CHAPTER 13

Cyberbullying

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Brief Introduction

Adolescents are heavily engaged in text messaging (Lenhart, 2012) and social media (boyd, 2014); their social lives move seamlessly between online and offline interactions. Adolescents embrace digital communication as a way to connect with friends, peers and social networks, and family members and to create and display their developing identities. Not surprisingly, adolescents also use digital communication to express their anger and pursue their social goals. Cyberbullying refers to "any behavior performed through electronic or digital media by individuals or groups intended to inflict harm or discomfort on others" (Tokunaga, 2010, p. 278).

Although there is clearly some continuity between face-to-face bullying and cyberaggression, we cannot assume these are one and the same, for several reasons. First, digital platforms are unique in that they allow users to disseminate aggressive content to hundreds of friends and followers instantaneously, and digital platforms break down social boundaries in ways that may raise adolescents' exposure to hurtful experiences. In addition, each different digital platform offers particular features, affordances that may foster cyberbullying (e.g., Snapchat users may set a time after which the image they send disappears) but that also may reduce negative online behavior (Facebook has a "like" button but not a "dislike" option and allows users to designate friends but not enemies). Another reason that understanding cyberbullying may require different approaches is that the digital world may be a place in which high-status youth who would never sully their hands with physical aggression engage in the occasional act of cyberaggression, which could result in a terribly painful experience for the victim because the humiliation is so public.

Main Issues

Although cyberbullying is a recent phenomenon, more than 30,000 scholarly papers have been published on this topic. A comprehensive review of this large literature is beyond the scope of this chapter. This chapter begins with theoretical frameworks to guide research on cyberbullying. Next, methodological issues are considered; this new field is plagued by reliance on self-report measures and the challenge of shared method variance, and it is important to consider other ways of measuring cyberbullying. An overview of central research findings will focus on current knowledge of the forms cyberbullying takes, possible causes of cyberbullying (though most research to date is correlational), and how cyberbullying relates to psychosocial adjustment for victims as well as perpetrators. This review of central research findings will focus on studies of adolescents because most research has been conducted with adolescent participants, perhaps in part because adolescents are so heavily engaged in digital communication (Lenhart, 2015). The chapter concludes by highlighting implications for prevention and intervention and future directions.

Theoretical Considerations

Theories provide a lens through which a phenomenon such as cyberbullying can be examined and should generate pertinent research questions, as well as helping with integrating and interpreting research findings. In the broader field of traditional bullying research, several theoretical perspectives have gained prominence. It is tempting to assume that these theories apply to cyberbullying, as well, but the unique aspects of cyberbullying may not be adequately addressed in those theories. In this section, we review several theories that have been proposed as frameworks for cyberbullying research. Although many articles in the literature mention a theory, few of the theories have been tested empirically, although in some cases components of the theory have been evaluated; these are noted when applicable.

Social–Ecological Theory

The social–ecological theory of bullying, promoted by Espelage and Swearer (2004; Swearer & Espelage, 2011), is based on the theory of Uri Bronfenbrenner (1979, 2005). This theory emphasizes the influence of context in human development and behavior. The individual is at the center of overlapping layers of influence, defined as the microsystem (the immediate environment, including family, school, and peers); the mesosystem (the interactions among microsystems, as when parents meet with teachers), the exosystem (systems outside the individual that affect them indirectly, such as a parent's workplace), and the macrosystem (the societal and cultural context). It is appropriate for cyberspace to be placed in the microsystem because of its pervasive immediate presence in our lives, especially for youth (Eaton, 2014; Johnson & Puplampu, 2008; Renn & Arnold, 2003). Eaton argues that each platform (e.g., Instagram, Twitter) could be considered an individual microsystem because each involves different aspects of self and influences the individual in

different ways. The companies that create social media sites are part of the exosystem; the individual is not involved, but the decisions made by software engineers provide the platforms used by individuals. Laws and policies in schools and workplaces are also part of the exosystem. Cyberspace might be considered a macrosystem because society as a whole has embraced new technologies, and the ubiquitous presence of digital technology permeates the environment. This updated theory places digital technology in the innermost layer, accurately reflecting the importance of the digital system in individual development and behavior, while recognizing the impact of larger systems.

