

Cyberbullying on social networking sites: A literature review and future research directions

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ABSTRACT

Cyberbullying on social networking sites is an emerging societal issue that has drawn significant scholarly attention. The purpose of this study is to consolidate the existing knowledge through a literature review and analysis. We first discuss the nature, research patterns, and theoretical foundations. We then develop an integrative framework based on social cognitive theory to synthesize what is known and identify what remains to be learned, with a focus on the triadic reciprocal relationships between perpetrators, victims, and bystanders. We discuss the key findings and highlight opportunities for future research. We conclude this paper by noting research contributions and limitations.

1. Introduction

Cyberbullying is an emerging societal issue in the digital era [1,2]. The Cyberbullying Research Centre [3] conducted a nationwide survey of 5700 adolescents in the US and found that 33.8 % of the respondents had been cyberbullied and 11.5 % had cyberbullied others. While cyberbullying occurs in different online channels and platforms, social networking sites (SNSs) are fertile grounds for online bullying. A recent large-scale survey conducted by Ditch the Label, an anti-bullying charity, showed the prevalence of cyberbullying on social networking sites (SNS bullying): 46 % of the respondents reported being bullied more than once, and 20 % reported bullying others on SNSs [4]. SNS bullying refers to any form of aggressive behavior on SNSs conducted by a group or an individual repeatedly and overtime against targets who cannot easily defend themselves [5]. It induces serious psychosocial and physical harm such as depression [6] and self-harming behaviors [7], with the most tragic outcome being suicide [8–10]. For instance, a teenage girl shot and killed herself after being relentlessly bullied on SNSs [9].

Several key SNS features such as digital profiles, relational ties, search and privacy, and network transparency [11] provide many opportunities for triadic reciprocal interactions between perpetrators, victims, and bystanders in SNS bullying incidents. For example, perpetrators can expose a bullying incident to a broader audience by using

tags and hashtags on SNSs, which allow other users to sustain the bullying episode by “liking” and “sharing.” These features alter the bullying dynamic and distinguish SNS bullying from traditional face-to-face (F2F) bullying and possibly other cyberbullying types on alternative digital communication media (DCM) such as e-mail, telephone, and text messaging service. Indeed, Lowry and colleagues emphasized, “most of these [cyberbullying] studies have glossed over the central issue: the role of ... social media artifacts themselves in promoting cyberbullying,” [12, p. 3] and “social media play an important role in the perpetration of CB” [13, p. 865]. Thus, there is a need to focus on this specific form of bullying.

The prevalence and negative consequences of SNS bullying have drawn considerable academic attention. Studies of SNS bullying have been conducted across multiple disciplines, such as psychology, information systems (IS), and communication. The majority of SNS bullying studies have been exploratory, examining the prevalence and characteristics of SNS bullying [e.g., 14]. These studies have examined SNS bullying from the perspectives of perpetrators [e.g., 15], victims [e.g., 16], and bystanders [e.g., 17], respectively. Several studies have centered on the prevention and detection of SNS bullying [e.g., 13]. Although SNS bullying research has gained momentum, the diversity of findings in the SNS bullying literature, which includes studies from many fields and perspectives, has made it difficult for academics and practitioners to comprehend the current state of knowledge.

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With this in mind, we believe that there is a need to structure the existing knowledge and provide an integrative framework to represent the current state of SNS bullying research. Accordingly, we have two research objectives: (1) to describe the state of SNS bullying research; and (2) to develop an integrative framework presenting the variables related to the different roles in SNS bullying (i.e., perpetrators, victims, and bystanders). Specifically, we first identify research trends, foci, theories, methods, and contexts and samples prevalent in the SNS bullying literature. Then, we use social cognitive theory (SCT) [18] to develop an integrative framework that consolidates the variables related to SNS bullying into three determinants (i.e., personal factors, environmental events, and behavioral patterns) about perpetrators, victims, and bystanders. This framework reveals the research gaps and indicates avenues for future research by showing what we already know and what we do not yet know about SNS bullying [19,20].

The rest of this paper is structured as follows. We begin by discussing the terminologies and definitions of SNS bullying, and we compare SNS bullying with other forms of bullying. We then describe the literature search and identification procedures in Section 3. In Section 4, we summarize the state of SNS bullying research. In Section 5, we introduce our integrative framework's theoretical foundation and consolidate the variables related to SNS bullying into the proposed categories. In the last section, we discuss future research directions and detail the contributions and limitations of this study.

2. Definitions and concepts

2.1. Terminologies and definitions

Different terms have been used to describe bullying in cyberspace, such as electronic bullying [21], Internet bullying [22], Internet harassment [23], online bullying [24], and online social cruelty [25], with cyberbullying being the most widely used among researchers [5, 26]. Most cyberbullying studies have derived their terminologies from the traditional bullying literature [e.g., 12,27,28]. This study considers SNS bullying as a form of cyberbullying conducted on SNSs, defined as deliberate and hostile behavior by an individual or a group of individuals that involves using SNSs to repeatedly communicate aggressive content intended to inflict harm or discomfort on a target [5]. Because of the connectivity of SNSs and their ability to involve multiple individuals in online social interactions [29], SNS bullying often involves triadic reciprocal relationships between perpetrators, victims, and bystanders [30]. A perpetrator is a person or a group of individuals who intentionally and repeatedly inflict harm or discomfort on a target. A victim is a person who repeatedly receives hurtful and power-imbalanced messages and experiences hurtful and power-imbalanced interactions; and a bystander is a person who witnesses a bullying incident and has the option to (1) comfort the victims/challenge the perpetrators, (2) ignore the incident, or (3) join in the bullying.

2.2. Comparing SNS bullying with other forms of bullying

SNSs represent an integrated and novel communication context [29] that differs from F2F and other DCM such as e-mail, telephone, and text messaging service. The features of SNSs, such as digital profiles, relational ties, search and privacy, and network transparency [11], have given perpetrators, victims, and bystanders more opportunities to interact with each other on these platforms. For instance, digital profiles provide perpetrators with an additional layer of anonymity and thus intensify the imbalance of power between perpetrators and victims. Furthermore, the networked platform makes bullying posts accessible to other users and thus induce repetitive harm to victims. SNSs also allow for the rapid dissemination of bullying content to a wider audience through features that are uncommon in DCM, such as liking, sharing, and hash-tagging. These features change the bullying dynamic from a

dyadic to a triadic reciprocal one [31] and challenge our traditional understanding of bullying based on the dynamic of F2F or other DCM interactions.

In the following subsections, we compare SNS bullying with other forms of bullying and explain how SNSs exacerbate its negative impacts from six aspects: intentionality, repetition, power imbalance, anonymity, accessibility, and publicity [5,25,29,32,33].

2.2.1. Intentionality

Intentionality refers to the intention to harm a person [34]. In F2F bullying, the intentionality of a perpetrator to harm a person is apparent, such as beating him/her up, whereas, in DCM bullying, the intentionality to harm is caused when bullying messages are sent and consumed by a victim. Such intentionality to harm is direct and explicit. SNSs have become an integral part of everyday life; users frequently update their digital profiles by uploading pictures of themselves or sharing posts of their interests. The frequent and persuasive use of SNSs means that there is a constant disclosure of personal information and thus producing more opportunities for individuals to experience SNS bullying than F2F and DCM bullying. For instance, a perpetrator can hurt a user by leaving a nasty comment about their physical appearance in an SNS post. The intentionality originates in the perpetrator's action ("wants to hurt"). A person's feelings can also be hurt by a teasing meme responding to their physical appearance circulated in their social network [11]. The intention to harm is thus interpreted from the victim's perspective ("felt hurt") [11,35].

2.2.2. Repetition

Repetition refers to systematic and repetitive behaviors aimed at harming a target. In F2F bullying, repetition typically occurs when a perpetrator physically hits or otherwise hurts a person on several occasions. Repetition in DCM and SNS bullying is characterized by repeatedly passing on or spreading hurtful content that harms a person [36,37]. Repetition in SNS bullying can be easily afforded by SNSs, which enables users to view, respond, or share the bullying content [11]. Therefore, SNS offers more opportunities for individuals to experience bullying than F2F and DCM contexts. Repetition can be achieved by redistribution of humiliating content within the social network in which the perpetrators and bystanders share a connection [11]. The bullying act can recur multiple times as the content is read and shared among other SNS users.

2.2.3. Power imbalance

An imbalance of power occurs when a more powerful person bullies a person with less power [38]. A power imbalance can be viewed from two perspectives: (1) the greater power possessed by perpetrators or (2) the victim's lack of power [34]. In all forms of bullying, perpetrators usually possess more social, relational, and psychological advantages [39]. In DCM and SNS bullying, an imbalance of power means that perpetrators may also possess advanced technological skills [40]. A power imbalance in SNS bullying can be afforded by SNSs' features, such as a digital profile, enabling perpetrators to create an online identity that separates from their offline one. For instance, they can manipulate their offline-online identity by creating a fake account and using a virtual private network (VPN) to hide their location. Furthermore, SNSs allow a person to be reached effortlessly in a social network [11], enabling the continuous circulation and consumption of the bullying content [11]. This induces a sense of powerlessness among victims of SNS bullying [41] because it is difficult for them to halt the bullying cycle proactively [42].

