been suggested that the latter are more accurate for providing "the opportunity for those victimised to report bullying that may not be known other than to the student victimised and the perpetrator." (Shaw et al., 2013, p. 1023). Those who advocate for peer nomination strategies, stress that since bullying is a social phenomenon (Morrison, 2006; Mooij, 2011), judgements on bullying would are only holistically accurate when all social actors involved are considered and heard (Eslea et al., 2004). Additionally, in potentially explaining the inconsistence in findings, it is important to note that these three studies were conducted in different countries; Lynch et al. (2016), Forster et al. (2019), and Terranova et al. (2008) in the US, and Hemphill et al. (2012) in Australia. As in any other form of social manifestation, definitions and perceptions about bullying are highly dependent on cultural context (Morrison, 2006; Mooij, 2011). Moreover, in relation to the quality of studies, in Lynch and colleagues' 2016 study researchers were not blind to participant involvement status, which could have biased the results.

There was some evidence that the relationship between gender and bullying may also be affected by age which is understandable considering the differing trajectories of psychological and interpersonal development for boys and girls. Reijntjes and colleagues (2016) found gender differences for indirect/relational bullying at 12.3 years old, but not at 10.3 and 11.3. At the

younger ages, boys consistently scored higher than girls in overall bullying perpetration (Reijntjes et al., 2016).

Regarding the relationship between age and bullying, very few of the reviewed studies investigated the effect of age on bullying involvement. Additionally, between the two studies that did report on this association, mixed results were observed; while one study evidenced young adolescents to be most at risk of being a bully, another reported no association between bullying involvement and age. Gendron and colleagues (2011) in their large study of over 7000 US youth found students aged 13 – 15 years more likely to report engaging in bullying compared to younger (age 10-12) or older (16-19) youths (b[11] $= 0.84, t = 9.333, p < 0.05$). Zimmer-Gembeck and Duffy (2014) in Australia, nevertheless, found no association between bullying involvement and age. Taking the quality of studies into account, no criterion from the risk of bias assessment seems to explain the inconsistency in findings reported. However, results might conflict across the reviewed studies due to the population age distribution and reassessment intervals. While in Gendron and colleagues' 2011 study assessments were six months apart with the youngest participants being 10 years old and the oldest 19, Zimmer-Gembeck and Duffy (2014) sampled pupils aged 9 through 13 with reassessment separated by 8 months only. Furthermore, in potentially explaining the inconsistence in findings, it is important to note that while Zimmer-Gembeck and Duffy (2014) measured bullying with a peer nomination measure, Gendron et al. (2011) assessed bullying involvement by self-report.

[11] *b is the unstandardised regression coefficient whereas the $\beta's$ previously presented are standardised regression coefficients. Unstandardised regression coefficient b retains the individual scales of the IVs and the DV, while standardised regression coefficient β does not represent the original scale(s), thus b depends on metric of measures used whereas β does not (Menard, 2011). The former represents change in outcome associated with a unit change in predictor, whilst the latter indicates predicted/estimated SD change in outcome associated with an SD change in predictor. The use of standardised regression coefficients enables comparison of effect sizes across studies where they are reported.*

Only two studies examined ethnic differences in predicting bullying with different findings. Lynch and colleagues' 2016 US study assessed rates of bullying over a six-month period in 712 children aged 8 to 11 years old and found that non-Caucasian children were rated by classmates as less overtly and relationally aggressive than Caucasian children at age 8 but they demonstrated a greater increase in bullying over time compared to Caucasian students. Whilst testing for ethnic differences in bullying behaviours over six months in 632 children aged 11 to 12 years old, Forster et al. (2019) found that White students reported less involvement in physical bullying perpetration than Black students. The two studies differed in terms of reporter, with the former relying on classmate reports and the latter relying on self-report.

Overall, from the demographic variables reviewed, being male was found to be most robustly associated with an increased risk for being a bully. Preliminary evidence also suggests students between the ages of 13 – 15 to be at risk for engaging in bullying.

4.3.4. Environmental Variables Associated with Bullying

Contradictory results regarding family Socio-Economic Status (SES) were reported. Two studies found no evidence of association between family SES and the likelihood of engaging in bullying (Bowes et al., 2009; Lynch et al., 2016). In contrast, one other further study by Shakoor et al (2012), though sampling the same sample as Bowes and colleagues (2009) – the Environmental Risk (E-Risk) Longitudinal Twin Study, found low SES significantly associated with increased chances for bullying perpetration. Shakoor and colleagues (2012), found high SES at age 5 to pose a protective buffering effect over engaging in bullying behaviours at age 12 ($\mathrm{RR} = 0.7, 95\%\ \mathrm{CI}\ 0.5 - 1.0$). Regarding this discrepancy between the two studies using the E-RISK data stem, it is noteworthy that while Bowes and colleagues (2009) only used age 5 and 7 data, Shakoor and colleagues (2012) investigated changes across a far wider age span, ages 5, 7,

10 and 12, which may potentially explain the conflicting findings. It might be that the effects of low SES on bullying become more pronounced in older children, which is something that may need further investigation.

Regarding other environmental variables, when controlling for other individual factors, Bowes and colleagues (2009) reported no association between problems with neighbours and being a bully. Instead, an association was found between experiencing problems with neighbours and the risk of being a bully-victim ($\mathrm{OR} = 1.3, 95\%\ \mathrm{CI}\ 1.1 - 1.6$). Neighbourhood vandalism was also not significantly associated with being a bully ($\mathrm{OR} = 0.9, 95\%\ \mathrm{CI}\ 0.8 - 1.0$).

From the prospective studies reviewed here there appears to be very little in the literature regarding the association between early socio-economic environmental influences and bullying. The few studies that have examined SES yielded mixed results. More research is required to be clear about the role of such environmental factors on later perpetration of bullying.

4.3.5. Family Environment Variables Associated with Bullying

A wide variety of family-related variables have been investigated with largely congruent findings. Across three studies there was a consistent finding that the risk of bullying is greater for children who only live with one biological parent (Jansen et al., 2011; Le et al., 2017; Yang et al., 2013). For example, Yang and colleagues (2013) found that youth who lived with only one biological parent had over double the odds of engaging in bullying than those living with two parents ($\mathrm{OR} = 2.2, 95\%\ \mathrm{CI}\ 1.5 - 3.2$). Having divorced parents was also associated with greater odds of continuing with this behaviour at a 6-months follow-up for those who were bullies at age 12 to 17 ($\mathrm{OR} = 4.8, 95\%\ \mathrm{CI}\ 1.6 - 14.6$) (Le et al., 2017).

Family conflict and domestic violence were also consistently associated with a greater likelihood of engaging in bullying across several studies. Three different studies conducted in

three different countries (Australia, the UK and Vietnam) with different mean ages ranging from 5 to 14.7 years old all reported youth who witness domestic violence to be at risk for being a bully: ORs varying between 1.5 in the UK (Bowes et al., 2009) and 1.6 in Australia and Vietnam (Hemphill et al., 2012; Le et al., 2017). Similarly, experiencing serious conflict with siblings was reported as a risk factor for engaging in bullying. Le and colleagues (2017) in Vietnam reported a near three-fold increase on the odds of being a bully over 6 months ($\mathrm{OR} = 2.9, 95\%\ \mathrm{CI}\ 1.3 - 6.5$) when experiencing serious conflict with siblings. Experiencing serious conflict with siblings was also related to the stability of involvement, increasing the likelihood of continuation of bullying ($\mathrm{OR} = 2.2, 95\%\ \mathrm{CI}\ 0.8 - 6.3$; Le et al., 2017).

Further forms of harsh family environment also reported to have a significant positive association with later risk of bullying were child maltreatment ($\mathrm{RR} = 1.7, 95\%\ \mathrm{CI}\ 1.0 - 2.7$; Shakoor et al., 2012) and parental exhibition of antisocial behaviour ($\mathrm{OR} = 1.4, 95\%\ \mathrm{CI}\ 0.9 - 2.1$; Bowes et al., 2009), both findings from the Environmental Risk (E-Risk) Longitudinal Twin Study sample. Another family factor investigated in a separate study was fathers' hostility ($\beta = 0.06, \mathrm{p} = 0.02$; de Vries et al., 2018) which too was found to be a risk factor associated with later bullying involvement. Further support for the role of harsh family environment in the prediction of bullying involvement came from studies identifying punitive and harsh parenting, use of physical punishment, low parental involvement, and insecure attachment as risk factors (Cho, Hong, Sterzing & Woo, 2017; Cho et al., 2019; Hemphill et al., 2012; Kretschmer et al., 2017). Punitive parenting was found to be directly related to bullying perpetration ($\beta = 0.06, \mathrm{p} = 0.05$; Hong, Kim & Piquero, 2017). Although de Vries and colleagues' 2018 study, who examined harsh disciplinary practices (e.g., physical punishment) separately for mothers and fathers, reported that fathers' but not mothers' punitive parenting was

associated with children's bullying behaviours. Parental involvement was found to be inversely correlated with bullying perpetration, such that poor parental involvement and insecure attachment in infancy posed a risk for being a bully over time ($\beta = -0.52, p = 0.01$; Cho et al., 2019). Congruently, youth with an increasing rate of parental involvement were reported to show a decreasing rate for engaging in bullying ($\beta = -0.48, p = 0.01$; Cho et al., 2019). Poor family management, inconsistent discipline, and family distress, which were all examined in only one study each were found predictive of bullying (de Vries et al., 2018; Hemphill et al., 2012); though, due to the limited number of studies, these latter findings should be treated as preliminary.

Bowes and colleagues (2009) reported that at age five years spending more time engaged in stimulating activities with mother (mothers were asked whether they had engaged in any of 12 activities with their twins in the past year) marginally decreased the risk of being a bully two years later at age seven ($\mathrm{OR} = 0.9, 95\%\ \mathrm{CI}\ 0.8 - 1.1$). Mother–child relationship quality, indexed by index by the Child–Parent Relationship Scale, was too reported to have a negative relationship with bullying behaviours (Malm & Henrich, 2019). Data on 828 mother–child dyads (children aged 8 – 12 years old) showed a significant indirect effect for reports of mother–child relationship at grade 5 (age range 10 – 11) where being employed at grade 3 (age range 8 – 9) was positively associated with reports of mother–child relationship at grade 5, which in turn was negatively associated with engagement in bullying behaviours at grade 6 (age range 11 – 12) (Malm & Henrich, 2019).

Other indices of parenting environment examined in the literature include maternal mental health problems and parental warmth. Two studies investigated the role of maternal depression and found no significant effects for maternal depressive symptoms on later engagement in

bullying (Bowes et al., 2009; Malm & Henrich, 2019). Regarding maternal warmth, results in the UK in Bowes and colleagues' 2009 study who sampled 2,232 5-year-old twins with baseline assessments and a 2-year interval follow-up reported that high maternal warmth at age 5 was significantly associated with a decreased risk for being a bully at 7 ($\mathrm{OR} = 0.8, 95\%\ \mathrm{CI}\ 0.7 - 1.1$). Espelage, Van Ryzin & Holt (2018) in the US also reported that negative family relations expressed by low parental warmth and support at age 11 were predictive of bullying behaviours age 15.5 ($\beta = 0.6, p = 0.001$).

In summary, witnessing domestic violence, experiencing child maltreatment and physical punishment, and having divorced parents were all factors consistently found to increase the likelihood of engaging in bullying. Other variables associated with an increased risk for being a bully were parental exhibition of antisocial behaviour (Bowes et al., 2009), experiencing serious conflict with siblings (Le et al., 2017), punitive and harsh parenting, and low parental involvement and early insecure attachment (Cho et al., 2017; Cho et al., 2019; Hemphill et al., 2012; Kretschmer et al., 2017). Spending more time engaged in stimulating activities with mother (Bowes et al., 2009) and mother–child relationship quality indexed by the Child–Parent Relationship Scale (Malm & Henrich, 2019) were both found to be potentially protective variables. Associations with bullying were inconsistent with regards to maternal warmth and responsiveness, and family support. No significant effects were found between maternal depression and engaging in bullying.

4.3.6. School Factors and Peer Relations associated with Bullying

Data from two samples, the Korean Youth Panel Study (KYPS) (Cho et al., 2017; Cho, 2018; Cho et al., 2019; Hong, Kim & Piquero, 2017) and the International Youth Development Study in Australia (Hemphill et al., 2012), reported being friends with other students who exhibit

antisocial behaviours to consistently pose a higher risk for engaging in bullying. For example, Hemphill and colleagues' 2012 study reported a robust effect for deviant peer associations where over the course of two academic years students aged 12 and 13 years old showed an increased chance of engaging in bullying at 14 and 15 ($\mathrm{OR} = 2.0, 95\%$ CI $1.3 - 3.0$). Moreover, Cho (2018) assessed 2,844 Korean adolescents (ages 11 – 15) and found that having friends who exhibit antisocial behaviours yielded a significant concurrent and predictive effect on engaging in bullying when in elementary school (bs ranging from 0.002 to 0.026), but not for middle schoolers.

Evidence from single studies, suggests that high peer liking at age 9 (Kawabata et al., 2014) and high popularity at age 10 (Sentse, Veenstra, Kiuru & Salmivalli, 2015) are significant predictors of bullying behaviours at ages 11 and 13, respectively. High peer liking at age 9 was specifically found to predict indirect/relational bullying at age 11, which in turn was associated with more peer liking (Kawabata et al., 2014). Regarding peer acceptance at age 9 (Kawabata et al., 2014) and at age 10 (Sentse et al., 2015) it was found not to be significantly associated with later bullying behaviour. Findings from studies investigating peer rejection were inconsistent. While one study found no association, two others found peer rejection linked to higher chances of being a bully. Regarding this discrepancy, it is important to note the age of the students, where data was collected as well as the reassessment interval across the reviewed studies: Lynch and colleagues (2016) in their US study found peer rejection status (mean participant age 9.4 years) not significantly related to increases in direct/overt or indirect/relational bullying over a 6-months interval. Contrarily, two other studies found evidence of an effect; Sentse et al. (2015) in Finish schools collected data across three time-points 6-months apart each starting at age 10 years old, and Kretschmer et al. (2017) in the Netherlands followed youth from age 11 until 19

with reassessments at ages 13.6 and 16.3 years old and both studies found peer rejection significantly associated with later bullying. Furthermore, the measurements used to assess bullying involvement differed across the studies. While Sentse et al. (2015) and Lynch et al. (2016) both measured bullying with nomination measures, the Participant Role Questionnaire (PRQ) (Salmivalli & Voeten, 2004) and the Social Behavior Scale Peer Report (CSBS-P; Crick 1997) respectively, Kretschmer et al. (2017) assessed bullying involvement by parent- and self-report. The choice of a measurement strategy, as discussed above, may impact on the findings. Moreover, taking the quality of studies into account, in Sentse and colleagues' 2015 study involvement status was not blind which could have biased the results. Lastly, regarding association between the number of friendships and engaging in bullying, Kawabata and colleagues (2014) reported no significant association.

There were also inconsistent findings concerning the role of early academic failure. Hemphill and colleagues (2012) reported that academic failure at 12 and 13 years was associated with an almost two-fold increase in the chances of being a bully at age 14 and 15 ($\mathrm{OR} = 1.8, 95\%\ \mathrm{CI}\ 1.2 - 2.7$). In contrast, Stavrinides and colleagues (2011) as well as Yang and colleagues (2013) found that school achievement did not significantly predict changes in bullying involvement over a six-month and a 2-year interval, respectively. In potentially explaining the inconsistence in findings, it is important to note that these three studies were conducted in very different countries. Hemphill et al. (2012) reported on data from the Australian International Youth Development Study, Stavrinides, Georgiou, Nikiforou & Kiteri (2011) sampled students from elementary schools in Cyprus, and in Yang and colleagues' 2013 study participated South Korean students.

Regarding school size, only one study reported that attending larger schools with more students was negatively associated with bullying engagement – though this effect was only marginal ($\mathrm{OR} = 0.9, 95\%\ \mathrm{CI}\ 0.7 - 1.0$; Bowes et al., 2009). Though, regardless of the school size, Forster and colleagues (2019) report that positive school perceptions were protective against bullying perpetration. It is noteworthy that these findings held true only for girls but not boys.

In summary, there was robust evidence that being friends with other students who exhibit antisocial behaviours poses a higher risk for engaging in bullying. Individual studies link peer rejection to later bullying as well as high peer liking and high popularity to pose risk for engaging in bullying. Bigger schools with more students, on the contrary, have been preliminarily related to decreased chances of being a bully. Lastly, results regarding the effect of academic achievement on later bullying are inconsistent. Due to the limited number of studies, these latter findings should be treated as preliminary.

4.3.7. Psychological and Interpersonal Variables Associated with Bullying

Across the reviewed studies, thirteen studies examined the extent to which earlier externalising and internalising behaviours predict later bullying behaviour. Data from five studies, two from the Netherlands (Jansen et al., 2011; Verlinden et al., 2014a), two from the UK both informing on the Environmental Risk (E-Risk) Longitudinal Twin Study sample (Bowes et al., 2009; Shakoor et al., 2012), and one from South Korea (Yang et al., 2013) investigated externalising behaviour in respect to later bullying behaviours. Four of these studies found evidence of a positive association. Bowes and colleagues (2009), for example, found more than a two-fold increase in the risk of bullying at age 7 for children who exhibited externalising behaviour at age 5 ($\mathrm{OR} = 2.2, 95\%\ \mathrm{CI}\ 1.9 - 2.6$). Similarly, Shakoor et al. (2012) who reported

on the same E-Risk sample over a wider age range into early adolescence found earlier behavioural problems to predict later bullying ($\mathrm{RR} = 1.4, 95\%\ \mathrm{CI}\ 1.03 - 1.06$). Pre-school aggression at age 4-5 was too found to positively predict bullying involvement at 11 and 13 years in Jansen and colleagues' 2011 study though only for the bully-victim group ($\beta = 0.016, \mathrm{p} = 0.006$).

Pre-school aggression was too found to positively predict bullying involvement in Jansen and colleagues' 2011 study though only for the bully-victim group ($\beta = 0.016, \mathrm{p} = 0.006$). Regarding other externalising behaviour problems, findings reported on ADHD symptoms were mixed. Whilst one study found those with reported ADHD to have a higher risk of bullying (Yang et al., 2013), this association was not replicated in a second study in Verlinden and colleagues (2014a). Yang and colleagues (2013) found youth ages 12-13 years old whose parents reported them to have ADHD symptoms at age 10 to be at an increased risk for bullying perpetration ($\mathrm{OR} = 5.05, 95\%\ \mathrm{CI}\ 1.49 - 17.07$) in South Korea. Though Verlinden and colleagues (2014a) found no such an association, it is important to mention that they sampled a much younger age group. Verlinden et al. (2014a) followed Dutch schoolchildren aged 4 until ages 7-8 years old, while Yang and colleagues (2013) sampled a much older population who were 10 years old at baseline and were reassessed at ages 12-13. Moreover, in relation to the quality of studies, in Verlinden and colleagues' 2014a study researchers were not blind to participant bullying status which could have biased the results. No other criterion from the risk of bias assessment between the two studies differed, and, given that only two studies investigated ADHD symptoms associated with later bullying, it is premature to speculate whether the effect of ADHD on bullying behaviour becomes more pronounced at later ages without replication.

As far as internalising behaviour problems, findings reported were mixed across the reviewed studies which assessed the extent to which earlier internalising behaviours predict later bullying behaviour (Bowes et al., 2009; Le et al., 2017; Shakoor et al., 2012; Stavrinides et al., 2011). For instance, whereas Bowes et al. (2009) reported that internalising behaviour (assessed at 5 years of age) decreased the risk of being a bully at age 7 ($\mathrm{OR} = 0.8, 95\%\ \mathrm{CI}\ 0.7 - 1.6$), Stavrinides and colleagues' 2011 study, however, found that internalising problems at mean age 11.4 years old were instead positively related to bullying ($\beta = 0.20, \mathrm{p} = 0.01$) after six months. Regarding this discrepancy observed across the two studies, it is important to note the different participant age groups and the reassessment intervals. While Bowes and colleagues (2009) sampled younger children over a longer assessment interval, Stavrinides and colleagues' 2011 study sampled pre-adolescents over a much shorter follow-up interval. Furthermore, it is important to consider the choice of measurement used. Rather than use a validated scale for the assessment of bullying involvement Bowes et al. (2009) had mothers and teachers answer the Child Behaviour Checklist (Achenbach, 1991a; 1991b) from which they used specific measure items to determine bullying involvement. In contrast, Stavrinides et al. (2011) used a validated self-report bullying measure, the Revised Bullying and Victimization Questionnaire (Olweus, 1993). Moreover, in relation to the quality of studies, in Bowes and colleagues' 2009 study, participant bullying status was not blind which could have biased the results. And lastly, in potentially explaining the dissonant findings, Bowes et al. (2009) report on UK data from the Environmental Risk (E-Risk) Longitudinal Twin Study, while Stavrinides et al. (2011) sampled students from public elementary schools in urban and rural areas of Cyprus. Furthermore, Le and colleagues (2017) as well as Shakoor and colleagues (20120 found no significant association between early internalising problems and later bullying. Consequently, given the limited number

of studies investigating internalising behaviour associated with later bullying, caution is needed in inferring any interaction with age.

Additionally, inconsistent results were found for anxiety as well. While one study found no association, two other found anxiety linked to higher chances of being a bully. Whilst Jansen et al. (2011) reported no association between anxiety at age 11 and bullying over a 2.5-year follow-up, Yang et al. (2013) found both high anxiety and high depression at age 10 to be uniquely associated with being a bully at age 12, even after adjusting for previous bullying and environmental factors; ORs between traditional and cyber bullying and depression ranged from 1.3 – 1.4, and between traditional and cyber bullying and anxiety 1.3 – 12. Likewise, Espelage and colleagues (2018) found self-reported depression to pose a risk factor for engaging in bullying ($\beta = 0.19, p = 0.05$) – which was also assessed via self-report measurement. It is relevant to note that, regarding Jansen et al. (2011) and Yang et al. (2013) studies specifically which have focused on anxiety, the measurements used to assess bullying involvement differed. While Jansen et al. (2011) measured bullying with nomination measures, Yang et al. (2013) assessed bullying involvement by self-report and so one might expect higher associations in the latter study given their reliance on self-report for both mood and later bullying involvement. Moreover, in potentially elucidating the conflicting results, it is noted the different contexts where the studies were conducted; Jansen and colleagues (2011) report on data from the Dutch Tracking Adolescents' Individual Lives Survey (TRAILS), while Yang et al. (2013) sampled primary school students in South Korea.

So, in summary, preliminary evidence with only slightly mixed findings were reported regarding the effect of externalising behaviours and ADHD in predicting later bullying involvement. Whereas the evidence for an effect of internalising problems on later bullying was

more equivocal. There is some indication that the presence of earlier anxiety and/or depression, for example, may be a predictor for later bullying.

Low self-control and effortful control were investigated in five studies and were found consistently associated with increased chances for engaging in bullying (Kretschmer et al., 2017; Terranova, Morris & Boxer, 2008), though three out of the five studies that found this effect were reporting findings for the same data stem (Cho et al., 2017; Cho, 2018; Cho et al., 2019). In all these studies low self-control was prospectively and positively correlated with bullying perpetration. For instance, Cho and colleagues' 2017 study reported that higher levels of low self-control ($\beta = 0.63, p = 0.001$) were significantly associated with higher rates of bullying over a year interval. High levels of effortful control were also negatively related with either type of bullying, indirect or direct, with *r*'s ranging from -0.31 to $-0.41, p < .001$ (Terranova, Morris & Boxer, 2008). Moreover, preliminary data from one individual study found students high on effortful control and self-esteem less likely to report later bullying. Gendron and colleagues (2011) found pupils who exhibit high levels of self-esteem to be less likely to involved in bullying behaviours a one-year later.

A wide range of other psychological factors investigated by individual studies were found to positively predict bullying involvement. Preliminary findings point to perceptual bias (Lynch et al., 2016), moral disengagement (Wang et al., 2017), inhibition and working memory problems (Verlinden et al., 2014a), and motor functioning, social competence, and resource control (Reijntjes et al., 2016) as having a significant association with later bullying. Further psychological factors found significantly associated with bullying involvement were lower empathy, greater impulsivity, and lower prosocial behaviour – though this evidence comes from either individual or limited number of studies. Affective empathy, the ability to feel or pick up on

the emotions others are feeling (as opposed to cognitive empathy), was found to negatively predict bullying across a 6-months interval ($\beta = -0.14, p = 0.05$; Stavrinides et al., 2010). Similar results regarding the association between lower empathy at age 11 and bullying behaviours at age 15 were found in Espelage and colleagues (2018), who also found that impulsivity was associated with increases in bullying ($\beta = 0.18, p = 0.01$). Lastly, high scores on prosocial competence were found in two studies to decrease the risk for being a bully ($\beta = -0.11, p = 0.01$; Stavrinides et al., 2011). Other psychological factors were found to be marginally associated with bullying involvement when moderated by gender. Reijntjes and colleagues (2016) reported that narcissism was positively predictive of bullying in boys (r's < 0.18) but not girls. Zimmer-Gembeck and Duffy (2014) found the interaction between indirect/relational bullying and rejection sensitivity to be significant for girls only ($\beta = 0.19, p = 0.05$), and not so for boys. Terranova and colleagues (2008) found that fear when paired with high effortful control (a temperamental trait involving the ability to inhibit and switch behaviour) was negatively associated with direct/overt bullying both concurrently and prospectively for girls only (Terranova, Morris & Boxer, 2008).

Preliminary data is available from single studies which reported no association between fear of negative evaluation, intimacy avoidance (Zimmer-Gembeck & Duffy, 2014), or poorer theory of mind understanding (Shakoor et al., 2012) and later bullying involvement. Regarding theory of mind understanding specifically, it predicted bullying when paired with family SES deprivation and child maltreatment (Shakoor et al., 2012).

In summary, although research on predictors of bullying usually link high psychopathology levels with bullying involvement (Yang et al., 2013), the studies reviewed reported slightly different effects for youth psychological and interpersonal characteristics on bullying.

Externalising difficulties and low self-control had more consistent associations with bullying. Evidence presented regarding internalising behaviours problems seem to suggest this may predict later bullying, though more studies should follow to clarify this effect. There is also preliminary support from individual studies for a range of psychological factors being associated with changes in bullying behaviour including, for instance, moral disengagement (Wang et al., 2017), inhibition problems (Verlinden et al., 2014a), social competence and resource control (Reijntjes et al., 2016). In contrast, no significant associations have been reported for fear of negative evaluation, intimacy avoidance (Zimmer-Gembeck & Duffy, 2014), and theory of mind understanding (Shakoor et al., 2012).

4.4. Discussion

This review synthesises literature assessing early prospective childhood predictors of actively engaging in school bullying as a perpetrator at some point later in childhood or adolescence. The studies covered a wide range of predictors, but often only a single study investigated a particular predictor. Furthermore, where mixed findings were observed, due to the enormous variation in assessment methods, timing of assessment and populations under study, speculating about the reasons behind such discrepancies and drawing firm conclusions was challenging. Consequently, the weight of evidence regarding the role of many predictors is limited and findings should be viewed as preliminary. Slightly more robust and consistent support was apparent for a number of predictors, however, including gender (being a male); exposure to violence or hostility of others (e.g., domestic violence, harsh parenting or being friends with other students who exhibit antisocial behaviours); having an uncertain or changing home environment (e.g., divorce or low parental involvement); and showing earlier externalising

behaviour problems and low self-control. There was more mixed evidence regarding the role of ADHD and internalising problems. In relation to demography, there was scarce and mixed evidence for the role of demographic factors; with some indication that socio-economic deprivation may raise risk whereas younger age may lower risk for bullying behaviour. Rates of bullying were seen to increase in middle adolescence, aged 13 – 15 years. Overall, the findings support the notion that bullying does not have a single cause but is multiply determined by a range of demographic, family, school, and psychological and interpersonal characteristics.

The finding that being male increases bullying risk is consistent with past research in older age groups which consistently reports that males engage in more aggressive behaviours (e.g., Menesini & Salmivalli, 2017; Shetgiri et al., 2012). The findings concerning age group, though only evidenced in very few studies, are in line with developmental theories which state that with age youth gradually acquire more refined interpersonal and social skills (Higgins, Ruble & Hartup, 1983), which may account for the frequency of bullying gradually decreasing after the age of 15 (Chester et al., 2015; García-Moya et al., 2014; Hong & Espelage, 2012; Olweus, 1993b; 1997). A possible explanation for the change in behaviour in bullies reflects maturation such that with age they become more thoughtful and aware of social norms (Smith, Madsen & Moody, 1999); another possible explanation accounts for a change in by-standing behaviour where older non-involved pupils would start to take effective action towards preventing violence and defending victims (Deitch-Stackhouse et al., 2015).

The current findings linking exposure to violence or hostility of others to a greater likelihood for being a bully are in line with theory regarding the development of aggressive behaviour, which suggests that aggressive behaviours are mirrored (Ferguson, Miguel & Hartley, 2009). Hence, being friends with other students who exhibit antisocial behaviours, witnessing

domestic violence, experiencing child maltreatment, punitive and/or harsh parenting, or physical punishment would likely contribute to increased chances of being a bully, as previous research has also evidenced (e.g., Lien & Welander-Vatn, 2013; Rican, 1995). Likewise, the wider literature supports the findings that having an uncertain or changing home environment is related to bullying (e.g., divorce or low parental involvement). A comprehensive review commissioned by the Canadian Department of Justice on the risk factors for children in situations of family violence in the context of separation and divorce, reported that across the studies reviewed an increased risk for the development of aggressive behaviour in youth was observed when having divorced parents and/or when being exposed to low parental involvement (Jaffe et al., 2014). The present review did not assess the weight of genetic variables in predicting bullying and as such, an alternate genetic explanation for the association between these family variables and engaging in bullying cannot be ruled out. As per one study reviewed, genetic factors account for 61% of the variation in bullying behaviour (Ball et al., 2008).

Results for the association between youth psychological or interpersonal characteristics and bullying varied as a function of the focus of the study. There was some converging evidence that internalising behaviours problems predict future bullying, but conflicting results suggest that further confirmation of this relationship is warranted. Externalising difficulties and low self-control were more consistently associated with bullying. Self-control refers to the ability to control emotions or impulses to attain goals (Baumeister, Vohs & Tice, 2007). Theory and research support the suggestion that low levels of self-control contribute to aggression (Bluemke & Teige-Mocigemba, 2015; García-Forero et al., 2009). However, most research into self-control has focused on reactive aggression rather than bullying (e.g., Denson et al., 2012). As

externalising difficulties include aggressive or antisocial behaviour it is perhaps unsurprising that these are related to the future risk of bullying.

Common problems with the included studies were the lack of sample size justification and inadequate information about the demographic characteristics of the sample, such as ethnicity or sex. The lack of sample size calculations, which was observed across all the 28 reviewed papers, poses potential problems (Lingard & Rowlinson, 2005); for instance, insufficient sample sizes might lead to low statistical power and Type II error, which consequently could limit the strength of the conclusions drawn by increasing the risk of false negative results. Relatedly, small sample sizes reduce the precision of estimated effects. Nonetheless, the large sample sizes observed across the reviewed studies minimises the risk of low statistical power – only one study out of the 28 reviewed had a sample size with under 200 participants. Other problems observed refer to the use of non-validated bullying measures and data collection. Close to 40% (k = 11) of the reviewed studies did not use validated measures of bullying, and for another seven studies the psychometric validity of the bullying measures used was unclear. Moreover, for a few studies data collection involved face-to-face contact with the researcher with no attempt at blinding or masking of researchers. Future studies should aim to use established well-validated measures of bullying behaviour as such the University of Illinois Bully Scale (Espelage & Holt, 2001), the Olweus Bully/Victim Questionnaire (Solberg & Olweus, 2003), the Forms of Bullying Scale (Shaw et al., 2013), or the Swearer Bullying Survey (Swearer & Cary, 2003).

A few limitations restrict the findings of this review. First only published research was searched for and hence relevant unpublished work might have been left out which, if included, could have altered the conclusions here presented. Although, longitudinal studies tend to be

funded and so the chances of research groups not publishing are smaller there still may be publication bias with negative findings being less likely to be written up for publication. Furthermore, only studies that had been written in either English, Portuguese or Spanish were included, and so other relevant studies might have been missed. A further limitation is that meta-analysis was not conducted. Meta-analysis allows the quantification of an overall effect size (and estimates of associated imprecision and inconsistency), which can be valuable in drawing conclusions. However, the high level of inconsistency in terms of measurement, predictors measured (often only a single study measuring a particular variable), follow-up period and sample age range, prevented this.

4.5. Conclusion

This is the first systematic review of the literature assessing prospective early childhood predictors of being a bully. It provides initial evidence that being male; being exposed to violence or hostility of others (e.g., domestic violence, harsh parenting or being friends with other students who exhibit antisocial behaviours); having an uncertain or changing home environment (e.g., divorce or low parental involvement); and showing earlier externalising behaviour problems and low self-control constitute significant risks for children actively engaging in later bullying as a perpetrator. Further evidence also suggests that ADHD and internalising problems may be related to later bullying, as early adolescents (aged 13 – 15) have too been found preliminarily more at risk. Although a wide range of other demographic, environmental, family, school and psychological and interpersonal characteristics were reported as prospectively predictive of engaging in bullying, these are preliminary findings tested in a small number of studies and so there is need for more evidence from prospective

investigations. To date, very few longitudinal studies have been able to simultaneously measure a range of variables as predictors of being a bully. Consequently, little is known about the independent effect of these variables in predicting bullying behaviour as an outcome. Therefore, further research assessing these effects and other longitudinal relationships between early childhood predictors and bullying is still needed. Most importantly, future bullying research should use psychometrically validated measures of bullying. If early intervention is to be possible, it is paramount that future studies identify children with early characteristics that indicate they are at a higher risk of becoming a bully.

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Chapter 5

An investigation of early predictors of childhood bullying behaviours in a UK birth cohort sample

5.1. Introduction

School bullying refers to a particular form of peer aggression characterized by three concomitant criteria: intentionality, perceived power imbalance, and repetition (Olweus, 1997). In Western countries studies have reported at least 15% of any given student-body to be either a victim of traditional bullying or a bully – (Nansel et al., 2001; Molcho et al., 2009). For cyberbullying, the use of information and communication technology (e-mails, cell phones, pagers, instant messages, digital photos, and Web sites, for example) as resources to hurt others (Hinduja & Patchin, 2009), reports estimate the number of cyberbullying victimisations to be around 10-20% (Litwiller & Brausch, 2013; Sampasa-Kanyinga, Roumeliotis & Xu, 2014; Ybarra et al., 2012).

A wide range of criminal, educational, physical and/or psychological problems, which may occur in the short or long term, have been identified as consequences of bullying involvement (Arseneault, 2018; Copeland et al., 2013; Meltzer et al., 2011; Thornberg, 2010). It has been evidenced that youth who engage in bullying behaviours as perpetrators are more prone to become aggressive adults, adopting deviant and even criminal behaviours (King et al., 1996; Olweus, 1997; Arseneault, 2018). Additionally, these pupils were found to form weaker emotional bonds with others across the lifespan (Olweus, 1994; Arseneault, 2018).

Given the wide range of negative consequences reported associated with bullying perpetration, identifying factors that contribute to bullying involvement is paramount; understanding which early factors and how they contribute to bullying behaviours may

suggest possible targets for early interventions, which are crucial to prevent bullying from becoming more entrenched in adolescence. Though many studies have focused on identifying risk factors for bullying involvement in adolescence (e.g., Gendron, Williams & Guerra, 2011; Hemphill et al., 2012; Le et al., 2017), much less is known about early predictors of childhood bullying behaviours. Broadly the literature to date has suggested that bullying behaviours are not likely caused by a single variable, but rather are multiply determined by a range of demographic (e.g., Hemphill et al., 2012; Reijntjes et al., 2016), family (e.g., Bowes et al., 2009; Le et al., 2017; Yang et al., 2013), school (e.g., Cho et al., 2019; Forster et al., 2019; Gendron, Williams & Guerra, 2011), and psychological and interpersonal characteristics (e.g., Espelage, Van Ryzin & Holt, 2018; Kretschmer et al., 2017; Stavrinides et al., 2011). Unfortunately, few studies have simultaneously assessed a range of these variables to examine their individual effect, alongside other possible factors, in predicting bullying as an outcome (e.g., Bowes et al., 2009; Hemphill et al., 2012; Forster et al., 2019). Furthermore, most studies identifying early predictors tend to focus on predicting bullying involvement during adolescence with the youngest age for samples typically being around 12 years of age. There are comparatively fewer studies examining predictors of bullying involvement earlier in childhood (at ages 10 and younger).