Although social–ecological theory is often cited as the basis for cyberbullying research, studies have not directly tested the theory as a whole; rather, researchers have generally focused on the separate layers. For example, the individual is at the center of the model, and many individual characteristics have been examined with respect to their influence on cyberbullying dynamics (e.g., age, gender, race/ethnicity, sexual orientation). At the microsystem level, peer and family influences on aggression have been documented. Much less attention has been paid to the outer layers of the model. Arguably, the digital world and media are components of the exosystem, and the integration of the individual, microsystem, and mesosystem elements in studies have provided some validation of this theory. The macrosystem, or cultural layer, is difficult to measure, although perhaps some of the cross-national investigations are steps in this direction. The chronosystem—historical periods—is essentially absent from scholarly inquiry, although anecdotal reports suggest that in the current historical period in the United States, there are reasons to believe that cyberbullying would increase due to the use of social media by powerful political figures to disparage opponents. A daunting but important research endeavor would seek to understand the relative influence of the various layers on individual behavior. For example, are some young people more susceptible to macrosystem or chronosystem influences than others? What characteristics serve as risk or protective factors for those influences? Investigations that test the relative influence of the various systems and describe the mechanisms by which that influence occurs would provide support for this theory as an appropriate framework for cyberbullying research. Hong and Espelage (2012) provide a thorough review of this theory and related research.

The Online Disinhibition Effect: A Useful Model

The online disinhibition effect describes the tendency to behave differently in cyberspace than in offline settings (Suler, 2004) and is considered a primary feature that distinguishes cyberbullying from traditional bullying. This effect is typically offered as an explanation for excessive cruelty or vulgarity in online interactions, especially in cyberbullying. However, Suler's explication of online behavior is more nuanced than this most relevant proposition. Suler proposes that the online setting generates two kinds of disinhibition: The first is benign disinhibition, which can be seen in the majority of text messaging exchanges, which are positive and supportive interactions (Underwood, Ehrenreich, More, Solis, & Brinkley, 2015) or contain more self-disclosure than in-person conversation (Davis, 2012). For some people, such messages are easier to deliver online than in person. The kind of disinhibition

that is found in cyberbullying, however, Suler calls toxic disinhibition, which refers to the tendency to say more cruel and vulgar things online than in person.

Suler (2004) described features of the digital environment that seem to encourage this disinhibition. Those include anonymity, physical invisibility (of both sender and receiver of content), asynchronicity of communication, solipsistic introjection (the feeling that the "others" one encounters and communicates with online are part of the self), dissociative imagination (the sense that the online world is not real, so ordinary rules of interaction do not apply), minimization of status and authority, individual differences in personality and intensity of feelings, and shifts among intrapsychic constellations (revealing one's "true" self online). Suler suggested that some online environments might be more likely to promote these processes than others. Relatively few studies have tested these factors. Swiss adolescents rated public and anonymous cyberbullying to be worse than private and known senders (Sticca & Perren, 2013). Type of cyberbullying and the degree of publicity of the event are crucial factors in the degree of distress experienced by targets of cyberbullying (Pieschl, Kuhlmann, & Porsch, 2015). More research that tests the other hypothesized components of online disinhibition could determine which of these mechanisms operates in which settings and for which individuals. It would also be helpful to examine differences in digital platforms (e.g., social media and apps) that may more readily encourage toxic inhibition.

The Theory of Planned Behavior

The theory of planned behavior (TPB; Ajzen, 1991) focuses on the precursors to enacting a behavior. Three factors are posited to influence the enactment (or not) of a particular action (Barkoukis, Lazuras, & Tsorbatzoudis, 2013). One is behavioral beliefs, or attitudes toward the behavior. Regarding cyberbullying, this refers to how the individual appraises or judges cyberbullying actions (are they harmless, funny, harmful, inappropriate?). These attitudes are formed by observational learning, direct instruction, and social interactions with valued others.

The second factor is normative beliefs, or one's beliefs about what others think and do, that is, what is "normal" or acceptable behavior in cyberspace or on social media sites. Such norms can be subjective, formed by the individual in response to his or her need for approval, so that the individual has an opinion about how much approval he or she will gain by enacting a behavior. Descriptive norms, however, refer to the individual's perception of the prevalence of the behavior in a given group (friends, classmates, schoolmates, society, etc.). Descriptive norms may operate at both conscious and unconscious levels to influence behavior (Barkoukis et al., 2013). When the behavior is believed to be common, one is more likely to engage in that behavior. This approach has been used in efforts to reduce substance abuse behavior in young people by presenting data showing that binge drinking, for example, is not as normal as many think. A study of young adults found that participants who endorsed statements about the acceptability and typicality of cyberaggression were more likely to engage in cyberaggression 6 months later (Wright & Li, 2013).