2.2.4. Anonymity

Anonymity refers to the degree to which one's identity is not known. In F2F bullying, it is difficult for perpetrators to hide their identity because victims can always recognize their appearance, voice, and stature. The identity of DCM bullying perpetrators can be traced through

the network service provider. In contrast, a perpetrator can remain fairly anonymous in SNS bullying. For instance, a perpetrator can effortlessly hide their identity in SNSs such as 4chan—a simple image-based social platform—where anyone can post comments and share images anonymously. A perpetrator can also create a pseudonym in SNSs. Although popular SNSs such as Facebook require users to use only legal names and photographs of their own in setting up their profile information, people can still use fake identity proofs to create an alternative account to remain anonymous. The ability to separate one's real and legal names from one's online activities on SNSs allows perpetrators to harm victims without the fear of accountability.

2.2.5. Accessibility

Accessibility refers to the ease of reaching a target. In F2F bullying, victims can escape from bullying by staying in a safe place [43]. Victims of DCM bullying may use a new telephone number or e-mail account to avoid harassing messages. However, SNS bullying is neither confined to a physical setting nor restricted to typical and daily interactions [5,44]. The unconstrained and boundless connectivity of SNSs allows bullying to take place at anytime and anywhere, with or without the presence of victims [40,45]. Even if the victims permanently deactivate their accounts, the bullying content can remain on the platform, and perpetrators can still redistribute it to other users. The ability for “users to view and traverse their connections and those made by others on the platform” [11, p. 278] means that victims cannot easily escape from being humiliated in the social network.

2.2.6. Publicity

Publicity refers to the number of people exposed to a bullying incident. In F2F bullying, an incident may be limited to students of the same class or restricted to coworkers who work in the same organization. In DCM bullying, humiliating calls, text messages, and e-mails can only be heard or read by the victim. It is unlikely that the bullying content will be broadcast in public spaces. SNS allows a perpetrator to publicize the bullying act in multiple ways. For example, a perpetrator can upload modified pictures of a person and invite other SNS users to view and comment. With hashtags and tags [11], harassing messages can be disseminated to an infinite audience and sustained by the list of other users with whom the perpetrators, victims, and bystanders share a connection on the platform.

3. Literature search and identification

A literature search was conducted to identify studies examining SNS bullying. A two-stage literature search approach was adopted to search and identify relevant articles. This approach represents a systematic, replicable, and transparent process to minimize bias through conducting comprehensive literature searches of published studies and providing an audit trail of the reviewers' procedures, decisions, and conclusions [46]. Fig. 1 depicts the flow of the literature search and identification procedures.

In the first stage, literature searches were conducted to identify journal articles that examined SNS bullying. To identify peer-reviewed journal articles on SNS bullying, we began by conducting an abstract search using keywords related to cyberbullying and social networking sites, such as “cyberbullying,” “social network,” and “SNS.” Pertinent electronic databases were consulted, including Academic Search Complete, PsycINFO, Web of Science, and Scopus. We did not limit the research to any specific period. We did not include gray literature, such as theses and dissertations, conference papers and proceedings, research reports, government documents, and technical notes. Identifying and obtaining gray literature can be difficult, hindering researchers from replicating existing studies. Therefore, the literature search focused on identifying peer-reviewed journal articles widely accessible to the academic community. Following the electronic search, a manual search of the Association for Information Systems (AIS) senior scholar's basket of

eight information systems journals¹ was conducted. The abstracts of articles published in the journals above between 2011 and 2019 were screened manually to ensure that no SNS bullying studies were missed. An update on the literature search was conducted in July 2019 to identify recent publications on SNS bullying. Taken together, the literature search initially identified 420 studies.

In the second stage, following similar literature review studies on cyberbullying [47–49] and methodological literature [50], inclusion and exclusion criteria were applied to the initial set of studies to eliminate studies that do not address the initial research questions and ensure that only relevant studies were retained for further analyses. Specifically, we refined our initial sample to empirical studies in which SNS bullying was a significant theme or the primary research context. This literature selection strategy allows us to focus on the core investigating phenomenon and avoid creating an unmanageable sample of articles with limited values. The inclusion criteria were: (1) studies that were published in scholarly (peer-reviewed) journals, (2) studies that examined bullying behaviors in the context of SNSs, and (3) studies that had a defined sample. The exclusion criteria were: (1) studies in which SNS bullying was referenced merely in the background discussion; (2) studies that were published in languages other than English; and (3) studies that were published in gray literature (e.g., conference papers, dissertations, and textbooks). We then performed a backward search by reviewing the references or bibliographies for the articles identified above to determine additional prior articles and a forward search by using the Web of Science (the electronic version of the Social Science Citation Index) to identify articles citing the key articles identified above [51]. Five additional studies were identified through the backward and forward search, resulting in 56 articles for subsequent review and analysis.

4. The state of SNS bullying research

Five questions were used to guide the literature review and analysis in depicting the research in SNS bullying. These questions effectively structure the literature review and synthesize prior findings from different perspectives [52–54]. Each of these questions is addressed in the subsequent sections.

- 1 What were the trends in SNS bullying research?
- 2 What were the foci in SNS bullying research?
- 3 What were the theories and frameworks adopted in SNS bullying research?
- 4 What were the research methods used in SNS bullying research?
- 5 What were the research contexts and samples?

4.1. Research trends

SNS bullying has attracted increasing scholarly attention, and its publications have grown over the past decade. The number of publications peaked between 2014 and 2016, with more than ten publications each year, and has stabilized in recent years, with around 4–5 publications annually. Research on SNS bullying has been multidisciplinary, with the majority of studies published in the psychology literature (50 %), followed by the information systems/computer sciences literature (20 %), and the communication literature (7 %). These figures reflect that SNS bullying might have become one of the enduring societal issues and has drawn continuous scholarly attention across disciplines. Table 1

¹ European Journal of Information Systems, Information Systems Journal, Information Systems Research, Journal of the Association for Information Systems, Journal of Information Technology, Journal of Management Information Systems, Journal of Strategic Information Systems, and Management Information Systems Quarterly.

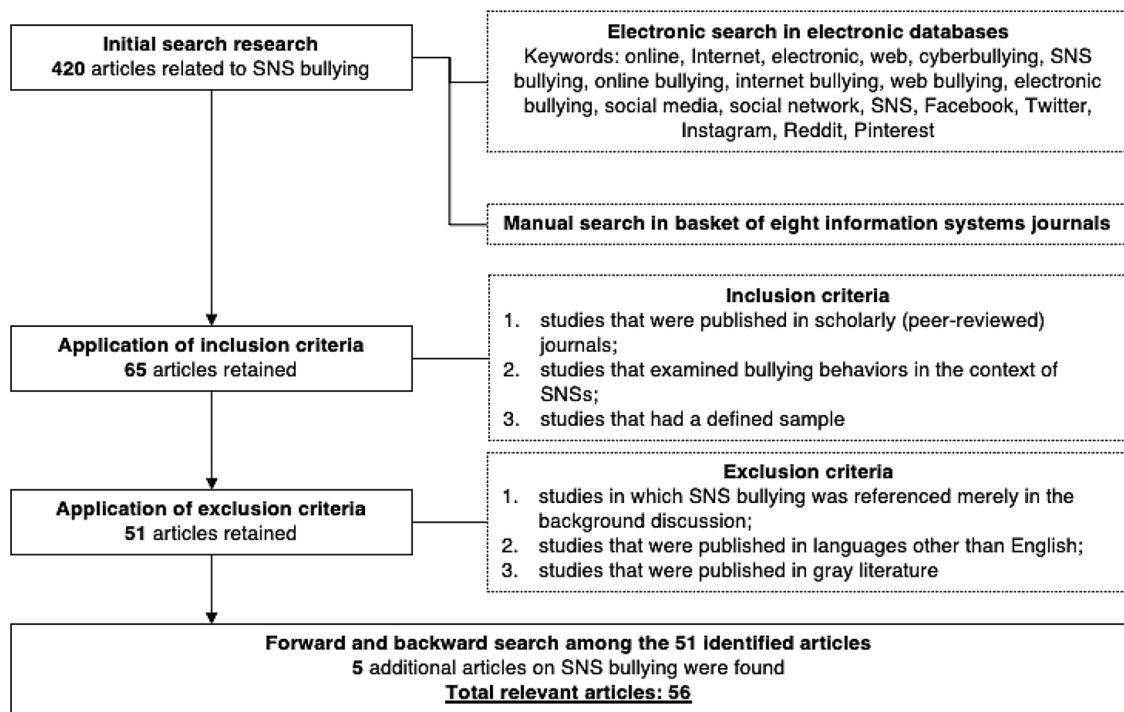


Fig. 1. The literature search and identification procedures.

Table 1

An overview of the research trend of SNS bullying studies.

Discipline	2011	2012	2013	2014	2015	2016	2017	2018	2019	Total
Business				1						1
Communication			1	1	2	1				5
Criminology and penology					2					2
Education				1		1				2
Family studies	1									1
Information systems					3	2	2	3	1	11
Psychology	1		3	7	5	7		2	2	27
Public health					1	1	1		1	4
Social sciences				1	1		1			3
Total	2	0	4	11	14	12	4	5	4	56

summarizes SNS bullying publications by years and academic disciplines.