Results from the systematic review of prospective longitudinal studies reported in Chapter 4 of this thesis found only 11 studies which had investigated predictors of bullying involvement with samples aged 10 and younger. This is a remarkable gap in the literature given the importance of early identification of children at risk of later bullying behaviours. Findings from studies examining early predictors of bullying behaviour will be outlined next, building the rationale and focus for measurement in the current study. These include studies that assessed early predictors of bullying behaviour during adolescence since such predictors may be relevant to outcomes at younger ages. The aim of the present study was to investigate

early prospective predictors of childhood bullying behaviours at 9-10 years of age in a representative British birth cohort, in order to better inform the future development and targeting of early interventions.

5.1.2. Early childhood predictors of bullying behaviour – what is known?

The literature on prospective childhood predictors of actively engaging in bullying as a perpetrator is relatively scarce. Much evidence comes from single studies which have individually investigated factors as possible predictors of bullying, which thus grants little opportunity for testing generalization regarding the predictive power of the variables under study (e.g., Lynch et al., 2016; Verlinden et al., 2014; Reijntjes et al., 2016; Wang et al., 2017; Zimmer-Gembeck & Duffy, 2014). Furthermore, even where predictors are examined in more than one study, mixed results are commonly reported; for example, inconsistent findings have been reported regarding the role of earlier internalising behaviours in predicting changes in bullying across childhood and preadolescence (Bowes et al., 2009; Stavrinides et al., 2011; Yang et al., 2013; Espelage, Van Ryzin & Holt, 2018). Consequently, the weight of evidence regarding the role of many individual predictors is limited.

Results from the systematic review of 28 prospective longitudinal studies conducted in this thesis sets the broad foundation for the current investigation. This review set out to identify studies on early predictors of bullying behaviours published from the earliest date available till December 2019 and was limited to those studies that examined predictors in childhood and early adolescence where predictors were measured at ages 12 years or younger. Results from the systematic review indicated that being male was found to pose a higher risk for actively engaging in bullying (Ball et al., 2008; Reijntjes et al., 2016). Evidence also suggests that students who were exposed to violence or hostility of others such as domestic violence, harsh parenting, physical punishment (de Vries et al., 2018; Hong, Kim & Piquero, 2017), or being friends with other students who exhibit antisocial behaviours are

at higher risks of engaging in bullying behaviours (Hemphill et al., 2012; Hong, Kim & Piquero, 2017). Having an uncertain or changing home environment, expressed by having divorced parents (Jansen et al., 2011; Yang et al., 2013) or living in homes characterised by low parental involvement (Cho et al., 2019) were similarly reported as risk factors predictive of bullying behaviours. Externalising difficulties (Bowes et al., 2009; Jansen et al., 2011) and low self-control (Cho et al. 2017, 2018, 2019; Kretschmer et al., 2017; Terranova, Morris & Boxer, 2008) were reported to increase the risk for engaging in bullying as well. There was mixed evidence for internalising problems (Jansen et al., 2011; Stavrinides et al., 2011; Yang et al., 2013) being linked to increased chances of engaging in bullying. Preliminary evidence also suggests early to middle adolescents (aged 13 – 15) to be more prone to bullying behaviours (Gendron, Williams & Guerra, 2011; Nation et al., 2008). Though these represent the most consistent findings across the 28 prospective longitudinal studies reviewed on thesis Chapter 4, each domain of assessment relevant to determining early predictors of bullying together with how each domain will be indexed in the current study will be outlined next.

5.1.2.1. Demographic characteristics

In terms of sociodemographic variables, as very few studies have investigated bullying in childhood, gender differences in bullying behaviour across middle childhood remain largely unknown. Furthermore, findings from the few prospective longitudinal studies that have investigated this association are inconsistent. For instance, being male has been found to pose a higher risk for engaging in bullying in some studies (e.g., Ball et al., 2008;), but not in others (e.g., Wang et al., 2014). Thus, the present study aimed to assess the effect of gender in predicting bullying behaviours at age 9.

It has been suggested that children born to younger mothers are at increased risk of problematic parent–child interactions (Leadbeater, Bishop, & Raver, 1996) and behavioural difficulties (Fergusson & Lynskey, 1993) in middle childhood. Previous studies have linked

younger maternal age to increased psychosocial problems across the lifespan (Fergusson & Woodward, 1999; Tearne et al., 2015). though to our knowledge, no study has examined maternal age in respect to bullying involvement specifically. A large Australian study, for example, sampling 99,530 children, found that the risk of developmental vulnerability, assessed in terms of physical health and well-being, social competence, emotional maturity, language and cognitive skills, and communication skills and general knowledge, was highest at age 5 in children born to younger mothers (Falster et al., 2018). Though the studies cited above did not assess bullying behaviours specifically, social and emotional functioning are likely compromised in those children who bully others, indicating it may be important to test whether maternal age and bullying are themselves associated. Therefore, the role of maternal age at pregnancy with their first child was assessed in the current study in predicting bullying behaviours at age 9.

Another demographic factor commonly associated with the development of aggressive behaviour is socioeconomic status or socio-economic deprivation (SES). Empirical evidence from a broad range of studies has demonstrated lower levels of SES to be associated with higher levels of emotional and behavioural difficulties (Piotrowska et al., 2015). Discrepant reports, however, can be found in literature linking SES and bullying involvement specifically, hence the independent effect of SES remains unclear. No evidence of association between family SES and engaging in bullying were found in longitudinal studies by Bowes et al. (2009) or Lynch (2016). In contrast, two other studies found lower levels of SES were significantly associated with increased chances of bullying perpetration (Jansen et al., 2011; Shakoor et al., 2012). Therefore, to better understand the association between SES and bullying involvement, socio-economic conditions indexed by area deprivation, maternal age, family income, financial problems, single parenthood, employment status and neighbourhood satisfaction were investigated as predictors of the bullying at age 9.

5.1.2.2. Family Factors

Theory regarding the development of aggressive behaviour suggests that aggressive behaviours are typically mirrored (Ferguson, Miguel & Hartley, 2009), whereby key family members (commonly the parents) serve as primary modelling agents from whom children learn (Bronfenbrenner & Morris, 2006). Moreover, previous findings from studies assessing children's exposure to particular forms of parenting environment as a risk for bullying behaviour have shown parental exhibition of antisocial behaviour (Bowes et al., 2009), fathers' hostility (de Vries et al., 2018), and punitive practices (Hong, Kim & Piquero, 2017), for example, to have a significant positive association with later bullying. Further studies have also found family conflict and domestic violence consistently associated with a greater likelihood of engaging in bullying. Large longitudinal studies conducted in Australia (Hemphill et al., 2012), the UK (Bowes et al., 2009) and Vietnam (Le et al., 2017), with different mean ages ranging from 5 to 14.7 years old, all report youth who witness domestic violence to be at risk for being a bully. Parental involvement is another family factor which was found inversely correlated with bullying perpetration such that poor parental involvement and insecure attachment in infancy posed a risk for being a bully over time (Cho et al., 2019). The current study, thus, set out to assess the contribution of parenting environment expressed by serious parental arguments, recent relationship break-up, low parental monitoring (to index low parental involvement), positive discipline practices, harsh/punitive parenting, and inconsistent discipline at age 5 on bullying behaviours at age 9.

Maternal emotional distress has also previously been evidenced to be an important variable in predicting poor behavioural outcomes in children (Yeung et al., 2002). However, previous prospective longitudinal studies have reported no predictive effect of maternal depression or anxiety on bullying outcomes; for instance, Bowes and colleagues (2009, data collected at age 5 and 7 years in the UK), as well as Malm and Henrich (2019, a US report on

children aged 8 – 12) found no significant effect of maternal depressive symptoms on later engagement in bullying. Regarding maternal anxiety, to our knowledge, only one study investigated maternal anxiety in childhood (at age 11) in respect to later bullying involvement (at age 13.5 years) and, similarly to the findings concerning maternal depression, no association was found (Jansen et al., 2011). Therefore, due to the discrepancy observed between wider research and theory, versus preliminary empirical findings from bullying studies, the independent effect of these parental mental health problems at age 5 was also investigated as potential prospective childhood predictors for engaging in bullying behaviours at age 9.

5.1.2.3. Individual Psychological and Interpersonal Variables

Within the literature, specific psychological and interpersonal variables have been consistently shown to be significant early predictors of bullying; externalising behaviour problems, for instance, have consistently been evidenced to predict changes in bullying across childhood and preadolescence (Bowes et al., 2009; Jansen et al., 2011). However, the weight of this evidence in particular to middle childhood, is limited; to our knowledge, only one study linked externalising problems in children under aged 9 to later bullying behaviours (see Bowes et al., 2009), and thus further assessment is needed. In line with this, preliminary evidence on individual protective factors also suggests that high scores on prosocial competence decrease the risk for being a bully (Stavrinides et al., 2011). Thus, in order to investigate its possible buffering protective effect in middle childhood, prosocial behaviour at age 5 was included in the analysis to ascertain its independent effect in later bullying at age 9 years. Though some converging evidence has been reported linking internalising problems to future bullying (Stavrinides et al., 2011; Yang et al., 2013), other studies have found no evidence of internalising problems predicting bullying behaviours (Jansen et al., 2011). Thus, since the evidence is dissonant, the independent effect of prior internalising problems at age 5

on bullying behaviours at age 9 will be examined in the current study.

In summary, based on these findings and on the gaps observed in the literature, the current study aimed to investigate the independent effect of five domains of assessment, measured at 5 years of age on actively engaging in bullying at age 9. These domains included early sociodemographic variables, maternal relationship circumstances, maternal mental health, child psychological and interpersonal functioning, and parenting environment and practices. This is the first study to longitudinally investigate early sociodemographic, maternal relationship circumstances, maternal mental health, child psychological and interpersonal functioning, and parenting environment and practices together as possible early childhood predictors of bullying behaviours using a validated psychometric measure to assess bullying involvement. Moreover, since only nine out of 28 previous longitudinal prospective studies focused on identifying early predictors of bullying behaviour have used validated bullying outcome measures, the present study is one of few to attempt to do this. Since the assessment of bullying behaviour is an important element of study methodological quality, some of the issues that arise regarding assessment will now be outlined.

5.1.3. Assessment of Bullying

Typically, studies assessing children collect data from multi-source respondents (Gridley et al., 2019). Traditionally, observational measures are considered gold standard for assessing child outcomes (Johnson & Marlow, 2006); however, observational measure methodology is potentially not ideal as bullying behaviours can happen at multiple locations (Olweus, 1997), including, for example, places such as school restrooms and toilets, where the presence of a researcher would be inappropriate. Observational measure methodology is also very expensive and time-consuming. A less expensive and more practical alternative to

assess bullying experiences is the use of parent- and/or teacher-reported measures, aside from the child's own self-report on bullying experiences (e.g., Shakoor et al., 2012).

Some of the methodological limitations that can be found in the studies already published on early predictors of childhood bullying behaviours should be considered when planning future studies. Since much of the work has been conducted within longitudinal cohort studies, with the associated constraints on measurement burden for participants, binary questions regarding bullying involvement have most often been used to assess the presence of bullying behaviours (Bowes et al., 2009; Hemphill et al., 2012), rather than lengthier but psychometrically validated measurement tools. Other studies have used lengthier measures to assess bullying that have not been previously validated (Cho et al., 2017; Forster et al., 2019). Finally, another common method adopted in the literature to collect data on bullying behaviours in preadolescence has been to use parent and teacher reports (Shakoor et al., 2012); this approach is potentially problematic as bullying is a form of peer aggression identified in terms of *perceived* intentionality, power imbalance, and repetition. Hence, and because bullying has been found to be a fundamentally subjective experience perceived and defined as such by the pupils involved (Guerin & Hennessy, 2002), the use of parents' and teachers' reports alone might conceal the real prevalence and neglect to capture the bullying phenomenon comprehensively.

Self-report questionnaires are the most common method used to assess bullying behaviours (Espelage & Swearer, 2003; Griffin & Gross, 2004; Ortega et al., 2001). The relative merits of self-report versus other types of assessments such as peer and teacher nomination have been comprehensively discussed (Cornell & Bandyopadhyay, 2010; Furlong et al., 2010; Solberg & Olweus, 2003). According to Shaw and colleagues (2013, p. 1023), self-report instruments "provide the opportunity for those victimized to report bullying that may not be known other than to the student victimized and the perpetrator." Few studies,

however, have used validated self-report bullying measures in middle childhood and preadolescence (e.g., Hong, Kim & Piquero, 2017; Verlinden et al., 2014). One of the concerns raised regarding the use of self-report questionnaires with this age group is how cognitive development affects survey research (Borgers, de Leeuw & Hox, 2000). A sufficient independent competency level in three key domains – cognition, language/reading, and social/moral systems – is identified as fundamental if structured psychometric instruments are to be administrated to children (Borgers, de Leeuw & Hox, 2000). In particular for bullying measurements, it is thought to be particularly important to provide a definition of bullying before completion of self-report measures and, where possible, to check the young person's understanding to ensure content related validity (Ortega et al., 2001; Solberg & Olweus, 2003; Shaw et al., 2013). Providing participants with a definition of bullying prior to the administration of the measure is thought to be important to clearly differentiate school bullying from other forms of in school peer aggression. According to Shaw and colleagues (2013, p. 1046), in providing students with a definition of bullying, "some degree of common understanding of the phenomenon" is maintained, "increase[ing] the comparability of responses". Moreover, providing participants with a definition of bullying prior to the administration of the measure also supports researchers in illustrating the three concomitant defining characteristics of bullying (i.e., intention, repetition, power imbalance) and hence bullying behaviours can be distinguished from other forms of aggression between peers and playful teasing (Ortega et al., 2001; Solberg & Olweus, 2003).

5.1.4. The current study

The current study reports analysis of data from the Wirral Child Health and Development Study (WCHADS) (see Sharp et al., 2012), a prospective epidemiological longitudinal birth cohort study starting in pregnancy, with follow-up over several assessment

points during infancy and childhood. The broad aims of the current study were two-fold. First, to validate in a sample of 9-10-year-olds an existing measure of bullying, previously validated in an older adolescent sample aged 11-15, called the Forms of Bullying Scale (FBS, Shaw et al., 2013). Second, to simultaneously examine the role of a range of early sociodemographic, family factors, parental mental health, child psychological and interpersonal characteristics and parenting practices as predictors of bullying behaviours at 9-10 years of age, using measures completed by the study participants at the time of school entry, aged 4-5 years.

At the analysis stage, a hierarchical stepwise approach to model building was taken with planned entry of variables so that it was possible to establish the incremental contribution of each domain of measurement to the model. Demographic variables were entered first, followed by indicators of parental relationship functioning and then maternal mental health to index parental functioning. Next existing child mental health or interpersonal difficulties at age 5 were entered. Finally, indices of parenting quality were entered last into the model in order to determine their contribution to later bullying behaviour after accounting for the other co-occurring risks. Parenting variables were entered last since they are understood to already be possible modifiable targets for intervention in bullying research but have not commonly been investigated in young children in the prediction of later bullying behaviours. Effective early family intervention is argued to break "inter-generational cycles of social problems" (House of Commons Library, 2019, p.14). Traditionally, families have been identified as the primary modelling agents which maintain and sustain both adaptive and maladaptive behaviour patterns (Bronfenbrenner & Morris, 2006), thus, typically early intervention programmes involve parents and children alike. Indeed, anti-bullying interventions which have been employed so far with parents as well as children have been linked to a higher reduction in bullying (Axford et al., 2015) as opposed to interventions

which have targeted school bullying and victimisation at an individual level only (Vreeman & Carroll, 2007). In this context, parenting variables were entered last so that the effect of these over the remaining variables could be observed in the prediction of bullying at age 9. In this way findings might inform the rationale for targeting of future early intervention studies.

In relation to the first aim, the factor structure of the FBS was investigated; its reliability (internal consistency) and evidence for concurrent and convergent validity were examined. The FBS consists of 20 items equally distributed to assess victimisation (the FBS-V) and perpetration (FBS-P) in relation to bullying. Items are phrased in a manner that enables a respondent to endorse the item whether their bullying activity or experience has been conducted or experienced online (cyberbullying) or in person (traditional bullying) (Shaw et al., 2013).). The scale was originally validated in Australia with a sample of adolescents aged 12 to 15 (Shaw et al., 2013) however, the investigators of the WCHADS, who are experienced clinicians in child and adolescent mental health services, felt they were developmentally appropriate for use with 9-year-olds. Clinical colleagues also consulted by the WCHADS team also deemed the FBS items appropriate to be administrated in middle childhood (See Appendix U for a copy of the measure).

In line with the original validation study (Shaw et al., 2013), the concurrent validity of the FBS at age 9 was tested against global single-item questions developed by Solberg and Olweus (2003) to assess frequency of bullying victimisation and perpetration. Specifically, the FBS-P indexing bullying behaviours was validated against two global prevalence questions about bullying perpetration, and the FBS-V, which addresses victimisation behaviours, was validated against two global prevalence questions about bullying victimisation. Evidence regarding convergent validity was next measured against concurrent measures of child psychopathology and interpersonal functioning, assessed by the Strength

and Difficulties Scale, at age 9, also in line with the previous published validation study in adolescence. It was thus hypothesised that:

1. Scores on the FBS Bullying subscale and the Olweus Bullying Global Prevalence questions indexing traditional and cyberbullying will be significantly correlated. Likewise, scores on the FBS Victimisation subscale and the Olweus Victimisation Global Prevalence questions for traditional and cyberbullying will be significantly correlated.

2. Bullying perpetration on the FBS will be significantly and negatively associated with concurrent prosocial behaviour subscale scores, and positively associated with SDQ conduct and peer problems scores at age 9.

3. Bullying victimisation on the FBS will be significantly and positively associated with SDQ emotional symptoms and peer problems at age 9.

In relation to the second aim, the contribution of a range variables within the following domains implicated as relevant in previous studies or novel to the current investigation were investigated; early sociodemographic, maternal relationship circumstances, maternal mental health, child psychological and interpersonal functioning, and parenting environment and practices. The contribution of these predictors to child self-reports of bullying behaviours at 9-10 years of age were examined, using measures completed by the study parents at the time of school entry, aged 4-5 years.

In line with the literature a range of demographic characteristics such as maternal age, child gender (being male) and indicators of low SES were examined as possible predictors. Likewise, indices that reflected the quality of the parental relationship; recent relationship break-up and serious parental arguments were also hypothesised to contribute to later bullying. The contribution of maternal distress in the form of anxiety and depression symptoms at age 5 was also explored. Based on previous findings in the literature it was hypothesised that early child psychopathology including externalising behaviours,

internalising problems, low levels of pro-social behaviour, and peer aggression at age 4-5 years will be associated with bullying at age 9. Finally, based on findings in the literature it was hypothesised that early parenting that involved harsh responding, low levels of positive discipline practices, inconsistent discipline, low levels of involvement and low parenting alliance between parents at age 4-5 years were hypothesised to predict bullying at age 9.

5.2. Method

5.2.1. Ethics

The Cheshire North and West Research Ethics Committee granted ethical approval for the Wirral Child Heath and Development (WCHADS) study on three occasions for longitudinal data collection, on the 27th June 2006, reference number 05/Q1506/107, 7th June 2010, reference number, 10/H1010/4, and on 22nd December 2014, reference number, 14/NW/1484 (See Appendix V for a copies of the Ethical approval letters). The study was performed in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki and its later amendments. Participating parents gave written informed consent for themselves and their children at multiple time points during the study. Information sheets and consent forms which pertain to the original recruitment in pregnancy and assessments completed at age 3.5, age 4.5-5 and age 9, relevant to the current investigation, can be found in Appendix W. The author worked as part of the research team gathering data at the age 9 assessment and the primary supervisor for the thesis (custodian of the WCHADS data) facilitated access to the longitudinal data in line with ethical approvals.

5.2.2. Design

This was a prospective longitudinal study from pregnancy to age 9 years. The majority of data reported here was gathered at the age 4.5-5 and age 9 assessment phases. Two exceptions were maternal age at recruitment during pregnancy with the index child and the

index of socio-economic deprivation derived from post-code data that was gathered on the whole sample at age 3.5 years and was not available at age 4.5 years.

5.2.3. Participants

The participants were members of the Wirral Child Health and Development Study (WCHADS), a prospective epidemiological longitudinal study starting in pregnancy with follow-up over several assessment points during infancy and childhood (see Sharp et al. 2012). A consecutive sample of primiparous women who booked for antenatal care at 8-12 weeks' gestation between 12/02/2007 and 29/10/2008 were approached to take part. Eligibility included being aged 18 or above and English speaking. The booking clinic was administered by the Wirral University Teaching Hospital which was the sole provider of universal prenatal care on the Wirral Peninsula. Socioeconomic conditions on the Wirral range between the deprived inner city and affluent suburbs, but with very low numbers from ethnic minorities. The study was introduced to the women at 12 weeks of pregnancy by clinic midwives who asked for their agreement to be approached by study research midwives when they attended for ultrasound scanning at 20 weeks' gestation. 1286 (68.4%) of those approached agreed to take part. Of whom, 1233 gave birth to a live singleton baby and remained in the study at birth so were eligible for postnatal follow-up.

The sample for the current study were those women who gave data when their child was aged 3.5 years (phase 10), age 4-5 years of age (phase 12) and whose child gave follow-up data at age 9 (phase 14) in the WCHADS study. A total of 640 families completed assessments at all these time points and were therefore included in the current study.

5.2.4. Measures

5.2.4.1. Sociodemographic measures

Maternal age at recruitment – 20 weeks' gestation (T1)

Maternal age in years was recorded at recruitment into the study.

Socio-economic Deprivation – age 3.5 (T2)

Index of Multiple Deprivation (McLennan et al, 2011)

Socioeconomic status was determined using the revised English Indices of Multiple Deprivation (IMD 2010) (McLennan et al., 2011). According to this system, postcode areas in England are ranked from most deprived (i.e., IMD of 1) to least deprived (i.e., IMD of 32,482) based on deprivation in seven domains: income, employment, health, education and training, barriers to housing and services, living environment and crime. Socioeconomic deprivation was assessed from participant postcodes at age 3.5 using the IMD and data was collapsed into a binary variable for the purposes of analysis representing two comparison categories, those living the socioeconomic circumstances equivalent to the most deprived quintile of the UK (coded 1) versus those in the top four quintiles (coded 0).

Sociodemographic measures – age 5 (T3)

Child sex, age, and ethnic origin

Child sex and ethnic origin were recorded. Male sex was coded (1) and female (0) for the purposes of analysis. Data regarding ethnic origin was dichotomized into two comparison categories, white British ethnic background versus other backgrounds. Since 96.9% of the sample were white British, this variable is used only in describing the sample characteristics rather than in longitudinal analysis. Child age in months at the time of the T3 assessment was used as a covariate in multivariate analyses to control for variation in age at the time T3 data was collected.

Family income and financial problems

Family income and financial problems were assessed longitudinally across the assessment's phases. The present study used T3 data at 5 years of age. Mothers were asked about their approximate annual family income, and about whether they had financial problems at the moment. The response set for family income was: (1) Up to £10,000, (2)

£10,000 – £20,000, (3) £21,000 – £30,000, (4) £31,000 – £40,000, (5) £41,000 – £50,000, (6) £51,000 – £60,000, (7) £61,000 – £70,000. Concerning financial problems, mothers were asked "*Do you have any financial problems at the moment*?" and responses were on a 3-point Likert scale, ranging from "Not at all" (1) to "A lot" (3).

For the purposes of analysis data regarding income was treated as an 8-point ordered scale. Data on financial problems were dichotomized for the purposes of analysis into two comparison categories, mothers who reported "not having financial problems" (coded 1) versus those who reported "having a few" or "a lot financial problems" (coded 0).

Maternal partnership status

Maternal partnership status was recorded and dichotomized for the purposes of analysis into two comparison categories, representing those mothers who reported being in relationship (either married or cohabiting; coded 1), versus those who reported not having a partner (coded 0).

Maternal employment status

Maternal employment status was recorded at age 5 and data was dichotomized for the purposes of analysis into two comparison categories, representing those mothers who were in some form of paid work (coded 1), versus those who were not (coded 0).

Full-time maternal care

Mothers were asked "*Does your child live with you full-time*?" and answered "yes" (coded 0) or "no" (coded 1) to whether their child lived with them full time.

Perceived housing satisfaction

Mothers were asked "*How satisfied are you with your housing?".* Responses were rated on a 4-point Likert scale, ranging from "very dissatisfied" (1) to "very satisfied" (4).

Perceived neighbourhood satisfaction

Mothers were asked "*What do you think of your neighbourhood as a place to live?*". Responses were on a 4-point Likert scale, ranging from "not at all a good place to live" (1) to "very good place to live" (4).

5.2.4.2. Maternal Relationship circumstances – age 5 (T3)

Relationship break-ups

Mothers were asked about whether they had experienced a relationship break-up, separation, or divorce in the past 6 months. Responses were on a 4-point Likert scale, ranging from "none" (0) to "three times" (3). Data was collapsed into a binary category for the purposes of analysis contrasting those with one or more relationship breakups (coded 0) versus none (coded 1).

Serious arguments with a partner

Mothers were asked about the frequency of serious arguments with their partner in the past 6 months. Responses were on a 4-point Likert scale, ranging from "none" (0) to "three times" (3). Data was collapsed into a binary category for the purposes of analysis contrasting those with one or more serious arguments (coded 0) versus none (coded 1).

5.2.4.3. Maternal mental health – age 5 (T3)

Parental mental health measures

Spielberger State-Trait Anxiety Inventory (STAI) (Spielberger, Gorsuch & Lushene, 1970)

The STAI is a brief self-report measure subdivided into two subscales aimed to assess Trait Anxiety and State Anxiety respectively. A brief 6-item version of the State subscale of the STAI was used in the current study. Across the items, participants were asked to describe how they felt at that moment (e.g., calm, tense etc). Responses were rated on a 4-point Likert

scale, ranging from “not at all” to “very much so” (scored 1 to 4) yielding a total score ranging from 6 – 24.

The STAI is a widely used self-report measure of anxiety symptoms that has been used for research purposes with both pregnant (Rini et al., 1999) and non-pregnant women and has been shown to have good internal consistency with Cronbach’s $\alpha = 0.92$ (Spielberger, 1983). The 6-item short form assessing state-anxiety was completed by mothers at T3 when children were 5 years old. Internal consistency for the current sample was found appropriate: Cronbach’s $\alpha = 0.933$.

The Center for Epidemiologic Studies Depression Scale (CES-D) (Radloff, 1977)

The CES-D is a self-report measure which assesses depression in the general population. The CES-D measures respondents’ mood state based on the frequency they experienced certain depressive symptoms in the past week. The scale includes 20 items covering areas such as depressed mood, feelings of guilt and worthlessness, feelings of helplessness and hopelessness, loss of energy, sleep disturbance and loss of appetite. Items are rated on a 4-point Likert scale ranging from “never” (0) to “always” (3). Total scores range from 0-60 with higher scores indicating greater depressive symptoms.

The CES-D has been widely used and it has been shown to demonstrate good internal consistency with Cronbach’s $\alpha > 0.8$ (Batistoni, Neri, & Cupertino, 2007; Gomez & McLaren, 2015; Ros et al., 2011). Internal consistency for the current sample was found appropriate: Cronbach’s $\alpha = 0.905$.

5.2.4.4. Childs’ psychopathology and prosocial functioning – age 5 (T3)

The Strengths and Difficulties Questionnaire (Goodman, 1997)

The SDQ assesses psychological skills and problems such as: emotional symptoms, conduct problems, hyperactivity/inattention, peer problems and prosocial behaviour (Goodman, 1997). The questionnaire has 25 items comprising of five subscales and each

subscale has five items. To address the aim focus of the current study, only data from the Prosocial subscale at age 5 was used. Mothers rated their 5-year-old child's prosocial behaviour on a 3-point Likert scale ranging from "not true" (0) to "certainly true" (2).

The SDQ has been widely used across numerous countries and languages and has shown good psychometric properties: internal consistency (Cronbach α mean: 0.73, cross-informant correlation: mean 0.34, and retest stability: mean 0.62) (see Goodman, 2001). Moreover, regarding construct validity the SDQ was validated against the Development and Well- Being Assessment (DAWBA; Goodman & Ford, 2000). Criterion validity was further assessed with structured non-clinical independent interviewers as well as conducted by independent mental health professionals who assigned DSM-IV diagnoses. Internal consistency for the SDQ Prosocial subscale assessed at T3, when study children were 5 years old, was found to be appropriate: Cronbach's $\alpha = 0.718$.

CBCL (internalising and externalising behaviour problems)

The Child Behaviour Checklist (CBCL) is a component of the Achenbach System of Empirically Based Assessment (ASEBA) the most frequently used set of dimensional instruments to assess child psychopathology. The CBCL was completed by the child's mother in the current study and assesses a range of domain-specific syndromes: emotionally reactive; anxious/depressed; somatic complaints; withdrawn; sleep problems; attention problems; aggressive behaviour. These domains can be further categorized into two higher order factors—representing total internalising problems and total externalising problems. The time frame for item responses is the past six months. Each item of the CBCL is scored on a 3-point Likert scale ranging from "Not true" (0) to "Very true or often true" (2).

The CBCL has been widely used across numerous countries and languages and has shown good psychometric properties, e.g., Cronbach's $\alpha > 0.8$ (Achenbach & Rescorla, 2001; 2007).

Baillargeon Peer Aggression problems (Baillargeon et al., 2007)

Peer aggression was measured at T3 when study children were 5 years old. This physical aggression questionnaire consists of 5 items assessing use of physical aggression towards other children. Items are rated on a 3-point Likert scale from "not true" (0), "sometimes" (1) to "very true or often true" (2); the mid-point rating being sometimes (1). Mothers were asked whether and at what frequency their children bite, kick and hit other children; two other items from the CBCL made up the Baillargeon Peer Aggression problems measure, these are about whether and at what frequency their children get into fights and physically attack other children. The Cronbach's Alpha in the present sample was adequate ($\alpha = 0.815$). Data was dichotomized for the purposes of analysis into two comparison categories, representing those children reported to have any peer aggression (coded 1), versus those who reported not to have peer aggression problems (coded 0).

5.2.4.5. Parenting environment measures – age 5 (T3)

Parenting Alliance

Parenting alliance was assessed based on mothers' report of the extent of agreement between parents on how they look after their children in respect to discipline, managing and solving child-related problems, taking care, talking to their children, and being part of the decision-making. These constructs were organized in 6 items and each item was rated on a 5-point Likert scale ranging from "never" (0) to "always" (4); the summed scores ranging between 0 and 24 with higher scores representing greater parental alliance. Internal consistency in the current study was adequate ($\alpha = 0.947$). See Appendix X for a copy of the measure.

Alabama Parenting Questionnaire (Shelton et al., 1996)

The Alabama Parenting Questionnaire (APQ) is a 42-item self-report questionnaire which assesses six dimensions of parenting: (1) parental involvement, (2) poor monitoring

and supervision, (3) use of positive discipline techniques (positive parenting), (4) inconsistent discipline, (5) corporal punishment and (6) Other discipline practices. Items are rated on a 5-point Likert scale ranging from "never" (1) to "always" (5). The current study did not administer the items assessing supervision and monitoring as they covered domains not pertinent to the age range under study (e.g., "*Your child is out with friends you don't know*" and "*Your child stays out in the evening past the time he/she is supposed to be home*"). This is in line with other studies of younger children (e.g., Clerkin et al., 2007). The APQ has good psychometric properties including criterion validity in differentiating clinical and non-clinical groups (Dadds, Maujean, & Fraser, 2003; Frick, Christian, & Wooton, 1999; Shelton et al., 1996).

For the purposes of analysis, four subscales were used and total scores for each subscale were derived. Parental involvement, Positive Discipline Practices, Inconsistent Discipline and finally, following Clerkin et al. (2007), a subscale was created to assess use of punitive parenting practices comprising of the original three item corporal punishment subscale of the APQ plus responses to two items from the 'Other Discipline practices subscale':"*You ignore your child when he/she is misbehaving*," and "*You yell or scream at your child when he/she has done something wrong*".

5.2.4.6. Outcome and child psychopathology measurement – age 9 (T4)

Bullying measures

The Olweus Bullying Global Prevalence Questions (Solberg & Olweus, 2003)

Aiming to estimate and compare the global prevalence of bullying victimisation and perpetration in general, the Olweus Bullying Global Prevalence questions are organized into four single global questions typically used to categorize students as having been bullied or having bullied others both by traditional forms of bullying as well as by cyberbullying. Prior to completing the questions children are given a definition of bullying and cyberbullying

which reads:

Bullying Definition:

Please read the following information on Bullying carefully

Bullying is when one or more of the following things happen AGAIN and AGAIN to someone who finds it hard to stop it from happening again. Bullying is when a person or a group of people offline or online (mobile phone or Internet):
• Make fun of / tease someone in a mean and hurtful way
• Tell lies or spread nasty rumours about someone to try to make others not like him/her
• Leave someone out on purpose or not allow him/her to join in
• Hit, kick or push someone around
• Deliberately damage, destroy or steal someone's things
• Threaten or make someone feel afraid of getting hurt

It is NOT bullying when:
• Teasing is done in a friendly, playful way
• Two people who are as strong as each other

Cyberbullying Definition:

Cyberbullying is bullying using a mobile phone and/or the Internet, e.g., when a person:
• Is sent nasty or threatening emails or messages on the Internet or their mobile phone
• Has mean or nasty comments or pictures about them sent to websites, e.g., MySpace; Facebook; MSN or to other students' mobile phones
• Is deliberately ignored or left out of things over the Internet
• Has someone else pretend to be them online to hurt them

Cyberbullying can happen through text messages/pictures/video-clips/emails etc. being sent to you, but also when these things are sent to others, about you.

Afterwards, they are asked the following four questions: (1) "*How often have you been bullied in school in the past couple of months?*", (2) "*How often have you been cyber-bullied in the past couple of months?*", (3) "*How often have you taken part in bullying another student in the past couple of months?*", and (4) "*How often have you taken part in cyber-bullying another student in the past couple of months?*". Children indicate their response to each item on a 5-point Likert scale ranging from "I haven't" (1), "It only happened once or twice" (2), "2 or 3 times a month" (3), "About once a week" (4), to "Several times a week" (5). In adolescence bullies and nonbullies are distinguished based on their self-reported frequency of involvement whereby two or three times a month or more is typically used as a

cut-off for inclusion in the bullying category (Solberg & Olweus, 2003). For the purposes of assessing the convergent validity of the FBS against the Olweus measure in the current study the four Olweus Bullying Global Prevalence questions were each used as continuous scales.

The Forms of Bullying Scale – Shaw et al. (2013)

The Forms of Bullying Scale (FBS) derives from the revised Olweus Bully/Victim Questionnaire – OBVQ (Olweus, 1996) and the Peer Relations Questionnaire – PRQ (Rigby, 1998) and it assesses both bullying victimisation and perpetration (Shaw et al., 2013). The FBS was designed to assess five important domains of bullying behaviours: (1) verbal bullying (i.e., cursing and calling names); (2) threatening behaviours (i.e., threats and intimation); (3) physical bullying (i.e., theft and physical aggression); (4) relational bullying (i.e., friendship withdrawal threats and exclusion); and (5) social bullying (i.e., telling lies and spreading rumors to cause social harm).

Each FSB subscale, the Victimisation (the FBS-V) and Perpetration (FBS-P), is comprised of 10 items which ask whether pupils have experienced or participated in certain behaviours within the past month. For instance, a victimisation item reads "*I was made to feel afraid by what someone said he/she would do to me*" and a perpetration item reads "*I deliberately physically hurt or ganged up on someone*". Participants are asked to respond on a Likert scale, ranging one to five (1= "this did not happen to me"; 2= "once or twice"; 3= "every few weeks"; 4= "about once a week"; 5= "several times a week or more"). The five main domains identified in Shaw and colleagues'2013 FBS describe different types of bullying behaviours being indexed as follows: verbal bullying (indexed by items 1 and 6), threatening behaviours (items 4 and 7), physical bullying (items 5 and 8), relational bullying (items 3 and 9), and social bullying (items 2 and 10); summing the scores on these five different domains provides a total score on each subscale which indicates more victimisation or more involvement in bullying behaviours (Shaw et al., 2013). The reliability of the FBS in

the original validation study was reported as high, $\alpha = 0.87$ for the victimisation subscale and $\alpha = 0.85$ for the perpetration subscale. See Appendix U for a copy of the measure.

Childs' psychopathology measures administered – age 9 (T4)

The Strengths and Difficulties Questionnaire (Goodman, 1997)

The SDQ (Goodman, 1997) was also used at T4, when the children were aged 9. To address the study hypotheses on validation of the FBS, the SDQ Conduct problems, Peer problems, Prosocial and the Emotional problems subscales used for this purpose.