4.2. Research foci

Four main streams of research were apparent among the identified SNS bullying articles. Table 2 summarizes the research foci of identified studies on SNS bullying. The first stream of research was mostly exploratory. These studies focused on investigating the (1) prevalence, patterns, and conceptualization of SNS bullying and (2) descriptive and scenario analyses of SNS bullying phenomena. For instance, Bellmore et al. [14] explored the five W-questions (who, what, why, where, and when) of SNS bullying through archival social media data. For instance, they found that SNS bullying posts were more likely to be found during weekday evenings.

The second stream of research focused on the study of participants' behaviors in SNS bullying. According to the participant role approach [55], three participants are involved in a bullying episode: perpetrators, victims, and bystanders. Most of these studies examined why a particular role behaved in a certain way and tested a broad range of variables associated with perpetration, victimization, and bystanders' behaviors. For instance, Pabian et al. [56] studied SNS bullying perpetration and tested the relationships between three dark triad personality traits (i.e.,

Table 2

An overview of the research foci of SNS bullying studies.

Stream	Focus	Study
Exploratory (n = 15)	Prevalence, patterns, and conceptualization	[14,40,62,63,64,65,66,67,68,69]
	Descriptive/Scenario analysis	[41,42,70,71,72]
	Perpetrators	[5*,12*,13*,15*,56*,73*,74*,75*,76*,77*]
Participant behavior (n = 33)	Victims	[16*,74*,76*,77*,78*,79*,80*,81*,82*,83*,84*]
	Bystanders	[17*,24*,30*,45*,57*,85*,86*,87*,88*,89*,90*,91*,92*,93*,94*]
Prevention and detection (n = 4)	Prevention	[58]
	Detection	[59,95,96]
Review and synthesis (n = 4)	Well-being related effects	[60,97]
	Company policy	[98]
	Trend, characteristics, and threat	[61]

Note. * Studies mapped into the integrative framework summarize variables related to an SNS bullying episode (see Section 5 for detailed discussions).

machiavellianism, narcissism, and psychopathy) and SNS bullying. Camacho et al. [16] investigated how SNS bullying victimization affected one's satisfaction with SNSs from a victim's perspective. They found that the perception of SNS bullying severity significantly reduced the victim's perception of usefulness and enjoyment in SNS use. Brody and Vangelisti [57] examined the propensity of a bystander to intervene in an SNS bullying episode and found that the presence of a high number of other bystanders diminished one's intention to help out.

The third stream of research focused on studying the prevention and detection of SNS bullying. These studies tapped into both the information and system aspects concerning combating SNS bullying. For instance, Alhabash et al. [58] tested the characteristics of anti-SNS bullying messages (i.e., affective evaluation, viral reach, and emotional tone) and their effects on anti-cyberbullying attitudes. They found that positive anti-SNS bullying messages with more "likes" and "shares" led to a higher anti-cyberbullying attitude. Balakrishnan et al. [59] developed an SNS bullying detection algorithm based on the big five personality and dark triad models. They found that the inclusion of components from the two models enhanced the detection power of the algorithm.

Last, some published review papers were focusing on SNS bullying. Hamm et al. [60] reviewed the empirical research concerning the health-related negative impacts induced by SNS bullying victimization. Ioannou et al. [61] focused on summarizing the trend, characteristics, and threat of SNS bullying.

4.3. Theories and frameworks

About only one third ($n = 20$) of the studies specified theories or frameworks adopted. Theories or frameworks adopted to examining SNS bullying were diversified. Table 3 summarizes the theories or frameworks adopted in the identified studies and demonstrates how they were applied to examining SNS bullying. Specifically, most of the studies examined participants' behaviors in SNS bullying and focused on why and how perpetrators, victims, and bystanders responded and behaved in an SNS bullying episode. Naturally, theories and frameworks from the psychology and social psychology literature have been extensively adopted to explain perpetration, victimization, and bystanders' behaviors, respectively, in SNS bullying. For instance, dominance theory [99] was used by Wegge et al. [76] to explain why SNS bullying perpetration was more likely to occur between a higher-status perpetrator and a lower-status victim. They suggested that low-status victims were less likely to be defended by their peers, and perpetrators were less likely to be negatively evaluated by others. Therefore, under such an imbalance of power, SNS bullying perpetration is more likely to occur. Similarly, in a study of SNS bullying victimization, the victim precipitation model [100] was utilized by Peluchette et al. [83] to explain that a victim's acts could intentionally or unintentionally invite perpetration. Attribution theory [101] was adopted by Schacter et al. [93] to show that bystanders' intention to intervene was jeopardized when they realized that the victim had disclosed too much personal information on SNSs. A wide spectrum of theories and frameworks have been used in the prior literature of SNS bullying to explain the causes, psychological mechanisms, and consequences related to SNS bullying. Nevertheless, theoretical examinations on the prevention, detection, and intervention of SNS bullying have not received commensurate scholarly attention.

4.4. Research methods

The survey method was the most popular research method used in prior SNS bullying studies [e.g., 5,12,16,72,74]. The self-reported survey method's dominance is attributable to the fact that inducing an SNS bullying experience on respondents is constrained by ethical concerns [24]. Therefore, researchers had to rely on the self-reported survey method to solicit respondents' prior experience with SNS bullying perpetration [e.g., 5,73], victimization [e.g., 78,83], and bystanders'

Table 3

An overview of the theoretical foundation of SNS bullying studies.

Theoretical foundation	Description	Application	Study
Affordance theory [102]	The theory suggests that each communication technology has specific affordances that frame the possibilities for goal-oriented actions. These affordances are functional and enable or limit certain actions. Different users perceive the same object differently.	The perspective was used to distinguish the effects of different communication modalities on bystanders?" helping intention in an SNS bullying incident. The perspective was used to explain how affordances in SNS offer favorable evaluations of the SNS environment for perpetration. The theory was used to examine the causal attributions (i.e., controllability, responsibility, and blame) ascribed to a hypothetical victim of SNS bullying among bystanders.	[45]
			[5]
Attribution theory [101]	The theory posits that an observer of a negative event is likely to make a causal inference (i.e., attribution) to understand why an event happened. Such a casual attribution subsequently affects the emotional reaction and guides the behavior.	The theory was used to understand how bystanders?" attribution of blame was affected by the characteristics of the victim?"s profile on SNSs and the subsequent effect on their willingness to support the victim.	[89]
			[93]
The bystander effect [103]	The theory suggests that one's tendency to intervene in an emergency is inversely related to others' presence.	The theory was used to predict bystanders?" decision to defend actively and observe passively in an SNS bullying episode.	[57, 85]
	The theory suggests that when individuals feel that the ratio of control they exert on others is mismatched (imbalanced) with the control exerted on them, they have an increased motivation to act in a deviant manner.	The theory was used to examine how different design features of information technology artifacts influence deindividuation and accountability, affecting control imbalance and cyberbullying.	[13]
Control balance theory [104]			
Crime opportunity theory [105]	The theory asserts that social and technological changes produce new opportunities for crime and deviance. Opportunities play a central role in every category of offense, regardless of its nature and severity.	The theory was used to identify three vital drivers to the occurrence of SNS bullying, including the presence of a likely offender, suitable targets, and the absence of capable guardianship.	[5]
Dominance theory [99]	The theory suggests that aggression is used against someone weak to gain status in a social group.	The theory was used to explain why aggressive behaviors are more likely to occur between a higher-status perpetrator and a lower-status victim.	[76]
Expectation confirmation theory [106]	The theory explains post-behavior satisfaction as a function of	The theory was used to explain how negative SNS bullying victimization	[16]

(continued on next page)

Table 3 (continued)

Theoretical foundation	Description	Application	Study
Just world belief [107]	expectations, perceived performance, and disconfirmation of beliefs. The perspective suggests that to rationalize any inexplicable injustice, individuals believe that the world is a just place, where people get what they deserve.	experiences induced negative disconfirmation and affected SNS users' satisfaction. The perspective was used to explain how the quality and quantity of information an SNS bullying victim discloses online serves as the grounds for victim-blaming, where bystanders can reduce the dissonance and maintain the view of a just world.	[94]
Narrative transportation approach [108]	The approach suggests that when individuals lose themselves in a story, their perceptions change to reflect that story.	The approach was used to analyze how decisions to intervene can be communicated to be perceived as adequate and acceptable to bystanders.	[90]
The precaution adoption process model [109]	The model is a stage theory based on the assumption that precautionary behavior is motivated by the desire to reduce the risk associated with a particular health hazard.	The model was used to understand cyberbullying's prevalence across different stages (such as awareness, engagement, action, and maintenance) on Facebook among children and adolescents.	[79]
Signaling theory [110]	The theory suggests that the cost of acquiring complete information will outweigh the benefits of attaining that information, whereas some minimal ability to judge the worthiness of it, is desirable.	The theory was used to explain how the characteristics of an anti-SNS bullying message (i.e., like and share) signaled readers of its quality, worth, popularity, and importance and determined if they would interact with it.	[58]
Social influence theory [111]	The theory suggests that individuals may unintentionally modify their behaviors by an influencer based on their relationship's strength.	The theory was used to explain why bystanders displayed similar behavioral intentions to their peer group toward an SNS bullying incident.	[30]
Social identity theory [112]	The theory suggests that individuals tend to make more favorable comparisons and evaluations for their group (i.e., in-group) than for other groups (i.e., out-group). The theory suggests that individuals engage in criminal activities because of their association with others engaged in crime.	The theory was used to explain and test bystanders' decision to comply and follow the in-group bystander's actions when responding to an SNS bullying incident. The theory was used to explain why users were socialized to engage in cyberbullying.	[30]
The social learning model of deviance [113]	The theory suggests that individuals engage in criminal activities because of their association with others engaged in crime.	The theory was used to explain how willingness to self-censor and congruency with the public opinion climate influence	[12]
Theory of spiral of silence [114]	The theory suggests that an individual's intention to express their opinion on an issue openly will affect their perception of	The theory was used to explain how	[88]

Table 3 (continued)

Theoretical foundation	Description	Application	Study
Theory of planned behavior [115]	those opinions as either popular or unpopular. The theory suggests that human behavior is determined by intention and encompasses three belief-based concepts: the attitude toward the behavior, subjective norms, and perceived behavioral control over performing the behavior.	bystander response strategies toward gay bullying in the social media environment. The theory was used to examine how comments of a hypothetical Facebook bullying influence users' cyberbullying-specific norms and their confidence in their ability to intervene among pure cyberbullies, pure cyber victims, and cyberbully victims.	[91]
Theory of deindividuation [116]	The theory suggests that low self-awareness individuals are less likely to anticipate possible adverse reactions to their behaviors.	The theory was used to explain why bystanders' feelings of responsibility and intervention tendency decreased in the SNS context compared with the F2F context.	[17]
Theory of self-presentation [117]	The theory suggests that people are motivated to manage impressions in others to maximize material rewards, maintain self-esteem, and create a desired self-identity by constructing desired impressions through their choice of various self-presentation strategies.	The theory was used to explain how risky online activity and the posting of the users' indiscreet profile content led to SNS bullying victimization.	[83]
Transactional theory of stress and coping [118]	The theory suggests that people engage in appraisal and enact coping strategies when they encounter a stressful event.	The theory was used to explain the impact of victimization experience on user satisfaction with Facebook.	[16]
The values framework [119]	The framework consists of a list of values that describe how technology systems can be assessed. The model suggests that a victim's acts may intentionally or unintentionally invite a perpetrator, which subsequently leads to victimization.	The framework was used to develop social-oriented designs to counteract or prevent SNS bullying. The model was used to examine how risky social network site practices and individual characteristics in self-disclosure and personality led to cyberbullying victimization.	[71]
Victim precipitation model [100]			[83]

behaviors [e.g., 57,92].

Experiments were the second most widely used research method in SNS bullying studies. Experiments allow researchers to draw causal interferences in the hypothesized relationships. It has been widely used to test the effects of situational characteristics on bystanders' responses in an SNS bullying episode, including other bystanders' responses [89], the number of "likes" or "shares" on the post [58], and the victim's attractiveness and disclosure on SNSs [94]. For instance, a 2 × 2 experiment was conducted by Schacter et al. [93] to examine how the level of SNS disclosure (high vs. low) and valence of a victim's SNS posts (positive vs. negative) influenced respondents' attribution of blame and empathy toward the victim.

Apart from the survey and experiment methods, a wide array of alternative research methods have been used in SNS bullying studies, including interviews [e.g., 64,70], visual narrative inquiries [e.g., 71], digital ethnography [e.g., 40], and social network analysis [e.g., 67]. For instance, the visual narrative inquiry method was used by Bowler et al. [71] to identify design affordances on SNSs and derived seven design themes (e.g., design for consequences, design for fear, and design for control and suppression) to combat SNS bullying. Despite such a methodological diversity, the survey and experiment methods have become the predominant ones in studying SNS bullying. Table 4 summarizes the research methods used in SNS bullying.

4.5. Research contexts and samples

In terms of countries and regions, the majority of SNS bullying studies were conducted in the US [e.g., 57,58,75], followed by in the Europe [e.g., 45,92,94], and some were conducted in the Asia-Pacific region [e.g., 70,74]. Of the 54 identified studies, 42 used human subjects for testing hypotheses or research models. Most of these studies targeted children and students as their research samples because SNS bullying was most prevalent among children and teenagers. A few studies, such as Lowry et al. [12] and Chan et al. [5], investigated SNS bullying in adults' contexts. There is no study examining SNS bullying among the elderly, despite the increasing number of elder SNS users [120]. The remaining 12 studies involved nonhuman subjects as the unit of analysis, such as SNS posts and tweets in studies of SNS bullying detection [e.g., 95] and prior SNS bullying studies in literature reviews [e.g., 61]. Table 5 shows the summary of research contexts and samples.

5. An integrative framework of variables related to SNS bullying

SNS bullying is a complex phenomenon that involves triadic reciprocal relationships between perpetrators, victims, and bystanders on a digital platform. In this study, we build upon social cognitive theory [18] to derive an integrative framework that details the key constructs

Table 4

An overview of the research methods of SNS bullying studies.

Method	Frequency	Study
Content analysis	3	[63,65,82]
Digital ethnography	1	[40]
Experiment	14	[13,17,24,30,45,58,81,85,86,89,90,91,93,94]
Interview	3	[41,64,70]
Literature review	4	[60,61,97,98]
Machine learning	6	[14,59,66,69,95,96]
Restorative conference	1	[42]
Social network analysis	1	[67]
Survey	22	[5,12,15,16,56,57,62,68,72,73,74,75,76,77,78,79,80,83,84,87,88,92]
Visual narrative inquiry	1	[71]

Table 5

An overview of research contexts and samples of SNS bullying studies.

Context	Frequency	Study
Australia	4	[41,64,73,80]
Belgium	4	[30,45,56,76]
Canada	2	[60,89]
Cyprus	1	[61]
Germany	3	[17,92,94]
Greece	1	[15]
Hong Kong	2	[5,91]
Israel	1	[82]
South Korea	1	[70]
Malaysia	2	[59,95]
New Zealand	1	[63]
Poland	1	[86]
Singapore	1	[74]
South Africa	1	[40]
Spain	1	[96]
United States	26	[12,13,14,16,24,57,58,62,65,66,67,68,69,71,72,75,77,78,79,81,83,84,85,87,88,93]
United Kingdom	2	[42,90]

Sample	Frequency	Study
Human subject	42	[5,12,13,15,16,17,24,30,41,42,45,56,57,58,62,64,68,70,71,72,73,74,75,76,77,78,79,80,81,82,83,84,85,86,87,88,89,90,91,92,93,94]
Nonhuman subject	Tweets/ Posts Articles	10 4
		[14,40,59,63,65,66,67,69,95,96] [60,61,97,98]

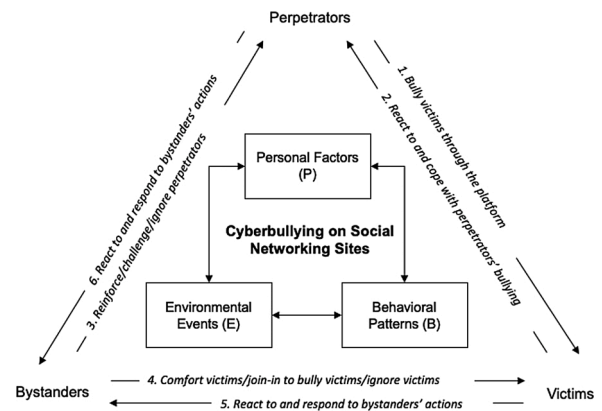


Fig. 2. Triadic reciprocal relationships between perpetrators, victims, and bystanders.

and relationships in the SNS bullying literature.² Fig. 2 illustrates the integrative framework.

SCT provides “a conceptual framework within which to analyze the determinants and psychosocial mechanisms through which symbolic communication influences human thought, affect, and action” [18, p. 265]. As shown in Fig. 2, there are three types of participants in SNS bullying: (1) perpetrators, (2) victims, and (3) bystanders. A perpetrator is a person who intentionally and repeatedly hurts targets who are less

² Although this review identified 56 studies, the integrative framework includes the variables from only 33 (see studies with an asterisk in Table 3). The remaining 23 studies are not included because they either involve nonhuman subjects as the unit of analysis or do not focus on an SNS bullying episode(s). While these studies provide invaluable information for understanding the general state of SNS bullying research (see Section 4), they go beyond the scope of the integrative framework, which focuses on variables related to SNS bullying between perpetrators, victims, and bystanders. In the following sections, variables related to an SNS bullying episode are discussed in detail.

able to defend themselves. A victim is a person who is the receiver of repeated hurtful and power-imbalanced interactions with perpetrators and bystanders. A bystander is a third-party observer who witnesses the SNS bullying incident and has the option of acting in a way that may influence the development of a bullying incident (i.e., comfort the victims/challenge the perpetrators, ignore the incident, or join in the bullying).