5.2.5. Procedure

After obtaining written informed consent from first time expectant mothers, the study midwives administered questionnaires following recruitment at 20-weeks' gestation; informed consent was obtained recurrently at later phases of the study. At the age 5 postnatal follow-up phase a member of the research team contacted mothers to inform them that a questionnaire would be sent out to them in the post or to arrange a face-to-face assessment. The procedure varied depending on whether that particular family were taking part in an intensive subsample within the study or not. In all cases mothers were left to complete the questionnaire elements of the planned set of measures by self-report on a paper questionnaire. The measures completed in the current study represent only a subset of those completed in the WCHADS study as a whole.

At age 9 all families completed a face-to-face assessment at the study base. Each parent gave written informed consent to take part and consented to their child taking part in the study also. Children gave verbal assent to taking part and were able to refuse to complete any measures they did not want to complete without giving a reason. Parents completed the questionnaires assessing their child's psychopathology and social functioning on paper questionnaires whilst the child was busy completing other tasks in the lab. Each child was asked to complete the bullying measures on an iPad. The questionnaire items had been

programmed in Qualtrics and children were able to click a button to hear the question read out to them if they preferred this to reading. Children were seated at a table and had headphones on during the administration of the self-report measures and so the questions and responses were not heard by the parent or the researcher. Children were able to ask questions at any point if they wished.

5.2.6. Statistical Procedure

All analyses were conducted using SPSS version 25 (IBM Corp, 2013).

5.2.6.1. Statistical procedure for the psychometric validation study (Aim 1)

In examining the structure of the Forms of Bullying Scale – FBS (Shaw et al., 2013), an Exploratory Factor Analysis (EFA) was conducted. This method was chosen, rather than Confirmatory Factor Analysis (CFA) because the FBS was used, in the current study, to assess bullying behaviours in middle childhood, with children aged 9; while the FBS was originally validated for youth aged 12 - 15. Because the current study used the FBS to assess bullying behaviours in a new age group, and because these are likely to be evidenced at different frequencies in younger children, aiming for caution, an exploratory approach was opted for, rather than a confirmatory one.

First communality was checked by Kaiser–Meyer–Olkin (KMO) and Bartlett's test of sphericity to ascertain the suitability of the data for Exploratory Factor Analysis (EFA). Next, Parallel Analysis (PA; Horn, 1965) was used to determine how many factors to extract from the EFA. Previous studies have evidenced Parallel Analysis (PA) to be a more accurate process for deciding the number of factors to retain (Ledesma & Valero-Mora, 2007; Velice et al., 2011), superior to both Kaiser's criterion and the scree test for identifying factors (Zwick & Velicer, 1986). SPSS 25 (IBM Corp, 2013) does not support Parallel Analysis (PA), thus the R statistical package (R Core Team, 2020) was used instead. The R function fa.parellel() of the psych package (Revelle, 2019) was used whereby random eigenvalues

from a random set of data were generated based on the same number of variables and the same number of cases as the current study and compared to the study's actual eigenvalues. The factors with eigenvalues higher than the random eigenvalues were retained (Horn, 1965).

Exploratory Factor Analysis (EFA) followed, using a principal axis analysis as the extraction method and oblique rotation. Cronbach's alpha was then calculated for the FBS to assess internal reliability.

Convergent and concurrent validity were then evaluated. In order to test convergent validity, bivariate associations between the bullying measure subscales, the FBS-P and the FBS-V, and the four Olweus prevalence global ratings were examined – each Bully and Victim subscale was analysed against its counterpart. Similarly, concurrent validity was assessed by examining bivariate associations between each of the FBS subscales (bully and victim) and the measures of psychopathology separately. The appropriate correlation coefficient (Pearson's or Spearman's) was computed based on variable distribution.

There is no ground rule regarding the appropriate sample size to use for conducting a factor analysis. In fact, recommendations are so vague and varied that the number and range of conditions discussed avert the indication of an absolute minimum number of participants (Mundfrom, Shaw & Tian Lu Ke, 2005). For instance, different sample size recommendations follow depending on the number of factors, the number of variables per factor, the level of communality and so on. Nonetheless, typically, a ratio of 5:1 participants per measure item is generally accepted as a minimum when running factor analysis in order to derive a stable factor solution (Gorsuch, 1983; Munro, 2005). Each Forms of Bullying Scale (FBS) (Shaw et al., 2013) subscale, for Victimisation (the FBS-V) and Perpetration (FBS-P), is comprised of 10 items, thus 100 participants would be considered an appropriate sample size to use in factor analysis.

The study sampled 640 participants. To consider the potential impacts of sample size on findings the power analysis program G*Power 3 (Faul et al., 2007) was used. Considering sample size adequacy for convergent and concurrent validity correlation, results from the sensitivity analysis (Cohen, 1988; Erdfelder, Faul, & Buchner, 2005) run on G*Power 3 (Faul et al., 2007) indicated that the study sample of 640 participants was large enough and found to reach 80% power and able to detect a correlation as low as $r = 0.07$.

5.2.6.2. Statistical procedure of the early predictors of childhood bullying behaviour (Aim 2)

Following validation of the FBS in the WCHADS sample at age 9, the predictive independent effects of early sociodemographic, maternal relationship circumstances, maternal mental health, child psychological and interpersonal functioning, and parenting environment and practices variables assessed at age 5 on later bullying perpetration at age 9 were examined using a hierarchical regression analysis. In the first step of the hierarchical model the following early sociodemographic variables were entered: child age, child gender, mothers' age, socio-economic deprivation, full-time living with mother, family income, financial problems, housing satisfaction, maternal partnership status, maternal employment status, and neighbourhood satisfaction. In the second step the variables indexing maternal relationship circumstances were entered: relationship breakups and relationship arguments. Next, in step 3, maternal mental health variables were included, namely maternal anxiety and depression respectively. Subsequently, in step 4, the contribution of children's psychological and interpersonal functioning was tested with child internalising and externalising behaviour problems, and prosocial behaviour included in the model. Lastly, the contribution of variables indexing parenting environment and practices, indexed by parenting practices and parenting alliance, was assessed. For all the measures with small amount of missing data, single imputation via the Expectation-Maximization (EM) algorithm (Dempster et al., 1977)

was used to estimate missing values and impute data prior to multivariate analysis. All p values ≤ 0.05 were considered to indicate a significant contribution to the model.

In line with the statistical procedure for the psychometric validation study, in considering the potential impacts of sample size on the logistic regression study findings, G*Power 3 (Faul et al., 2007) was again used. Given the study sample of N = 640, 24 predictors, and 80% power, an effect size with F-squared > 0.04 can be detected. The N = 640 sample size was thus considered adequate for the analyses to follow.

5.3. Results

5.3.2. Aim 1 – Psychometric Validation Study

5.3.2.1. Sample characteristics

The mean age of the mothers at the point of recruitment in their pregnancy with the index child was 27.9 years (SD 5.7, range 18 – 51 years). The mean age of study children at T3 was 113.1 months (SD 4.6, range 106 – 129 months). The sample was almost evenly divided by sex (N = 342; 53.4% female) and most of the children were reported to be of white ethnic background (N = 620; 96.9%). 36.8% (N = 236) of the sample were living in conditions equivalent to the most deprived quintile of the UK.

5.3.2.2. Exploratory factor analyses and reliability analyses for the FBS

Prior to the Exploratory Factor Analysis (EFA), communality, KMO and Bartlett's test of sphericity values were checked. No items were found with low communality value (< 0.2; Beavers et al., 2013; Munro, 2005) and thus none were removed from the subsequent analyses. The KMO statistic suggested adequate item inter-correlation (0.890), and the Bartlett's test of sphericity was significant ($x^2(190) = 5367.877, p < 0.001$), suggesting data were suitable for EFA. In the first EFA (with 20 items), the first five eigenvalues were:

5.642, 2.939, 0.837, 0.589, and 0.449. Three factors surpassed Horn's parallel analysis threshold and were thus retained (Table 8). All 20 items yielded loadings > 0.350.

The first factor (the victimisation component) accounted for 27.2% of the variance, the second factor (describing fighting and threatening bullying behaviours) accounted for 13.7%, and the third factor (describing verbal, relational and social bullying behaviours) accounted for 3.3%. These results did not overlap with the original two-factor structure found by Shaw and colleagues (2013). All 10 of the original victimisation subscale items loaded onto the first factor – the victimisation component – similarly to the original study (see Table 8). The items originally indexing bullying perpetration, however, loaded onto two bullying perpetration components. The first bullying component indexing bullying by physical aggression and threatening behaviours loaded 4 items (items 14, 15, 17 and 18), and the second bullying component indexed by verbal, relational and social forms of bullying behaviours loaded 6 items (items 11, 12, 13, 16, 19 and 20) (see Table 8). Internal reliability for the FBS subscales was examined individually: the Victimisation subscale was found to have a Cronbach's $\alpha = 0.888$, the FSB Physical aggression and threatening bullying subscale an $\alpha = 0.745$, and the FSB Verbal, relational and social bullying subscale an $\alpha = 0.727$.

While internal consistency was found adequate for all three factors, cross-loading was an issue for the bullying perpetration subscales. Within the FBS Victimisation subscale no single item cross-loaded on any other factor with a loading value $r > 0.32$ (Costello & Osborne, 2005), indicating a clear conceptual factor structure. The bullying perpetration items, however, significantly cross-loaded within the two bullying components: four of the 10 perpetration items cross-loaded between factor 2 and factor 3 (see Table 8); moreover, of these four items that cross-loaded, three showed no clear pattern of loading, loading equally high on factor 2 and factor 3. Typically, items that significantly load on more than one factor suggest no clear pattern demarcation (Costello & Osborne, 2005). As such, due to the high

proportion of bullying items that cross-loaded above the threshold, and aiming for caution, internal consistency for the whole bullying perpetration scale as one factor was also examined.

Internal reliability for the whole FBS Bullying subscale (10 items) was found to have a higher Cronbach's ($\alpha = 0.826$) when compared to the individual alphas of the previously identified bullying components. The original FBS validation study reported a similar alpha (0.850) for the perpetration subscale (see Shaw et al., 2013). Published studies that have previously used the FBS have also reported alphas ≥ 0.8 (see Arslan (2017) and Santos et al. (2015)).

Table 8

Forms of Bullying Scale – FBS Structure Matrix.

FBS	Factor 1	Factor 2	Factor 3
FBS1 I was TEASED in nasty way.	0.745		
FBS2 SECRETS were told about me to others to hurt me	0.748		
FBS3 I was hurt by someone trying to BREAK UP A FRIENDSHIP.	0.581		
FBS4 I was MADE TO FEEL AFRAID by what someone said he/she would do to me.	0.686		
FBS5 I was deliberately HURT PHYSICALLY by someone and/or by a group GANGING UP on me.	0.600		
FBS6 I was CALLED NAMES in nasty ways.	0.764		
FBS7 Someone told me he/she WOULDN'T LIKE ME UNLESS I DID what he/she said.	0.576		
FBS8 My THINGS were deliberately DAMAGED, DESTROYED or STOLEN.	0.500		
FBS9 Others tried to hurt me by LEAVING ME OUT of a group or NOT TALKING TO ME.	0.753		
FBS10 LIES were told and/or FALSE RUMORS spread about me by someone, to make my friends or others NOT LIKE me.	0.693		

FBS	Factor 1	Factor 2	Factor 3
FBS11 I TEASED someone in nasty ways.			0.513
FBS12 I told SECRETS about someone to others to deliberately HURT him/her.			0.517
FBS13 I hurt someone by trying to BREAK UP A FRIENDSHIP they had.		0.617	0.625
FBS14 I deliberately FRIGHTENED or THREATENED someone.		0.596	0.574
FBS15 I deliberately PHYSICALLY HURT or GANGED UP on someone.		0.575	0.580
FBS16 I CALLED someone NAMES in nasty ways.			0.527
FBS17 I told someone I would NOT LIKE THEM UNLESS THEY DID what I said.		0.685	
FBS18 I deliberately DAMAGED, DESTROYED and/or STOLE someone's things.		0.905	0.460
FBS19 I tried to hurt someone by LEAVING THEM OUT of a group or by NOT TALKING to them.			0.586
FBS20 I told LIES and/or spread FALSE RUMORS about someone, to make their friends or others NOT LIKE them.			0.627

Note. Extraction Method: Principal Axis Factoring.
Rotation Method: Oblimin with Kaiser Normalization.

Based on the higher Cronbach's α reported for the whole FBS Bullying subscale, another EFA was run, retaining two factors. The first factor (the victimisation component) accounted for 27.1% of the variance and the second factor (the bullying perpetration component) accounted for 13.4%. All 20 items yielded loadings > 0.4 and no cross-loading was observed (see Table 9). Given these statistical and conceptual characteristics, a two-factor structure was maintained and used for score calculation in all subsequent analyses.

Table 9

Forms of Bullying Scale – FBS Two-Factor Structure Matrix.

FBS	Factor 1	Factor 2
FBS1 I was TEASED in nasty way.	0.740	

FBS	Factor 1	Factor 2
FBS2 SECRETS were told about me to others to hurt me	0.750	
FBS3 I was hurt by someone trying to BREAK UP A FRIENDSHIP.	0.581	
FBS4 I was MADE TO FEEL AFRAID by what someone said he/she would do to me.	0.690	
FBS5 I was deliberately HURT PHYSICALLY by someone and/or by a group GANGING UP on me.	0.604	
FBS6 I was CALLED NAMES in nasty ways.	0.767	
FBS7 Someone told me he/she WOULDN'T LIKE ME UNLESS I DID what he/she said.	0.568	
FBS8 My THINGS were deliberately DAMAGED, DESTROYED or STOLEN.	0.500	
FBS9 Others tried to hurt me by LEAVING ME OUT of a group or NOT TALKING TO ME.	0.743	
FBS10 LIES were told and/or FALSE RUMORS spread about me by someone, to make my friends or others NOT LIKE me.	0.696	
FBS11 I TEASED someone in nasty ways.		0.496
FBS12 I told SECRETS about someone to others to deliberately HURT him/her.		0.407
FBS13 I hurt someone by trying to BREAK UP A FRIENDSHIP they had.		0.728
FBS14 I deliberately FRIGHTENED or THREATENED someone.		0.681
FBS15 I deliberately PHYSICALLY HURT or GANGED UP on someone.		0.678
FBS16 I CALLED someone NAMES in nasty ways.		0.499
FBS17 I told someone I would NOT LIKE THEM UNLESS THEY DID what I said.		0.565
FBS18 I deliberately DAMAGED, DESTROYED and/or STOLE someone's things.		0.730

FBS	Factor 1	Factor 2
FBS19 I tried to hurt someone by LEAVING THEM OUT of a group or by NOT TALKING to them.		0.531
FBS20 I told LIES and/or spread FALSE RUMORS about someone, to make their friends or others NOT LIKE them.		0.548

Note. Extraction Method: Principal Axis Factoring.
Rotation Method: Oblimin with Kaiser Normalization.

5.3.2.3. Convergent and Concurrent validity

Evidencing convergent validity, results from the bivariate correlation between the FBS subscales and the Olweus global prevalence questions will be reported in turn: first the victimisation subscales and then the perpetration subscales.

The FBS victimisation subscale and the Olweus two global prevalence questions assessing victimisation yielded weak and strong correlation effects. A weak correlation was found between the FBS victimisation subscale and the Olweus prevalence question assessing cyberbullying victimisation ($rho = 0.252, p < 0.001$), and a strong correlation between the FBS victimisation subscale and the Olweus prevalence question assessing traditional bullying victimisation ($rho = 0.551, p < 0.001$).

Regarding bullying perpetration, results from the bivariate correlation between the FBS perpetration subscale and the Olweus two global prevalence questions assessing perpetration yielded weak to moderate correlation effects. A weak correlation was found between the FBS perpetration subscale and the Olweus prevalence question assessing cyberbullying perpetration ($rho = 0.161, p < 0.001$), and a moderate correlation was found between the FBS perpetration subscale and the Olweus prevalence question assessing traditional bullying perpetration ($rho = 0.336, p < 0.001$).

Regarding concurrent validity, bivariate associations between the FBS subscales and each of the SDQ subscales demonstrated that the FBS Bullying subscale was significantly

correlated, as anticipated, with the SDQ Conduct Problems subscale component ($rho = 0.194, p < 0.001$), the SDQ Peer Problems subscale ($rho = 0.135, p < 0.001$), and with the SDQ Prosocial subscale ($rho = -0.171, p < 0.001$). The FBS Victimisation subscale was significantly correlated, as anticipated, with the SDQ Emotional Symptoms subscale ($rho = 0.107, p = 0.005$) and with the SDQ Peer Problems subscale ($rho = 0.226, p < 0.001$).

5.3.3. Aim 2 – Assessing the contribution of early sociodemographic, family factors, psychological and interpersonal characteristics, and parental mental health at age 4-5 in predicting bullying at 9-10 years of age

Table 10 details descriptive statistics for each of the key predictor variables used in the multivariate analysis.

Table 10. Descriptive Statistics for the key predictor variables of interest

Independent Variables	
Sociodemographic Variables	
Female gender N(%)	342 (53.4%)
Mothers age in years M(SD)	27.87 (6.02)
Socio-economic deprivation: most deprived quintile of the UK N(%)	236 (36.8%)
Child living full-time with mother N(%)	623 (97.3%)
Family Income N(%)	
Up to £10,000	75 (11.7%)
£10,000 – £20,000	83 (13.0%)
£21,000 – £30,000	90 (14.1%)
£31,000 – £40,000	118 (18.4%)
£41,000 – £50,000	72 (11.3%)
£51,000 – £60,000	69 (10.8%)
£61,000 – £70,000	44 (6.9%)
Over £71,000	89 (13.9%)
No financial problems N(%)	340 (53.1%)
Housing satisfaction N (%)	
very dissatisfied	4 (0.6%)
dissatisfied	29 (4.5%)
satisfied	236 (36.9%)
very satisfied	371 (58%)
Neighbourhood satisfaction N (%)	
a very good place to live	395 (61.7%)
a fairly good place to live	196 (30.6%)
not a very good place to live	35 (5.5%)
not at all a good place to live	14 (2.2)
Maternal employment status: any paid work N(%)	452 (70.6%)
Maternal partnership status: either married or cohabiting N(%)	577 (90.1%)
Maternal Relationship Circumstances	

Relationship breakups in past 6 months N(%)	28 (4.4%)
Serious relationship arguments with partner in past 6 months N(%)	57 (8.9%)
Maternal Mental Health	
Maternal depression symptoms (CES-D) M(SD)	7.42 (7.43)
Maternal anxiety symptoms (STAI) M(SD)	9.24 (3.29)
Child Psychological and Interpersonal Functioning	
Internalising problems (CBCL) M(SD)	6.62 (6.34)
Externalising problems (CBCL) M(SD)	8.54 (8.06)
No peer aggression problems reported (Baillargeon) N(%)	523 (81.7%)
Prosocial behaviour (SDQ) M(SD)	8.28 (1.78)
Parenting Environment and Practices	
Parental Involvement (APQ) M(SD)	43.39 (3.85)
Positive Discipline Practices (APQ) M(SD)	27.81 (1.92)
Inconsistent Discipline (APQ) M(SD)	12.39 (3.77)
Punitive Practices (APQ) M(SD)	7.83 (1.86)
Parenting alliance M(SD)	17.75 (6.52)

The current study participants (N = 640), as previously mentioned, were members of the Wirral Child Health and Development Study (WCHADS) (see Sharp et al., 2012), a prospective epidemiological longitudinal birth cohort study starting in pregnancy with follow-up over several assessment points during infancy and childhood. A consecutive sample of primiparous women 8-12 weeks' gestation who booked for antenatal care at the Wirral University Teaching Hospital between 12/02/2007 and 29/10/2008 were approached to take part. 1286 (68.4%) of those approached agreed to take part. Of these, 1233 gave birth to a live singleton baby and remained in the study at birth so were eligible for postnatal follow-up. Data for the current study was gathered when children were aged 3.5 years (phase 10), age 4-5 years of age (phase 12), and age 9 (phase 14).

The current study sample represents thus 51,9% of the initial 1233 women who gave birth to a live singleton baby and remained in the study from birth until the age 9 (phase 14) follow-up. Table 11 details sample characteristics at recruitment in pregnancy for the current study sample and for the remaining participants for whom data was not available due to attrition or missingness at later follow-up time points in terms of their socio-demographic composition (child gender, Indices of Multiple Deprivation (IMD 2010) (McLennan et al., 2011), maternal age at consent, maternal relationship status, mothers' age when leaving full-

time education) and in terms of indicators of psychosocial risk available at that time point (partner psychological abuse towards study mothers, mothers psychological abuse towards partners, and maternal depression).

Table 11

Sample characteristics at recruitment in pregnancy for the current study sample and for the remaining participants for whom data was not available due to attrition or missingness at later follow-up time points in terms of their socio-demographic composition

	Extensive sample for whom follow-up data was not available (593)	Current study sample (640)	Statistics[1]	p
Child gender: Female N(%)	292 (49.2%)	342 (53.4%)	$X^2(1) = 2.170$	0.141
Socio-economic deprivation: most deprived quintile of the UK N(%)	278 (47.0%)	236 (36.9%)	$X^2(1) = 12.545$	<0.001
Mothers age in years M(SD)	25.53 (5.65)	27.88 (6.02)	t(1231) = -7.027	<0.001
Maternal partnership status: married N(%)	503 (84.8%)	577 (90.2%)	$X^2(1) = 8.116$	<0.005
Mothers' age when finished full-time education M(SD)	18.10 (2.65)	19.16 (2.96)	t(1204) = -6.541	<0.001
Partner psychological abuse towards study mothers M(SD)	0.87 (1.88)	0.97 (1.97)	t(1146) = -0.887	0.375
Mothers psychological abuse towards partners M(SD)	1.44 (2.05)	1.56 (2.07)	t(1174) = -0.973	0.331
Maternal pregnancy depression M(SD)	7.59 (4.56)	7.28 (4.74)	t(1220) = 1.181	0.238

[1] *Degrees of freedom vary due to missing data on individual variables within the extensive comparison sample. Data on psychological abuse was only collected from women in a relationship at the time of assessment at 20 weeks' gestation. Age left education was only recorded for those women not still in full time education.*

Statistical comparison of socio-demographic characteristics revealed that in both samples, child genders were approximately equally represented and did not differ

significantly. Socioeconomic deprivation was assessed from participant postcodes at age 3.5 using the IMD and data was collapsed into a binary variable for the purposes of analysis representing two comparison categories, those living the socioeconomic circumstances equivalent to the most deprived quintile of the UK versus those in the top four quintiles. A significantly smaller proportion of the current study sample were living in conditions equivalent to the most deprived quintile of the UK. Previous studies have also found low SES to be related to increased chances of participant intermittent participation and dropout in research (Cleland & Ball, 2010; Lakerveld et al., 2008; Roumen et al., 2011). Regarding the average maternal age at consent, the current study participants were also found to be significantly younger. Concerning maternal relationship status, the mothers included in the present study were found to be significantly more frequently partnered, compared to the comparison group – a 5.4% difference. Notwithstanding this difference, the majority in both groups of mothers were partnered. Regarding age when leaving full-time education, a significant difference was observed, related to a narrow difference of 1.06 years between the two groups of mothers, with the study sample being less well educated. In terms of indicators of psycho-social risk during pregnancy, comparisons revealed no significant differences on the basis of reported partner psychological abuse towards study mothers, mothers psychological abuse towards partners, or maternal depression. In summary, the study sample was less deprived, were older, were in full time education slightly longer and were more likely to live with a partner than those not included, Though it should be noted that the proportion of families living in conditions equivalent to the most deprived quintile in the UK was 36.9% which is far higher than the national rate (20%). Importantly the sample did not differ from the comparison group on indices of psychosocial risk so on this latter basis they were deemed to be broadly representative of the full extensive sample.

5.3.3.1. Creation of the Bullying outcome variable

Since the second study aim was to test the contribution of early sociodemographic, maternal relationship circumstances, maternal mental health, child psychological and interpersonal functioning, and parenting environment and practices at age 4-5 in predicting bullying behaviours at 9-10 years of age, only the outcome data regarding bullying perpetration was used.

The presence of bullying is typically defined by three concomitant criteria: intentionality, perceived power imbalance and repetition (Olweus, 1997). Since age 9 is an early stage to assess bullying involvement in children, compared to the established literature which typically examines adolescent involvement, responses from both bullying measures (the FBS and the Olweus Bullying Global Prevalence composite questions) at age 9 were used to create a binary outcome variable to represent involvement in bullying or not. The rationale for this is described next.

In adolescence the FBS Bullying subscale total score is interpreted such that higher scores are indicative of more frequent involvement in bullying behaviours in the last school term (Shaw et al., 2013). The two Olweus Bullying Global Prevalence questions assess frequency of traditional and cyberbullying involvement separately in the past two months whereby bullying perpetration in adolescence is indicated by reporting a frequency of bullying behaviour of two or three times a month or more (Solberg & Olweus, 2003). However, relatively few children at age 9 in the current study reported this frequency of perpetration: only 15 children (2.3%) self-reported traditional bullying two or three times a month or more, and 9 (1.4%) cyberbullying. Setting the criterion derived from studies of older youth was understood to carry the risk of not including children in the bullying involvement group who were emerging as bullies. As such, for the purposes of analysis a binary variable was created, representing those children who reported no bullying

perpetration on either the FBS Perpetration subscale or the Olweus Bullying Subscales (coded 0) in the past two months or school term versus those who reported bullying other children at least once on either measure (coded 1) during that time period.

While this is an unprecedented approach to assessing bullying in research, investigating bullying at such an early age is rare. Only four other studies have investigated early predictors of bullying emerging in middle to late childhood using psychometrically validated measures of bullying (Hong, Kim & Piquero, 2017; Malm & Henrich, 2019; Reijntjes et al., 2016; Verlinden et al., 2014). Among these studies, only one reported rates of bullying involvement; these were found to range from 11.8% bullies to 14.1% victims at mean age 7.68 years old (Verlinden et al., 2014). Furthermore, although the present conceptual operationalisation does not assume repetition of bullying behaviours, this repetition criterion in defining bullying has previously been disputed. It has been argued that aggressive bullying behaviours do not need to be repeated nor do they even need to occur at all to characterise bullying (Vaillancourt et al., 2008). Bullying would be "created not only by what happens but by the threat and fear of what may happen" (Tattum, 1997, p. 223). Studies that have suggested this perspective propose that "if the incident happens just once, but the fear is lasting, it may be defined as bullying" (Guerin & Hennessy, 2002, p. 251). Hence, the repetition criterion may not be necessary to classify aggressive behaviours as bullying. Critics of this conceptual operationalisation where repetition of bullying behaviours is not assumed have then raised the issue of what would specifically characterise a single aggressive episode as bullying, given that if bullying behaviour is then just defined by intentionality and power imbalance, it would be no different from peer aggression for example (Cascardi et al., 2014). Nevertheless, and aware of the risk of walking through untrodden ground, here it was considered that, in capturing emerging bullying behaviours by self-report assessment at one

of the earliest ages where this is possible, the choice of removing the repetition criterion was advantageous to the identification of early bullying.

Furthermore, despite the concurrent and convergent validity results supporting the use of the FBS (Shaw et al., 2013) with a younger sample, consideration should be given to the fact that age 9-10 is one the earliest age where children are considered able to demonstrate adequate personal and interpersonal perceptual abilities to self-report (Horton, 2013; Riley, 2004). While adolescents are mature enough to attribute aggressive intent and power inequity, younger children are still developing such important competencies, necessary to recognise bullying behaviours in themselves and others (Bracken & Crain, 1994). Therefore, using the adolescent established cut-off for repetition of bullying behaviour may risk not capturing emerging bullying behaviours.

Thus, using the binary variable created, within the sample of 640 children aged 9-10 who participated in the study, 145 (22.7%) reported at least once or twice having taken part in bullying on either measure. Table 12 details the frequency of bullying involvement on each measure based on this criterion.

Table 12 Rates of perpetration for each bullying measure

Distribution of bullying scores	N	%
FBS Perpetration	122	19.1
Olweus Bullying Perpetration (Traditional or Cyber)	75	11.7
Overall Bullying Perpetration rate	145	22.7

Although perpetration is the focus of the current study, a similar procedure was followed to determine the proportion of children reporting victimisation in the study. A binary variable was created, representing those children who reported no bullying victimisation on either the FBS Victimisation subscale or the Olweus Victim subscales

(coded 0) in the past two months or school term versus those who reported being bullied by other children at least once on either measure (coded 1) during that time period. This data was cross-tabulated with the bullying perpetration rate reported above in order to understand what proportion of children in the bullying group were also experiencing victimisation and what proportion reported perpetration only. This was thought to be important for interpretation of the findings in the multivariate analyses which follow. Table 13 shows this cross-tabulation and indicates that a very high proportion (> 90%) of children who report bullying perpetration at age 9 also reported some level of perceived victimisation. Only 9 children who bullied others reported no victimisation. In the total sample, just under one third of children reported no involvement either as a bully or victim. Just under half of the sample reported perceived recent victimisation alone. Around one fifth of children report both bullying perpetration and victimisation at the age of 9. Under 2% report bullying others with no co-occurring victimisation.

Table 13 Crosstabulation between bullying and victimisation roles

Bullying perpetration	Bullying victimisation	
	Any victimisation N(%)	No victimisation N(%)
Any bullying perpetration	136 (21.3%)	9 (1.4%)
No bullying perpetration	297 (46.4%)	198 (30.9%)

5.3.3.2. Multivariate analysis

A hierarchical binary logistic regression analysis was conducted as detailed in the statistical analysis section. The binary bullying perpetration variable described above was used as the outcome at age 9. For each predictor, Odds Ratios and their 95% confidence intervals (95% CI) were reported. For each step, Chi square statistics and Nagelkerke R

Square value are reported. The results of these analyses are reported next, in stepwise order, and the model parameters for each step are shown in Tables 13 through 17. In Appendix Y the complete hierarchical model predicting bullying at age 9 from early sociodemographic, maternal relationship circumstances, maternal mental health, child psychological and interpersonal functioning, and parenting environment and practices at age 5 can be found.

Before presenting the results, it is important to note that correlations amongst the variables were examined (see Appendix Y for the correlation table) as well as multicollinearity for the regression model and no particular issue was found. Multicollinearity occurs when two or more independent variables are highly correlated with one another in a regression model, which may negatively affect the reliability of the single coefficient estimates in the model. Multicollinearity was checked by examining Variable Inflation Factor (VIF) values for each predictor (Azen & Budescu, 2009). This method of assessing multicollinearity works by determining the strength of the correlation between the independent variables by regressing them against each other, with VIF values of 1 indicating the absence of relationship among predictors. In the current study, all VIF values ranged between 1.009 and 2.505, with averages that, across steps in the model, ranged between 1.2 and 1.5). According to commonly accepted thresholds for VIF values (e.g., single VIF values above 5 (Menard, 1995), or above 10 (Hair et al. 1995), or average VIF values considerably larger than 1 (Chatterjee & Price, 1991), as being cause for concern) the present results indicate multicollinearity does not represent a concern for the analysed model.

As can be seen in Table 14, from the early sociodemographic predictors investigated at age 4-5 years and included in Step 1, only gender (being male) and having a lower income were found to be significantly associated with later bullying. At this Step, overall correct classification was 77.0%, with 2.1% of cases correctly classified as bullying others and 99.2% of cases correctly classified as not bullying.

Table 14.

Logistic regression analysis predicting bullying at age 9 from sociodemographic measurement assessed at ages 3.5 and 5.

Step 1 – Sociodemographic variables	Bullying at age 9				
$R^2 = 0.084$	β	*SE*	OR	OR 95% CI Lower – Upper	*p*
Child age	– 0.022	0.021	0.978	0.938 – 1.021	0.311
Gender (male)	0.811	0.197	2.251	1.529 – 3315	0.000
Mothers age	– 0.029	0.019	0.971	0.936 – 1.009	0.130
Socio-economic deprivation	– 0.095	0.238	0.909	0.571 – 1.450	0.690
Fulltime living with mother	0.220	0.603	1.246	0.382 – 4.061	0.716
Family Income	– 0.119	0.051	0.887	0.803 – 0.981	0.020
Financial problems	0.322	0.209	1.380	0.916 – 2.078	0.123
Housing satisfaction	0.136	0.180	1.146	0.804 – 1.632	0.451
Maternal partnership status	0.262	0.294	1.299	0.730 – 2.313	0.374
Maternal employment status	– 0.340	0.215	0.712	0.467 – 1.086	0.115
Neighbourhood satisfaction	– 0.194	0.170	0.824	0.591 – 1.149	0.253

Step 1: $X^2 = 36.598$, df = 11, $p < 0.001$

In Step 2 (Table 15), maternal relationship circumstances at age 5 were entered though they were found not to significantly contribute to the model. Gender and lower income remained significantly associated with bullying at age 9: $\beta = 0.812, p < 0.001$ and $\beta = -0.122, p = 0.018$ respectively. At this Step, overall correct classification was 77.2%, with 2.1% of cases correctly classified as being bullied and 99.4% of cases correctly classified as not being bullied.

Table 15.

Logistic regression analysis predicting bullying at age 9 from maternal relationship circumstances at age 5.

Step 2 - Maternal relationship circumstances	Bullying at age 9				
$R^2 = 0.087$	β	*SE*	OR	OR 95% CI Lower – Upper	*p*
Relationship breakups	0.516	0.556	1.675	0.563 – 4.984	0.354
Relationship arguments	– 0.178	0.346	0.837	0.425 – 1.648	0.606

Step 2: $X^2 = 1.075$, df = 2, sig = 0.584

The introduction of maternal mental health variables (depression and anxiety) at age 5, in Step 3 (Table 16), did not significantly contribute to the model. Gender and lower income remained significantly associated with bullying at age 9: $\beta = 0.819, p < 0.001$ and $\beta = -0.117, p = 0.022$ respectively. At this Step, overall correct classification was 77.3%, with 3.4% of cases correctly classified as bullying others and 99.2% of cases correctly classified as not bullying.

Table 16.

Logistic regression analysis predicting bullying at age 9 from maternal mental health at age 5.

Step 3 – Maternal mental health	Bullying at age 9				
$R^2 = 0.093$	β	*SE*	OR	OR 95% CI Lower – Upper	*p*
Maternal depression (CES-D)	– 0.015	0.018	0.985	0.950 – 1.021	0.403
Maternal anxiety (STAI)	0.068	0.041	1.070	0.988 – 1.159	0.096

Step 3: $X^2 = 2.859$, df = 2, sig = 0.239

In Step 4, child internalising and externalising behaviour problems and prosocial behaviour at age 5 were entered (see Table 17). Externalising behaviour problems were found to be significantly and positively associated with later bullying at age 9. Child internalising problems, peer aggression and prosocial behaviour were not associated with later bullying. Gender and lower income remained significantly associated with bullying at age 9: $\beta = 0.743, p < 0.001$ and $\beta = -0.127, p = 0.014$ respectively. With the addition of child internalising and externalising behaviour problems and prosocial behaviour at age 5, having financial problems became positively and significantly associated with bullying ($\beta = 0.431, p = 0.053$). At this Step, overall correct classification was 78.1%, with 8.2% of cases correctly classified as bullying others and 98.8% of cases correctly classified as not bullying.

Table 17.

Hierarchical regression analysis predicting bullying at age 9 from child internalising and externalising behaviour problems and prosocial behaviour at age 5.

Step 4 – Child psychological and interpersonal functioning	Bullying at age 9				
$R^2 = 0.116$	β	*SE*	OR	OR 95% CI Lower – Upper	*p*
Internalising problems (CBCL)	– 0.022	0.020	0.979	0.941 – 1.018	0.279
Externalising problems (CBCL)	0.045	0.017	1.046	1.011 – 1.081	0.009
Peer aggression (Baillargeon)	– 0.151	0.284	0.860	0.493 – 1.500	0.595
Prosocial behaviour (SDQ)	0.020	0.063	1.021	0.903 – 1.154	0.745

Step 4: $X^2 = 10.187$, df = 4, sig = 0.037

Table 18 presents Step 5 where variables indexing parenting environment and practices at age 5 were entered into the model. Two aspects of parenting significantly contributed to the model, namely low parental involvement and high inconsistent discipline were found to be significantly and positively associated with later bullying. Child gender ($\beta = 0.799, p < 0.001$), low income ($\beta = -0.151, p = 0.004$), and financial problems ($\beta = 0.522, p = 0.023$) remained significant in the mode, while the contribution of child externalising problems was rendered non-significant ($\beta = 0.031, p = 0.083$). With the addition of the parenting environment and practices variables at age 5, maternal anxiety became positively and significantly associated with bullying ($\beta = 0.086, p = 0.054$). At this Step, overall correct classification was 78.1%, with 12.3% of cases correctly classified as bullying others and 97.6% of cases correctly classified as not bullying.