SCT posits that the self and society shape human behaviors and that personal factors (P), environmental events (E), and behavioral patterns (B) influence each other in a triadic reciprocal manner. In other words, “people are producers as well as products of social systems” [18, p. 266]. In SNS bullying, person factors (P) refer to any characteristics a perpetrator/victim/bystander brings to the bullying situation, such as socio-demographic properties, expectations, beliefs, self-perceptions, goals, thoughts, and emotions. Environmental events (E) include any important situational and incident-related cues that describe the bullying, such as social cues, participants’ characteristics, and technological inputs. Behavioral patterns (B) are responses and actions enacted/experienced by a perpetrator/victim/bystander during and after the bullying incident.

An SNS bullying incident typically starts with perpetrators posting bullying content such as a humiliating message or an embarrassing photo on an SNS platform (see Route 1). The perpetrators’ bullying content is received by victims and influences their thoughts, affects, responses, and coping strategies (see Route 2). The bullying content, as well as victims’ characteristics and responses, are exposed to other SNS users (i.e., bystanders) who are connected to the perpetrators and victims through the SNS platform, and subsequently, affect their decision to comfort the victims, ignore the incident, or reinforce and join in the perpetrators’ bullying behavior (see Route 3 and Route 4). The behaviors of bystanders are eventually recognized by the perpetrators and victims on the SNS platform and, in turn, influence their thoughts, affects, and actions in a triadic reciprocal manner (see Route 5 and Route 6).

The use of SCT as a theoretical foundation for our integrative framework is appropriate for two reasons. First, it encapsulates essential components of the theories used to study perpetrators (e.g., crime opportunity theory [5] and social learning model of deviance [12]), victims (e.g., transactional theory of stress and coping [16]), and bystanders (e.g., the bystander effect [57,85] and just world belief [94]), and is thus an inclusive framework that helps us to parsimoniously consolidate the wide spectrum of variables identified in the literature. Second, it has been widely used to explain a range of bullying and cyberbullying behaviors across different contexts [121–127]. Mapping prior studies on SNS bullying into an integrative framework allows us to provide a detailed and comprehensive account of the variables associated with perpetrators, victims, and bystanders in SNS bullying and identify research gaps and opportunities to broaden the scope of SNS bullying research.

Based on our analysis of the literature, we first discuss the variables related to the three roles and their relationships. We then discuss the research opportunities and questions that have emerged from our analysis.

5.1. The perpetrators

SNSs afford the perpetration. Perpetrators can bully victims either synchronously or asynchronously, with or without the presence of the target and other bystanders [45]. As shown in Fig. 2, perpetrators can: (i) bully victims (see Route 1) and (ii) respond to bystanders’ actions (see Route 6). A considerable number of studies have investigated the variables driving perpetrators to bully victims on SNSs; however, we did not find any studies that examine how perpetrators respond to bystanders. We classified the identified variables by personal factors, environmental events, and behavioral patterns (see Table 6).

Table 6

An overview of the variables related to perpetrators.

Route	Types of determinant	Key variable and study
1	Behavioral patterns	Perpetration [5,12,13,15,56,74,75,76,77]
	Personal factors	Sociodemographic properties Age [5*,12 ^{n.s.} ,56 ^{n.s.} ,73 ^{n.s.} ,74 ^{n.s.}] Education [5 ^{n.s.} ,12 ^{n.s.}] Employment [12 ^{n.s.}] Gender [5 ^{n.s.} ,12*,15*,56*,73 ^{n.s.} ,74 ^{n.s.}] Income [12 ^{n.s.}] Parental control/monitoring [73*] Race [74 ^{n.s.}] Types of housing [74 ^{n.s.}] Personality traits Big five personality traits [15*] Dark personality traits [15*,56*] Inclination to bully [5*] Trait empathy [73 ^{n.s.}] Trait moral disengagement [73*] Experience with bullying Bullying perpetration [74*] Bullying victimization [74*] Cyberbullying perpetration [74*] Cyberbullying victimization [73*,77*] Experience with technology Risky SNS activities [74*] SNS interaction and experience [5*,56*,74*] Technology efficacy [5 ^{n.s.}] Media usage [12*,15*,56*,73*,75*] Cognitions Accountability [13*] Control (im)balance [13*] Deindividuation [13*] Evaluation of SNS environment [5*] Social learning of deviant behaviors [12*] Social relationships/influences Victim identity [77*] Social ties [76*] Technological inputs Anonymity [12*] Prevention capability [13*] SNS affordances [5*]
	Environmental events	
6	Behavioral patterns	NONE
	Personal factors	NONE
	Environmental events	NONE

Note. *significant, ^{n.s.}nonsignificant, and dependent variable.

5.1.1. Behavioral patterns

Our literature review and analysis showed that most SNS bullying studies have focused on the frequency of perpetration. These studies have adapted scales from existing cyberbullying research and modified the measurement items to fit the SNS bullying context. For instance, Lowry et al. [12] built upon the scale used in Menesini et al. [128] to derive a four-item scale³ measuring harassment—a form of SNS bullying behavior. Most studies have focused on only one form of SNS bullying, particularly online harassment on SNS platforms. Although the literature has identified different forms of SNS bullying, such as harassment, denigration, outing and trickery, exclusion, and impersonation [15,56,62,74], there is no holistic, rigorous, and inclusive instrument for measuring different forms of SNS bullying behaviors. This leads to our first suggested research question (RQ) for future studies (RQ1): *What are the different forms of SNS bullying?*

³ The four-item scale includes (i) posting something hurtful, rude, inappropriate, or mean that targets someone, (ii) publicly embarrassing or pranking someone with true information or photos that are potentially harmful, (iii) spreading a rumor or untrue information about someone, and (iv) sending threatening or harassing messages, or sending messages after someone told you to stop.

5.1.2. Personal factors

Personal determinants have been extensively studied in the literature on SNS bullying. Five groups of factors emerged from our analysis: sociodemographic characteristics (e.g., age, gender, and education); personality traits and dispositions (e.g., the big five personalities, dark personalities, and inclination to bully); experience of bullying and cyberbullying; technology usages (e.g., SNS interaction and experiences, media usage); and cognitions. Among the five groups, the effects of bullying and cyberbullying experiences and technology usage were consistently significant, suggesting that perpetrators may learn bullying behaviors through their exposure to bullying-related events and SNS usages. This demonstrates the underlying assumption of SCT: that human behaviors can be learned through observational learning and vicarious experience [18]. The studies yielded inconsistent findings regarding the effects of other sociodemographic properties such as age and gender on bullying. For instance, Hood and Duffy [73] reported a nonsignificant effect of gender on bullying behaviors, whereas Lowry et al. [12] found that female subjects were less likely to be perpetrators. Similarly, Chan et al. [5] reported that age was a significant driver of SNS bullying, whereas Kwan and Skoric [74] found it nonsignificant. These inconsistent findings suggest that (1) sociodemographic properties might not be the most salient factors driving SNS bullying behaviors and (2) boundary conditions might shape the effects of these factors on perpetrators' decision to bully victims. This leads to our second suggested research question for future studies (RQ2): *What are the boundary conditions for the effects of sociodemographic properties on SNS bullying?*

Several studies have found that cognition is a significant factor in determining perpetrators' decision to bully victims. For example, Lowry et al. [12] suggested that social learning-related cognitions, including perceived cost, neutralization, and situational morality, negatively influenced cyberbullying frequency on SNSs among adults. Furthermore, perpetrators' favorable evaluation of an SNS environment [5] and the power differences between the perpetrators and the victims [13] influenced their decision to bully victims on SNSs. Despite empirical evidence that individuals who developed certain negative affects toward victims, such as jealousy [129] and dislike [130], were more likely to become perpetrators, no studies have examined the role of affects in SNS bullying. This leads to our third suggested research question for future studies (RQ3): *What negative emotions drive bullying behaviors on SNSs, and what are the underlying mechanisms?*

5.1.3. Environmental events

Two major types of environmental determinants have been studied in the literature: social relationships/influences and technological inputs. In general, investigations into the effects of social relationships/influences and technological inputs remain relatively limited; most research on SNS bullying has been conducted by psychologists and focused on personal factors such as personality traits (see Section 4.1). Social relationships are one type of environmental determinants that influence perpetration, for example, the victim's identity and relationship with the perpetrator [77] and the perpetrator's social relations with the victim [76]. Technological inputs, such as technological features, artifacts, characteristics, and affordances, have been studied less thoroughly. Investigating the effects of technological factors is vital because they are particularly relevant to information systems research. Lowry et al. [12] investigated how anonymity affected social learning of deviant behaviors among adult SNS users. They found that anonymity was associated with decreased costs and increased benefits of SNS bullying. Chan et al. [5] identified four affordances associated with using SNSs and found that these affordances offer perpetrators criminogenic opportunities to engage in SNS bullying. As noted in Section 2, SNSs represent an integrated and novel context that affords bullying. SNS features such as digital profiles, relational ties, search and privacy, and network transparency greatly influence the development and proliferation of SNS bullying. It remains unclear how different network compositions (e.g., a personal network vs. a professional network)

change the analysis of the cost and benefit related top SNS bullying perpetration. This leads to our fourth suggested question for future research (RQ4): *How do social and technological inputs induce/reduce bullying on SNSs?*

5.2. The victims

The changes in societal routine activities offline to online social space have exposed SNS users to more significant victimization threats [105]. As shown in Fig. 2, victims can: (i) react to and cope with perpetrators' bullying (see Route 2), and (ii) respond to bystanders' actions (see Route 5). Our literature review and analysis showed that a considerable number of studies investigated victimization experience and coping strategies; however, we did not find any studies that examined factors affecting victims' responses to bystanders' behaviors. We classified the identified variables by personal factors, environmental

Table 7

An overview of the variables related to victims.

Route	Types of determinant	Key variable and study
2	Behavioral patterns	Victimization [74,76,78,80,82,83] Coping strategies [77,81] Negative consequences [16,84] Sociodemographic properties
	Personal factors	Age [16*,72 ^{n.s.} ,74 ^{n.s.}] Country of residency [16 ^{n.s.}] Education [16 ^{n.s.} ,78 ^{n.s.}] Employment [72*] Gender [16 ^{n.s.} ,72*,74 ^{n.s.} ,78*] Income [72 ^{n.s.}] Parent characteristics [72*] Parental control/monitoring [84*] Race [72 ^{n.s.} ,74 ^{n.s.}] Types of housing [74 ^{n.s.}] Personality traits Big five personality traits [83*] Emotion stability [83*] Self-disclosure disposition [83*] Past experience with bullying Bullying perpetration [41*,74*] Bullying victimization [41*,74 ^{n.s.}] Cyberbullying perpetration [74 ^{n.s.}] Cyberbullying victimization [74*,84*] Exposure to bullying/cyberbullying incident [16*] Experience with technology Risky SNS activities [72*,74 ^{n.s.} ,83*] SNS interaction and usage [16 ^{n.s.} ,41*,74*,78*] Media usage [72*,74 ^{n.s.}] Types of technology used and activities [72*,78*] Types of SNS features used [41*,82*] Cognitions Confirmation of SNS use [16*] Usefulness of SNS use [16*] Optimistic bias [79*] Perceived severity/hurtfulness [16*] Affects Anxiety [16*] Enjoyment with SNS use [16*] Sad [81*] Angry [81*] Afraid [81*] Bad [81*] Incident characteristics Types of bully [81*] Social relationships/influences Social ties [76*]
5	Behavioral patterns	NONE
	Personal factors	NONE
	Environmental events	NONE

Note. *significant, ^{n.s.}nonsignificant, and ^dependent variable.

events, and behavioral patterns (see Table 7).

5.2.1. Behavioral patterns

Previous studies of SNS bullying have examined three major behavioral patterns among victims: (1) their victimization experience and frequency, (2) their coping strategies, and (3) the negative consequences of victimization. Similar to studies of perpetration, most victimization studies have focused on measuring the experience and frequency and relied heavily on adapting prior bullying and cyberbullying victimization scales. There is no established measurement scale that captures the breadth and complexity of victimization experiences on SNSs. For instance, Wegge et al. [76, p. 9] measured respondents' experiences of harassment and exclusion with items such as (i) "saying something rude to me through a private message on Facebook," (ii) "placing things on my "wall" that were not nice at all," and (iii) "posting a comment that wasn't nice on my pictures or messages on Facebook." No other forms of victimization experience, such as impersonation, were captured. Two studies examined the coping strategies of victims of SNS bullying [77,81]. A wide range of coping strategies was examined, including problem-focused (e.g., reporting to authorities and asking the bully to stop), emotion-focused (e.g., avoiding SNSs and school), and retaliation-focused (e.g., plotting revenge and making fun of the perpetrator to other people) copings. At present, there is a paucity of research that systematically classifies SNS bullying coping strategies. Two studies examined the negative consequences experienced by victims of SNS bullying. For instance, Wright [84] reported that individuals who experienced SNS bullying ended up suffering from depression and anxiety. Indeed, ample evidence has suggested that being cyberbullied is associated with substantial long-term adverse psychological and physical problems [e.g., 3,131,132]. More research is needed to fully understand the effectiveness of different coping strategies and the long-term impacts of victimization. This leads to our fifth suggested question for future research (RQ5): *What coping strategies are adopted by victims of SNS bullying, and how effective are they in mitigating the negative impacts of SNS bullying victimization?*

5.2.2. Personal factors

Personal determinants have been extensively studied, particularly those related to understanding the risk factors leading to victimization in SNS bullying. The most commonly identified personal factors are sociodemographic properties, past experience of bullying, and technology usage in the literature. These include the effects of demographic characteristics (e.g., age, gender, and parental control/monitoring), the experience of bullying (and cyberbullying) perpetration and victimization, and technology usage (e.g., risky SNS activities, SNS interactions, and experiences). The notion of victim precipitation [100] (i.e., some actions taken by victims solicit unnecessary attention from potential perpetrators and increase the likelihood of being victimized) was consistently manifested through victims' technology usage. Specifically, the frequent and risky use of technology has increased individuals' chances of victimization. Peluchette et al. [83] reported that risky SNS practices, such as posting indiscreet content, increased the likelihood of victimization. Similar results were reported by Dredge et al. [80].

Studies on cognitions and affects related to victimization remain fairly limited. For example, Camacho et al. [16] found that victims' perceptions of the severity of SNS bullying negatively influenced their satisfaction with SNS use through the mediating effect of anxiety. The paucity of literature investigating the relationships between victims and perpetrators and between victims and bystanders can be attributed to the ethical concerns that research should not further "harm" participants who have been victimized [133]. Thus, asking respondents to recall their physiological and psychological experiences in past SNS bullying episodes could be ethically controversial. This leads to our sixth suggested question for future research (RQ6): *How can SNS bullying victimization be studied in a nonintrusive manner?*

5.2.3. Environmental events

As studies of victimization are relatively rare, it is not surprising that there is limited knowledge of the effects of environmental determinants on victims. Wegge et al. [76] found that a large number of unbalanced and weak friendships in victims' network of online connections is correlated with low social status and thus increases the likelihood of being victimized. Furthermore, regardless of the types of bullying, i.e., overt or relational aggression, victims of SNS bullying experience negative emotions, such as sadness, anger, embarrassment, and fear [81]. At present, there are relatively few insights into how different situational, social, and technological characteristics embedded in the environment affect victims' thoughts, feelings, and behavioral patterns in an SNS bullying incident, including interactions with either perpetrators or bystanders. Specifically, we do not know how victims' social relationships with perpetrators and bystanders affect their evaluation of the severity of bullying and their coping strategies. Furthermore, it is unknown whether victims tend to adopt problem-focused or emotion-focused coping strategies to deal with SNS bullying. This leads to our seventh suggested question for future research (RQ7): *How do social and technological inputs influence victims' cognitions, affects, and coping behaviors in response to SNS bullying?*

5.3. The bystanders

Bystanders' roles can be fluid and complicated in SNS bullying because there are many occasions SNS users could witness a cyberbullying incident [134]. As shown in Fig. 2, bystanders can: (i) join with the perpetrators and reinforce the bullying or ignore the perpetrators (see Route 3), and (ii) comfort the victims and offer them support or ignore the victims (see Route 4). The two types of interaction have been studied in the identified literature of SNS bullying. Below, we classified the identified variables by personal factors, environmental events, and behavioral patterns (see Table 8).

5.3.1. Behavioral patterns

The literature on bystanders has identified three major behavioral patterns: (1) join in the bullying and reinforce the perpetrators; (2) comfort and defend the victims; and (3) ignore the incident. Most of the studies used a scenario-based design to examine bystanders' behavioral responses to SNS bullying. For instance, Obermaier et al. [17] measured participants' intention to defend the victims using a 5-point Likert scale on a single-item, "I would intervene." Some studies examined bystanders' interactions by capturing their indicative responses to the bullying post. For example, Barlinska et al. [86] studied reinforcing behavior by coding respondents' decision to forward the bullying content when presented with a nasty photo of a victim. Similar to studies of perpetrators and victims, studies of bystanders' behavioral patterns have focused on capturing the type and frequency of respondents' bystander experiences. For instance, Cao and Lin [87] asked the respondents to rate, from 1 (frequently) to 4 (never), how often they (1) told a perpetrator to stop being mean or cruel, (2) defended the victim of harassment, or (3) joined in the harassment. Nevertheless, very few studies have systematically categorized and investigated the wide spectrum of behaviors among bystanders and how they affect perpetrators' and victims' responses to SNS bullying. For instance, how do bystanders' direct interventions (e.g., asking the perpetrators to stop being mean) and indirect interventions (e.g., sending a private message to comfort the victims) [93] affect victims' thoughts, feelings, and coping strategies? This leads to our eighth suggested question for future research (RQ8): *How do bystanders' responses to SNS bullying affect perpetrators and victims?*

5.3.2. Personal factors

The effects of personal determinants have been extensively studied, including sociodemographic properties (e.g., age, gender, and income) and personality traits (e.g., empathy and openness). However, the findings on sociodemographic properties were not consistent across

Table 8

An overview of the variables related to bystanders.