The overall model was significant and male gender ($\mathrm{OR} = 2.223, 95\%\ \mathrm{CI}\ 1.483 - 3.331$), lower family income ($\mathrm{OR} = 0.860, 95\%\ \mathrm{CI}\ 0.775 - 0.953$), financial problems ($\mathrm{OR} = 1.685, 95\%\ \mathrm{CI}\ 1.076 - 2.639$), high maternal anxiety ($\mathrm{OR} = 1.090, 95\%\ \mathrm{CI}\ 1.002 - 1.185$), low parental involvement ($\mathrm{OR} = 0.931, 95\%\ \mathrm{CI}\ 0.875 - 0.991$), and high

inconsistent discipline ($\mathrm{OR} = 1.060, 95\%\ \mathrm{CI}\ 1.001 - 1.123$) in middle childhood assessed at age 4-5 were found to have an impact on involvement in bullying four years later, at age 9.

Table 18.

Hierarchical regression analysis predicting bullying at age 9 from parenting environment at age 5.

Step 5 – Parenting environment and practices	Bullying at age 9				
$R^2 = 0.142$	β	*SE*	OR	OR 95% CI Lower – Upper	*p*
Child age	– 0.021	0.022	0.979	0.937 – 1.023	0.354
Gender (male)	0.799	0.206	2.223	1.483 – 3.331	< 0.001
Mothers age	– 0.027	0.020	0.973	0.936 – 1.012	0.171
Socio-economic deprivation	– 0.124	0.246	0.883	0.546 – 1.430	0.614
Fulltime living with mother	0.313	0.638	1.367	0.392 – 4.771	0.624
Family Income	– 0.151	0.053	0.860	0.775 – 0.953	0.004
Financial problems	0.522	0.229	1.685	1.076 – 2.639	0.023
Housing satisfaction	0.250	0.190	1.284	0.885 – 1.864	0.188
Maternal partnership status	0.086	0.372	1.090	0.526 – 2.258	0.817
Maternal employment status	– 0.290	0.228	0.748	0.479 – 1.168	0.202
Neighbourhood satisfaction	– 0.305	0.178	0.737	0.520 – 1.044	0.086
Relationship breakups	0.505	0.553	1.656	0.560 – 4.898	0.362
Relationship arguments	– 0.094	0.364	0.911	0.446 – 1.860	0.797
Maternal depression (CES-D)	– 0.027	0.020	0.974	0.937 – 1.012	0.176
Maternal anxiety (STAI)	0.086	0.043	1.090	1.002 – 1.185	0.045
Internalising problems (CBCL)	– 0.018	0.020	0.982	0.944 – 1.022	0.376
Externalising problems (CBCL)	0.031	0.018	1.032	0.996 – 1.069	0.083
Peer aggression (Baillargeon)	– 0.091	0.286	0.913	0.521 – 1.600	0.750
Prosocial behaviour (SDQ)	0.054	0.065	1.056	0.929 – 1.199	0.407
Parental Involvement (APQ)	– 0.071	0.032	0.931	0.856 – 0.991	0.025
Positive Discipline Practices (APQ)	0.017	0.060	1.017	0.904 – 1.145	0.780
Inconsistent Discipline (APQ)	0.058	0.029	1.060	1.001 – 1.123	0.046
Punitive Practices (APQ)	0.044	0.058	1.045	0.934 – 1.170	0.443
Parenting Alliance	0.017	0.020	1.017	0.977 – 1.059	0.402

Step 5: $X^2 = 11.995$, df = 5, sig = 0.035

5.4. Discussion

The present study aimed to test the predictive independent effects of sociodemographic, parenting environment, parental mental health, and children's psychological and interpersonal variables as potential early prospective predictors of childhood bullying behaviours. Before executing the regression analyses, the psychometric properties of the FBS were examined since this measure was used to contribute to the study outcome measurement

of bullying behaviour at age 9 years, and since the FBS had only originally been validated for youth aged 12 -15 (Shaw et al., 2013). The findings from the psychometric validation study will be summarised first followed by the main findings from the longitudinal investigation.

5.4.1. Exploratory factor analyses and reliability analyses' results

The factor structure, reliability, concurrent and convergent validity of the FBS at age 9 were examined. The results of each will be described in turn. Initially, findings did not support the two-factor structure of the FBS, with the FBS Victimisation subscale loading all 10 original validated items, but the FBS Bullying subscale factoring into two components: one factor (factor 2) describing fighting and threatening bullying behaviours and another (factor 3) describing verbal, relational and social bullying behaviours. Though internal reliability assessed by Cronbach's alpha was found within acceptable values (≥ 0.7), the majority of the bullying items cross-loaded within the two components which indicated that conceptually a simpler factor structure could be a better fit. As such, another EFA was run to test whether retaining two factors was a better fit for the data. Indeed, retaining two factors, which mirrored the original factor structure of the FBS in adolescents, was found to be optimal both statistically as well as conceptually: internal consistency was higher, the items demonstrated clear loadings patterns, with no cross-loading observed between the Victimisation (FBS-V) and Bullying (FBS-P) scales, and all items loaded consistently with the original validation study with loadings values > 0.4.

5.4.2. Convergent and Concurrent validity

Shaw and colleagues (2013) originally validated the FBS against the Olweus global prevalence questions (concurrent validity), and against the Depression Anxiety Stress Scales (DASS; Lovibond & Lovibond, 1995), the Strengths and Difficulties Questionnaire (SQQ; Goodman, 1997), and the Perceptions of Peer Social Support Scale (Ladd, Kochenderfer, & Coleman, 1996) (convergent validity).

In the current study, both convergent and concurrent validity were tested using correlations. Though there is no ground rule for interpreting correlation coefficients, generally, correlation coefficients between 0.1 and 0.2 are thought to represent weak or small associations, while coefficients between 0.3 and 0.4 are considered indicative of moderate correlations, and correlation coefficients ≥ 0.5 thought to represent strong or large associations (Cohen, 1988). With this in mind, the correlation between the FBS Victimisation subscale and the Olweus cyberbullying victimisation prevalence question was found to be weak, while the correlation between the FBS victimisation subscale and the Olweus prevalence question assessing traditional bullying victimisation was found to be strong. Similarly, a weak correlation was found between the FBS perpetration subscale and the Olweus prevalence question assessing cyberbullying perpetration, and a moderate correlation was found between the FBS perpetration subscale and the Olweus prevalence question assessing traditional bullying perpetration. Thus, although the magnitude of associations with cyberbullying were weak for both perpetration and victimisation, the hypothesis regarding criterion-related validity appeared to be supported by the moderate to strong correlations found with indices of traditional bullying. This latter finding is in line with that reported in Shaw et al. (2013) original validation study of the FBS, although Mann-Whitney comparisons were used in their study.

It is acknowledged that the correlations between the FBS subscales and the Olweus global cyberbullying prevalence questions (both for victimisation and perpetration) were weaker than those observed between the measures of traditional forms of bullying. Though recent research has evidenced that the number of preadolescents and adolescents using social media has increased in recent years (McDool, Powell, Roberts, Taylor, 2020), younger children are still relatively shielded from exposure to electronic means of communication. Thus, because of the age of the children here sampled, 9- and 10-year-olds, who are not

typically yet frequent users of social media and not commonly used to developing and maintaining interpersonal virtual relationships, cyberbullying prevalence (either victimisation or perpetration) was expected to only be present on a subset of children. Which therefore might explain the weaker associations observed between the FBS subscales and the Olweus global cyberbullying prevalence questions.

Evidence for the concurrent validity of the FBS was tentatively supported. In line with hypotheses, scores on the FBS Bullying subscale were significantly and inversely correlated, with scores on the SDQ Prosocial subscale. Scores on the FBS Bullying were also significantly and positively correlated with concurrent SDQ Conduct Problems and Peer Problems subscale. The FBS Victimisation subscale was significantly correlated, as anticipated, with the SDQ Emotional Symptoms and Peer Problems subscales. Though the strength of the associations reported in the current study (-0.171 to 0.226, $p < 0.001$) were not as high as those reported in the original validation study by Shaw and colleagues (2013), data on children's psychopathology and interpersonal skills (prosociality) was assessed by maternal report in the present study and reports of bullying were by child self-report. In contrast, Shaw and colleagues used child self-report measures for both indices since the children in their study were older (see Shaw et al., 2013). Previous studies have evidenced discrepancies in child versus maternal report (Conjin, Smits & Hartman, 2020) which may account for the weaker correlations here found compared to the original validation study.

The magnitude and direction of Spearman's Rho associations reported in the original validation study by Shaw and colleagues (2013) between the FBS-Perpetration and the SDQ peer problems (0.09) and with SDQ pro-social behaviour (-0.12) were very similar to that found in the current study (0.13 and -0.17 respectively). However, they reported moderate associations between the FBS-Perpetration and the SDQ conduct problems (0.35) whereas in

the current study the association was weak (0.19). In respect to victimisation, the magnitude of associations reported by Shaw et al. (2013) between the FBS-V and the SDQ peer problems (0.32) and emotional symptoms (0.34) were both moderate, whereas in the current study these associations were weak 0.23 and 0.11 respectively).

Nonetheless, the findings from the validation study are in line with previous research though the magnitude of significant associations was small. Conduct problems have previously been associated with bullying perpetration (Wolke & Wood, 2000; Wong & Schonlau, 2013). Moreover, given that bullying is a form of peer aggression which thus denotes peer problems, it was also hypothesised that the FBS Bullying subscale should correlate with the SDQ Peer Problems and this was supported. Regarding prosocial behaviour, the FBS Bullying subscale was found to be inversely correlated, as predicted, with the SDQ Prosocial subscale which is congruent with previous literature (Slee & Skrzypiec, 2016) and has been evidenced in empirical studies (Wolke & Wood, 2000).

Concerning victimisation, in line with hypotheses, the FBS Victimisation subscale was significantly correlated, with the SDQ Emotional Symptoms. This finding is congruent with past research which has demonstrated victims of bullying to score higher on a broad range of internalising problems, including high levels of stress, fear, anxiety, and depression (Boyes et al., 2014; Hawker & Boulton, 2000; Kidger et al., 2015; Lopes Neto, 2005; Olweus, 1993), as well as low self-esteem (Olweus, 1993) and negative identity construction (Thornberg, 2010). The FBS Victimisation subscale was also found to correlate with the SDQ Peer Problems subscales in line with a priori hypotheses and this was expected given that bullying implies peer problems. Indeed, previous studies have associated peer problem perceptions with bullying victimisation (Fabiano et al., 2010; Ttofi & Farrington, 2008; Wolke & Wood, 2000).

The validity of any study rests in part on the reliability and accuracy of the measures it relies on. To our knowledge, this is the first study to validate the FBS for a younger population. The study results tentatively support the validity of the scale's use at age 9 – the factor structure and internal reliability of the factors derived was similar to Shaw et al. (2013) original validation study in adolescence. The FBS subscales for the current sample demonstrated adequate internal reliability and showed evidence for concurrent validity in relation to the Olweus prevalence questions assessing traditional bullying, though not so much in relation to cyberbullying as discussed earlier. In support of convergent validity associations with measures of psychopathology were significant and in the predicted direction, though weaker in magnitude in comparison to the original validation study in adolescence which used adolescent self-report for both measurements rather than a mixture of child and parent report as in the current study. We therefore tentatively recommend future use of this scale with children as young as 9 years of age but would encourage attempts to replicate the current study findings particularly in relation to convergent validity and perhaps with use of a simplified form of child self-report of psychopathology alongside self-report of bullying. This might help determine whether the level of associations observed are greater in magnitude when the same reporters are used at age 9, as they are typically in bullying studies in adolescence.

5.4.3. Early predictors of childhood bullying behaviours study

Since the second study aim was to test the contribution of early sociodemographic, maternal relationship circumstances, maternal mental health, child psychological and interpersonal functioning, and parenting environment and practices at age 4-5 in predicting bullying behaviours at 9-10 years of age, only bullying perpetration as an outcome was used in the multivariate analysis. Nonetheless, the proportion of children reporting victimisation was calculated as well. Knowledge of dual bully-victim role patterns is important in having a

more comprehensive understanding of bullying as a concept and how bullying behavioural patterns may emerge over time in children's lives.

Typically, in adolescence, a cut-off frequency of two or three times a month or more is indicated to distinguish between involvement versus non-involvement in bullying – that being as a bully and/or as a victim (Solberg & Olweus, 2003). However, the current study sampled children aged 9-10 which is an early stage to assess bullying involvement. Therefore, a binary variable was created representing those children who reported no bullying/victimisation versus those who reported bullying other children or having been victimised at least once or twice. From the 640 children aged 9-10 who participated in the study, 22.7% reported at least once or twice having taken part in bullying others in the last two months. Short of 95% of those children reported being victims too, indicating a possible dual bully-victim role. Only nine children reported having bullied others without ever having experienced victimisation. In the total sample, close to fifty percent reported being a victim only, and a third reported no involvement neither as a bully or as a victim. The only other study found which reported rates of involvement, found 11.8% children mean age 7.68 years old as bullies, 14.1% to be victims, and 7.3% bully-victims (Verlinden et al., 2014).

The pattern of bullying experiences reported may reflect the young age of children in the study. A very high proportion of those disclosing bullying perpetration also reported being bullied by others. Children may report victimisation for different reasons; they may report real experiences, or they may report perceived victimisation as a result of hostile attributions concerning the intentions of others, and this may be more common amongst those who bully others. Hostile attribution biases have been observed in children with conduct problems (Hartmann, Ueno & Schwenck, 2020) and in the current study earlier externalising problems at age 5 was a significant predictor of bullying at age 9, though it was rendered non-significant in the final model once parenting variables were added. So, the reports of

victimisation by children may reflect different processes – either accurate reports or distorted perceptions of others' intent. Without earlier assessment, it is impossible to tell whether experiencing victimisation precedes bullying behaviour. This may be an important developmental finding and points to the need for future research examining the cognitive and socio-emotional developmental processes that might also contribute to the pathway of becoming a bully.

In the multivariate analysis here reported, results demonstrated that male gender, lower family income, financial problems, high maternal anxiety, low parental involvement, and high inconsistent discipline in early childhood assessed at age 4-5 raise the risk for child involvement in bullying in middle childhood at age 9. Given the number of factors investigated (24 variables were entered in the multivariate analysis), the overall goodness-of-fit of the model is considered robust ($R^2 = 0.142$).

Though there is no ground rule for what constitutes a good R^2 variance, studies attempting to predict human behaviour typically yield low R^2 values – markedly under 25% in psychological research for example (Azen & Budescu, 2009). Still, even if the R^2 value is low, given statistically significant predictors, important conclusions pertaining to how changes in the predictor values are associated with changes in the outcome value can still be inferred (Azen & Budescu, 2009).

In the present study, in the first step of the hierarchical model, the early sociodemographic variables were entered, followed by a second step including the variables indexing maternal relationship circumstances (relationship breakups and relationship arguments); maternal relationship circumstances at age 5 were found not to significantly contribute to the model, as also evidenced by the minimal R^2 change. Next, in step 3, maternal mental health variables in the form of anxiety and depression at age 5 were included and, as for step 2, the introduction of these variables did not significantly contribute to the

model, with minimal R^2 change from one step to the subsequent one. Next, in step 4, the contribution of children's psychological and interpersonal functioning was tested with child internalising and externalising behaviour problems, and prosocial behaviour included in the model. The introduction of these variables contributed significantly to the model, with the R^2 change observed from step 3 to step 4 being more notable, going from $R^2 = 0.093$ to $R^2 = 0.116$. Lastly, in Step 5, the contribution of variables indexing parenting environment and practices, indexed by parenting practices and parenting alliance, was assessed, and the introduction of the parenting variables was found to significantly contribute to the model, leading again to a sizeable increase in the R^2, going from $R^2 = 0.116$ to $R^2 = 0.142$.

Though the overall goodness-of-fit of the model $(R^2 = 0.142)$ is low, given the four intervening years from when data was first assessed at age 4-5 until age 9, when bullying as an outcome was measured, the predictive effect observed is nonetheless considered robust. It is acknowledged, nevertheless, that much more has to be done to improve early prediction of later bullying behaviour especially because youth can be exposed to many adverse or protective environments which may raise or lower the risk accordingly.

Considering the effect sizes of the variables found significantly associated with later bullying involvement, male gender was found to pose the strongest risk for bullying in middle childhood at age 9 – a more than two-fold increase in the chances of being a bully. This finding is congruent with the only other bullying study found which also investigated the contribution of gender as a risk factor for bullying in middle childhood; Ball and colleagues' 2008 study found being male to pose a higher risk for engaging in bullying. It is also congruent with the broader literature on bullying later in adolescence (Gendron, Williams & Guerra, 2011; Jansen et al., 2011; Yang et al., 2013). Other factors found to be significantly associated with later bullying were, in the order of the strength of the relationship, early childhood financial problems, lower family income, higher maternal

anxiety, lower parental involvement, and higher inconsistent discipline. As far as family income and financial problems, to our knowledge, no other study has investigated the contribution of these factors in early childhood as possible predictors of later bullying. Early childhood financial problems were found to lead to a 68.5% increase in the chances of being a bully, while lower family income was found to increase the odds of the development of bullying behaviours, by 14% per £10.000 decrease in family income. A similar construct investigated in previous studies and reported to have contradictory results was SES. Two studies found no evidence of association between family SES in childhood and the likelihood of engaging in bullying (Bowes et al., 2009; Lynch et al., 2016). In contrast, one other further study found low SES was significantly associated with increased chances for bullying perpetration; Shakoor and colleagues (2012), reporting on data from the Environmental Risk (E-Risk) Longitudinal Twin Study, found high SES at age 5 to pose a protective buffering effect over engaging in bullying behaviours at age 12 ($\mathrm{RR} = 0.7, 95\%\ \mathrm{CI}\ 0.5 - 1.0$). In the present sample, socio-economic area deprivation derived from post-code data at age 3.5 was found not to contribute to later bullying. As such, the present study presents a novel contribution extending the understanding of early sociodemographic predictors of bullying and indicates that family level indicators of socio-economic disadvantage such as household income and presence of financial difficulties may be more salient than area level indictors of deprivation which may be relatively insensitive to true household variations in poverty and disadvantage.

As far as parental mental health, to our knowledge no study has investigated maternal psychopathology in the form of anxiety during childhood as a predictor of later bullying. The only other studies found which examined the role of maternal psychopathology in preceding bullying specifically investigated maternal depression instead and reported no significant effects for maternal depressive symptoms on later engagement in bullying (Bowes et al.,

2009; Malm & Henrich, 2019). Maternal anxiety during childhood was here found to be associated with increased chances of being a bully, with a 9% increase per 1 point increase in STAI scores. Though more studies should follow to clearly determine the contribution of maternal anxiety and bullying as an outcome, the present study presents, nevertheless, a novel contribution extending the understanding of maternal psychopathology in relation to the development of bullying behaviours. Future research should consider examining the possible interplay between parental anxiety and parenting style in the prediction of later bullying behaviour since this knowledge may represent an important target for early parenting intervention.

Low parental involvement and higher levels of inconsistent discipline in early childhood assessed at age 5 were found to be related, respectively, to a 7% and 6% increase in the risk of involvement in bullying at age 9, per 1 point change in each score. To our knowledge, no other study has investigated such an effect in the emergence of bullying in middle childhood. Nonetheless, a similar pattern was observed in Cho and colleagues' (2019) study. Though they sampled older students with measurements collected at ages 11, 12, 13 and 14 and bullying as an outcome at age 15, parental involvement was found to be inversely correlated with bullying perpetration, such that poor/low parental involvement posed a risk for being a bully over time. Congruently, the higher the reported parental involvement was, the lower the likelihood of engaging in bullying. This suggests that level of parental involvement is an important factor contributing to child bullying outcomes from as early as school entry age, which may represent a modifiable target for early parenting intervention. Regarding inconsistent discipline, to our knowledge, no previous study has investigated the effects of this in early childhood on later involvement in bullying. The present study thus brings forth a novel contribution extending the understanding of early predictors of bullying, and this too may be an important target for early parenting intervention.

The knowledge of which early factors contribute to bullying behaviours may inform targets for early interventions, which are crucial to prevent bullying from becoming more entrenched in adolescence. Understanding how these factors are related is also paramount. For instance, during the model building process, externalising behaviour problems at age 5 were found to have an impact on later bullying at age 9. However, the contribution of child externalising problems was rendered marginally non-significant after variables reflecting parental environment and practices were entered into the model. The few previous studies which have also investigated externalising behaviour in early childhood in respect to later bullying behaviours have also reported it to predict bullying. Bowes and colleagues (2009), for example, found more than a two-fold increase in the risk of bullying at age 7 for children who exhibited externalising behaviour at age 5 ($\mathrm{OR} = 2.2, 95\%\ \mathrm{CI}\ 1.9 - 2.6$). Similarly, Shakoor et al. (2012) reported earlier behavioural problems at ages 5, 7 and 10 to predict later bullying at age 12 ($\mathrm{RR} = 1.4, 95\%\ \mathrm{CI}\ 1.03 - 1.06$). However, only one of these studies examined the contribution of parenting environment and practices to bullying outcomes at the same time as externalising behaviours; Bowes and colleagues (2009) indexed parenting environment and practices in terms of maternal warmth and spending time in stimulating activities with mothers at age five years. They found that high maternal warmth at age 5 was significantly associated with a lowered risk for being a bully at 7 ($\mathrm{OR} = 0.8, 95\%\ \mathrm{CI}\ 0.7 - 1.1$). Our results may have arisen as a result of the joint examination of the contribution of externalising problems and parenting dimensions together, that are often found to be associated. Inconsistent discipline practices and low levels of parental monitoring have been shown to be associated with bullying in childhood in other studies (Cho et al., 2019; de Vries et al., 2018; Hemphill et al., 2012) and so consequently may share some overlapping variance in the prediction of later bullying.

In the current study, a range of other factors hypothesised to be significantly associated with later bullying were, however, not found to make a significant contribution in the model. For instance, internalising problems, low levels of pro-social behaviour, peer aggression, harsh parenting, low levels of positive discipline practices, and low parenting alliance between parents at age 4-5 years were hypothesised to predict bullying at age 9.

As far as internalising behaviour problems, only one study with a similar sample to the present one found internalising behaviour (assessed at 5 years of age) to decrease the risk of being a bully at age 7 ($\mathrm{OR} = 0.8, 95\%\ \mathrm{CI}\ 0.7 - 1.6$; Bowes et al., 2009). Further studies have reported mixed evidence across late childhood and early adolescence. Whilst Jansen et al. (2011) reported no association between anxiety at age 11 and bullying over a 2.5 years follow-up, Yang et al. (2013) found both high anxiety and high depression at age 10 to be uniquely associated with being a bully at age 12, even after adjusting for previous bullying and environmental factors; ORs between traditional and cyberbullying and depression ranged from 1.3 – 1.4, and between traditional and cyberbullying and anxiety 1.3 – 12. Likewise, Espelage and colleagues (2018) reported depression to pose a risk factor for engaging in bullying ($\beta = 0.19, p = 0.05$). Further studies investigating the effect of early childhood internalising problems on likelihood of later bullying in middle childhood are required to replicate the current study's null findings.

Concerning prosociality, high scores on prosocial competence have previously been found to decrease the risk for being a bully in late childhood and early adolescence samples ($\beta = -0.11, p = 0.01$; Stavrinides et al., 2011). In the current study pro-social behaviour at age 4-5 was found not to make a significant contribution to later bullying at age 9-10. Likewise, peer aggression, which here was found not to be significantly associated with later bullying involvement, had been shown in a previous study by Jansen and colleagues (2011) to positively predict bullying involvement – though only for the dual bully-victim group ($\beta =$

$0.016, p = 0.006$). Future studies investigating this effect are needed to determine the association between these variables and other developmental processes that might contribute to the emergence of bullying behaviours over time.

Regarding parenting environment and practices, though harsh responding and low levels of positive discipline practices were not found here to make a significant contribution in the model, previous evidence from individual studies across middle childhood to early adolescence have reported a significant positive association with these factors and later risk of bullying. For example, child maltreatment ($\mathrm{RR} = 1.7, 95\%$ CI $1.0 - 2.7$; Shakoor et al., 2012) and fathers' hostility ($\beta = 0.06, p = 0.02$; de Vries et al., 2018), were all found associated with increased chances for later bullying perpetration. Punitive parenting was too found to be directly related to bullying perpetration ($\beta = 0.06, p = 0.05$) (Hong, Kim & Piquero, 2017). Although de Vries and colleagues' 2018 study, who examined harsh disciplinary practices (e.g., physical punishment) separately for mothers and fathers, reported that fathers' but not mothers' punitive parenting was associated with children's bullying behaviours. Since the children in these previous studies were assessed at later developmental stages than in our study, they may have experienced a more chronic exposure to these parenting practices by the stage at which they were assessed, which could potentially explain the differing patterns of results. Continued investigation within the WCHADS cohort who are now being assessed during adolescence might help shed light on this possibility. As far as parenting alliance between parents, to our knowledge, no study has assessed it in early childhood as a predictor of later bullying, and more studies should follow to replicate the present null finding.

Further factors hypothesised to be associated with bullying but here not found to make a significant contribution in the model were maternal age, the presence of serious parental arguments and maternal distress in the form of depression symptoms. More studies are thus

required to replicate and confirm these null effects as very few studies have been conducted so early in childhood and with a view to predicting early emerging bullying behaviours. Regarding the presence of serious parental arguments, to our knowledge, no study has investigated this in early childhood. Bowes and colleagues (2009) assessed a similar construct – parental exhibition of antisocial behaviour – at 5 years of age and reported it to increase the risk of being a bully at age 7 ($\mathrm{OR} = 1.4, 95\%\ \mathrm{CI}\ 0.9 - 2.1$). Future studies investigating this effect are needed to clearly determine the association between parental arguments and bullying. Finally, our findings that maternal depressive symptoms at age 5 did not predict later engagement in bullying is congruent with two previous studies which investigated the role of maternal depression and likewise found it not to make a significant contribution to later bullying behaviour (Bowes et al., 2009; Malm & Henrich, 2019).

In sum, though future studies are needed to investigate the inconsistences above mentioned, as well as future research examining the cognitive and socio-emotional developmental processes that might contribute to the pathway of becoming a bully, the present results significantly extend the current understanding of early childhood predictors of later involvement in bullying.

5.5. Strengths and Limitations

As strengths to the present study, we acknowledge the relatively large current sample size which was drawn from a British birth cohort study with range of SES represented – the Wirral Child Health and Developmental Study (WCHADS). The independence of predictors and outcome measurement is also deemed a relevant strength; the target outcome, being a bully, was indexed via child self-report while all other predictors were investigated via maternal reports. Another strength is the developmental time-points at which data was collected. Predictors were investigated over a four-year period from school entry at age 4-5 to

outcome at age 9-10, prior to transition into secondary school. Such longitudinal data on early predictors of later emerging bullying behaviour in middle childhood is relatively rare worldwide, particularly from studies using validated measures of bullying outcomes. The identification of modifiable predictors at the point of starting school in the UK increases the relevance of the study for informing the targeting of early interventions. The results indicate that Social Learning Theory based approaches to improving parenting, which have been found to reduce disruptive behaviour problems (Dretzke et al., 2009) such as Incredible Years (Webster-Stratton, Reid & Hammond, 2004) or Triple-P (Sanders & McFarland, 2020), and others that aim to increase parental involvement and reduce inconsistent discipline may be particularly relevant, particularly in parents of boys living in areas where levels of household poverty may be high. Lastly, but perhaps the most important strength here acknowledged, is the use of psychometrically validated measures of bullying. Results from the narrative and systematic reviews here reported (see Chapters 2 and 4 respectively), evidenced that very few studies have investigated early bullying using valid measurements. To our knowledge, our study is one of only four others that have investigated early predictors of bullying in middle to late childhood using psychometrically validated measures of bullying.

The first limitation in the current study may be the use of a reduced criterion for bullying involvement in a bid to index emerging bullying behaviour. Further follow-up would ideally be required to verify which children continue to bully over time and later meet the criterion for frequency of bullying typically used in adolescence (Solberg & Olweus, 2003). Furthermore, previous research has reported sex dependent effects on bullying outcome, though it was not the aim of the current study to examine this effect, this is considered a limitation. Nevertheless, future analysis investigating this effect could be conducted using the WCHADS data we have available. Furthermore, the overall proportion of children who engage in bullying others by age 9 predicted in the hierarchical logistic regression model was

12.3% which although robust, indicates that much more has to be done to improve early prediction of later bullying behaviour. It may be that accurately identifying children at the age of 5 who are likely to bully others later on is a very tall order, since there are four intervening years during which time children can be exposed to many adverse or protective environments which may raise or lower the risk accordingly. Future work on longitudinal datasets examining trajectories of exposures to factors such as low parental involvement or inconsistent discipline to later bullying outcomes may be a fruitful approach to better inform the targeting of interventions. Lastly, in terms of limitations to the present study, like in many similar longitudinal studies, the study sample retained over time and whose data was used in the current analyses were less deprived, older, were in full time education slightly longer and were more likely to live with a partner than those lost to follow-up at one or more phases. This may limit the representativeness of the findings. Though it should be noted that the proportion of families living in conditions equivalent to the most deprived quintile in the UK in the current sample was 36.9% which is far higher than the national rate (20%), so overall this community sample is more deprived than a general population sample. Importantly, though in relation to study retention, the sample did not differ from the comparison group on indices of psychosocial risk, so on this latter basis they were deemed to be broadly representative of the full extensive sample who were initially recruited.

5.6. Conclusion and recommendations for future research and targeting of interventions

Study results tentatively support the validity of the FBS for use at age 9 though this requires replication. The FBS for the current sample was found to demonstrate adequate internal reliability and good convergent validity results in relation to traditional bullying, though not cyberbullying. Furthermore, the results from factor analysis replicated the original

validated structure. In addition, the FBS was also found to show consistent and predicted pattern of significant associations with the measures of psychopathology, though these were weak in magnitude which may reflect the use of different informants to report on bullying and psychopathology. We therefore tentatively recommend future use of this scale with children as young as 9 years of age and would encourage attempts to replicate the findings.

The present results also extend the current understanding of early childhood sociodemographic and parenting environment and practices as predictors of later involvement in bullying. Results demonstrated that male gender, lower family income, financial problems, high maternal anxiety, low parental involvement, and high inconsistent discipline in early childhood assessed at age 4-5 have an impact on involvement in bullying in middle childhood at age 9. These findings, if replicated, may directly inform the future targeting of early interventions to reduce the risk of later bullying behaviours in vulnerable families.

5.7. References

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Chapter 6

Summary and recommendation for future research

6.1. Introduction

Though systematic research on school bullying commenced in the 1970s (Olweus, 1978) progressively higher prevalence rates are still observed despite intervention polices being introduced (Fisher, 2010; Mello et al., 2018; Olweus, 2003; Sampasa-Kanyinga et al., 2014). Furthermore, although several studies have focused on causes of antisocial behaviour more broadly, fewer studies have investigated what factors contribute to engagement in bullying behaviours in particular. Moreover, the studies that have focused on predictors of bullying have largely investigated bullying involvement during adolescence, with the lower age for samples typically being around 12 years of age. Therefore, an important gap in the literature was evident in our current understanding of early childhood factors that might contribute to children adopting bullying roles at an earlier stage than adolescence. In addition, the systematic review reported on Chapter 4 of this thesis revealed that amongst previous published work, validated measures of bullying behaviours are seldom used.

6.2. School bullying behaviours and their measurement in empirical studies

In setting the groundwork for the empirical studies here reported, the narrative review in Chapter 2 was guided by three key questions: a. How is school bullying defined in the literature? b. What are the main types of school bullying observed? and c. How has school bullying most commonly been assessed in empirical studies? The answers to these questions provided the foundation for the selection of the measures for the validation study reported on Chapter 3.

After reviewing a robust range of literature, a clear set of conclusions was drawn regarding a range of approaches taken to the definition and assessment of bullying in school children. Across the literature reviewed school bullying was consistently defined as a subset of aggressive behaviour characterized by three concomitant criteria: intentionally, perceived power imbalance and repetition (Olweus, 1997). Bullying behaviours are thus differentiated from other forms of in-school aggression based on concurrent assumption of these criteria. As such bullying behaviours are hostile behaviours (as opposed to accidental or reactive), repeated over time, and where the aggressor is in a more powerful position than the victim is (Monteiro et al., 2017). This consensus in defining bullying is important since a precise definition of what school bullying entails ensures conceptual comparability across studies. In bullying research, where both sociocultural circumstances and different developmental stages play important roles (Eslea et al., 2004; Morrison, 2006; Mooij, 2011), a consistent definition of what school bullying is represents an important theoretical element which ought to contextualize bullying studies uniformly. Furthermore, unclear definitions of bullying might lead to prevention and intervention programs being unsuccessful, as a more heterogeneous group of children would be targeted.

Despite the consistency in relation to the agreed definition of bullying, across the studies reviewed there was enormous variability in the measures used to assess bullying involvement. Consistent use of measurement strategies supports cross-study comparisons. In understanding the development of bullying behaviours, cross-study comparisons are paramount if an accurate and reliable knowledge base is to be possible. Furthermore, aside from a harmonising use of measurement strategies, it has become apparent from the narrative review reported on Chapter 2 that bullying research should aim to use gold standard measures (e.g., the Bullying Prevalence Questionnaire (BPQ; Rigby & Slee, 1993) and the University of Illinois Bully Scale (UIBS; Espelage & Holt, 2001)), and these ought to be validated for

use within each particular setting/culture and for each specific age group.

It was observed, however, that many bullying studies did not use validated measures of bullying. Typically, researchers were found to use measures specifically developed or adapted for their studies, or use single binary questions regarding bullying involvement. The use of psychometrically validated measures is *sine qua non* to any study targeting bullying behaviours. Murray and colleagues (2019) stress that successful prevention and intervention programs are intrinsically dependent on valid and reliable psychometric assessment of bullying. The validation of measures in the cultural context in which they will be used is also particularly important given that bullying is a complex *social* phenomenon. Moreover, it was also observed that most bullying measures do not assess cyberbullying. Higher cyber bullying prevalence rates have been reported with every passing year (Buelga, Martínez-Ferrer & Cava, 2017; den Hamer, Konijn & Keijer, 2014; Hinduja & Patchin, 2009; Kowalski & Limber, 2007; Ybarra, & Mitchell, 2004), and thus new bullying measures are called for; these should not only assess traditional forms of bullying but also be designed to include items capable of measuring a range of cyber bullying behaviours as well.

From the narrative review reported on Chapter 2 it has also become apparent that the choice of assessment of bullying behaviours should consider the cost and ethical challenges implicated in the use of different approaches. Self-report measures, compared to observational and peer nomination methodology, were thus found better suited to the assessment of bullying in schools. Furthermore, regarding the assessment of bullying, although mixed results were reported in whether providing a definition of bullying prior to the administration of measures is advantageous, here it was considered that the use of a definition might be recommended. Two main reasons support our claim; first, from a developmental perspective, young children have previously been found to be not as able to distinguish between accidental harm and intentional harm from another child (Berndt &

Berndt, 1975; Obsuth et al., 2015), and so the perception of "bullying" as an intentional act, which is a defining criterion of bullying, cannot be assumed if left alone to the children to infer it. Providing a definition was hence considered good practice to insure understanding of all three criteria. Second, as any form of aggression, bullying is determined by cultural prerogatives and social contexts (Eslea et al., 2004; Morrison, 2006; Mooij, 2011). Previous studies have found social acceptability of aggressive behaviours to develop with age parallel to a gradual internalisation of a moral code from socio interactions with others (Berndt & Berndt, 1975; Castro-Sánchez, Zurita-Ortega, Ruiz & Chacón-Cuberos, 2019; Obsuth et al., 2015). Presenting examples of bullying behaviours was considered advantageous as it might be that, in a particular setting, bullying behaviours are being socially minimised and dismissed as a "playful joke" (Grossi & dos Santos, 2012; Lopes Neto, 2005), and thus the provision of clear examples serves to indicate bullying behaviours that might otherwise be overlooked by a particular sociocultural mentality.

In sum, by reviewing the literature and defining approaches taken to the definition and assessment of bullying in school children, the narrative review in Chapter 2 set the theoretical base for the present thesis and the foundation for the selection of the measures for the validation study reported on Chapter 3.