Route	Types of determinant	Key variable and study
3	Behavioral patterns	Ignore the incident [86] Reinforce the bully [30, 86, 87, 91, 92] Challenge/Confront the bully [24, 93]
	Personal factors	<i>Sociodemographic properties</i> Age [86 ^{n.s.} , 87 ^{n.s.} , 92 ^{n.s.}] Gender [30*, 86 ^{n.s.} , 87*, 92 ^{n.s.}] Income [87*] <i>Personality traits</i> Big five personality traits [24*] Trait empathy [24*, 92 ^{n.s.}] <i>Experience with bullying</i> Cyberbullying perpetration [91*] Cyberbullying victimization [87*, 91 ^{n.s.}] <i>Experience with technology</i> SNS interaction and usage [87 ^{n.s.}] <i>Cognitions</i> Identity violation [90*] Empathy [86*] Perceived severity/hurtfulness [30 ^{n.s.}] <i>Incident characteristics</i>
4	Environmental events	Behaviors of other bystanders [30 ^{n.s.} , 91*] Victims' disclosure [93*] Victims' post valence [93 ^{n.s.}] <i>Social relationships/influences</i> Identity of other bystanders [30*] Normative belief [92*]
	Behavioral patterns	Ignore the incident [24, 57, 88] Comfort/Support the victims [17, 24, 30, 57, 87, 88, 91, 92, 93] Response valence [85] Victim blaming and attribution [89, 94] <i>Personal factors</i> <i>Sociodemographic properties</i> Age [87, 88*, 92 ^{n.s.}] Education [88 ^{n.s.}] Gender [30*, 57 ^{n.s.} , 85*, 87*, 88 ^{n.s.} , 89*, 92*] Income [87 ^{n.s.} , 88*] <i>Personality traits</i> Big five personality traits [24*] Political ideology [88 ^{n.s.}] Trait empathy [24*, 92*] Social tolerance [88 ^{n.s.}] Willingness to self-censor [88*] <i>Past experience with bullying</i> Cyberbullying perpetration [91 ^{n.s.}] Cyberbullying victimization [57 ^{n.s.} , 87*, 91*] <i>Experiences with technology</i> Technology usage [88*] SNS interaction and experience [87*, 88*] <i>Cognitions</i> Attitude certainty [88 ^{n.s.}] Congruency of opinion among family and friends [88 ^{n.s.}] Congruency of opinion with the nation [88*] Empathy [93*] Attitude toward homosexual community [24*] Issue importance [88*] Perceived severity/hurtfulness [17*, 30*, 45*, 57*, 89*] Perception of emergency [17*, 89*] Perception of responsibility [17*] Perception of victim's attractiveness [85 ^{n.s.}] Perception of victim's health [85*] Victim blaming [93*] <i>Incident characteristics</i>
	Environmental events	Behaviors of other bystanders [30 ^{n.s.} , 45*, 91*] Climate/Valence of others' response [85*] Number of other bystanders [17*, 57*] Victim responses [89*] Victims' presentation [94*] Victims' disclosure [93*, 94*] Victims' post valence [93 ^{n.s.}]

Table 8 (continued)

Route	Types of determinant	Key variable and study
		<i>Social relationships/influences</i> Identity of other bystanders [30 ^{n.s.} , 45*] Normative belief [92 ^{n.s.}] Relationships with victims [57*] <i>Technological inputs</i> Anonymity [57*] Intervention privacy [45*] Intervention mediacy [45*]

Note. *significant, ^{n.s.}nonsignificant, and ^ dependent variable.

studies and were weak predictors of bystanders' behaviors. For instance, Holfeld [89] reported that gender did not affect bystander responses, whereas Cao and Lin [87] suggested that girls were more likely to engage in prosocial bystanders' behaviors. Age was found to be nonsignificant in most of the studies. Besides, situation-specific cognitions were salient in governing bystanders' responses to both perpetrators and victims. For instance, Barlinska et al. [86] found that respondents were less likely to reinforce a bully in an empathy-activated condition. Obermaier et al. [17] found that the feeling of responsibility predicted bystanders' intention to intervene in a cyberbullying and that the assessment of the situation as an emergency had no significant effect on the intention to intervene. The effect of the feeling of responsibility on bystanders' intention to intervene was attenuated by the presence of a high number of other bystanders. The above observation suggests that the contextualization of classic theories and frameworks (e.g., the bystander intervention model [135]) is needed to explain bystanders' responses to SNS bullying. Indeed, McFarland and Ployhart [29, p. 1] contended that social media represent a theoretically unique context that is different from traditional interaction and other digital communication platforms; therefore, "some unique SNS features may challenge the ability of existing theories and frameworks to explain cognition, affect, and behavior, and may require new theories and frameworks." This leads to our ninth suggested question for future research (RQ9): *How can existing theories and frameworks be adapted to explain SNS bullying?*

5.3.3. Environmental events

Previous studies of bystanders have focused on how environmental determinants, particularly incident characteristics and social relationships/influences, affect bystanders' responses to perpetrators and victims in SNS bullying. In general, bystanders rely heavily on and are sensitive to other bystanders' responses when deciding how to react to an incident. For instance, Bastiaenssens et al. [30] found that respondents exhibited a higher behavioral intention to join in the bullying when other aggressive bystanders were their good friends rather than acquaintances. Furthermore, bystanders' responses to SNS bullying were affected by their relationships with the victims and by the victims' characteristics and coping strategies. Brody and Vangelisti [57] suggested that bystanders closely related to the victims of SNS bullying were more likely to defend the victims. Weber et al. [94] indicated that respondents attributed more responsibility for SNS bullying to the victim when he/she disclosed too much personal information on SNSs. Although these studies of incident characteristics and social relationships/influences have shed light on how bystanders respond to SNS bullying, technological inputs' influence on their thoughts, feelings, and behavioral patterns remains unknown. For instance, could technology-based features be integrated into SNSs and mitigate the bystander effects? Brody and Vangelisti [57] found that anonymity reduced bystanders' intention to defend the victims actively and increased their tendency to engage in passive observation. Anonymity

also decreased the amount of social support they offered victims. This leads to our tenth research question for future research (RQ10): *How can technology-based intervention encourage positive behaviors and reduce negative ones among bystanders?*

6. Discussion

SNS bullying has attracted increasing attention from researchers, policymakers, and practitioners over the last decade. However, a consolidated and systematic understanding of the current knowledge on SNS bullying is generally missing. Therefore, this study (1) reveals the state of SNS bullying research and (2) synthesizes the findings of SNS bullying research into an integrative framework that presents the variables related to the different roles of SNS bullying. Based on our observations and findings in Sections 4 and 5, we discuss the research gaps and opportunities and propose avenues for future research. We also discuss research contributions and limitations.

6.1. Future research directions

The previous sections have identified ten promising research questions for future studies of SNS bullying. In this section, we consolidate these questions into four areas of future research and discuss potential interdisciplinary, theoretical, and methodological links that will be useful for closing research gaps. Table 9 presents an overview of the research avenues and related research questions.

6.1.1. Behavioral manifestations and triadic reciprocal relationships

The first potential research avenue is a more in-depth investigation into the behavioral manifestations and triadic reciprocal relationships between perpetrators, victims, and bystanders. First, our study shows a lack of a holistic understanding of the behavioral manifestations enacted by each participant. Prior studies have conceptualized and measured perpetrators' aggressive acts, victims' coping strategies, and bystanders' intervention tactics differently. If the full range of these behavioral

patterns and their associated SNS affordances could be identified, then personal and environmental determinants could be more systematically classified, and the empirical findings could be more parsimoniously organized. Thus, developing conceptually appropriate and comprehensive typologies and taxonomies for organizing, scrutinizing, and refining the behavioral patterns manifested by perpetrators, victims, and bystanders of SNS bullying is desirable.

Furthermore, prior studies have often focused on a single role in SNS bullying: perpetrators, victims, or bystanders. Future studies should expand their focus from a single type of participant to explore how the triadic reciprocal online social interactions between perpetrators, victims, and bystanders alter SNS bullying's dynamic and development. For instance, how do perpetrators react to victims' and bystanders' responses to or ignorance of the incident? Do such reactions reduce their motivation to engage in bullying or intensify it? How do different bullying types (e.g., harassment, exclusion, and impersonation) affect victims' coping strategies and bystanders' intervention tactics? How do different coping strategies adopted by victims (e.g., problem-focused vs. emotion-focused, adaptive vs. maladaptive) affect perpetrators' and bystanders' subsequent responses? Future studies could also examine how triadic reciprocal relationships vary across different settings. As SNSs have blurred the boundary between private and professional life [136], workplace cyberbullying is another promising research area. Future research could investigate whether the SNS bullying dynamic between perpetrators, victims, and bystanders differs between college students and professional workers.

6.1.2. Roles and effects of social and technological factors on SNS bullying

The second potential research avenue is studying the effects of social and technological factors on the participants' thoughts, feelings, and behaviors. As SNS bullying is a dynamic and complex phenomenon, no single factor can sufficiently explain why and how perpetrators, victims, and bystanders think, feel, and behave. Therefore, a thorough consideration of the personal factors and environmental determinants such as incident characteristics, cues from other participants, and social relationships is critical. Several areas require particular attention, such as the setting (e.g., school, workplace, or other social groups) and interpersonal ties among the participants (e.g., strong, weak, or absent).