6.3. A study to evaluate the psychometric properties of two validated bullying measures in a Brazilian school population of young adolescents

As a Brazilian national I chose to validate bullying measures in Brazil in hopes of contributing to the advancement of bullying research in my home-country. The measures selected for the psychometric validation study reported on Chapter 3 were drawn from Chapter 2 findings which reviewed 95 papers and found 71 *different* measures used to assess bullying behaviours across the studies. The Peer Relations Questionnaire (PRQ; Rigby,

1996[12]) and the University of Illinois Bully Scale (UIBS; Espelage & Holt, 2001) were among the top five most used measures across the reviewed studies. Furthermore, both measures demonstrated good psychometric properties in previous contexts as well as had their validity supported by convergent analysis.

Although bullying studies in Brazil have increased in number over the past decade (e.g., Alcantara et al., 2017; da Silva et al, 2012; Sousa et al. 2019), prevention and intervention initiatives are still scarce in Brazil. In this context, the psychometric validation study (see Chapter 3) was designed to evaluate the reliability and validity of two bullying measures in Brazil: the Bullying Prevalence Questionnaire (BPQ; Rigby & Slee, 1993) and the University of Illinois Bully Scale (UIBS; Espelage & Holt, 2001). Very few bullying measures have been validated across different countries (e.g., the Olweus Bully/Victim Questionnaire; Solberg & Olweus, 2003). Bullying measures have been found to be context-dependent (Gary et al., 2003; Morrison, 2006; Mooij, 2011; Gumpel, 2014; Vivolo-Kantor et al., 2014) and thus the validity and reliability of instruments assessing bullying in different cultural and linguistic contexts can vary, which therefore was the rationale for the validation study in Brazil.

The results from factor analysis of the UIBS in the Brazilian sample replicated the original validated structure and there were no significant challenges in terms of difficulties posed during the translation process. In addition, the UIBS was also found to show the most consistent pattern of associations with the measures of psychopathology. In contrast, the Bullying sub-scale of the BPQ was found to perform differently in Brazil. Factor analysis

[12] The Peer Relations Questionnaire (PRQ; Rigby, 1996) is a survey package designed to assess bullying in schools. The PRQ is copyrighted and sold by ACER, it contains: *i)* the PRAQ-R for Junior Students from Reception to Year 5; *ii)* the PRAQ-R for Senior Students; *iii)* the PRAQ-R for Teachers, and *iv)* the PRAQ-R for Parents. The Bullying Prevalence Questionnaire (BPQ; Rigby & Slee, 1993) which was piloted in Brazil (see Chapter 3) is a free self-report measure developed to assess bullying involvement in schools; the 20 items of the PRQ for Senior Students – PRAQ-R (Rigby, 1996) and the 20 items of BPQ (Rigby & Slee, 1993) are the same.

results did not map onto the original scale with only three out of the original six items retained and it did not show the hypothesised association with internalising problems.

Further use of these scales in Brazil cannot be recommended at the present. Given the significant tribulations during data collection[13], the validation study presented here can only be considered a solid pilot study. The information gathered will hopefully open doors for future studies in Brazil on larger samples of children. As of 2017, only one empirical study had investigated child and adolescent well-being and its relationship to bullying in north-eastern Brazil (see Alcantara et al., 2017) where the current validation study was carried out. Thus, there is an urgent need for bullying studies to be further conducted in Brazil and for reliable, culturally appropriate assessment tools to be used.

An interesting socio-cultural issue pertaining to bullying in Brazil was observed and merits mention in future investigation. The present findings seem to suggest that relational bullying may be viewed more distinctly to physical bullying in Brazil. Future studies investigating bullying behaviours within Brazilian culture could, therefore, benefit from using psychometric instruments that distinctively differentiate all forms of bullying. Furthermore, as results from the cross-cultural translation seem to indicate, Brazil is a very large country where several linguistic regionalisms exist (Charles, 1948), so future studies should focus on locally developing and validating bullying scales that are both culturally and *linguistically* meaningful to speakers of specific geographic areas in order to avoid linguistic regionalism misinterpretation (Pedersen, 1996).

6.4. Predictors of bullying: a systematic review

Aside from using validated bullying measures, identifying factors that contribute to

[13] Unfortunately, while in Brazil I became acutely ill and underwent surgery which was then followed by a period of hospitalisation, and therefore, most disappointingly, full data collection in Brazil could not be completed as planned.

early bullying behaviours should also be a top priority in bullying research. The identification of early modifiable predictors of bullying behaviour will inform possible targets for interventions which are crucial to prevent bullying from becoming more entrenched in adolescence. Furthermore, given that the nuances of bullying vary depending on sex, (perceived) social support, and sociocultural context (Eslea et al., 2004; Morrison, 2006; Mooij, 2011), and age is an important factor shaping bullying behaviours, reviewing the literature especially focusing on prospective *early childhood* predictors of being a bully (i.e., actively engaging in bullying as a perpetrator) was understood as fundamental to understand the developmental path to bullying behaviours. Social-cognitive and interpersonal abilities are progressive processes that develop with age (Berndt & Berndt, 1975; Ferreira, Moura & de Melo Mieto, 2021; Rogoff, 2003); at each developmental stage certain processes are heightened, and different competences are demonstrated by children and adolescents (Castro-Sánchez et al., 2019; Ferreira, Moura & de Melo Mieto, 2021; Rogoff, 2003). Regarding the development of bullying behaviours, studies have suggested a range of social-cognitive and interpersonal abilities broadly associated with bullying involvement; for example, poor inhibitory control processes (Verlinden et al., 2014), and poor social competence (Reijntjes et al., 2016). Knowing whether these abilities are poor due to young age (i.e., maturation) or a dysfunction in development is an important element to planning interventions that might prevent bullying from becoming more entrenched in adolescence. Though a significant number of studies have focused on identifying risk factors for bullying involvement in adolescence (e.g., Gendron et al., 2011; Hemphill et al., 2012; Le et al., 2017) very few studies have investigated bullying in samples younger than adolescence (e.g., Bowes et al., 2009; Lynch, Kistner, Stephens, & David-Ferdon, 2016; Shakoor et al., 2012).

The systematic review reported in Chapter 4 revealed that only 28 studies out of 291 examined childhood predictors of school bullying in a prospective or longitudinal design

where bullying as an outcome was measured at ages 12 years or younger. Evidence from these 28 studies suggested that bullying behaviours are not likely caused by a single variable, but rather are multiply determined by a range of demographic, family, school, and psychological and interpersonal characteristics. Results from the systematic review indicated a robust contribution of gender (being a male) (Ball et al., 2008; Reijntjes et al., 2016), exposure to violence or hostility of others (e.g., domestic violence, harsh parenting or being friends with other students who exhibit antisocial behaviours) (de Vries et al., 2018; Hemphill et al., 2012; Hong, Kim & Piquero, 2017), having an uncertain or changing home environment (e.g., divorce or low parental involvement (Cho, 2019; Jansen et al., 2011; Yang et al., 2013), and showing earlier externalising behaviour problems (Bowes et al., 2009; Jansen et al., 2011) and low self-control (Cho et al. 2017; Cho, 2018; 2019; Kretschmer et al., 2017; Terranova et al., 2008) as predictors of later bullying. Other factors found associated with changes in bullying were investigated in single studies and thus the weight of evidence regarding the role of these predictors is limited and findings were viewed as preliminary. For instance, insecure attachment (Cho et al., 2019), spending less time engaged in stimulating activities with mother (Bowes et al., 2009), low peer liking (Kawabata et al., 2014), high popularity (Sentse et al., 2015), positive school perceptions (Forster et al., 2019), low effortful control and self-esteem (Cho et al. 2017; Cho, 2018; 2019; Kretschmer et al., 2017; Terranova et al., 2008), perceptual bias (Lynch et al., 2016), moral disengagement (Wang, Ryoo, Swearer, Turner, & Goldberg, 2017), lower empathy, greater impulsivity, and lower prosocial behaviour (Stavrinides et al., 2010; 2011; Espelage et al., 2018). Furthermore, evidence was mixed regarding the role of ADHD (Verlinden et al., 2014; Yang et al., 2013) and internalising problems (Espelage et al., 2018; Stavrinides et al., 2011; Yang et al., 2013). In relation to demographic variables, there was scarce and mixed evidence for the role of demographic factors; with some indication that socio-economic deprivation may raise risk

whereas younger age may lower risk for bullying behaviour (Shakoor et al., 2012).

For Chapter 4 findings to be useful for intervention and help children not go on a pathway to bullying it was understood that we needed to be able to recognise how early these risk factors start influencing children's behaviour. As such, our early predictors of bullying study, reported in Chapter 5, was set to examine the role of a range of early sociodemographic, family factors, parental mental health, child psychological and interpersonal and parenting practices as predictors of bullying behaviours at 9-10 years of age, using measures completed at the time of school entry in the UK, aged 4-5 years when peer contacts naturally increase.

These predictors were chosen guided by Chapter 4 findings and understanding that in the development of bullying several elements of a child's life should be considered given that, in terms of development more broadly, complex interconnections between different instances of a child's life interact with one another to promote different developmental paths (Rosa & Tudge, 2013; Velez-Agosto, Soto-Crespo, Vizcarrondo-Oppenheimer, Veja-Molina & Coll, 2017; Weisner, 2015). In this way, examining the role of different ecocultural levels on the development of bullying, findings could inform the targeting of future early intervention studies.

6.5. Predictors of bullying: an investigation of early predictors of childhood bullying behaviours in a UK birth cohort sample

The empirical investigation conducted and reported on Chapter 5 makes an important contribution to the literature on early predictors of bullying behaviour in several ways. First, it is one of four other studies that have investigated early predictors of bullying emerging in middle to late childhood using psychometrically validated measures of bullying (Hong, Kim & Piquero, 2017; Malm & Henrich, 2019; Reijntjes et al., 2016; Verlinden et al., 2014).

Second, the study sample was drawn from a larger representative birth cohort study (the Wirral Child Health and Developmental Study – WCHADS) representing children of all range of demographic backgrounds. Third, information on early predictors was collected at the point of starting school – a developmentally important age since children's peer contacts will naturally increase for many children. Fourth, informed by the results of the systematic review (see Chapter 4), the analytic approach examined a range of candidate risk or protective factors jointly in one model to build a picture of the most salient predictors in the context of a broad range of other factors in children's lives. Finally, the study ensured independence of measurement by using predictor variables that were assessed via parental report and bullying as the outcome measure that was assessed via child self-report.

As mentioned, very few studies have investigated early bullying using valid measurement tools. Among the 28 studies reviewed in Chapter 4 which investigated childhood predictors of bullying with measurements collected at ages 12 years or younger, only 10 used measures of bullying that had been psychometrically validated. A further seven studies did not provide sufficient information about the psychometric validity of the bullying measures used. The validity of any study rests in part on the reliability and accuracy of the measures it relies on. Therefore, the use of validated measures in fundamental. Our empirical study validated the Forms of Bullying Scale – FBS (Shaw, Dooley, Cross, Zubrick & Waters, 2013) in childhood (ages 9-10). The FBS had only originally been validated for youth aged 12 – 15 and thus validation was necessary to assure reliable and accurate results. The factor structure, reliability, concurrent and convergent validity of the FBS at age 9-10 were examined and results supported the use of the FBS with younger sample (see Chapter 5). The factor structure found mirrored the original factor structure of the FBS in adolescents, being both statistically as well as conceptually robust. Furthermore, concurrent validity results provided support for its use in detecting traditional forms of bullying in children aged 9-10

years. Associations with an index of cyberbullying were less convincing though this may be related to possible lower levels of social media usage at this young age group. Evidence for convergent validity was tentative since although the expected associations with indices of psychopathology were significant, and in the predicted directions, the magnitude of associations was small. This may be due to the fact that separate informants were used to report bullying and psychopathology. To our knowledge, this is the first study to attempt to validate the FBS with younger sample and it requires replication to further establish convergent validity, possibly with the use of child self-report measures for both bullying and psychopathology.

Our investigation of early predictors of bullying in middle childhood improves upon past studies as bullying behaviours at age 9 were self-reported following the presentation of a definition of bullying. As per the narrative review conducted in Chapter 2, self-report measurement is the most frequently used method to assess bullying involvement. It has been suggested that self-report measures better embrace, due to their format, all three concomitant criteria defining of bullying: intentionality, repetition, and power imbalance (Espelage & Swearer, 2003; Griffin & Gross, 2004; Ortega et al., 2001). Moreover, according to Shaw and colleagues (2013, p. 1023), self-report instruments: "provide the opportunity for those victimised to report bullying that may not be known other than to the student victimised and the perpetrator." Age 9-10, when bullying was measured in our study, is one the earliest age where children are considered able to demonstrate adequate personal and interpersonal perceptual abilities to self-report (Horton, 2013; Riley, 2004). These are important competencies because in bullying research pupils need to be able to attribute aggressive intent and power inequity – key elements which define bullying behaviours (Gini et al., 2007). From the 28 studies reviewed in Chapter 4, only nine used validated self-report measures to assess bullying involvement in childhood.

The results of the current study indicated that a very high proportion (> 90%) of children who were exhibiting bullying behaviour at age 9-10 years actually reported experiencing victimisation as well. This is an important finding which needs further exploration in future studies. Bullying is defined by intentionally, perceived power imbalance and repetition in concomitance (Olweus, 1997), thus it is important to understand what processes are underlying the aggressive behaviours mentioned by children if they self-report themselves as both bullies and victims at such a young age. For instance, how and in what circumstances does perceived power imbalance work and contribute to children taking up the role of a bully? Furthermore, children's previous experiences with bullying episodes may contribute to them developing bullying behaviours themselves but without earlier assessment it is impossible to tell whether experiencing victimisation precedes bullying behaviour. The high prevalence of the dual bully-victim profile in middle childhood is a novel finding and though it was not the focus of our study to investigate the cognitive and socio-emotional developmental processes which underlie this profiling, these are important questions to examine. For instance, hostile attribution biases have been observed in children with conduct problems (Hartmann, Ueno & Schwenck, 2020) and in the current study earlier externalising problems at age 5 was a significant predictor of bullying at age 9, though it was rendered non-significant in the final model once parenting variables were added. So, the reports of victimisation by children may reflect different processes – either accurate reports or distorted or developmentally immature perceptions of others' intent. This could be further explored in future longitudinal studies with more detailed assessment of developmental processes that might contribute to the pathway of becoming a bully.

Regarding the main study findings *per se*, results from our investigation of early predictors of bullying in middle childhood extend the current understanding of which early childhood sociodemographic and parenting practices might contribute significantly to the

development of bullying behaviour in the context of a range of other factors indexing the child's environment. Certain key predictors were important; male gender, lower family income, financial problems, higher maternal anxiety, lower parental involvement and higher levels of inconsistent discipline. Male gender had previously been found to contribute to increased chances in bullying (Ball et al., 2008), however all other predictors are now first evidenced to contribute to early bullying. One other study suggested an association in older samples between low parental involvement and bullying (Cho et al., 2019), and two other studies sampling older children and adolescents investigated maternal anxiety as a predictor of being a bully though inconsistent results were reported.

Our findings and those of others suggest that bullying, as a dysfunctional form of peer relationship, does not appear to be merely a product of individual processes, but it appears to be influenced by many other contextual factors in children's lives. Many of these aspects are themselves (e.g., low family income, financial problems) a product of more distal eco-cultural influences (García Coll et al., 1996) that drive the systemic level and impact through various levels on the child's development (Bronfenbrenner, 1974). For example, the effects of poverty, maternal education or employment on children's development may impact on parental involvement and should not be lightly considered, but rather understood as mechanisms which have the potential to drastically alter the developmental paths children go through. These specific predicaments are also potential targets for intervention (García Coll et a., 1996).

Early interventions have been reported to have tremendous benefits (House of Commons Library, 2019). Financially, it has been estimated that, over 30 years, individual costs are reduced by approximately £70,000 when interventions are employed early in life to prevent problems from escalating – for instance to criminal, educational, physical and/or psychological problems (Scott et al., 2001). Our findings suggest, given the identification of

certain modifiable ecocultural elements, that prevention and intervention bullying programmes should work with mothers in helping them cope with their anxiety, as well as work with parents to foster parental involvement and better prepare them to exercise consistent discipline practices, particularly in early childhood. Furthermore, in early childhood, effective early bullying interventions based on the findings here reported should focus on boys from low-income families that struggle with financial problems.

A last noteworthy reflection concerns the percentage of variance explained by the model presented in Chapter 5. Though we acknowledge the model did not capture all possible predictors contributing to later bullying, given the number of factors investigated (24 variables were entered in the multivariate analysis) and the time-lag testing of predictors over 4-years from between ages 4-5 to 9-10 years, 12.3% explained variance was considered to be fair. Nonetheless, the vast amount of unexplained variance in the model has to be recognised. Many other early and intervening aspects of children's lives will likely contribute to the likelihood of emerging as a bully and in this respect the results of the current study fit with the general recognition in the field that the emergence of such behaviour is likely to be multiply determined (Bowes et al., 2009; Le et al., 2017; Yang et al., 2013). Future longitudinal studies examining the possible effects of different trajectories of childhood exposure to low parental involvement or inconsistent discipline in relation to later bullying outcomes, may be a particularly fruitful approach to better inform the targeting of interventions.

6.6. Directions for future research

Future studies should try to use measures commonly used in the literature to build a more robust core set of studies with similar measurement. This may entail validating such measures for use in different cultural settings to ensure they operate similarly across different

contexts – as was here intended in Brazil. More specifically, future studies should aim to assess the effect of providing a definition of bullying prior the administration of bullying measures. This may be particularly important when studying younger children. Bullying measures suitable for use in childhood samples are also very rare, though the Forms of Bullying Scale (Shaw et al., 2013) is now validated, further studies should aim to validate other robust measures in younger samples.

The University of Illinois Bullying Scale (UIBS; Espelage & Holt, 2001) and the Bullying Prevalence Questionnaire (BPQ; Rigby & Slee, 1993) were piloted in Brazil in the current study. Although the results here reported for the UIBS were encouraging and suggest its suitability for use in Brazil, over the BPQ, further use of these scales in Brazil is not recommended until a more comprehensive study to further evaluate the psychometric properties of the measures is done.

Regarding early predictors of bullying, specifically, though the results reported on Chapter 5 indicate that male gender, lower family income, financial problems, higher maternal anxiety, lower parental involvement, and higher inconsistent discipline in early childhood contribute to later bullying, further research would benefit from examining the cognitive and socio-emotional developmental processes that might also contribute to the pathway of becoming a bully. For instance, child exposure to hearing parental arguments, stress reactivity, anger proneness and frustration sensitivity, executive functioning, effortful and inhibition control, theory of mind understanding, and emotion recognition have all been indicated in single studies as possible predictors of bullying, but these studies require replication. If early intervention is to be possible, it is paramount that future studies identify children with early characteristics that indicate they are at a higher risk of becoming a bully.

6.7. Limitations

A few limitations restrict the findings here presented. First, in terms of limitations which might restrict the findings of the narrative review in Chapter 2 mainly it is acknowledged that only peer-reviewed papers were searched for. Typically, aside from electronic databases, narrative reviews also include grey literature, conference abstracts, presentations, and other nonstandard sources of information (Rother, 2007). However, the current sample is thought large enough to support robust findings. Second, meta-analysis was not feasible in Chapter 4 – the systematic review. Meta-analysis allows the quantification of an overall effect, which is valuable in drawing conclusions. However, the high level of heterogeneity in terms of the predictors measured (often only a single study measuring a particular variable), and differing follow-up period and sample age ranges in Chapter 4 precluded this.

A second limitation acknowledged refers to the disruption of data collection, due to ill health, which was greatly prejudicial to the validation study conducted in Brazil (see Chapter 3). Full data collection in Brazil, most disappointingly, could not be completed as planned, and thus the reliability and validity of the two bullying measures investigated (the UIBS and the BPQ) could only be evaluated as a pilot study. Furthermore, aside from the limitations imposed by the small sample size, the homogeneous age distribution and the atypical ethnicity observed are also noted as limitations to this study as sources of potential bias. Having said this the validation study conducted in Brazil is valid as a pilot study in which the issues related to translation and cultural validity of the items within the measures have been tested and can inform the development of a full-scale research project in Brazil.

Lastly, in respect to limitations to the empirical study, we first acknowledge the limited measure selection examined. Though other developmental processes were assessed and

available in the WCHADS data-stem, these were only available in the "intensive sample". The smaller "intensive sample" was stratified from the whole WCHADS sample based on psychosocial risk indicators and these children were thus followed with more frequent and in-depth measurement over time. The aim of the "extensive sample" used in the present study was, instead, to establish a consecutive general population sample for epidemiological study allowing general population estimates. Nonetheless, data is ready and available to investigate more candidate predictors such as hostile attribution bias, response to social rejection, empathy, and CU traits in the smaller "intensive sample". Outcomes at age 12 are currently being collected in WCHADS and this may provide an opportunity to test a broader set of risk and protective factors with an assessment of bullying at an age when behaviours may be observed more frequently.

Another limitation to the empirical study refers to having to set an arbitrary lower criterion in order to capture emerging bullying. Typically, in adolescence bullies and nonbullies are distinguished based on their self-reported frequency of involvement whereby two or three times a month or more is typically used as a cut-off for inclusion in the bullying category (Solberg & Olweus, 2003). Since age 9 is an early stage to assess bullying involvement in children, compared to the established literature which typically examines adolescent involvement, setting the criterion derived from studies of older children was considered inadequate. Very few children endorsed bullying at age 9-10 years as per Solberg and Olweus (2003) criteria. As such, a binary variable was created for the purposes of analysis representing those children who reported no bullying perpetration in the past two months or school term versus those who reported bullying other children at least once or twice in the past two months.

6.8. Conclusion

The research conducted within this thesis makes a valuable contribution to our understanding of early childhood predictors of emerging bullying involvement in middle childhood. This research was set in the context of a review of what is know already from previous research and provides further indication of possible modifiable factors that may provide the focus for early intervention studies. The work conducted on the validation of measures for use in Brazil and the UK at different stages of development, in adolescence and middle childhood respectively, creates a platform for future work that aims to assess bullying reliably, and which also will serve to enhance the quality of outcome measurement in longitudinal research examining pathways to bullying behaviour.

6.9. Rerefences

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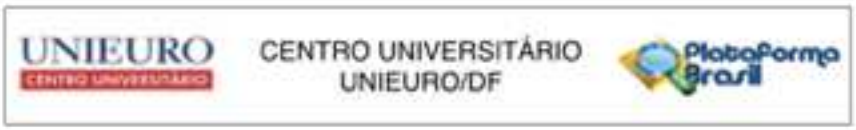
APPENDICES

Appendix A
Ethics Committee Certificate of Approval



PARECER CONSUBSTANCIADO DO CEP

DADOS DO PROJETO DE PESQUISA

Título da Pesquisa: Bullying nas escolas: um estudo de validação psicométrica no Brasil e no Reino Unido

Pesquisador: CAROLINA DE ARAGÃO SOARES GRIZ
Área Temática:
Versão: 1
CAAE: 65268317.9.0000.5056
Instituição Proponente:
Patrocinador Principal: Financiamento Próprio

DADOS DO PARECER

Número do Parecer: 1.964.328

Apresentação do Projeto:
Apresentação do Projeto dentro das normas e com as devidas clarezas do objeto a ser estudado e sua fundamentação.

Objetivo da Pesquisa:
Tanto o Objetivo Primário que é Validar as escalas psicométricas Escala Illinois de Bullying (Espelage & Holt, 2001) e o Questionário de Prevalência de Bullying (Rigby & Slee, 1993)no Brasil e no Reino Unido. Quanto o Objetivo Secundário que é Mapear possíveis diferenças relacionadas à fatores como idade, gênero, nacionalidade, etnia e série escolar em crianças e adolescentes envolvidos, são apresentados de forma consistente com o tema da pesquisa.
em incidentes de bullying escolar inter e intra-culturalmente.

Avaliação dos Riscos e Benefícios:
O cuidado com todas as questões pertinentes a avaliação e risco e aos benefícios que podem ser oriundos da pesquisa são apresentados no projeto, conforme abaixo descrito:
Riscos:
É possível encontrar na literatura relato de certo tipo de desconforto psicológico mínimo, tais

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UF: DF **Município:** LAGO SUL
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Continuação do Parecer: 1.964.339

quais: mal-estar, sentimento de culpa, tristeza e
desalento face à algumas perguntas contidas nos instrumentos psicométricos previamente elencados; estes sentimentos tendem, contudo, a
diminuir ao longo da participação no estudo. No improvável caso, entretanto, que persistam fica garantido ao voluntário à imediata interrupção do
procedimento a fim de minimizar e/ou pôr fim aos sentimentos de desconforto experenciados. Para tanto, basta fechar o navegador da Internet e a
participação no estudo estará encerrada. Não há necessidade de prestar qualquer esclarecimento nem justificativa quanto à desistência em
participar do estudo. De igual forma, não haverá qualquer sanção em relação à não-participação e/ou desistência. Questionários incompletos serão
excluídos automaticamente e permanentemente do banco de dados. Ademais, não se encontra na literatura, até o presente momento, relato de
quaisquer outros tipos de riscos físicos e/ou psicológicos na participação em pesquisas deste tipo.
Em casos de danos comprovadamente decorrentes da participação do voluntário na pesquisa, fica garantida indenização conforme decisão judicial
ou extrajudicial.
Os participantes voluntários desta pesquisa e suas respectivas escolas não receberão nenhum tipo de pagamento pela participação na pesquisa
como também não terão nenhum tipo de despesa relacionado à mesma.
Benefícios:
Como benefício direto ao participante se considera a reflexão sobre incidentes de bullying na escola. Espera-se que, ao implicar-se e/ou
responsabilizar-se, o voluntário possa compreender melhor o que à vivência do bullying escolar representa, assim como também possa melhor
posicionar-se diante de novas situações de intimidação e/ou vitimização que participe e/ou presencie.
Visando avaliar e intervir contra o bullying nas escolas, medidas válidas e confiáveis são uma necessidade. Portanto, enquanto benefícios gerais
esperados, considera-se que os resultados desta pesquisa forneçam informações relevantes que possibilitem aos profissionais da educação acesso
à mais ferramentas de mensuração fidedignas que venham a somar no processo de busca de um sistema educacional melhor e mais seguro.

Continuação do Parecer: 1.964.339

Comentários e Considerações sobre a Pesquisa:

Excelente construção do projeto de pesquisa e, fonte de interesse que ultrapassando as questões acadêmicas podem contribuir em uma análise criteriosa dos problemas oriundos da incidência de bullying no espaço escolar.

Considerações sobre os Termos de apresentação obrigatória:

Apresentados a contento

Recomendações:

Sem recomendações

Conclusões ou Pendências e Lista de Inadequações:

Sem pendências

Considerações Finais a critério do CEP:

APROVADO

Este parecer foi elaborado baseado nos documentos abaixo relacionados:

Tipo Documento	Arquivo	Postagem	Autor	Situação
Informações Básicas do Projeto	PB_INFORMAÇÕES_BÁSICAS_DO_PROJETO_859220.pdf	27/02/2017 15:26:42		Aceito
Folha de Rosto	FolhaDeRosto_CGRIZ.pdf	27/02/2017 15:25:59	CAROLINA DE ARAGÃO SOARES GRIZ	Aceito
Outros	TERMO_DE_CONSENTIMENTO_LIVRE_E_ESCLARECIDO.pdf	30/01/2017 12:23:48	CAROLINA DE ARAGÃO SOARES GRIZ	Aceito
TCLE / Termos de Assentimento / Justificativa de Ausência	TERMO_DE_ASSENTIMENTO_LIVRE_E_ESCLARECIDO.pdf	30/01/2017 12:23:27	CAROLINA DE ARAGÃO SOARES GRIZ	Aceito
Projeto Detalhado / Brochura Investigador	CGRIZ.pdf	30/01/2017 12:15:56	CAROLINA DE ARAGÃO SOARES GRIZ	Aceito

Situação do Parecer:

Aprovado

Necessita Apreciação da CONEP:

Não

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Continuação do Parecer: 1.964.328

LAGO SUL, 14 de Março de 2017

Assinado por:
Flavia Perassa de Faria
(Coordenador)

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Appendix B

Parent Information Sheet and Consent Form

Information Sheet and Informed Consent Form

(For Parents or Legal Guardians of Minors Aged 18 and Under - Resolution 466/12)

We ask your permission to invite your child {or child under your legal guardianship} to participate, as a volunteer, in the research project entitled Bullying in schools: a psychometric validation study in Brazil and in United Kingdom. Mrs CAROLINA DE ARAGÃO SOARES GRIZ is responsible for this study under the supervision of Prof. Helen Sharp (hmsharp@liverpool.ac.uk) and Dr. Peter Taylor (pjtay@liverpool.ac.uk). Mrs Griz can be reached at 23 Greenheys Road, Flat 1, Liverpool, L8 0SX, Merseyside, United Kingdom, phone number +44 07804 661020, including postage to be paid by recipient, collect calls. Email messages should be directed to cgriz@liverpool.ac.uk.

This document is called an Informed Consent Form and contains information about the study. Should you have any questions and/or do not understand any information here provided, do contact the lead researcher so that you are well informed about all aspects of the study. After having read this information sheet should you consent to your child {or child under your legal guardianship} taking part in the study, initial and sign the pages at the end of this document. There are two copies: one is yours and the other is to be returned to school. Should you, however, do not consent to your child {or child under your legal guardianship} taking part, please note neither you nor the child will be penalised in any way. Moreover, you have the right to withdraw your consent at any time, without incurring in any loss.

STUDY INFORMATION:

This study aims to investigate school bullying, in particular the psychometric instruments used to identify and measure bullying in schools. As you may be aware, school bullying is an alarming problem present in schools around the world; it has been evidenced to have numerous negative short and long-term consequences for the well-being and health of everyone involved (whether they are bullies, victims or witnesses). Valid psychometric instruments to assess school bullying are needed in order to effectively monitor the presence of bullying in schools. Additionally, the use of such instruments can better inform preventive and interventional programmes targeting school bullying.

The main purpose of this study is, therefore, to psychometric validate two bullying measures, the University of Illinois Bullying Scale (Espelage & Holt, 2001) and the Bullying Prevalence Questionnaire (Rigby & Slee, 1993). Aside from providing answer to these two bullying measures, study volunteers will also be asked to answer the following questionnaires: the Toronto Empathy Questionnaire (Spreng et al., 2009), the Strengths and Difficulties Questionnaire (Fleitlich, Cortázar, & Goodman, 2000) and the Patient Health Questionnaire (Kroenke et al ., 2001). All the above-mentioned instruments have already been validated in other contexts and countries, where their psychometric proprieties were found reliable for research purposes.

The results of this research might help to better guide prevention and intervention policies to prevent bullying in schools targeting a healthier and safer educational system in the future. Additionally, this research will be part of a PhD thesis in Psychology, and data from this study can also be used as support material for the publication of articles in academic journals, as well as participation in academic events such as congresses.

Escolas de Ensino Fundamental II in the cities of Recife and Camaragibe, and Secondary Schools in the cities of Liverpool and Wirral (United Kingdom) are being invited to participate. All children and adolescents, aged 11 to 15, can participate as volunteers. Data collection will take place on a scheduled date appointed by the schools involved as to best suits the school schedule and minimize disruption to the school routine. It is estimated that participation will take from 20 to 40 minutes.

Before students answer the questionnaires, six demographic questions regarding age, sex, nationality, ethnicity, type of school and grade will be asked. No personal information, such as name, date of birth and address, will be requested. Students will also be asked to answer eight questions about fictional characters who participate in a story involving school bullying incidents. All questions must be answered individually, being anonymous and confidential, including the demographic questions. In addition, all responses, which will be provided online, upon statistical analysis will be labelled randomly so that it will not possible to identify authorship.

Although unlikely, it is possible that participants experience some mild psychological discomfort (feelings of hopeless, shame and guilt, for example). Your child {or child under your legal guardianship} will be asked to rate the frequency in which they experience (or have experienced) a range of situations; they will be asked whether they agree with statements such as: “I worry a lot”, “I try to be nice to other people. I care about their feelings” are true to them. There are no right or wrong answers. To participate all your child {or child under your legal guardianship} have to do is answer the questions presented as honestly as possible.

Should any feelings of mild psychological discomfort do happen, these should be naturally dissipated over the course of participation or at completion and/or a short later after. If, however,

they do persist and worsen during participation, your child {or child under your legal guardianship} is guaranteed immediate interruption of the procedure in order to minimize the feelings of discomfort experienced.

You will not pay anything for your child {or child under your legal guardianship} participate in this study. If necessary, any expenses incurred due to participation will be paid by the researchers involved (including reimbursement for extra expenses, such as transportation and food). Indemnity is also guaranteed by the *Comissão Nacional de Ética em Pesquisa* – CONEP in case of claims of damage which are evidenced to be resultant from participating as a volunteer in this study.

Furthermore, the lead researcher and her research supervisors, Prof. Helen Sharp (hmsharp@liverpool.ac.uk) and Dr. Peter Taylor (pjtay@liverpool.ac.uk), are committed to preserving the confidentiality of the data collected, using them solely for research purposes, scientific discussions and other research-related activities. All collected information will be stored securely on a password protected drive hosted at the University of Liverpool (United Kingdom) for a period of 10 years in accordance with the Institution's data storage and security policy.

Should you have any questions and/or would like to make a complaint about any aspect of this study, please feel free to contact the lead researcher, Mrs Griz (+55 81 99118 3669 / cgriz@liverpool.ac.uk) or one of her research supervisors (Prof. Helen Sharp (hmsharp@liverpool.ac.uk) and Dr. Peter Taylor (pjtay@liverpool.ac.uk)). Alternatively, you may also contact the *Comissão Nacional de Ética em Pesquisa* – CONEP through the link http://conselho.saude.gov.br/images/comissoes/conep/documentos/FALE_FACIL_CONEP_2020

.pdf. Remember to provide CONEP the following certificate ID CAAE: 65268317.9.0000.5056 so that this study can be identified.

Lead researcher Primary supervisor
Carolina Griz Helen Sharp

Second supervisor
Peter Taylor

Informed Consent Form

(For Parents or Legal Guardians of Minors Aged 18 and Under - Resolution 466/12)

I, _____, CPF_____, legal guardian and/or responsible for _____, undersigned and consent to my child {or child under my legal guardianship} to participate in the study Bullying in schools: a psychometric validation study in Brazil and in United Kingdom, as a volunteer. I was duly informed by the lead researcher about the study aims, procedures in which my child {or child under my legal guardianship }will be involved in it, as well as about the possible risks which could arise from their participation. I have been guaranteed that I can

withdraw my consent at any time, without this leading to any penalty (or interruption of any follow-up safety assistance and/or treatment) for me or the minor in question.

Place and date _____

Legal guardian and/or responsible: _____

Lead researcher
Carolina Griz

Appendix C

Parent Information Sheet and Consent Form (Portuguese)

Termo de Consentimento Livre e Esclarecido

(Para Responsável Legal Pelo Menor de 18 Anos - Resolução 466/12)

Solicitamos a sua autorização para convidar o(a) seu/sua filho(a) {ou menor que está sob sua responsabilidade} para participar, como voluntário(a), da pesquisa Bullying nas escolas: um estudo de validação psicométrica no Brasil e no Reino Unido. Esta pesquisa é de responsabilidade do(a) pesquisador(a) CAROLINA DE ARAGÃO SOARES GRIZ, com endereço à 23 Greenheys Road, Flat 1, Liverpool, L8 0SX, Merseyside, Reino Unido, telefone para contato +44 07804 661020, inclusive para ligações a cobrar, e e-mail cgriz@liverpool.ac.uk. A pesquisadora responsável está sob a orientação da Professora Dra. Helen Sharp (hmsharp@liverpool.ac.uk) e do Professor Dr. Peter Taylor (pjtay@liverpool.ac.uk).

Este documento se chama Termo de Consentimento e pode conter alguns tópicos que o/a senhor/a não entenda. Caso haja alguma dúvida, pergunte à pessoa a quem está lhe solicitando, para que o/a senhor/a esteja bem esclarecido(a) sobre tudo que será feito. Após ser esclarecido(a) sobre as informações a seguir, no caso de aceitar que o (a) menor faça parte do estudo, rubrique as folhas e assine ao final deste documento, que está em duas vias. Uma delas é sua e a outra é do pesquisador responsável. Em caso de recusa nem o(a) Sr.(a) nem o/a voluntário/a que está sob sua responsabilidade serão penalizados(as) de forma alguma. O(a)

Senho (a) tem o direito de retirar o consentimento da participação do(a) menor a qualquer tempo, sem qualquer penalidade.

***INFORMAÇÕES SOBRE A PESQUISA**:*

Esta pesquisa tem por objeto de estudo o bullying escolar, em particular os instrumentos psicométricos utilizados para identificar e avaliar o bullying nas escolas. Tal qual deve ser de seu conhecimento, o bullying escolar é um problema alarmante presente em escolas de todo o mundo e apresenta numerosas consequências negativas a curto e a longo prazo ao bem-estar e à saúde de todos os envolvidos (quer sejam eles agressores, vítimas ou testemunhas). Instrumentos psicométricos válidos para avaliar o bullying escolar são necessários a fim de se acompanhar de forma eficaz a presença do bullying nas escolas. Ademais, o uso de tais instrumentos viabiliza o trabalho preventivo e interventivo no combate ao bullying escolar.

A presente pesquisa tem por objetivo principal, portanto, a validação psicométrica de duas escalas de mapeamento do bullying escolar, a saber: Escala Illinois de Bullying (Espelage & Holt, 2001) e Questionário de Prevalência de Bullying (Rigby & Slee, 1993). Voluntários também serão solicitados a responder os seguintes questionários: Questionário de Empatia de Toronto (Spreng et al., 2009), Questionário de Capacidades e Dificuldades (Fleitlich, Cortázar, & Goodman, 2000) e Questionário Sobre a Saúde do Paciente (Kroenke et al., 2001). Todas as escalas mencionadas acima já foram validadas em outros contextos e países, sendo seu uso seguro e seus índices psicométricos válidos tanto na prática clínica quanto em pesquisa.

Os resultados desta pesquisa irão ajudar a melhor guiar políticas de prevenção e intervenção no combate ao bullying nas escolas visando um sistema educacional mais saudável e seguro no futuro. Ademais, as análises oriundas desta pesquisa farão parte de uma tese de Doutorado em Psicologia, podendo, também, serem utilizadas enquanto material de suporte à

publicação de artigo em revistas e periódicos acadêmicos, assim como exposição em eventos acadêmicos tais quais congressos e similares.

Escolas de Ensino Fundamental II nas cidades de Recife e Camaragibe, e em Secondary School nas cidades de Liverpool e Wirral (Reino Unido) estão sendo convidadas a participar indiscriminadamente. Poderão participar enquanto voluntários crianças e adolescentes, dos 11 aos 15 anos. A coleta de dados será realizada em data agendada como melhor convir às escolas envolvidas de modo a minimizar o transtorno à rotina escolar. Estima-se que sejam necessários de 20 a 40 minutos para concluir participação.

Antes que os estudantes comecem a responder as escalas, seis perguntas demográficas referentes à idade, sexo, nacionalidade, etnia, tipo de escola e série escolar, serão feitas. Nenhuma informação de caráter pessoal, tal qual nome, data de nascimento e endereço, será solicitada. Os estudantes também serão convidados a responder oito perguntas acerca de personagens fictícios que participam de uma estória envolvendo incidentes de bullying escolar. Todas as perguntas deverão ser respondidas individualmente, sendo anônimas e confidenciais, incluído as questões demográficas. Ademais, todas as respostas prestadas on-line serão tratadas estatisticamente e codificadas de forma que não será possível identificar autoria.

Apesar de improvável, é possível ocorrer algum tipo de desconforto psicológico leve (mal-estar, sentimento de culpa, vergonha e tristeza, por exemplo). Os estudantes serão solicitados a responder perguntas do tipo: "(tenho) muitas preocupações, muitas vezes pare(ço) preocupado com tudo", outra pergunta lê "Tento ser legal com as outras pessoas. Me preocupo com os sentimentos dos outros". Para participar basta que se responda o mais honestamente possível as questões apresentadas. Não há respostas certas ou erradas.

Quaisquer sentimentos de desconforto psicológico leve tendem, confirme em outras pesquisas, a diminuir ao longo da participação. Caso, entretanto, persistam durante a participação, fica garantido ao voluntário a imediata interrupção do procedimento a fim de minimizar e/ou pôr fim aos sentimentos de desconforto expereinciados.

No mais, a pesquisadora e seus orientadores de pesquisa, Dra. Helen Sharp (hmsharp@liverpool.ac.uk) e do Dr. Peter Taylor (pjtay@liverpool.ac.uk), se comprometem a preservar a privacidade dos dados coletados, utilizando-os unicamente para fins de pesquisa, discussões científicas e atividades de pesquisa. Todas as informações coletadas serão armazenadas de forma segura em um computador protegido por senha na Universidade de Liverpool (Reino Unido) por um período de 10 anos de acordo com a política de armazenamento e segurança de dados da Instituição.

O(a) senhor(a) não pagará nada para ele/ela participar desta pesquisa. Se houver necessidade, as despesas para a participação serão assumidas pelos pesquisadores (ressarcimento com despesas extras, tais quais transporte e alimentação, decorrentes da participação). Fica também garantida indenização em casos de danos, comprovadamente decorrentes da participação do voluntário/a na pesquisa, conforme decisão judicial ou extrajudicial.

Caso você tenha qualquer dúvida e/ou queira fazer uma queixa sobre qualquer aspecto desta pesquisa, por favor, sinta-se à vontade em contatar a pesquisadora-responsável, Carolina Griz (81 99118 3669 / cgriz@liverpool.ac.uk) ou um dos supervisores do projeto (Profa. Dra. Helen Sharp (hmsharp@liverpool.ac.uk) e Prof. Dr. Peter Taylor (pjtay@liverpool.ac.uk)). Alternativamente, você pode entrar em contato com o Comissão Nacional de Ética em Pesquisa – CONEP pelo site

http://conselho.saude.gov.br/images/comissoes/conep/documentos/FALE_FACIL_CONEP_2020.pdf consultando CAAE: 65268317.9.0000.5056.

Assinatura do pesquisador (a)

Assinatura do supervisor(a) primário

Assinatura do supervisor(a) secundário

Consentimento do Responsável Para a Participação do/a Voluntário/a

*Eu, _____, CPF_____, abaixo assinado, responsável por _____, autorizo a sua participação no estudo Bullying nas escolas: um estudo de validação psicométrica no Brasil e no Reino Unido**,** como voluntário(a). Fui devidamente informado(a) e esclarecido(a) pelo(a) pesquisador(a) sobre a pesquisa, os procedimentos nela envolvidos, assim como os possíveis riscos decorrentes da participação dele(a). Foi-me garantido que posso retirar o meu consentimento a qualquer momento, sem que isto leve a qualquer penalidade (ou interrupção de seu acompanhamento/assistência/tratamento) para mim ou para o(a) menor em questão.*

Local e data _____

Assinatura do(da) responsável: _____

Pesquisador responsável

Appendix D

Participant (Pupil) Information Sheet

Student Information Sheet

(For Minors from 12 to 18 Years - Resolution 466/12)

We invite you, after your parents {or legal guardians} consented you to participate, to take part as a volunteer in the present study entitled Bullying in schools: a psychometric validation study in Brazil and in United Kingdom. Mrs CAROLINA DE ARAGÃO SOARES GRIZ is responsible for this study under the supervision of Prof. Helen Sharp (hmsharp@liverpool.ac.uk) and Dr. Peter Taylor (pjtay@liverpool.ac.uk). Mrs Griz can be reached at 23 Greenheys Road, Flat 1, Liverpool, L8 0SX, Merseyside, United Kingdom, phone number +44 07804 661020, including postage to be paid by recipient, collect calls. Email messages should be directed to cgriz@liverpool.ac.uk.

This document is called the Assent Term and may contain some words that you do not understand. If you have any questions, please do ask so that you can understand everything that will involve taking part in the study. Neither you nor your parents {or legal guardians} will have to pay for any extra expenses, nor will you receive any financial advantage. If you live far from your school, we will give your parents {or legal guardians}, for example, enough money to pay for transportation and/or food.

You can ask about any aspect of the study you want so that you are sure to know whether you want to take part or not. You are free to decide either way. Even if your parents {or legal

guardians} have let you to participate, you still have the right to say "no". Also, at any time, if you want, you can give up and stop taking part; this will cause you no trouble.

After reading the information that follows, if you agree to participate in the study, sign at the end of this document, which is in two copies. One is yours and the other you must return to school. If you do not agree to participate, neither you nor your parents {or legal guardians} will be penalised. To participate in this study, your parents {or legal guardians} must have authorised and signed the Informed Consent Form that was sent home. Your parents {or legal guardians} may or may not allow you to participate and we will respect their decision. Even if you want to participate, if they do not allow it, you will not be able to volunteer and take part in the study. Your parents {or legal guardians} also have the right to withdraw authorisation and stop you from participating at any time.

RESEARCH INFORMATION:

This study aims to investigate school bullying, in particular the psychometric instruments used to identify and measure bullying in schools. As you may be aware, school bullying is an alarming problem present in schools around the world; it has been evidenced to have numerous negative short and long-term consequences for the well-being and health of everyone involved (whether they are bullies, victims or witnesses). The questionnaires used in Education studies are needed to help assess school bullying, which allows for better prevention and intervention programmes.

In this study we want to validate two instruments which assess bullying: the University of Illinois Bullying Scale (Espelage & Holt, 2001) and the Bullying Prevalence Questionnaire (Rigby & Slee, 1993). Other than answering these two questionnaires, participation will also involve answering three other questionnaires: the Toronto Empathy Questionnaire (Spreng et al.,

2009), the Strengths and Difficulties Questionnaire (Fleitlich, Cortázar, & Goodman, 2000) and the Patient Health Questionnaire (Kroenke et al., 2001). All five instruments in the study have already been validated in other contexts and countries and are considered safe for research purposes.

The results of this research might help to better guide prevention and intervention policies to prevent bullying in schools targeting a healthier and safer educational system in the future. Additionally, this research will be part of a PhD thesis in Psychology, and data from this study can also be used as support material for the publication of articles in academic journals, as well as participation in academic events such as congresses.

Escolas de Ensino Fundamental II in the cities of Recife and Camaragibe, and Secondary Schools in the cities of Liverpool and Wirral (United Kingdom) are being invited to participate. All children and adolescents, aged 11 to 15, can participate as volunteers. Data collection will take place on a scheduled date appointed by the schools involved as to best suits the school schedule and minimize disruption to the school routine. It is estimated that participation will take from 20 to 40 minutes.

Before you start answering the questionnaires, we will ask you six demographic questions regarding age, sex, nationality, ethnicity, type of school and grade will be asked. We will not ask for any personal information (name, date of birth and address). You will also be asked to answer eight questions about made-up characters who participate in a story involving bullying at school. All questions must be answered individually, being anonymous (unnamed) and confidential (secret). Your answers will be represented by numbers and encoded, so it will not be possible to know who answered what.

Although unlikely, it is possible that you experience some mild psychological discomfort (feelings of hopeless, shame and guilt, for example). You will be asked to say how often you experience (or have experienced) a range of situations; you will also be asked whether you agree with statements such as: “I worry a lot”, “I try to be nice to other people. I care about their feelings” are true to them. There are no right or wrong answers. To participate all you need to do is answer the questions as honestly as possible.

In case any feelings of mild psychological discomfort do happen, these should be naturally dissipated over the course of participation or at completion and/or a short later after. If, however, they do persist and worsen during participation, you are guaranteed immediate interruption of the procedure in order to minimize the feelings of discomfort experienced.

In addition, the lead researcher and her research supervisors, Prof. Helen Sharp (hmsharp@liverpool.ac.uk) and Dr. Peter Taylor (pjtay@liverpool.ac.uk), are committed to preserving the confidentiality of the data collected, using them solely for research purposes, scientific discussions and other research-related activities. All collected information will be stored securely on a password protected drive hosted at the University of Liverpool (United Kingdom) for a period of 10 years in accordance with the Institution's data storage and security policy.

This study was granted ethical approval the *Comissão Nacional de Ética em Pesquisa* – CONEP. If you have any questions and/or would like to make a complaint about any aspect of this study, please feel free to contact lead researcher, Mrs Griz (+55 81 99118 3669 / cgriz@liverpool.ac.uk) or one of her research supervisors (Prof. Helen Sharp (hmsharp@liverpool.ac.uk) and Dr. Peter Taylor (pjtay@liverpool.ac.uk)).

Lead researcher Primary supervisor
Carolina Griz Helen Sharp

Second supervisor
Peter Taylor

Appendix E

Participant (Pupil) Information Sheet (Portuguese)

Termo de Assentimento Livre e Esclarecido

(Para Menores de 12 a 18 Anos - Resolução 466/12)

Convidamos você, após autorização dos seus pais [ou dos responsáveis legais] para participar, como voluntário(a), da pesquisa Bullying nas escolas: um estudo de validação psicométrica no Brasil e no Reino Unido. Esta pesquisa é da responsabilidade do (a) pesquisador (a) CAROLINA DE ARAGÃO SOARES GRIZ, com endereço à 23 Greenheys Road, Flat 1, Liverpool, L8 0SX, Merseyside, Reino Unido, telefone para contato +44 07804 661020, inclusive para ligações a cobrar, e e-mail cgriz@liverpool.ac.uk. A pesquisadora responsável está sob a orientação da Professora Dra. Helen Sharp (hmsharp@liverpool.ac.uk) e do Professor Dr. Peter Taylor (pjtay@liverpool.ac.uk).

Este documento se chama Termo de Assentimento e pode conter algumas palavras que você não entenda. Se você tiver alguma dúvida, pode perguntar à pessoa a quem está lhe convidando para compreender tudo o que vai acontecer. Nem você e nem seus pais terão nenhum gasto extra, nem receberão qualquer vantagem financeira. Se você morar longe de sua escola, nós daremos a seus pais dinheiro suficiente para transporte e/ou alimentação caso gastos extra sejam necessários para sua participação.

Você será informado sobre qualquer aspecto que queira saber a respeito de sua participação na pesquisa e está livre para participar ou não. Mesmo que seus pais autorizem

você a participar, você ainda tem o direito de dizer "não". A qualquer momento, caso queira, você pode desistir e não terá problema algum.

Após ler as informações que seguem, se você aceitar em participar do estudo, assine ao final deste documento, que está em duas copias. Uma delas é sua e a outra é do pesquisador responsável, você deve devolver uma via a escola. Caso você não aceite participar, um direito seu, nem você e nem seus pais serão penalizados. Para participar deste estudo, o responsável por você deverá autorizar e assinar o Termo de Consentimento que foi enviado para casa junto com este informativo. Seus pais podem autorizar ou não que você participe e iremos respeitar a decisão deles. Mesmo que você queira participar, caso eles não permitam, você não poderá ser voluntário na pesquisa. Seus pais também têm o direito de retirar autorização e interromper a sua participação a qualquer momento.

INFORMAÇÕES SOBRE A PESQUISA:

Estamos estudando o bullying escolar, mais claramente, questionários utilizados para identificar e avaliar o bullying nas escolas. Como você deve saber, o bullying é um problema muito sério que se encontra em escolas de todo o mundo e tem várias consequências negativas, que podem durar pouco ou muito tempo, afetando o bem-estar e à saúde de todos os envolvidos. Os questionários utilizados pela Psicologia, quando validados, ajudam a avaliar o bullying escolar, o que permite um melhor trabalho de prevenção e intervenção.

Nesta pesquisa queremos validar duas escalas de mapeamento do bullying escolar: a Escala Illinois de Bullying (Espelage & Holt, 2001) e o Questionário de Prevalência de Bullying (Rigby & Slee, 1993). Para participar, pediremos que você responda estas duas escalas mais outros três questionários: o Questionário de Empatia de Toronto (Spreng et al., 2009), o Questionário de Capacidades e Dificuldades (Fleitlich, Cortázar, & Goodman, 2000) e o Questionário Sobre a

Saúde do Paciente (Kroenke et al., 2001). Todas os cinco instrumentos do estudo já foram validados em outros contextos e países, e são considerados seguros, com bons indicadores.

Os resultados desta pesquisa irão ajudar a melhor guiar políticas de prevenção e intervenção no combate ao bullying nas escolas para que tenhamos um ambiente educacional mais saudável e seguro no futuro. Também, os resultados desta pesquisa farão parte de uma tese de Doutorado em Psicologia, podendo ser utilizados enquanto material de apoio à publicação de artigo em revistas e periódicos acadêmicos, assim como exposição em eventos acadêmicos tais quais congressos e similares.

Escolas de Ensino Fundamental II nas cidades de Recife e Camaragibe, e em Secondary School nas cidades de Liverpool e Wirral (Reino Unido) estão sendo convidadas a participar. Poderão participar enquanto voluntários crianças e adolescentes, dos 11 aos 15 anos. A coleta de dados será realizada em data agendada como melhor for para as escolas envolvidas de modo que não atrapalhe tanto a rotina escolar. Serão necessários de 20 a 40 minutos para concluir participação.

Antes que você comece a responder as escalas, faremos seis perguntas demográficas referentes à idade, sexo, nacionalidade, etnia, tipo de escola e série escolar. Não pediremos nenhuma informação pessoal (nome, data de nascimento e endereço). Você também será convidado a responder oito perguntas acerca de personagens inventados que participam de uma estória envolvendo bullying na escola. Todas as perguntas deverão ser respondidas individualmente, sendo anônimas (sem nome) e confidenciais (secretas). Suas respostas serão representadas por números e codificadas, assim não será possível saber quem respondeu o quê.

Apesar de improvável, é possível que você sinta algum tipo de desconforto psicológico leve (mal-estar, sentimento de culpa, vergonha e tristeza, por exemplo). As escalas contêm perguntas

do tipo: "(tenho) muitas preocupações, muitas vezes pare(ço) preocupado com tudo", outra pergunta lê "Tento ser legal com as outras pessoas. Me preocupo com os sentimentos dos outros". Para participar basta que você responda o mais honestamente possível as perguntas. Não há respostas certas ou erradas. Quaisquer sentimentos de desconforto psicológico leve tendem, conforme outras pesquisas, a diminuir ao longo da participação. Caso, entretanto, você continue mal por participar, fica garantido a imediata interrupção do procedimento a fim de minimizar e/ou pôr fim aos seus sentimentos de desconforto.

No mais, a pesquisadora e seus orientadores de pesquisa, Dra. Helen Sharp (hmsharp@liverpool.ac.uk) e do Dr. Peter Taylor (pjtay@liverpool.ac.uk), se comprometem a preservar a privacidade dos dados coletados, utilizando-os unicamente para fins de pesquisa, discussões científicas e atividades de pesquisa. Todas as informações coletadas serão armazenadas de forma segura em um computador protegido por senha na Universidade de Liverpool (Reino Unido) por um período de 10 anos de acordo com a política de armazenamento e segurança de dados da Instituição.

Este documento passou pela aprovação da Comissão Nacional de Ética em Pesquisa – CONEP. Caso você tenha qualquer dúvida e/ou queira fazer uma queixa sobre qualquer aspecto desta pesquisa, por favor, sinta-se à vontade em contatar a pesquisadora-responsável, Carolina Griz (81 99118 3669/ cgriz@liverpool.ac.uk) ou um dos supervisores do projeto (Profa. Dra. Helen Sharp (hmsharp@liverpool.ac.uk) e Prof. Dr. Peter Taylor (pjtay@liverpool.ac.uk)).

Assinatura do pesquisador (a) Assinatura do supervisor(a) primário

Assinatura do supervisor(a) secundário

Appendix F

Participant (Pupil) Online Assent Form

UNIVERSITY OF LIVERPOOL | INSTITUTE OF PSYCHOLOGY, HEALTH AND SOCIETY

Assent Form
(For Minors aged 12 - 18 - Resolution 466/12)

Bullying in schools: a psychometric validation study in Brazil and in United Kingdom

	Please tick all boxes:
I confirm I read and understood the Participant Information Sheet (Version 2 dated 09/03/2017).	( )
I understand that I do not have to participate and that I am free to stop completing the questionnaires at any time without giving any reason and without getting in any trouble.	( )
I agree to my anonymous (secret) questionnaire answers being stored at the University of Liverpool in line with the University's rules for the storage of research data.	( )
I confirm that I meet all criteria set for participation as per the Participant Information Sheet (Version 2 dated 09/03/2017). I am aged between 11 and 15 years old and I am a student enrolled in *Ensino Fundamental II* or *Ensino Médio*.	( )
My parents or guardians let me participate in this study.	( )
I agree to take part in this study.	( )

Appendix G

Participant (Pupil) Online Assent Form (Portuguese)

Termo De Assentimento Livre e Esclarecido
(Para Menores de 12 a 18 Anos - Resolução 466/12)

Bullying nas escolas: um estudo de validação psicométrica no Brasil e no Reino Unido

	Por favor preencher todos os campos abaixo:
Li e entendi todas as informações que explicam como esta pesquisa será realizada e quais seus objetivos (Informe explicativo versão 2 datado 09/03/2017)	( )
Entendo que minha participação nesta pesquisa é voluntária e que posso, a qualquer momento, desistir de participar sem dar qualquer motivo e sem sofrer nenhuma consequência.	( )
Concordo que uma cópia anônima (sem qualquer meio de identificação) de minhas respostas seja armazenada na Universidade de Liverpool obedecidos os protocolos de segurança da Instituição.	( )
Confirmo que eu atendo a todos os pré-requisitos para participar desta pesquisa como explicado no Informe explicativo (versão 2 datado 09/03/2017). Tenho entre 11 e 15 anos e sou estudante do Ensino Fundamental II ou Ensino Médio.	( )
Meus pais ou responsáveis permitiram que eu participe desta pesquisa.	( )
Eu concordo em participar desta pesquisa.	( )

Appendix H

Bullying Prevalence Questionnaire (Rigby & Slee, 1993)

Instructions For each of the following questions, choose how many times you did this activity or how many times these things happened to you in the last 30 days.				
	Never	Once in a while	Pretty often	Very often
1. I like playing sport.	□	□	□	□
2. I get good marks in class.	□	□	□	□
3. I get called names by others.	□	□	□	□
4. I give soft kids a hard time.	□	□	□	□
5. I like to make friends.	□	□	□	□
6. I play up in class.	□	□	□	□
7. I feel I can't trust others.	□	□	□	□
8. I get picked on by others.	□	□	□	□
9. I am part of a group that goes round teasing other.	□	□	□	□
10. I like to help people are being harassed.	□	□	□	□
11. I like to make others scared of me.	□	□	□	□
12. Others leave me out of things on purpose.	□	□	□	□
13. I get into fights at school.	□	□	□	□
14. I like to show others that I'm the boss.	□	□	□	□
15. I share things with others.	□	□	□	□
16. I enjoy upsetting wimps someone I can easily beat.	□	□	□	□
17. I like to get into a fight with someone I can easily beat.	□	□	□	□
18. Others make fun of me.	□	□	□	□
19. I get hit and pushed around by others.	□	□	□	□
20. I enjoy helping others.	□	□	□	□

Appendix I

Bullying Prevalence Questionnaire (Rigby & Slee, 1993) Translated

Instruções *Com que frequência as atividades abaixo aconteceram com você últimos 30 dias?*				
	Nunca	*Raramente*	*Frequentemente*	*Quase sempre*
1. Eu pratico esportes.	□	□	□	□
2. Eu tiro notas boas na escola.	□	□	□	□
3. Outro(s) colega(s) de escola me apelidam com nomes feios.	□	□	□	□
4. Eu implico com outro(s) colega(s).	□	□	□	□
5. Eu gosto de fazer amigos.	□	□	□	□
6. Eu faço bagunça durante a aula	□	□	□	□
7. Eu sinto que não posso confiar noutras pessoas.	□	□	□	□
8. Outro(s) colega(s) de escola implicam comigo.	□	□	□	□
9. Faço parte de um grupo na escola que abusa de outro(s) colega(s).	□	□	□	□
10. Eu defendo outro(s) colega(s) quando eles estão sendo abusados.	□	□	□	□
11. Eu gosto que os outros tenham medo de mim.	□	□	□	□
12. Colega(s) de escola me excluem de propósito.	□	□	□	□
13. Eu brigo na escola.	□	□	□	□
14. Eu gosto de mostrar que quem manda na escola sou eu.	□	□	□	□
15. Eu divido minhas coisas com outro(s) colega(s).	□	□	□	□
16. Gosto de abusar colega(s) quando sei que são mais fracos que eu.	□	□	□	□
17. Gosto de brigar quando sei que sou mais forte.	□	□	□	□
18. Outro(s) colega(s) fazem piada de mim.	□	□	□	□
19. Outro(s) colega(s) me batem ou abusam comigo.	□	□	□	□
20. Gosto de ajudar os outros.	□	□	□	□

Appendix J

The University of Illinois Bully Scale (Espelage & Holt, 2001)

Instructions For each of the following questions, choose how many times you did this activity or how many times these things happened to you in the last 30 days.					
	Never	1 or 2 times	3 or 4 times	5 or 6 times	7 or more times
1. I upset other students for the fun of it.	□	□	□	□	□
2. In a group I teased other students.	□	□	□	□	□
3. Other students picked on me.	□	□	□	□	□
4. Other students made fun of me.	□	□	□	□	□
5. Other students called me names.	□	□	□	□	□
6. I got hit and pushed by other students.	□	□	□	□	□
8. I helped harass other students.	□	□	□	□	□
8. I teased other students.	□	□	□	□	□
9. I was mean to someone when I was angry.	□	□	□	□	□
10. I spread rumors about other students.	□	□	□	□	□
11. I started (instigated) arguments or conflicts.	□	□	□	□	□
12. I encouraged people to fight.	□	□	□	□	□
13.I excluded other students from my clique of friends.	□	□	□	□	□

Appendix K

The University of Illinois Bully Scale (Espelage & Holt, 2001) Translated

Instruções *Com que frequência as atividades abaixo aconteceram com você últimos 30 dias?*					
	Nunca	*1 ou 2 vezes*	*3 ou 4 vezes*	*5 ou 6 vezes*	*7 ou mais vezes*
1. *Irritei outro(s) colega(s) de escola porque é divertido.*	□	□	□	□	□
2. *Quando estou em grupo, abuso outro(s) colega(s).*	□	□	□	□	□
3. *Implicaram comigo.*	□	□	□	□	□
4. *Fizeram piada de mim.*	□	□	□	□	□
5. *Fui chamado nomes feios.*	□	□	□	□	□
6. *Me empurram e/ou me bateram.*	□	□	□	□	□
7. *Ajudei a abusar outro(s) colega(s) de escola.*	□	□	□	□	□
8. *Irritei outro(s) colega(s).*	□	□	□	□	□
9. *Fui ruim com alguém quando estive com raiva.*	□	□	□	□	□
10.*Eu espalhei histórias mentirosas sobre outras pessoas.*	□	□	□	□	□
11.*Comecei (ou incentivei) brigas e discussões.*	□	□	□	□	□
12.*Encorajei outros colegas a brigar.*	□	□	□	□	□
13.*Exclui colega(s) de escola de meu grupo de amigos.*	□	□	□	□	□

Appendix L

The Strengths and Difficulties Questionnaire (Goodman, 2001)

For each item, please mark the box for Not True, Somewhat True or Certainly True. It would help us if you answered all items as best you can even if you are not absolutely certain or the item seems daft! Please give your answers on the basis of how things have been for you over the last six months.	Not True	Somewhat True	Certainly True
1. I try to be nice to other people. I care about their feelings.	□	□	□
2. I am restless, I cannot stay still for long.	□	□	□
3. I get a lot of headaches, stomach-aches or sickness.	□	□	□
4. I usually share with others (food, games, pens etc.)	□	□	□
5. I get very angry and often lose my temper.	□	□	□
6. I am usually on my own. I generally play alone or keep to myself.	□	□	□
7. I usually do as I am told.	□	□	□
8. I worry a lot.	□	□	□
9. I am helpful if someone is hurt, upset or feeling ill.	□	□	□
10. I am constantly fidgeting or squirming.	□	□	□
11. I have one good friend or more.	□	□	□
12. I fight a lot. I can make other people do what I want.	□	□	□
13. I am often unhappy, down-hearted or tearful.	□	□	□
14. Other people my age generally like me.	□	□	□

	Not True	Somewhat True	Certainly True
15. I am easily distracted, I find it difficult to concentrate.	□	□	□
16. I am nervous in new situations. I easily lose confidence.	□	□	□
17. I am kind to younger children.	□	□	□
18. I am often accused of lying or cheating.	□	□	□
19. Other children or young people pick on me or bully me.	□	□	□
20. I often volunteer to help others (parents, teachers, children).	□	□	□
21. I think before I do things.	□	□	□
22. I take things that are not mine from home, school or elsewhere.	□	□	□
23. I get on better with adults than with people my own age.	□	□	□
24. I have many fears, I am easily scared.	□	□	□
25. I finish the work I' m doing. My attention is good.	□	□	□

Appendix M

The Strengths and Difficulties Questionnaire (Goodman, 2001) Portuguese

Questionário de Capacidades e Dificuldades (Goodman, 2001; Fleitlich et al, 2000)

Com que frequência as atividades abaixo acontecem com você? Por favor, responda marcando as alternativas ao lado. Responda todos os itens da melhor maneira possível, não há respostas certas ou erradas. Dê sua resposta baseado em como as coisas têm sido nos últimos 30 dias.			
	Falso	*Mais ou menos verdadeiro*	*Verdadeiro*
1. Eu tento ser legal com as outras pessoas. Eu me preocupo com os sentimentos dos outros.	□	□	□
2. Não consigo parar sentado quando tenho que fazer a lição ou comer; me mexo muito, esbarrando em coisas, derrubando coisas.	□	□	□
3. Muitas vezes tenho dor de cabeça, dor de barriga ou enjoo.	□	□	□
4. Tenho boa vontade para dividir, emprestar minhas coisas (comida, jogos, canetas).	□	□	□
5. Eu fico muito bravo e geralmente perco a paciência.	□	□	□
6. Eu estou quase sempre sozinho. Eu geralmente jogo sozinho ou fico na minha.	□	□	□
7. Geralmente sou obediente e normalmente faço o que os adultos me pedem.	□	□	□
8. Tenho muitas preocupações, muitas vezes pareço preocupado com tudo.	□	□	□
9. Tento ajudar se alguém parece magoado, aflito ou sentindo-se mal.	□	□	□
10. Estou sempre agitado, balançando as pernas ou mexendo as mãos.	□	□	□
11. Eu tenho pelo menos um bom amigo ou amiga.	□	□	□
12. Eu brigo muito. Eu consigo fazer com que as pessoas façam o que eu quero.	□	□	□
13. Frequentemente estou chateado, desanimado ou choroso.	□	□	□
14. Em geral, os outros jovens gostam de mim.	□	□	□
15. Facilmente perco a concentração.	□	□	□
16. Fico nervoso quando tenho que fazer alguma coisa diferente, facilmente perco a confiança em mim mesmo.	□	□	□
17. Sou legal com crianças mais novas.	□	□	□
18. Geralmente eu sou acusado de mentir ou trapacear.	□	□	□
19. Os outros jovens me pertubam, 'pegam no pé'.	□	□	□
20. Frequentemente me ofereço para ajudar outras pessoas (pais, professores, crianças).	□	□	□

	Falso	*Mais ou menos verdadeiro*	*Verdadeiro*
21. Eu penso antes de fazer as coisas.	□	□	□
22. Eu pego coisas que não são minhas, de casa, da escola ou de outros lugares.	□	□	□
23. Eu me dou melhor com os adultos do que com pessoas da minha idade.	□	□	□
24. Eu sinto muito medo, eu me assusto facilmente.	□	□	□
25. Eu consigo terminar as atividades que começo. Eu consigo prestar atenção.	□	□	□

Appendix N

The Patient Health Questionnaire (Kroenke et al., 2001)

Instructions Below is a list of statements. Please read each statement carefully and rate how frequently you feel or act in the manner described. Circle your answer on the response form. There are no right or wrong answers or trick questions. Please answer each question as honestly as you can. Please give your answers on the basis of how things have been for you over the last 30 days.					
The rating scale is as follows: 0 Not at all 1 Several days 2 More than half the days 3 Nearly every day					
1	Little interest or pleasure in doing things.	0	1	2	3
2	Feeling down, depressed or hopeless.	0	1	2	3
3	Trouble falling asleep, staying asleep, or sleeping too much.	0	1	2	3
4	Feeling tired or having little energy.	0	1	2	3
5	Poor appetite or overeating.	0	1	2	3
6	Feeling bad about yourself – or that you are a failure or have let yourself or your family down.	0	1	2	3
7	Trouble concentrating on things, such as reading the newspaper or watching television.	0	1	2	3
8	Moving or speaking so slowly that other people could have noticed. Or, the opposite – being so fidgety or restless that you have been moving around a lot more than usual.	0	1	2	3
9	Thought that you would be better off dead or of hurting yourself in some way.	0	1	2	3

Appendix O

The Patient Health Questionnaire (Kroenke, Spitzer & Williams, 2001; de Lima Osório et. al., 2009) Portuguese

Instruções *Com que frequência as atividades abaixo acontecem com você? Por favor, responda marcando as alternativas ao lado. Responda todos os itens da melhor maneira possível, não há respostas certas ou erradas. Dê sua resposta baseado em como as coisas têm sido nos últimos 30 dias.*				
	Nunca	*Vários dias*	*Mais da metade dos dias*	*Quase todos os dias*
1. *Pouco interesse ou pouco prazer em fazer as coisas*	□	□	□	□
2. *Se sentir "para baixo", deprimido/a ou sem perspectiva.*	□	□	□	□
3. *Dificuldade para pegar no sono ou permanecer dormindo, ou dormir mais do que de costume.*	□	□	□	□
4. *Falta de apetite ou comendo demais.*	□	□	□	□
5. *Se sentir cansado/a ou com pouca energia.*	□	□	□	□
6. *Se sentir mal consigo mesmo/a — ou achar que você é um fracasso ou que decepcionou sua família ou você mesmo/a.*	□	□	□	□
7. *Dificuldade para se concentrar nas coisas, como estudar ou ver televisão.*	□	□	□	□
8. *Lentidão para se movimentar ou falar, a ponto das outras pessoas perceberem? Ou o oposto – estar tão agitado/a ou irrequieto/a que você fica andando de um lado para o outro muito mais do que de costume.*	□	□	□	□
9. *Pensar em se ferir de alguma maneira ou que seria melhor estar morto/a.*	□	□	□	□

Appendix P

Toronto Empathy Questionnaire (Spreng et al., 2009)

Instructions
Below is a list of statements. Please read each statement carefully and rate how frequently you feel or act in the manner described. Circle your answer on the response form. There are no right or wrong answers or trick questions. Please answer each question as honestly as you can. Please give your answers on the basis of how things have been for you over the last 30 days.

	Never 0	Rarely 1	Sometimes 2	Often 3	Always 4
1. When someone else is feeling excited, I tend to get excited too.					
2. Other people's misfortunes do not disturb me a great deal.					
3. It upsets me to see someone being treated disrespectfully.					
4. I remain unaffected when someone close to me is happy.					
5. I enjoy making other people feel better.					
6. I have tender, concerned feelings for people less fortunate than me.					
7. When a friend starts to talk about his\her problems, I try to steer the conversation towards something else.					
8. I can tell when others are sad even when they do not say anything.					
9. I find that I am "in tune" with other people's moods.					
10. I do not feel sympathy for people who cause their own serious illnesses.					
11. I become irritated when someone cries.					
12. I am not really interested in how other people feel.					
13. I get a strong urge to help when I see someone who is upset.					
14. When I see someone being treated unfairly, I do not feel very much pity for them.					
15. I find it silly for people to cry out of happiness.					
16. When I see someone being taken advantage of, I feel kind of protective towards him \ her.					

Appendix Q

Toronto Empathy Questionnaire (Spreng et al., 2009) Translated

Questionário de Empatia de Toronto

Instruções *Com que frequência as atividades abaixo acontecem com você? Por favor, responda marcando as alternativas ao lado. Responda todos os itens da melhor maneira possível, não há respostas certas ou erradas. Dê sua resposta baseado em como as coisas têm sido nos últimos 30 dias.*					
	Nunca *0*	*Raramente* *1*	*Às vezes* *2*	*Quase sempre* *3*	*Sempre* *4*
1. *Quando alguém está animado, também fico animado.*	□	□	□	□	□
2. *Não me importo com os problemas dos outros.*	□	□	□	□	□
3. *Fico chateado quando alguém é desrespeitado.*	□	□	□	□	□
4. *Não me afeta em nada quando alguém próximo a mim está feliz.*	□	□	□	□	□
5. *Gosto de fazer outras pessoas felizes.*	□	□	□	□	□
6. *Me preocupo com aqueles menos afortunados (mais pobres) que eu.*	□	□	□	□	□
7. *Quando um colega começa a falar de seus problemas, mudo logo de assunto.*	□	□	□	□	□
8. *Sei logo quando outras pessoas estão tristes, mesmo sem que eles me digam.*	□	□	□	□	□
9. *Estou em "sintonia" com outras pessoas.*	□	□	□	□	□
10. *Não tenho pena de pessoas que causam sua própria doença.*	□	□	□	□	□
11. *Me irrita quando alguém está chorando.*	□	□	□	□	□
12. *Não me interessa como outras pessoas se sentem.*	□	□	□	□	□
13. *Tenho muita vontade de ajudar quando vejo alguém passando por problemas.*	□	□	□	□	□
14. *Não tenho pena nem me afeta em nada quando outros são tratados injustamente.*	□	□	□	□	□
15. *Acho besteira chorar de felicidade.*	□	□	□	□	□
16. *Tenho vontade de defender quando vejo alguém tirando vantagem de uma pessoa indefesa.*	□	□	□	□	□

Appendix R

Bullying Prevalence Questionnaire (Rigby & Slee, 1993) Back-translations

Original	3. I get called names by others.	4. I give soft kids a hard time.	8. I get picked on by others.	9. I am part of a group that goes round teasing other.	11. I like to make others scared of me.	12. Others leave me out of things on purpose.
Translated	Outro(s) colega(s) de escola me apelidam com nomes feios	Eu implico com outro(s) colega(s)	Outro(s) colega(s) de escola implicam comigo.	Faço parte de um grupo na escola que abusa de outro(s) colega(s)	Eu gosto que os outros tenham medo de mim	Colega(s) de escola me excluem de propósito
Reviewer 1, 26yrs, Oceanographer	Other kids at school call me mean names	I pick on my classmates	My classmates pick on me	I'm part of a group in school that picks on other kids	I like it when other kids are afraid of me	Kids at school shun me on purpose
Reviewer 2, 28, Financial Analyst	Some of my peers at school have given me hurtful/ugly/mean nicknames	I like to pick fights with my school peers	Some of my school peers like to pick fights with me	I am part of a peer group at school who picks fights/teases other peers	I like when others are fearful of me	Some of my school peers deliberately exclude me

Bullying Prevalence Questionnaire (Rigby & Slee, 1993) Back-translations cont.