Furthermore, SNSs differ in many aspects despite some commonalities. For example, unlike Facebook, Twitter, Instagram, and other popular SNSs, pictures and messages generated on Snapchat are only available to other users for a short period before becoming inaccessible. This unique technological characteristic of Snapchat introduces a specific "temporality affordance" that might affect victims' perception of the severity of the incident and thus influence their coping strategies. Therefore, researchers should endeavor to incorporate platform-specific variables into their investigation of any technology-mediated bullying to yield a contextualized understanding. The study of technological factors could also shed light on the suitability of technology-based interventions to halt undesirable behaviors. For instance, since anonymity is one of the main causes of SNS bullying, Lowry and colleagues suggested using accountability interfaces to deter SNS bullying [12,13].

6.1.3. Boundary conditions and applicability of classic theories and frameworks

The third potential research avenue is identifying boundary conditions of the relationships identified in existing theories and frameworks. Our review shows that studies of the effects of sociodemographic properties on SNS bullying between perpetrators, victims, and bystanders have yielded inconsistent findings. Such inconsistencies signal the existence of boundary conditions that alter the effects of the factors within an SNS bullying episode. Specifically, each study on SNS bullying has been conducted within a single research context, such as within a specific country, region, culture, or group of participants. Few studies of SNS bullying have been conducted in multiple cultures or research contexts. Furthermore, some studies have measured SNS bullying in a

Table 9

An overview of future research avenues and research questions.

Avenue for future research		Corresponding research question
1	Behavioral manifestations and triadic reciprocal relationships	RQ1: What are the different forms of SNS bullying?
		RQ5: What coping strategies are adopted by victims of SNS bullying, and how effective are they in mitigating the negative impacts of SNS bullying victimization?
2	Roles and effects of social and technological factors on SNS bullying	RQ8: How do bystanders' responses to SNS bullying affect perpetrators and victims?
		RQ4: How do social and technological inputs induce/reduce bullying on SNSs?
3	Boundary conditions and applicability of classic theories and frameworks	RQ7: How do social and technological inputs influence victims' cognitions, affects, and coping behaviors in response to SNS bullying?
		RQ10: How can technology-based intervention encourage positive behaviors and reduce negative ones among bystanders?
4	New approaches to addressing ethical and methodological challenges	RQ2: What are the boundary conditions for the effects of sociodemographic properties on SNS bullying?
		RQ9: How can existing theories and frameworks be adapted to explain SNS bullying?
		RQ3: What negative emotions drive bullying behaviors on SNSs, and what are the underlying mechanisms?
		RQ6: How can SNS bullying victimization be studied in a nonintrusive manner?

specific setting (e.g., a school or a social group), whereas others have measured SNS bullying in general. To address such inconsistencies, researchers could perform a meta-analysis to test the strength of the relationships between sociodemographic properties and identify the possible contextual moderators that should be validated in future studies.

Furthermore, little multidisciplinary research examines the dynamic interactions between humans (i.e., perpetrators, victims, and bystanders) and technology (i.e., SNSs). We believe that collaborations across disciplinary borders are promising and imperative to extend the traditional theories and frameworks and derive a contextualized understanding of the phenomenon. Specifically, SNS bullying represents a novel context that differs from other forms of bullying. As noted by McFarland and Ployhart [29, p. 1], “some of the features unique to social media may challenge the ability of existing theories and frameworks to explain cognition, affect, and behavior.” These theories and frameworks need to be expanded and adapted to new contexts to understand SNS bullying fully. For instance, does transactional theory of stress appraisal and coping [137] remain valid to explain the primary and secondary appraisals and coping strategies of victims of SNS bullying? Similarly, how do SNSs reduce or amplify the bystander effect, namely pluralistic ignorance, diffusion of responsibility, and evaluation apprehension [103]? The research that emerges from such cross-disciplinary approaches will offer interactional insights that enrich both the information systems literature and the cyberbullying literature [138].

6.1.4. New approaches to addressing ethical and methodological challenges

The fourth potential research avenue involves developing solutions to the ethical and methodological challenges of SNS bullying research. Specifically, ethical concerns and technical difficulties in SNS bullying research have hindered the development of longitudinal investigations that examine the long-term effects of SNS bullying. First, existing studies have suggested that social desirability bias remains an essential issue in collecting data on the behavioral patterns of perpetrators and bystanders: respondents who engaged in socially undesirable acts tended to underreport their participation, whereas respondents who engaged in socially desirable acts tended to overreport their participation, in order to be viewed favorably respectively [12]. Second, research on victimization is constrained by the ethical need to avoid “harming” the participants. These concerns have driven researchers to adopt a self-reported, cross-sectional survey, or scenario-based methods to investigate SNS bullying, making it difficult to capture its long-term effects. To overcome these obstacles, researchers should explore alternative research methods that can extend the currently restricted scope of study on SNS bullying, such as considering nonintrusive techniques like diaries and ethnography/netnography. In a recent study, Wenninger et al. [139] found diary methods to be useful in validating the relationship between reciprocity-evoking SNS activities (e.g., chatting, giving, and receiving feedback) and positive emotions, demonstrating the use of SNSs in promoting subjective well-being. Similar research methods could be used to study SNS bullying experiences over time. Researchers could then analyze how specific cognitions and affects influence perpetrators' intention to bully, seeking to understand the effects of SNS bullying on perpetrators, victims, and bystanders' well-being. Rachoene and Oyedemi [40] demonstrated the viability of using ethnography to observe and analyze SNS bullying among South African youth. A nonparticipatory netnography approach captured detailed observations of the dynamic state and development of SNS bullying in six Facebook pages. These alternatives to single cross-sectional surveys or experiments allow researchers to derive meaningful insights into the triadic reciprocal relationships between personal factors, environmental events, and behavioral patterns concerning perpetrators, victims, and bystanders, respectively.

6.2. Contributions

This study makes contributions to research and practice. Research on SNS bullying has gained momentum in the IS literature, and we have witnessed more cyberbullying research published in IS journals [e.g., 5, 12,13,16]. This review not only helps researchers to understand the current state of research on SNS bullying, an emerging research stream on the deviant use of information technology that bears significant societal and organizational implications but also responds to the call for more review papers on the use of information technology [140]. Using a rigorous approach to review and analyze published studies of SNS bullying, we identify the trends, foci, theoretical foundations, methods, contexts, and samples in the current research. Drawing on SCT [18], we propose an integrative framework that categorizes variables related to SNS bullying and depicts the triadic reciprocal relationships between perpetrators, victims, and bystanders. We summarize the variables related to SNS bullying and present them neatly and systematically. The research gaps revealed in this study represent a necessary first step toward achieving a thorough understanding of SNS bullying. As noted by Rowe [140, p. 250], “Literature reviews should strive to identify thematic gaps and theoretical biases, propose some future research directions.” Based on the literature review findings and the integrative framework, we identify promising future research avenues for researchers from both IS and other disciplines. Insights derived from the proposed research questions should help develop SNS bullying research programs. By revealing what we already know and what we do not yet know about SNS bullying, our work is expected to enrich the scientific understanding of SNS bullying from technological and multidisciplinary perspectives [141,142].

Besides, because of the roots of SNS bullying research in psychology, communication, and public health disciplines, the technological characteristics of SNSs and how they affect SNS bullying have not been thoroughly investigated. SNSs represent an integrated and novel context in which bullying takes a different form from traditional F2F bullying or other forms of cyberbullying perpetrated on other DCM [12]. The features of SNSs afford and intensify the triadic reciprocal interactions between perpetrators, victims, and bystanders that may, in turn, prolong and reinforce SNS bullying [31,80]. These characteristics of SNSs have added another layer of complexity to the bullying phenomenon. Indeed, SNS bullying is a socio-technical issue that involves the individuals engaged in the bullying episodes, the situational characteristics of the incident, the participants' social relationships, and the technological environment. This study suggests that IS researchers could contribute to the literature by incorporating a socio-technical perspective [143,144] into their investigations of this technology-mediated phenomenon.

Lastly, this study sheds light on the identification, intervention, and prevention of SNS bullying. Specifically, it informs practitioners of the personal, environmental, and behavioral variables related to SNS bullying across perpetrators, victims, and bystanders. Our integrative framework summarizes a wide spectrum of risk and protective variables related to SNS bullying from the intervention and prevention perspectives. It provides insights for educators, governments, and SNS developers seeking to formulate proactive measures that prevent SNS bullying.

6.3. Limitations

Some limitations should be taken into account when interpreting and applying the findings of this study. First, this study is not shielded from the common limitations of literature reviews and analysis. The literature review was restricted to the pool of articles that satisfied the chosen keywords and selection criteria available in the selected databases. Researchers could gain further insights from practitioner articles, books, and magazines. Future studies could explore articles and studies beyond academic journals to enrich the integrative framework. Second, as this line of research is still emerging, the number of empirical studies

remains insufficient for performing a meta-analysis and testing the relative effects of different inputs, routes, and outcomes. Future studies should replicate these studies in different contexts and cultural settings and perform a meta-analysis when there is a sufficient sample.

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CRediT authorship contribution statement

Tommy K.H. Chan: Conceptualization, Methodology, Validation, Formal analysis, Writing - original draft, Writing - review & editing. **Christy M.K. Cheung:** Conceptualization, Methodology, Validation, Formal analysis, Writing - original draft, Writing - review & editing. **Zach W.Y. Lee:** Conceptualization, Methodology, Validation, Formal analysis, Writing - original draft, Writing - review & editing.

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