Original	14. I like to show others that I'm the boss.	16. I enjoy upsetting wimps someone I can easily beat.	17. I like to get into a fight with someone I can easily beat.	18. Others make fun of me.	19. I get hit and pushed around by others.
Translated	Eu gosto de mostrar que quem manda na escola sou eu	Gosto de abusar colega(s) quando sei que são mais fracos que eu	Gosto de brigar quando sei que sou mais forte	Outro(s) colega(s) fazem piada de mim	Outro(s) colega(s) me batem ou abusam comigo
Reviewer 1, 26yrs, Oceanographer	I like to show kids at school who's boss	I like to pick on kids when I know they're weaker than me	I like to fight when I know I'm stronger	Other kids make fun of me	Other kids hit and take advantage of me
Reviewer 2, 28, Financial Analyst	I like to establish dominance over my peers	I like to pick fights with my peers when I know they are physically weaker than myself	I like to pick fights with my peers when I know I am physically stronger	Some of my peers make jokes about me	Some of my peers harm me physically or make fun of me

Appendix S

The University of Illinois Bully Scale (Espelage & Holt, 2001) Back-translations

Original	1. I upset other students for the fun of it.	2. In a group I teased other students.	4. Other students picked on me.	5. Other students made fun of me.	6. Other students called me names.	7. I got hit and pushed by other students.	8. I helped harass other students.
Translated	Irritei outro(s) colega(s) de escola porque é divertido.	Quando estou em grupo, abuso outro(s) colega(s).	Implicaram comigo	Fizeram piada de mim	Fui chamado nomes feios	Me empurram e/ou me bateram	Ajudei a abusar outro(s) colega(s) de escola
Reviewer 1, 26yrs, Oceanographer	I annoy the other kids at school because it's fun	When I'm in a group, I pick on my classmates	They picked on me	They made fun of me.	I got called mean names	They pushed/hit me	I helped pick on the other kids
Reviewer 2, 28, Financial Analyst	I like to deliberately irritate my school peers for fun	When I am in a group, I pick fights with my peers	Some of my peers pick fights with me.	Some of my peers have made fun and jokes about me	I have been called hurtful/ugly/mean names by some of my school peers	I have been physically pushed or beaten by some of my school peers	I have participated/helped deliberately teasing of some of my school peers

The University of Illinois Bully Scale (Espelage & Holt, 2001) Back-translations cont.

Original	9. I teased other students.	14. I was mean to someone when I was angry.	15. I spread rumours about other students.	16. I started (instigated) arguments or conflicts.	17. I encouraged people to fight.	18. I excluded other students from my clique of friends.
Translated	Irritei outro(s) colega(s)	Fui ruim com alguém quando estive com raiva	Eu espalhei histórias mentirosas sobre outras pessoas	Comecei (ou incentivei) brigas e discussões	Encorajei outros colegas a brigar	Exclui colega(s) de escola de meu grupo de amigos
Reviewer 1, 26yrs, Oceanographer	I annoyed the other kids	I was mean to someone when I was angry	I spread lies about other people	I started (encouraged) fights and arguments	I encouraged other kids to fight	I've kicked out some classmates out of my group of friends
Reviewer 2, 28, Financial Analyst	I have irritated some of my school peers	I have been hurtful to someone when I have been angry	I have told deliberate lies about some of my peers	I have deliberately started, or instigated fights and arguments	I have encouraged others to fight	I have excluded some of my peers from my peer group

Appendix T

The Toronto Empathy Questionnaire (Spreng et al., 2009) Back-translations

Original	When someone else is feeling excited, I tend to get excited too	Other people's misfortunes do not disturb me a great deal	It upsets me to see someone being treated disrespectfully	I remain unaffected when someone close to me is happy
Translated	Quando alguém está animado, também fico animado	Não me importo com os problemas dos outros	Fico chateado quando alguém é desrespeitado	Não me afeta em nada quando alguém próximo a mim está feliz
Reviewer 1, 26yrs, Oceanographer	When someone is excited, I get excited too	I don't care about other people's problems.	I don't like it when other people are disrespected	I don't mind it at all when other people are happy around me
Reviewer 2, 28, Financial Analyst	When someone is excited, I become excited as well	I do not care about the problems of others	I become upset when someone is disrespected	It does not make a difference to me when someone close to me is happy

The Toronto Empathy Questionnaire (Spreng et al., 2009) Back-translations cont.

Original	I enjoy making other people feel better	I have tender, concerned feelings for people less fortunate than me	When a friend starts to talk about his\her problems, I try to steer the conversation towards something else	I can tell when others are sad even when they do not say anything
Translated	Gosto de fazer outras pessoas felizes	Me preocupo com aqueles menos afortunados (mais pobres) que eu	Quando um colega começa a falar de seus problemas, mudo logo de assunto	Sei logo quando outras pessoas estão tristes, mesmo sem que eles me digam
Reviewer 1, 26yrs, Oceanographer	I like to make other people happy	I worry about those less fortunate than me	When a peer starts talking about their problems, I quickly change the subject	I notice right away when other people are sad, even if they don't tell me
Reviewer 2, 28, Financial Analyst	I like to make others happy	I worry about those who are less fortunate than myself	When a friend shares their problems with me, I try to change the subject	I know when others are sad, even if they do not tell me verbatim

The Toronto Empathy Questionnaire (Spreng et al., 2009) Back-translations cont.

Original	I find that I am "in tune" with other people's moods	I do not feel sympathy for people who cause their own serious illnesses	I become irritated when someone cries	I am not really interested in how other people feel
Translated	Estou em "sintonia" com outras pessoas	Não tenho pena de pessoas que causam sua própria doença	Me irrita quando alguém está chorando	Não me interessa como outras pessoas se sentem
Reviewer 1, 26yrs, Oceanographer	I'm in sync with other people	I don't feel bad for people who cause their own diseases	It annoys me when someone is crying	I don't care about other people's feelings
Reviewer 2, 28, Financial Analyst	I am in synergy with other people	I do not feel bad for individuals who are the cause of their own sickness (problems)	I become irritated when someone is crying	I do not bother about how others feel

The Toronto Empathy Questionnaire (Spreng et al., 2009) Back-translations cont.

Original	I get a strong urge to help when I see someone who is upset	When I see someone being treated unfairly, I do not feel very much pity for them	I find it silly for people to cry out of happiness	When I see someone being taken advantage of, I feel kind of protective towards him\her
Translated	Tenho muita vontade de ajudar quando vejo alguém passando por problemas	Não tenho pena nem me afeta em nada quando outros são tratados injustamente	Acho besteira chorar de felicidade	Tenho vontade de defender quando vejo alguém tirando vantagem de uma pessoa indefesa
Reviewer 1, 26yrs, Oceanographer	I really feel like helping when I see someone in trouble	I don't care and it doesn't bother me when someone is treated unfairly	I think it's silly when you cry from happiness	When I see someone picking on a defenceless person, it makes me want to defend them
Reviewer 2, 28, Financial Analyst	I really want to help when I see somebody going thru a problem	I do not feel bad nor does it affect me when others are treated unjustly	I think it is silly to cry tears of joy	I have the urge to defend others when I see defenceless people being taken advantage of

APPENDIX U

Forms of Bullying Scale – FBS (Shaw et al., 2013)

Last term, how often were you bullied (including cyberbullying) by one or more young people in the following ways?					
FBS-V	this did not happen to me	once or twice	every few weeks	about once a week	several times a week or more
I was TEASED in nasty way.					
SECRETS were told about me to others to hurt me					
I was hurt by someone trying to BREAK UP A FRIENDSHIP.					
I was MADE TO FEEL AFRAID by what someone said he/she would do to me.					
I was deliberately HURT PHYSICALLY by someone and/or by a group GANGING UP on me.					
I was CALLED NAMES in nasty ways.					
Someone told me he/she WOULDN'T LIKE ME UNLESS I DID what he/she said.					
My THINGS were deliberately DAMAGED, DESTROYED or STOLEN.					
Others tried to hurt me by LEAVING ME OUT of a group or NOT TALKING TO ME.					
LIES were told and/or FALSE RUMORS spread about me by someone, to make my friends or others NOT LIKE me.					

Forms of Bullying Scale – FBS (Shaw et al., 2013) Cont.

Last term, how often did you bully (or cyberbully) another young person(s) in the following ways (on your own or in a group)?					
FBS-P	this did not happen to me	once or twice	every few weeks	about once a week	several times a week or more
I TEASED someone in nasty ways.					
I told SECRETS about someone to others to deliberately HURT him/her.					
I hurt someone by trying to BREAK UP A FRIENDSHIP they had.					
I deliberately FRIGHTENED or THREATENED someone.					
I deliberately PHYSICALLY HURT or GANGED UP on someone.					
I CALLED someone NAMES in nasty ways.					
I told someone I would NOT LIKE THEM UNLESS THEY DID what I said.					
I deliberately DAMAGED, DESTROYED and/or STOLE someone's things.					
I tried to hurt someone by LEAVING THEM OUT of a group or by NOT TALKING to them.					
I told LIES and/or spread FALSE RUMORS about someone, to make their friends or others NOT LIKE them.					

APPENDIX V

WCHADS Ethical approval letters

June 2006

Cheshire North & West Research Ethics Committee
Cheshire West PCT
1829 Building
Countess of Chester Health Park
Liverpool Road
Chester
CH2 1HJ

Telephone: 01244 650 334
Facsimile: 01244 650 333

27 June 2006

Professor Jonathan Hill
Professor of Child and Developmental Psychiatry
University of Liverpool, Alder Hey Hospital
Mulberry House, Alder Hey Hospital
Eaton Road
L12 2AP

Dear Professor Hill

Full title of study: **The Wirral Child Health and Development Study**
REC reference number: **05/Q1506/107**

Thank you for your letter of 19 May 2006, responding to the Committee's request for further information on the above research and submitting revised documentation.

The further information has been considered on behalf of the Committee by the Vice-Chairman.

Confirmation of ethical opinion

On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the application form, protocol and supporting documentation as revised.

Conditions of approval

The favourable opinion is given provided that you comply with the conditions set out in the attached document. You are advised to study the conditions carefully.

Approved documents

The final list of documents reviewed and approved by the Committee is as follows:

Document	*Version*	*Date*
Application		09 January 2006
Investigator CV		
Protocol	1	09 January 2006
Covering Letter		09 January 2006
Summary/Synopsis	1	09 January 2006
Response to Request for Further Information		19 May 2006
Father Information Sheet, Study 1500 - Phases 1, 3, 5 & 7	2	01 May 2006
Study 300 Parent Information Sheet, one year - Phase 8	2	01 May 2006
Study 300 Parent Information Sheet, 6 months - Phase 6	2	01 May 2006

Study 300 Parent Information Sheet, Antenatal Phases 2 & 4	2	01 May 2006
Mother Information Sheet, Study 1500 - Phases 1, 3, 5, & 7	2	01 May 2006
Letter confirming funding - MRC		09 March 2005
Supporting letter from Mr Doyle, Wirral Hospitals NHS Trust		09 December 2005
Supporting letter from Ms Sheila Hillhouse, Birkenhead & Wallasey PCT		09 December 2005
Phase 8: Study 300 12 month mother and baby postnatal assessments	1	09 January 2006
GP Letter Study 1500	1	01 January 2006
GP Letter Study 300		01 January 2006
Parent Consent, Study 1500 - Phases 1, 3, 5 & 7	1	09 January 2006
Consent to contact a relative - Study 1500	1	09 January 2006
Parent Consent, Fathers, - Study 1500 - Phases 1, 3, 5 & 7	1	09 January 2006
Parent Consent - Study 300 Antenatal, perinatal - (Phases 2 & 4)	1	09 January 2006
Study 300 Parent Information Sheet 6 months (Phase 6)	1	09 January 2006
Parent Consent - Study 300, first birthday (Phase 8)	1	09 January 2006
Parent Consent - Study 300, DNA First Birthday (Phase 8)	1	09 January 2006
Phase 1: Study 1500 mother antenatal screen	1	09 January 2006
Phase 1: Study 1500 father antenatal screen	1	09 January 2006
Phase 2: Study 300 mother antenatal interview	1	09 January 2006
Phase 3: Study 1500 pregnancy/obstetric/birth outcomes	1	09 January 2006
Phase 4: Study 300 perinatal baby assessment	1	09 January 2006
Phase 5; Study 1500 6-8 week questionnaire mother	1	09 January 2006
Phase 6: Study 300 6 month postnatal assessments mother and baby	1	09 January 2006
Phase 7: Study 1500 8 month questionnaire and routine health visitor developmental check (mother)	1	09 January 2006
Phase 7: Study 1500 8 month questionnaire (father)	1	09 January 2006

Research governance approval

The study should not commence at any NHS site until the local Principal Investigator has obtained final research governance approval from the R&D Department for the relevant NHS care organisation.

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees (July 2001) and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

05/Q1506/107 Please quote this number on all correspondence

With the Committee's best wishes for the success of this project

Yours sincerely

Mr Peter Ward
Vice-Chairman

Email: julia.thomas@cwpct.nhs.uk

Enclosures:

Standard approval conditions

WCHADS Ethical approval letters Cont.

June 2010

NHS

National Research Ethics Service

North West 5 Research Ethics Committee - Haydock Park

North West Centre for Research Ethics Committees
3rd Floor - Barlow House
4 Minshull Street
Manchester
M1 3DZ

Telephone: 0161 625 7819
Facsimile: 0161 237 9427

07 June 2010

Professor J Hill
Professor of Child & Adolescent Psychiatry
Room 4.321 Jean McFarlane Building
The University of Manchester
Oxford Road
MANCHESTER M13 9PL

Dear Professor Hill

Full title of study: **Social, emotional & biological processes in emergent conduct disorders: The Wirral Child Health and Development Study 1-4 years**

REC reference number: **10/H1010/4**

Thank you for your letter of 08 May 2010, responding to the Committee's request for further information on the above research and submitting revised documentation.

The further information has been considered on behalf of the Committee by Professor Caroline Carlisle (Professor of Education, Nursing and Midwifery).

Confirmation of ethical opinion

On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the application form, protocol and supporting documentation as revised, subject to the conditions specified below.

Ethical review of research sites

The favourable opinion applies to all NHS sites taking part in the study, subject to management permission being obtained from the NHS/HSC R&D office prior to the start of the study (see "Conditions of the favourable opinion" below).

The Committee has not yet been notified of the outcome of any site-specific assessment (SSA) for the non-NHS research site(s) taking part in this study. The favourable opinion does not therefore apply to any non-NHS site at present. I will write to you again as soon as one Research Ethics Committee has notified the outcome of a SSA. In the meantime no study procedures should be initiated at non-NHS sites.

Conditions of the favourable opinion

The favourable opinion is subject to the following conditions being met prior to the start of the study.

Management permission or approval must be obtained from each host organisation prior to the start of the study at the site concerned.

For NHS research sites only, management permission for research ("R&D approval") should be obtained from the relevant care organisation(s) in accordance with NHS research governance arrangements. Guidance on applying for NHS permission for research is available in the Integrated Research Application System or at http://www.rdforum.nhs.uk. *Where the only involvement of the NHS organisation is as a Participant Identification Centre, management permission for research is not required but the R&D office should be notified of the study. Guidance should be sought from the R&D office where necessary.*

Sponsors are not required to notify the Committee of approvals from host organisations.

It is the responsibility of the sponsor to ensure that all the conditions are complied with before the start of the study or its initiation at a particular site (as applicable).

Approved documents

The final list of documents reviewed and approved by the Committee is as follows:

Document	*Version*	*Date*
Covering Letter - from Dr Helen Sharp, Chartered Consultant Clinical Psychologist and Lecturer in Clinical Child and Adolescent Psychology, University of Liverpool		22 February 2010
REC application	IRAS Version 2.5	22 February 2010
Protocol	1	22 February 2010
Ethical issues and Safety Protocol	1	22 February 2010
Investigator CV - for Professor Jonathan Hill		22 February 2010
Investigator CV - for Dr Helen Sharp		22 February 2010
Participant Consent Form: Phases 10/12 - Mother	1	February 2010
Participant Consent Form: Phases 10/12 - Partner	1	February 2010
Participant Consent Form: Phases 10/12 - Guardian	1	February 2010
Participant Consent Form: Phase 10 - Mother - DNA analysis	1	February 2010
Participant Consent Form: Phases 9,11,12 - Mother - Intensive	1	February 2010
Participant Consent Form: Phases 9,11,12 - Guardian - Intensive	1	February 2010
Participant Consent Form: Phase 9 - Mother - DNA analysis	1	February 2010
Participant Consent Form: Phases 9,11 - Mother - Infant RNA	1	February 2010
Participant Consent Form: Parent - Study 300 GP tracking (previously approved by Cheshire LREC)	1	May 2007
Participant Consent Form: for future contacts (previously approved by Cheshire LREC)	1	February 2010
Participant Consent Form: to contact a relative - extensive sample	1	
Letter to GP and Health Visitor - Extensive/Intensive Study	1	February 2010
Health Visiting Team contact form	1	22 February 2010
Evidence of insurance or indemnity: Letter from Mohammed Zubair, Faculty Research Practice Co-ordinator, The University of Manchester		22 February 2010
Pan-Manchester R&D Notification Form		22 July 2009

10/H1010/4	Please quote this number on all correspondence

Yours sincerely

P.P. **Dr Donal Manning**
Chair

Email: noel.graham@northwest.nhs.uk

Enclosures: 'After ethical review – guidance for researchers"

Copies to:

Dr M Zubair
FMHS Research Office
3.53 Simon Building
The University of Manchester
Oxford Road
MANCHESTER
M13 9PL

R&D office for NHS care organisation at lead site: -

Dr W Sopwith
NHS Wirral (Wirral PCT)
St Catherine's Hospital
Church Road
Birkenhead
CH42 0LQ

WCHADS Ethical approval letters Cont.

December 2014

NHS
Health Research Authority
National Research Ethics Service

NRES Committee North West - Haydock
3rd Floor - Barlow House
4 Minshull Street
Manchester
M1 3DZ

Telephone: 0161 625 7827
Fax: 0161 625 7299

22 December 2014

Professor Jonathan Hill
Professor of Child & Adolescent Psychiatry
University of Reading
School of Psychology and Clinical Language Sciences
White Knights
Reading
RG6 6AL

Dear Professor Hill

Study title:	**The Wirral Child Health and Development Study 7-9 years: Prenatal and infancy origins of biological and social-cognitive processes in disruptive behaviour problems in children.**
REC reference:	**14/NW/1484**
IRAS project ID:	**165660**

Thank you for your submission of 18 December 2014, responding to the Committee's request for further information on the above research and submitting revised documentation.

The further information has been considered on behalf of the Committee by Alternate Vice-Chair.

We plan to publish your research summary wording for the above study on the HRA website, together with your contact details. Publication will be no earlier than three months from the date of this favourable opinion letter. The expectation is that this information will be published for all studies that receive an ethical opinion but should you wish to provide a substitute contact point, wish to make a request to defer, or require further information, please contact the REC Manager, Rachel Katzenellenbogen, nrescommittee.northwest-haydock@nhs.net. Under very limited circumstances (e.g. for student research which has received an unfavourable opinion), it may be possible to grant an exemption to the publication of the study.

Confirmation of ethical opinion

On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the application form, protocol and supporting documentation as revised, subject to the conditions specified below.

Conditions of the favourable opinion

The favourable opinion is subject to the following conditions being met prior to the start of the

study.

Management permission or approval must be obtained from each host organisation prior to the start of the study at the site concerned.

Management permission ("R&D approval") should be sought from all NHS organisations involved in the study in accordance with NHS research governance arrangements.

Guidance on applying for NHS permission for research is available in the Integrated Research Application System or at http://www.rdforum.nhs.uk.

Where a NHS organisation's role in the study is limited to identifying and referring potential participants to research sites ("participant identification centre"), guidance should be sought from the R&D office on the information it requires to give permission for this activity.

For non-NHS sites, site management permission should be obtained in accordance with the procedures of the relevant host organisation.

Sponsors are not required to notify the Committee of approvals from host organisations.

Registration of Clinical Trials

All clinical trials (defined as the first four categories on the IRAS filter page) must be registered on a publically accessible database. This should be before the first participant is recruited but no later than 6 weeks after recruitment of the first participant.

There is no requirement to separately notify the REC but you should do so at the earliest opportunity e.g. when submitting an amendment. We will audit the registration details as part of the annual progress reporting process.

To ensure transparency in research, we strongly recommend that all research is registered but for non-clinical trials this is not currently mandatory.

If a sponsor wishes to request a deferral for study registration within the required timeframe, they should contact hra.studyregistration@nhs.net. The expectation is that all clinical trials will be registered, however, in exceptional circumstances non registration may be permissible with prior agreement from NRES. Guidance on where to register is provided on the HRA website.

It is the responsibility of the sponsor to ensure that all the conditions are complied with before the start of the study or its initiation at a particular site (as applicable).

Ethical review of research sites

NHS sites

The favourable opinion applies to all NHS sites taking part in the study, subject to management permission being obtained from the NHS/HSC R&D office prior to the start of the study (see "Conditions of the favourable opinion" below).

Approved documents

The final list of documents reviewed and approved by the Committee is as follows:

Document	*Version*	*Date*
Covering letter on headed paper [F WCHADS 7-9 1 Covering letter to ethics committee]	1	26 November 2014
Evidence of Sponsor insurance or indemnity (non NHS Sponsors only) [Indemnity Certificate]	1	24 November 2014
GP/consultant information sheets or letters [WCHADS 7-9 letter to	1	28 October 2014

comments]		
Referee's report or other scientific critique report [Referee 2 comments]		12 January 2014
Referee's report or other scientific critique report [Referee 3 comments]		20 January 2014
Referee's report or other scientific critique report [Applicants reply to referee comments]	1	
Research protocol or project proposal	1	28 October 2014
Summary CV for Chief Investigator (CI) [CV J Hill]	1	28 October 2014
Summary, synopsis or diagram (flowchart) of protocol in non technical language [Table summarising measures in WCHADS 7-9]	1	28 October 2014
Validated questionnaire [Center for Epidemiologic Studies Depression Scale (CES-D)]		
Validated questionnaire [General Health Questionnaire-12]		
Validated questionnaire [Speilberger Stateâ^'Trait Anxiety Inventory]		
Validated questionnaire [Kansas Marital Satisfaction Scale]		
Validated questionnaire [Inventory of Callous Unemotional traits]		
Validated questionnaire [The PCLC – my response to stress]		
Validated questionnaire [Dunedin Relationship Scale - Psychological]		
Validated questionnaire [Dunedin Relationship scale -Physical Abuse]		
Validated questionnaire [Child Behaviour Checklist (CBCL, 6 – 18 years)]		
Validated questionnaire [Parent report Baillargeon Peer aggression Scale - parent]		
Validated questionnaire [Baillargeon Peer aggression Scale - child]		
Validated questionnaire [Parental Feelings Questionnaire]		
Validated questionnaire [Reactive-proactive aggression behaviour]		
Validated questionnaire [Dyadic Adjustment Scale]		
Validated questionnaire [Dyadic Adjustment Scale- short form]		
Validated questionnaire [Parental cognitions scale]		
Validated questionnaire [Strengths and Difficulties Questionnaire]		
Validated questionnaire [Alabama Parenting Questionnaire]		
Validated questionnaire [Behavioural Inhibition Scale]		
Validated questionnaire [Irritable withdrawn behaviours]		
Validated questionnaire [Chaos scale – short form]		
Validated questionnaire [Antisocial Process Screening Device - 6 Item subscale assessing callous unemotional traits.]		
Validated questionnaire [Connor's short form]		
Validated questionnaire [Social Communication Questionnaire]		
Validated questionnaire [Griffiths Empathy Scale]		
Validated questionnaire [parent - Observations of Attachment behaviours]		
Validated questionnaire [Autism Quotient]		
Validated questionnaire [Teacher - Observations of Attachment behaviours]		
Validated questionnaire [Teacher Report Form – (CBCL 6-18 years)]		
Validated questionnaire [Teacher APSD And prosocial SDQ items]		
Validated questionnaire [Student-teacher relationship scale]		
Validated questionnaire [Macarthur Health and Behaviour Questionnaire]		

GP to inform them of participation]		
Instructions for use of medical device [RSA and skin conductance measurement]	1	28 October 2014
Instructions for use of medical device [Saliva collection for cortisol analysis procedure]	1	28 October 2014
Instructions for use of medical device [Saliva collection for DNA testing]		28 October 2014
Interview schedules or topic guides for participants [Integrated maternal interview]	1	28 October 2014
Letter from funder [proof of MRC grant funding WCHADS7-9]	1	11 April 2014
Letter from sponsor [Sponsorship letter]	1	24 November 2014
Non-validated questionnaire [WCHADS 7-9 Demographic, Health and lifestyle update 281014]	1	28 October 2014
Other [WCHADS 7-9 3 Ethical issues and safety protocol 281014]	1	28 October 2014
Other [WCHADS 7-9 281014 Age 7 Letter to Headteachers]	1	28 October 2014
Other [WCHADS 7-9 281014 Age 9 Letter to Headteachers]	1	28 October 2014
Other [Edinburgh Handedness Measure]		
Other [Developmental / observational assessment: Child growth measurement]	1	28 October 2014
Other [Mother-child Observational Assessment]	1	28 October 2014
Other [Affective and physiological arousal to picture and sound stimuli]	1	28 October 2014
Other [Social inclusion-exclusion paradigm]	1	28 October 2014
Other [Schultz Test of Emotion Processing]	1	28 October 2014
Other [Empathy and Theory of Mind]	1	28 October 2014
Other [Cognitive and Executive Functioning tasks]	1	28 October 2014
Other [Emotion Recognition with Eye Gaze – emotion matching and labelling]	1	28 October 2014
Other [Covering letter to ethics committee following provisional response on 9th December]	1	16 December 2014
Participant consent form [Extensive sample consent mother phases 13 and 14]	1	28 October 2014
Participant consent form [Intensive sample consent phases 13 and 14]	1	28 October 2014
Participant consent form [Phase 13 DNA consent form]	1	28 October 2014
Participant consent form [Phase 13, 14 Consent for Contacting School]	1	28 October 2014
Participant consent form [Consent form for use of DVD recordings and still images]	1	28 October 2014
Participant consent form [Consent for GP or health care provider tracking in future]	1	28 October 2014
Participant consent form [WCHADS 1-4 Feb 09 Extensive sample Consent form for future contacts mother]		01 February 2009
Participant consent form [WCHADS 1-4 220512 Consent for GP or health care provider tracking in future]		22 May 2012
Participant consent form [Extensive and Intensive Sample consent form - partner version]	2	16 December 2014
Participant information sheet (PIS) [F WCHADS 7-9 281014 V1R Extensive sample Phase13-14 Participant Information Sheet mother]	1	28 October 2014
Participant information sheet (PIS) [F WCHADS 7-9 281014 V1R Phase 13 and 14 Intensive sample participant information sheet]	1	28 October 2014
Participant information sheet (PIS) [Extensive and Intensive sample Phase13-14 Participant Information Sheet partner]	2	16 December 2014
REC Application Form [REC_Form_25112014]		25 November 2014
Referee's report or other scientific critique report [Referee 1		06 January 2014

Validated questionnaire [teacher report - Reactive - proactive aggression]		
Validated questionnaire [Peer conflict scale – child report]		
Validated questionnaire [Friendship interview - child]		
Validated questionnaire [Adult-Adolescent Parenting Inventory – empathy scale]	2	16 December 2014

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

After ethical review

Reporting requirements

The attached document *"After ethical review – guidance for researchers"* gives detailed guidance on reporting requirements for studies with a favourable opinion, including:

- Notifying substantial amendments
- Adding new sites and investigators
- Notification of serious breaches of the protocol
- Progress and safety reports
- Notifying the end of the study

The HRA website also provides guidance on these topics, which is updated in the light of changes in reporting requirements or procedures.

User Feedback

The Health Research Authority is continually striving to provide a high quality service to all applicants and sponsors. You are invited to give your view of the service you have received and the application procedure. If you wish to make your views known please use the feedback form available on the HRA website: http://www.hra.nhs.uk/about-the-hra/governance/quality-assurance/

HRA Training

We are pleased to welcome researchers and R&D staff at our training days – see details at http://www.hra.nhs.uk/hra-training/

14/NW/1484	**Please quote this number on all correspondence**

With the Committee's best wishes for the success of this project.

Yours sincerely

On behalf of

Dr Tim S Sprosen
Chair

Email: nrescommittee.northwest-haydock@nhs.net

Enclosures: "After ethical review – guidance for researchers"

Copy to: Dr Mike Proven, University of Reading
Dr Ewen Sim, Wirral Community NHS Trust

WCHADS Ethical approval letters Cont.

June 2017

NHS
Health Research Authority

North West - Haydock Research Ethics Committee

3rd Floor - Barlow House
4 Minshull Street
Manchester
M1 3DZ

Tel: 0207 104 8004

Please note: This is the favourable opinion of the REC only and does not allow the amendment to be implemented at NHS sites in England until the outcome of the HRA assessment has been confirmed.

30 June 2017

Dr Karen Rafferty, PhD
Faculty of Health and Life Sciences
Institute of Psychology, Health and Society
University of Liverpool
Wirral Child Health and Development Study
The Lauries Centre
142 Claughton Road
Birkenhead
Wirral
CH41 6EY

Dear Karen,

Study title:	**The Wirral Child Health and Development Study 7-9 years: Prenatal and infancy origins of biological and social-cognitive processes in disruptive behaviour problems in children.**
REC reference:	**14/NW/1484**
Amendment number:	**5**
Amendment date:	**23 May 2017**
IRAS project ID:	**165660**

The above amendment was reviewed by the Sub-Committee in correspondence.

Favourable opinion

This amendment sought to allow participants to complete the questionnaire online if they prefer that to completing a paper copy.

No material ethical issues were raised.

The members of the Committee taking part in the review gave a favourable ethical opinion of the amendment on the basis described in the notice of amendment form and supporting documentation.

Approved documents

The documents reviewed and approved at the meeting were:

Document	*Version*	*Date*
Notice of Substantial Amendment (non-CTIMP)	5	23 May 2017
Other [Headteacher letter]	2	23 May 2017
Participant consent form [Extensive sample]	2	23 May 2017
Participant consent form [Intensive sample]	2	23 May 2017
Participant consent form [Parent Consent to contact school for Phase 13 and 14]	3	25 May 2017
Participant consent form [Intensive and Extensive Partner Consent for Phase 13 and 14]	4	23 May 2017
Participant information sheet (PIS) [Extensive Mother Phase 13 and 14]	4	23 May 2017
Participant information sheet (PIS) [Intensive and Extensive Partner Phase 13 and 14]	4	23 May 2017
Participant information sheet (PIS) [Intensive Mother Phase 13 and 14]	4	23 May 2017

Membership of the Committee

The members of the Committee who took part in the review are listed on the attached sheet.

Working with NHS Care Organisations

Sponsors should ensure that they notify the R&D office for the relevant NHS care organisation of this amendment in line with the terms detailed in the categorisation email issued by the lead nation for the study.

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

We are pleased to welcome researchers and R&D staff at our Research Ethics Committee members' training days – see details at http://www.hra.nhs.uk/hra-training/

14/NW/1484: Please quote this number on all correspondence

Yours sincerely

Referees or other scientific critique report: MRC independent referees comments + applicant's response to referees		
Summary/Synopsis: Plan of Assessment - in flowchart form	1	22 February 2010
MRC Board Assessment Template - proof of award		23 July 2009
List of Appendices - Study Measures		
Interview Schedules/Topic Guides: Measures - Adult Interview Schedules (as detailed on List of Appendices)		
Questionnaire: Measures - Non-validated questionnaires (as detailed on List of Appendices)		
Questionnaire: Measures - Validated questionnaires (as detailed on List of Appendices)		
Measures - Observational / Developmental Assessments (as detailed on List of Appendices)		
Response to Request for Further Information: From Dr Helen Sharp Chartered Consultant Clinical Psychologist and Lecturer in Clinical Child and Adolescent Psychology, University of Liverpool		08 May 2010
Participant Information Sheet: Extensive sample - Mother Information Sheet- phases 10 & 12	2	01 May 2010
Participant Information Sheet: Extensive sample - Partner Information Sheet - phases 10 & 12	2	01 May 2010
Participant Information Sheet: Intensive sample - Mother Information sheet - phases 9,11,12	2	01 May 2010

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees (July 2001) and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

After ethical review

Now that you have completed the application process please visit the National Research Ethics Service website > After Review

You are invited to give your view of the service that you have received from the National Research Ethics Service and the application procedure. If you wish to make your views known please use the feedback form available on the website.

The attached document *"After ethical review – guidance for researchers"* gives detailed guidance on reporting requirements for studies with a favourable opinion, including:

- Notifying substantial amendments
- Adding new sites and investigators
- Progress and safety reports
- Notifying the end of the study

The NRES website also provides guidance on these topics, which is updated in the light of changes in reporting requirements or procedures.

We would also like to inform you that we consult regularly with stakeholders to improve our service. If you would like to join our Reference Group please email: referencegroup@nres.npsa.nhs.uk.

PP Dr Tim S Sprosen
Chair

E-mail: nrescommittee.northwest-haydock@nhs.net

Enclosures:	List of names and professions of members who took part in the review
Copy to:	Dr Ewen Sim, Wirral Community NHS Trust Professor Jonathan Hill, University of Reading Dr Mike Proven, University of Reading

APPENDIX W

WCHADS Information sheets and consent forms

Mother Information Sheet – 20 weeks' gestation (T1)

MANCHESTER 1824

The University of Manchester

Wirral University Teaching Hospital NHS
NHS Foundation Trust

UNIVERSITY OF LIVERPOOL

Study Base:
The Lauries Centre, 142 Claughton Road,
Birkenhead, Wirral, CH41 6EY
Freephone: 0800 051 7597
(from a mobile) 800 051 7597
Text: 07956 297412

Parent Information Sheet (Mother)– Study 1500

Title of study : The Wirral Child Health and Development Study

Investigators: Jonathan Hill, Helen Sharp, Andrew Pickles, Gill Lancaster
Research Staff: Karen Lunt, Carol Bedwell, Belinda Thompson, Julie Carlisle, Kate Marks, Kate Marshall,Liz Green, Florin Tibu, Jo Roberts, Jenny Lee, Nichaela Broyden, Carol Sadler, Jeanette Appleton

You are being invited to take part in a research study. Before you decide whether you want to take part, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Ask us if there is anything that is not clear or if you would like more information. Take time to decide whether you wish to take part. Thank you for reading this.

What is the study about?
We would like to invite you to participate in a new study of children's early development from birth to their first birthdays. This study is based at the Universities of Liverpool and Manchester. It is part of a programme of research into how children learn how to behave with other people, and why some children have difficulties controlling their behaviours. In order to fully understand this we need to measure the early development of children in many different ways. The aim of the study is to find out about the effects of many different forms of stress on parents and babies during the antenatal period and in the first months after birth. We know that for some parents and children the effects are quite long lasting, and others find ways of coping. We want to understand these processes better so that services to support families experiencing stress can be improved.

Who is being invited to take part?
We are approaching all first time mothers and their partners who are booked into the antenatal clinic at Arrowe Park Hospital over a two year period. It is important that we have participants in the study with low, medium and high levels of stress. If you have agreed to take this letter home a research midwife will contact you at your 20 week appointment or slightly after, to tell you more about the study, answer any questions you have and to invite you to take part.

Do I have to take part?
It will be up to you to decide whether or not you would like to take part. If you agree, and change your mind later, you can withdraw from the study. This will not affect the care you receive.

How often will I be contacted?
We will contact you again six weeks after the birth of your baby, and when your baby is 8 months old. We would also like to contact some mothers more often up to the first birthdays of their children, so that we can ask them more about their lives, and understand better their ways of coping, and assess their babies' health and development in more detail. If you decide to take part, the computer will tell us who to invite for the additional contacts after we have entered the information you provide now. If your name does come up we hope very much that you will be able to help us, but at this stage we are only asking you to participate now and at 6 weeks and eight months.

What will I be asked to do at each time point?
During your pregnancy we will interview you and ask you to complete some questionnaires about your current health and relationships, and about your expectations of the baby and being a mother. This can be done here at the antenatal clinic or at another clinic on the Wirral or at the study base in the Lauries Centre. It should take about 25 minutes.

We will also ask you for consent for us to have access to your medical records for the pregnancy, the birth, and your new born infant following the birth.

When your baby is 6 weeks old we will send you some short questionnaires about your health, your relationships, and about your baby by post, and ask you to 'Freepost' them back to us.

When your baby is 8 months old we will send you more questionnaires about your health and about your baby, and ask you to return them 'Freepost' to us or return them to your health visitor when you attend for your baby's routine 8 month developmental check-up. We will also ask your health visitor for the results of their 9-12 month assessment of your baby's development.

If you give written consent to take part in this study and you are selected by the computer to be invited for additional contacts, one of the research team named on the front of this information sheet will contact you at home, using the contact details you give to the research midwife. They will only contact you if you agree to it.

How will this information be used?
All information that we receive from you will be treated as strictly confidential, under the guidelines of the Universities of Liverpool and Manchester, the UK Medical Research Council, and the Data Protection Act. Information that we enter on the computer will be identified only by a number. We will report general findings about parents and children, but you or your child will never be identified. The only reason we might have to share information from the study with other people is if there are concerns about you or a child being at risk of serious harm. If that happens we will talk with you first to decide on the best way forward. Concerns like this would be addressed by seeking appropriate forms of help for you and/or following Trust Child Protection Guidelines.

Who is organising and funding the research study?
The study is being run by Professor Jonathan Hill of the University of Manchester and Dr Helen Sharp of the University of Liverpool. The research is funded by the Medical Research Council.

Are there any benefits in taking part in this study?
There are no benefits to you or your child's health in taking part in this study. However we hope that you will feel you are contributing to medical research in a way that will help children and families in the future.

What if something goes wrong?
If you feel you or your child have been harmed by taking part in this research and that the researchers have been negligent or at fault, then you may be able to make a legal claim for compensation to their employer. You might have to pay the legal costs of doing this. However, if you are harmed and the researchers are not at fault, there is no facility for you to make a claim. If you wish to complain or have any concerns about any aspect of the way you have been approached or treated during the course of this study, normal University or National Health Service complaints procedures should be available to you.

Are there any risks to myself or my child taking part in this study?
No, there are no known or likely risks.

Who has reviewed and approved the study?
A team of international experts on child development has reviewed this study for the Medical Research Council. The study has been reviewed and approved by the Research & Development committees of Wirral Hospitals NHS Trust, Wirral PCT and the Cheshire Local Research Ethics Committee.

Can I ask further questions?
When the research midwife meets you, at or after your 20 week scan appointment, she will be very happy to answer any questions you might have. In the meantime, if you would like any more information, please do not hesitate to contact Professor Jonathan Hill, Dr Helen Sharp, or Liz Green on the freephone number shown on the front page.

WCHADS Information sheets and consent forms Cont.

Mother Consent Form – 20 weeks' gestation (T1)

Version 2 March 2007 Parent Consent – Study 1500. – Phases 1,3,5 &7 **Study Number:** [_1_][__][__][__][__][__]

MANCHESTER 1824

Wirral University Teaching Hospital NHS
NHS Foundation Trust

The University of Manchester

UNIVERSITY OF LIVERPOOL

Study Base:
The Lauries Centre, 142 Claughton Road,
Birkenhead, Wirral, CH41 6EY
Freephone: 0800 051 7597
(from a mobile) 800 051 7597
Text: 07956 297412

RESEARCH CONSENT FORM

Title of study: Wirral Child Health and Development Study
Names of researchers: Jonathan Hill, Helen Sharp, Andrew Pickles, Gill Lancaster

1. I confirm that I have read and understand the information sheet dated March 2007 for the above study. I have had an opportunity to consider the information, ask questions and have had these answered satisfactorily. ☐
2. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason, without my care or legal rights being affected. ☐
3. I agree for the research team to have access to my medical records to obtain information about my pregnancy, delivery and my baby's birth record ☐
4. I agree to my health visitor releasing a copy of my baby's 9-12 month routine development assessment in paper form and in the red book recorded in the Child Development Centre ☐
5. I agree to my GP being notified that I am taking part in this study ☐
6. I understand that any concerns about a child being in potential danger, will be addressed in line with the Trust Child Protection Guidelines. ☐
7. I agree to take part in the above study. ☐
8. I agree that one of the research team named on the front of the information sheet can contact me ☐

Name of Participant	Date	Signature
Name of person taking consent (if different from researcher)	Date	Signature
Researcher	Date	Signature

1 for participant;1 for researcher; 1 for NHS notes (if applicable), 1 for health visitor records

WCHADS Information sheets and consent forms Cont.

Mother Information Sheet – age 5 (T3)

Version 2 May 2012: Extensive sample- Mother Information Sheet – phases 10 & 12

MANCHESTER 1824

UNIVERSITY OF LIVERPOOL

The University of Manchester

Study Base:
The Lauries Centre,
142 Claughton Road
Birkenhead, Wirral,
CH41 6EY
Freephone: 0800 051 7597
(from a mobile) 800 051 7597
Text: 07956 297412

Participant Information Sheet

Title of study : The Wirral Child Health and Development Study 1-4 years

Investigators: Jonathan Hill, Helen Sharp, Andrew Pickles, John Quinn, Vivette Glover.
Research Staff: Liz Green, Niki Sandman, Kate Marshall, Helen Jones, Louise Fisher, Stuart Kehl, Fay Huntley, Nicky Wright, Louise Adams, Donna Yarlett, Giovanna Moretto, Rebecca Holmes, Andrea Clark

When you were pregnant, just after your baby was born and when your baby was 12 months old you kindly helped us with this research study. We are now inviting you to take part in this study until your first child just over 4 years old. We have recruited 1286 families expecting their first child into this 'First Steps' study. All these mothers and many of their partners have completed questionnaire measures for us and now the children are reaching **three** years old. Just over 300 mothers and babies have also taken part in a more detailed part of the study in which mothers have completed a range of interviews and mother-child assessments during their child's first **and second** year of life. Before you decide whether you want to take part in the next stages of the study, it is important for you to understand why the research is continuing and what it will involve for you and your child. Please take time to read the following information carefully and discuss it with others if you wish. Ask us if there is anything that is not clear or if you would like more information. Take time to decide whether you wish to take part. Thank you for reading this.

What is the purpose of the study?

This study aims to find out how children learn how to behave with other people, and why some children have difficulties controlling their behaviours. To do this we need to measure many aspects of their early development, their experiences, and the ways parents take care of them. We are interested to find out more about the ways that early life stress influences later development as we know that for some parents and children the effects are quite long lasting, and others find ways of coping. Our research team is also very interested to know more about the genes that influence children's emotions and behaviours. Genes are like maps inside our bodies that hold information. We now also know that health and behaviour are influenced by genes. This information in our genes is stored in 'DNA', which can be found in our skin cells and saliva. This study provides an important opportunity to learn more about the ways in which genes and early life experiences affect the way infants behave and their ability to cope with new situations. We want to better understand all these processes so that NHS services to support families can be improved.

Why have I been invited to take part?

At the time when you were expecting your first child, we approached all women who were booked into the antenatal clinic at Arrowe Park Hospital for their antenatal care over a two year period. During this time we recruited 1286 mothers who were experiencing low, medium or high levels of stress in pregnancy. You were one of those mothers and we would like now to follow your child's development up to four years of age if you are happy for us to do so.

Do I have to take part?

It will be up to you to decide whether or not you would like to take part. If you agree, and change your mind later, you can withdraw from the study. This will not affect the care you receive.

What will happen to me if I take part ?

Now that your baby is around two and a half years old we would ask our Research Health Visitor or one of their assistants to meet with you and your child at home to complete a range of assessments described below. We would also like to send some questionnaires out to you to complete again when your child is four years old. All mothers who tell us at the first visit that their child is showing behavioural difficulties at home will also be invited to join the 300 families taking part in the detailed part of the study. If you were happy to do this you would be given another information sheet and would be asked for a separate consent to complete these additional assessments. If you decide to take part we will write to your GP and your child's health visitor to inform them you have agreed to do so.

What will we have to do?

- One of our Research Health Visitors or their assistants would like to see you and your first child at home together for a whole morning or afternoon.
- We will ask you to complete some interviews and questionnaires about your personal circumstances, your lifestyle, recent events, relationships, your personality, emotional wellbeing and your physical health. We will ask about your first child's behaviours, physical, emotional and language development and about the parenting decisions you make on a day to day basis.
- We would like to make a short DVD (about 15 minutes) of your infant playing with you with three bags of toys we will bring with us. We will be looking at your infant's behaviours during this play time together and the different parenting skills you use.
- We would also like to collect skin cells with saliva from your baby's mouth for DNA analysis by briefly rubbing small cotton buds on the inside of your infants cheeks.
- We will ask you to consent for us to be sent a copy of your child's routine Health Visiting team assessment completed at around 2 – 2 ½ years of age.
- We will also send you a booklet of questionnaires to complete when your infant is around four years old. This will take about 45 minutes to complete. We will provide a freepost envelope for you to send it back to us.
- We wish to follow the families in the study for a long time as their children grow up and so if we get funding to do this we may ask you later to consider being in the study for longer.

For now, we are asking you to take part in this study over a three year period from when your child is about 2 years old until they are about 4 ½ years old.

Expenses and payments

We are able to give you £20 in high street shopping vouchers each time you complete an assessment. This is to compensate you for time lost from home or work and any other expenses incurred from taking part in the study.

Will my taking part in the study be kept confidential?

- Information on DVD recordings, on audio recordings of interviews with you, and on paper questionnaire records and any information we enter on computers about you will be identified only by a case number. A computer database and paper copies of participant names and addresses and contact details and their case numbers will be kept separately and securely in the university study base so no-one outside of the research team can access this or identify you or your child. All the information you give us is therefore 'pseudoanonymised' which means that it is identified ONLY by a case number and ONLY the research team will be able to link your case number to who you are and the other contact information you give us.
- We would like to make DVD recordings of your baby and you so that we go over what happened in detail afterwards. The recordings will be identified only by a case number, so that information on it cannot be traced to you by anyone outside of the research team. A copy of the recording will be kept securely at each university base for up to thirty years.
- The genetic samples will be analysed pseudo-anonymously too. This means that no records will be generated that directly link your name, your partner's name, or your child's name to the genetic samples. Instead, they will be linked only by the case number. So only the research team will know who the samples belong to. We will analyse the samples for genes that affect infants' health, emotions and behaviour, and not for any other purpose. They will not be kept as part of your medical record. All samples will be destroyed after 20 years. The pseudo-anonymous samples will be analysed by a laboratory technician who is not affiliated with the study, and will have no access to your name, your partner's name, or your child's name.

- All information that we receive from you will be treated as strictly confidential, under the guidelines of the Universities of Liverpool and Manchester, the UK Medical Research Council, and the Data Protection Act. This means that your information will only used by members of the research team and scientific research collaborators from other academic institutions approved by us.
- We will report general research findings about parents and children, and you or your child will never be identified. Reports will be based on the ratings that we make from the interviews, questionnaires or DVD recordings and on occasions when examples of individual responses are reported these will be fully pseudo-anonymised.
- The only reason we might have to share information from the study with other people is if there are concerns about you or a child being at risk of serious harm. If that happens we will talk with you first to decide on the best way forward. Concerns like this would be addressed by seeking appropriate forms of help for you and by following Trust Child Protection Guidelines.

What will happen to the results of the research study?
We will publish the results of this study in academic journals, at international and national conferences and we will inform study participants of key findings in a study newsletter sent to your home. We also plan to develop a study website where results will be displayed.

What will happen when the research study stops?
When this part of the research comes to an end we hope to secure further funding to continue studying all the families and the children as they grow up through the school years. We would of course ask your permission to do this at a later date.

What are the possible benefits to taking part?
There are no benefits to you or your child's health in taking part in this study. However we hope that you will feel you are contributing to medical research in a way that will help children and families in the future.

What are the possible disadvantages and risks to myself or my child taking part in this study?
No, there are no known or likely risks. It is possible that you may become upset when recalling difficult experiences in your life. If this occurs the interviewer will ask you if you wish to take a break from interviewing or continue. You may also choose to stop the interview completely at any time.

Who is organising and funding the research ?
The study is being led jointly by Professor Jonathan Hill of the University of Manchester and Dr Helen Sharp of the University of Liverpool. The research is funded by the Medical Research Council.

Who has reviewed and approved the study?
A team of international experts on child development has reviewed this study for the Medical Research Council. The study has been reviewed and approved by the Research & Development committees of Wirral Primary Care Trust and Western Cheshire Primary Care Trust and the Northwest 5 Haydock Research Ethics Committee.

What if there is a problem?
Complaints
If you have a concern about any aspect of this study, you should ask to speak to the researchers who will do their best to answer your questions. If they are unable to resolve your concern or you wish to make a complaint regarding the study, please contact a University Research Practice and Governance Co-ordinator on 0161 2757583 or 0161 2758093 or by email to research-governance@manchester.ac.uk.

Harm
In the event that something does go wrong and you or your child are harmed during the research you may have grounds for a legal action for compensation against The University of Manchester and The University of Liverpool but you may have to pay your legal costs. The normal National Health Service complaints mechanisms will still be available to you.

The University of Manchester has cover for no fault compensation for bodily injury, mental injury or death where the injury resulted from a trial or procedure you received as part of the trial. This would be subject to policy terms and conditions. Any payment would be without legal commitment. (Please ask if you wish more information on this). The University would not be bound to pay this compensation where the injury resulted from a drug or procedure outside the trial protocol or the protocol was not followed.

Further information and contact details

When the researcher meets you they will be very happy to answer any questions you might have. In the meantime, if you would like any more information, please do not hesitate to contact Professor Jonathan Hill, Dr Helen Sharp or Liz Green / Niki Sandman (study administrators) on the freephone number shown on the front page.

WCHADS Information sheets and consent forms Cont.

Parent Consent Form – age 5 (T3)

Version 2 May 2012: Mother Consent Phase 10/12. Personal [_][_][_][_][_] Study Id: [_1_][_][_][_][_][_]

The University of Manchester

MANCHESTER 1824

UNIVERSITY OF LIVERPOOL

Study Base:
The Lauries Centre,
142 Claughton Road
Birkenhead, Wirral,
CH41 6EY
Freephone: 0800 051 7597
Text: 07956 297412

RESEARCH CONSENT FORM

Title of study: Wirral Child Health and Development Study 1-4 years
Names of researchers: Jonathan Hill, Helen Sharp, Andrew Pickles, John Quinn, Vivette Glover

Please write your initials in each box to indicate your agreement:

1. I confirm that I have read and understand the information sheet dated **May** 2012 for the above study. I have had an opportunity to consider the information, ask questions and have had these answered satisfactorily. ☐
2. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason, without my care or legal rights being affected. ☐
3. I agree to my GP and Health Visitor being notified that I am taking part in this study. ☐
4. I agree to my health visitor releasing a copy of my child's 2-2 ½ year old routine 'Healthy Child' assessment in paper form to the research team. ☐
5. I agree to a DVD recording being made of my child and me. ☐
6. I agree to being contacted to complete interviews and questionnaires when my infant is three and questionnaires when my child is four years old. ☐
7. I understand that any concerns about a child being in potential danger, will be addressed in line with the NHS Trust Child Protection Guidelines. ☐
8. I give permission for WCHADS researchers to contact me directly in future to ask me to take part in further parts of the study as my child grows older. ☐
9. I understand that relevant sections of my or my child's data collected during the study may be looked at by individuals from the University of Manchester **or the University of Liverpool**, from regulatory authorities or from the NHS Trust, where it is relevant to my taking part in this research. I give permission for these individuals to have access to my records ☐
10. I agree to take part in the above study. ☐

Name of Participant	Date	Signature
Name of person taking consent (if different from researcher)	Date	Signature
Researcher	Date	Signature

1 for participant;1 for researcher; 1 for NHS notes

NHS Western Cheshire

NHS Wirral

WCHADS Information sheets and consent forms Cont.

Mother Information Sheet – age 9 (T4)

Extensive sample - Mother Information Sheet; Version 4; 23/05/2017
Phases 13 & 14

Study Base:
The Lauries Centre
142 Claughton Road
Birkenhead
Wirral, CH41 6EY
Freephone: 0800 051 7597
(from a mobile) 800 051 7597
Text: 07956 297412

Participant Information Sheet

Title of study: The Wirral Child Health and Development Study 7-9 years

Investigators: Jonathan Hill, Helen Sharp, Andrew Pickles, John Quinn, Chris Murgatroyd. Research Staff: Kay Martin, Karen Rafferty, Kerrie Breeze, Kate Abbott, Helen Chadwick, Louise Fisher, Stuart Kehl, Nicky Wright, Matthew Bluett-Duncan Callum Rutherford, Willemijn Spoor and Miriam Refberg

When you were pregnant and during the first five years of your first child's life you have kindly helped us with this research study. We would very much like to thank you for helping us for all this time and we would like now to invite you to take part until he or she is 9 years old.

We recruited 1286 families expecting their first child into this 'First Steps' study. All these mothers and many of their partners have had a home visit at age 3-4 years and have completed questionnaire measures for us at many phases and now the children are reaching seven years old. Just over 300 mothers and children have also taken part in a more detailed part of the study in which mothers have completed a range of interviews and mother-child assessments during their child's first five years of life. Before you decide whether you want to take part in the next stages of the study, it is important for you to understand why the research is continuing and what it will involve for you and your child. Please take time to read the following information carefully and discuss it with others if you wish. Ask us if there is anything that is not clear or if you would like more information. Take time to decide whether you wish to take part. Thank you for reading this.

What is the purpose of the study?
This study aims to find out how children learn how to behave with other people as they grow up, and why some children have difficulties controlling their behaviours. To do this we need to measure many aspects of their development, their experiences at home and school, and the ways parents take care of them. We are interested to find out more about the ways that early life stress influences later development as we know that for some parents and children the effects are quite long lasting, and others find ways of coping. We know also that as children reach the school years they learn more complex ways of making sense of the world around them, so we plan to study how children understand emotions, how they think about and respond individually to social challenges. Every child is a unique individual and that is partly due to the genes that have been passed on from each parent and partly due to individual life experiences. Genes are like maps inside our bodies that hold information. We also know that health and behaviour are influenced by genes. This information in our genes is stored in 'DNA', which can be found in our saliva. We also now know that genes only influence development when they are switched on. We can tell whether genes are switched on or off at a particular time point from looking closely at the DNA. In this study we plan to collect more saliva for DNA analysis at age 7 so we can continue to monitor the activity levels of genes thought to influence behaviour and emotional responses, as children gain new life experiences. We want to find out more about how genes and different life experiences influence parent's and children's behaviours and development so that NHS and educational services that support families can be improved with this knowledge.

Why have I been invited to take part?

At the time when you were expecting your first child, we approached all women who were booked into the antenatal clinic at Arrowe Park Hospital for their antenatal care over a two year period. During this time we recruited 1286 mothers who were experiencing low, medium or high levels of stress in pregnancy. You were one of those mothers and we would like now to follow your child's development up to nine years of age if you are happy for us to do so.

Do I have to take part?

It will be up to you to decide whether or not you would like to take part. If you agree, and change your mind later, you can withdraw from the study. This will not affect the care you receive. If you choose to take part and you find you do not wish to complete a particular assessment or answer a particular question, you will be free to miss that part out but carry on with the rest of the study if you wish or you can just choose to stop that assessment completely.

What will happen to me if I take part?

Now that your child is seven years old we would like one of our research assistants to meet with you and your child at home to complete a range of assessments described below. We would also like to send some questionnaires out to you to complete again when your child is nine years old. If you decide to take part we will write to your GP and your child's GP to inform them you have agreed to do so.

What will we have to do?

At age 7 years

- One of our specially trained research assistants would like to see you and your first child at home together for 1-2 hours.
- We will ask you to complete an interview and questionnaires about your personal circumstances, your lifestyle, recent accidents and events, relationships, your personality, emotional wellbeing and your physical health. We will ask about your first child's health, behaviours, physical and emotional development and about the parenting decisions you make on a day to day basis.
- We would like to ask you and your child to play together for a short time and then talk together about rules that affect children. We would also like you to plan an activity together. We will make a short DVD of the conversation between the two of you. We will be looking at your child's behaviours during this play time together and the different parenting skills you use.
- We will show your child some photographs of faces on a computer screen and ask him/her to say or show us which emotion is being shown.
- We will show your child some pictures that have been previously used in child research and chosen to be suitable for children aged 7-11 years of age. We will ask them to tell us how they feel whilst looking at them. We will then play them some sounds and ask them how they felt whilst listening to them.
- We would like to find out about your child's mental development by giving him/her some puzzles, games and memory tasks to complete.
- We will assess your child's vocabulary and understanding of words.
- We would also like to collect saliva from your child to assess DNA and gene activity. Each child will be asked to spit into a small collection pot, so we can collect enough saliva for analysis at age 7 years.
- We will weigh your child and measure their height, upper arm and head size.
- We would also like to ask you for permission to contact your child's teacher to ask if he / she can complete some questionnaires about your child's behaviours, emotions, relationship with peers and progress in school at age 7. We will send a copy of your consent to do this to the school nurse for their records.

At age 9 years

- We would like to see you and your child at the Lauries Centre for around 2 hours. We can see you both at home like at age 7, if you would prefer this.
- We will ask you to complete a number of questionnaires, like at previous phases of the study, about changes in your home circumstances, health and lifestyle, school, family life and yours and your child's physical and mental health and behaviours.
- We would like to ask you and your child to talk together about a time that your child has enjoyed recently and about rules that affect children. We would also like to ask you to complete a mixed up

story game where you put the pieces in order together. We will be looking at your child's behaviours during this play time together and the different parenting skills you use.

- We would like to find out about your child's mental development by giving him/her some puzzles and games to complete
- We will assess your child's vocabulary and understanding of words.
- We will ask your child to play a Beach-ball game which is a computerised ball game. During this game your child will experience firstly being included in the game for a short period, followed by a short period of not being included in the ball throwing game. Finally, the game will end with a period of your child being included again by a new supportive player. Children in their everyday lives commonly experience short periods of inclusion and exclusion during play. We will ask your child some questions about how they felt playing the game.
- We will ask your child to play a lottery game. During this game your child will make decisions about whether or not to invest in a lottery. On some rounds your child has the opportunity to transfer some of their winnings in the game to another player with the potential to increase the overall amount won. We are interested in whether they try this and what decisions they take.
- We will weigh your child and measure their height, upper arm and head size. We will ask for your assistance in taking hip and waist circumference measurements.
- We will ask your child a small number of questions about their behaviours, emotions, relationships with other children inside and outside of school and their leisure activities.
- Just like at age 7, we would also like to ask you for permission to contact your child's teacher to ask if he / she can complete some questionnaires about your child's behaviours, emotions, relationship with peers and progress in school at age 9. We will send a copy of your consent to do this to the school nurse for their records.
- We will make a DVD recording of the whole session for the study and you will be given a copy to keep.

For now, we are asking you to take part in this study over a three year period from when your child is 7 years old until they are 9 years old. As you are aware, we do wish to follow all the families in the study for a long time as their children grow up and so if we get funding to do this we may ask you later to consider being in the study for longer.

Expenses and payments

We are able to give you £30 in high street shopping vouchers at age 7 for the home visit and £30 for the assessment at age 9 years. This is to compensate you for time lost from home or work and any other expenses incurred from taking part in the study.

Will my taking part in the study be kept confidential?

- Information on DVD recordings, on audio recordings of interviews with you, and on paper questionnaire records and any information we enter on computers about you will be identified only by a case number. A computer database and paper copies of participant names and addresses and contact details and their case numbers will be kept separately and securely in the university study base so no-one outside of the research team can access this or identify you or your child. All the information you give us is therefore 'pseudo-anonymised' which means that it is identified ONLY by a case number and ONLY the research team will be able to link your case number to who you are and the other contact information you give us.
- We would like to make DVD recordings of your child and you so that we go over what happened in detail afterwards. The recordings will be identified only by a case number, so that information on it cannot be traced to you by anyone outside of the research team. A copy of the recording will be kept securely at each university base for up to thirty years.
- The genetic samples will be analysed pseudo-anonymously too. This means that no records will be generated that directly link your name, your partner's name, or your child's name to the genetic samples. Instead, they will be linked only by the case number. So only the research team will know who the samples belong to. We will analyse the samples for genes that affect childrens' health, emotions and behaviour, and not for any other purpose. They will not be kept as part of your medical record. All samples will be destroyed after 20 years. The pseudo-anonymous samples will be analysed

by a laboratory technician who will have no access to your name, your partner's name, or your child's name.

- All information that we receive from you will be treated as strictly confidential and stored under the guidelines of the Universities of Liverpool and Reading, the UK Medical Research Council, and the Data Protection Act. This means that your information will only be used by members of the research team and scientific research collaborators from other academic institutions approved by us.
- Study data collected online from parents, teachers or children using a survey platform which is independent to the participating universities will be stored pseudo-anonymously (by a number) and temporarily on external servers based outside of the UK until data collection for that survey is complete. At which point it will be deleted from the external servers and stored in its entirety on university servers. No identifiable personal data will ever be stored on external servers based outside of the European Economic Area. The external survey provider is verified as being compliant with ISO 27001/2 which specifies requirements and best practices for managing company and customer information.
- We will report general research findings about parents and children, and you or your child will never be identified. Reports will be based on the ratings that we make from the interviews, observations, questionnaires or DVD recordings and on occasions when examples of individual responses are reported these will be fully pseudo-anonymised.
- The only reason we might have to share information from the study with other people is if there are concerns about you or a child being at risk of serious harm. If that happens we will talk with you first to decide on the best way forward. Concerns like this would be addressed by seeking appropriate forms of help for you and by following Trust Child Protection Guidelines.

What will happen to the results of the research study?
We will publish the results of this study in academic journals, at international and national conferences and we will inform study participants of key findings in a study newsletter sent to your home. We also plan to develop a study website where results will be displayed.

What will happen when the research study stops?
When this part of the research comes to an end we hope to secure further funding to continue studying all the families and the children as they grow up through the school years. We would of course ask your permission to do this at a later date.

What are the possible benefits to taking part?
There are no benefits to you or your child's health in taking part in this study. However we hope that you will feel you are contributing to medical research in a way that will help children and families in the future.

What are the possible disadvantages and risks to myself or my child taking part in this study?
No, there are no known or likely risks. It is possible that your child may become a little upset when viewing emotional pictures. If this occurs the researcher will ask you if you wish to take a break or continue. You may also choose to stop their assessments completely at any time. Of course, your child is also free to say no to any task or procedure.

Who is organising and funding the research?
The study is being led jointly by Professor Jonathan Hill of the University of Reading and Dr Helen Sharp of the University of Liverpool. The research is funded by the Medical Research Council.

Who has reviewed and approved the study?
A team of international experts on child development has reviewed this study for the Medical Research Council. The study has been reviewed and approved by the Research & Development committees of Wirral Community NHS Trust and Cheshire and Wirral Partnership NHS Foundation Trust, the National Ethics Research Service Northwest – Haydock, and The University of Reading Research Ethics Committee.

What if there is a problem?
Complaints

If you have a concern about any aspect of this study, you should ask to speak to Professor Hill and Dr Helen Sharp or a member of their research team who will do their best to answer your questions. If they are unable to resolve your concern or you wish to make a complaint regarding the study, please contact the Head of the School of Psychology and Clinical Language Sciences, Professor Laurie Butler on 0118 378 5743 or by email to l.t.butler@reading.ac.uk

Harm

In the event that something does go wrong and you or your child are harmed during the research you may have grounds for a legal action for compensation against The University of Reading and The University of Liverpool but you may have to pay your legal costs. The normal National Health Service complaints mechanisms will still be available to you.

Further information and contact details

When the researcher meets you they will be very happy to answer any questions you might have. In the meantime, if you would like any more information, please do not hesitate to contact Professor Jonathan Hill, Dr Helen Sharp or Karen Rafferty (study administrator) on the freephone number shown on the front page.

WCHADS Information sheets and consent forms Cont.

Parent Consent Form – age 9 (T4)

Extensive Consent; Version 2; 23/05/2017
Phase 14

PersonID [__][__][__][__] StudyID [_1_][__][__][__][__]

University of Reading

UNIVERSITY OF LIVERPOOL

Study Base:
The Lauries Centre,
142 Claughton Road
Birkenhead, Wirral,
CH41 6EY
Freephone: 0800 051 7597
(from a mobile) 800 051 7597
Text: 07956 297412

RESEARCH CONSENT FORM

Title of study: **Wirral Child Health and Development Study: 7-9 years**
Names of researchers: **Jonathan Hill, Helen Sharp, Andrew Pickles, John Quinn, Chris Murgatroyd**

Please write your initials in each box to indicate your agreement:

1. I confirm that I have read and understand the information sheet dated 23rd May 2017 for the above study. I have had an opportunity to consider the information, ask questions and have had these answered satisfactorily. ☐
2. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason, without my care or legal rights being affected. ☐
3. I agree to my GP and my child's GP being notified that we are taking part in this study. ☐
4. I agree to audio and DVD recordings being made of myself and my child. ☐
5. I understand that any concerns about a child being in potential danger, will be addressed in line with the NHS Trust Child Protection Guidelines. ☐
6. I understand that relevant sections of my or my child's data collected during the study may be looked at by individuals from the University of Reading or the University of Liverpool, from regulatory authorities or from the NHS Trust, where it is relevant to my taking part in this research. I give permission for these individuals to have access to my records. ☐
7. I agree to take part in the above study. ☐

Name of Participant	Date	Signature
Researcher	Date	Signature

1 for participant; 1 for researcher

cwp Cheshire and Wirral Partnership NHS

NHS Wirral Community NHS Foundation Trust

APPENDIX X

Parenting Alliance Measure

How often do you and your child's father or parental figure…	Never	Almost never	Sometimes	Often	Always
Talk together about your child and their future.					
Work together to make decisions about your child.					
Solve problems together that concern your child.					
Agree about how to take care of your child.					
Agree about how to manage child problem behaviour or 'naughty' behaviours.					
Agree on how to discipline your child.					

APPENDIX Y

Correlation table among all 24 predictors included in the logistic regression analysis

Predictors	1	2	3	4	5	6	7	8	9	10	11	12
1. Gender (male)												
2. Mothers age	0.002											
3. Socio-economic deprivation	– 0.015	– 0.320**										
4. Fulltime living with mother	– 0.037	0.097*	– 0.058									
5. Family Income	– 0.036	0.344*	– 0.295**	0.049								
6. Financial problems	– 0.021	– 0.189**	0.113**	– 0.040	– 0.222**							
7. Housing satisfaction	0.024	0.103**	– 0.160**	– 0.047	0.137**	– 0.219**						
8. Neighbourhood satisfaction	– 0.040	– 0.238**	0.424**	– 0.065	– 0.280**	. 0.206**	– 0.365**					
9. Maternal employment status	– 0.044	– 0.231**	0.172**	0.043	– 0.226**	0.089*	– 0.073	0.151**				
10. Maternal partnership status	0.015	– 0.174**	0.213**	– 0.148**	– 0.325**	0.114**	– 0.054	0.109**	0.123**			
11. Relationship breakups	0.001	– 0.085*	0.089*	– 0.202**	– 0.152**	0.075	0.021	0.040	– 0.004	. 0.317**	.	
12. Relationship arguments	– 0.027	0.062	– 0.066	– 0.017	0.018	0.069	– 0.073	– 0.019	– 0.057	– 0.039	0.094*	
13. Maternal depression (CES-D)	– 0.036	– 0.052	0.104**	– 0.046	– 0.136**	0.319**	– 0.241**	0.170**	0.117**	0.101*	0.060	0.136**
14. Maternal anxiety (STAI)	– 0.004	– 0.028	0.046	– 0.009	– 0.167**	0.293**	– 0.192**	0.170**	0.065	0.078*	0.065	0.159**
15. Internalising problems (CBCL)	– 0.052	– 0.090*	0.099*	– 0.011	– 0.023	0.156**	– 0.042	0.176**	0.140**	0.080*	0.012	0.027
16. Externalising problems (CBCL)	– 0.137**	– 0.124**	0.115**	– 0.044	– 0.060	0.137**	– 0.120**	.183**	0.173**	0.083*	0.049	– 0.042
17. Peer aggression (Baillargeon)	– 0.126**	– 0.072	0.044	– 0.022	– 0.031	0.082*	– 0.062	0.101*	.139**	0.073	– 0.022	– 0.034
18. Prosocial behaviour (SDQ)	0.138**	0.041	– 0.008	0.006	– 0.021	– 0.014	0.122**	– 0.078*	– 0.053	0.068	0.032	0.030
19. Parental Involvement (APQ)	0.053	0.031	– 0.063	0.047	– 0.016	– 0.128**	0.135**	– 0.158**	– 0.045	– 0.005	– 0.010	0.018
20. Positive Discipline Practices (APQ)	0.029	– 0.058	0.077	– 0.014	– 0.094*	0.064	0.056	– 0.039	0.051	0.108**	0.020	– 0.025
21. Inconsistent Discipline (APQ)	– 0.032	– 0.024	0.008	0.059	0.037	0.123**	– 0.146**	0.088*	0.014	0.008	– 0.014	0.013
22. Punitive Practices (APQ)	– 0.029	– 0.030	– 0.020	0.079*	0.021	0.062	– 0.040	0.014	0.002	0.019	– 0.020	0.099*
23. Parenting Alliance	0.053	0.191**	– 0.159**	0.038	0.201**	– 0.159**	.130**	– 0.116**	– 0.053	– 0.468**	– 0.139**	– 0.020
24. Child age	– 0.046	0.067	– 0.039	– 0.018	0.054	0.062	0.031	– 0.056	– 0.067	0.042	– 0.045	0.079*

* $p < 0.05$
** $p < 0.01$

	13	14	15	16	17	18	19	20	21	22	23	24
1, Gender (male)												
2. Mothers age												
3. Socio-economic deprivation												
4. Fulltime living with mother												
5. Family Income												
6. Financial problems												
7. Housing satisfaction												
8. Maternal partnership status												
9. Maternal employment status												
10. Neighbourhood satisfaction												
11. Relationship breakups												
12. Relationship arguments												
13. Maternal depression (CES-D)												
14. Maternal anxiety (STAI)	0.618**											
15. Internalising problems (CBCL)	0.309**	0.217**										
16. Externalising problems (CBCL)	0.255**	0.102**	0.604**									
17. Peer aggression (Baillargeon)	0.101*	0.037	0.306**	0.458**								
18. Prosocial behaviour (SDQ)	– 0.130**	– 0.125**	– 0.270**	– 0.383**	– 0.293**							
19. Parental Involvement (APQ)	– 0.204**	– 0.138**	– 0.208**	– 0.323**	– 0.213**	0.285**						
20. Positive Discipline Practices (APQ)	– 0.056	– 0.064	– 0.080*	– 0.122**	– 0.081*	0.208**	0.498**					
21. Inconsistent Discipline (APQ)	0.180**	0.141**	0.241**	0.377**	0.190**	– 0.261**	– 0.178**	– 0.105**				
22. Punitive Practices (APQ)	0.131**	0.091*	0.234**	0.304**	0.196**	– 0.114**	– 0.201**	– 0.133**	0.372**			
23. Parenting Alliance	– 0.285**	– 0.206**	– 0.245**	– 0.285**	– 0.158**	0.167**	0.272**	0.136**	– 0.130**	– 0.111**		
24. Child age	– 0.036	– 0.012	– 0.052	– 0.112**	– 0.066	0.073	0.014	– 0.029	– 0.027	0.010	– 0.008	

* $p < 0.05$

** $p < 0.01$