Finally, moral norms, which are the individual's moral code about the particular behavior (is it right or wrong?), contribute to the individual decision about whether or not to engage in cyberbullying or to take action when cyberbullying is

observed. If an individual believes that cyberbullying is morally wrong (based on his or her moral development), he or she is much less likely to engage in the behavior. However, Bandura (1999) described the cognitive process of moral disengagement, whereby a person is able to behave in ways contrary to his or her moral code without suffering from guilt. This theory has been tested regarding cyberbullying (see Bussey, Fitzpatrick, & Raman, 2015; Menesini, Nocentini, & Camodeca, 2013; Perren & Gutzwiller-Helfenfinger, 2012; Robson & Witenberg, 2013; Wachs, 2012).

The third component of the TPB is self-efficacy, a component of Bandura's (1989) social-cognitive theory. When an individual is confronted with cyberbullying, self-efficacy, that is, confidence in one's ability to handle it effectively or to intervene effectively or to exercise self-control to resist pressure to engage in cyberbullying, is the final factor affecting the decision to enact a behavior. Even if one has attitudes that oppose cyberbullying and believes that most people disapprove of cyberbullying and that few actually engage in it, one may still be faced with a situation in which cyberbullying seems to be an option. One must have self-efficacy to withstand pressure from others in order to resist the temptation or pressure to cyberbully.

The advantage of this theory as a guide for research is that it describes malleable factors that can be influenced via formal and informal experiences. Attitudes can change when a critical mass of evidence or personal experience has accumulated. In a similar vein, normative beliefs can be revised in the face of persuasive evidence. For example, a belief that "everyone does it" can be disputed with scientific data showing the actual percentage of people who are involved in cyberbullying. Moral beliefs may be overridden by moral disengagement, noted above. For example, a person who cyberbullies another by impersonating him or her online and sending offensive content to others may justify the action by thinking, "they deserved that because they gave me their password and that's a stupid thing to do." Those disengaged beliefs are subject to influence, perhaps by one's own moral values. That is, when juxtaposed with one's moral principles, morally disengaged cognitions may be discarded. However, if one believes strongly that cyberbullying is absolutely wrong, and if that belief is reinforced via such avenues as anticyberbullying websites and speakers, the individual may develop the ability to recognize when his or her thinking drifts toward moral disengagement and catch him- or herself before succumbing to those disengaged thoughts.

All of these ideas about the usefulness of TPB as a prevention tool for cyberbullying can be empirically tested. They are also malleable factors that could be targeted for intervention and the effects evaluated.

Choice Theory as a Theoretical Perspective

Tanrikulu (2014) proposed that cyberbullying can be explained by the tenets of choice theory (Glasser, 1998), a counseling approach that evolved from reality therapy to control theory to choice theory in its most recent iteration. Choice theory posits that humans are motivated by five genetically encoded needs: survival, belonging, power, freedom, and fun. This theory emphasizes that individuals choose their own behaviors and are responsible for those choices and that a basic problem common to all unhappy people is that they do not have satisfying relationships in their

lives. The counseling process helps people identify their unmet needs, evaluate whether their current behavior is helping them meet these needs, and design specific plans to more effectively meet those needs. When Glasser (1998) uses the term *behavior,* he refers to "total behavior," which includes action, emotion, cognition, and physiology. Choice theory conceives of a "quality world," a mental image of the people and things one sees as ideal and to which the person aspires.

Tanrikulu (2014) proposed that given that cyberbullying peaks in adolescence, choice theory is a useful explanatory framework, especially because Glasser (1998) developed his theories from his work with adolescents. Tanrikulu argued that cyberbullying behaviors are efforts to satisfy a person's needs for fun and power. It also may be that in the absence of a strong sense of belonging, one will engage in cyberbullying in an effort to fulfill that basic need (e.g., gain approval from friends). Empirical support for this is seen in the results of a study finding that those children who engaged in cyberbullying were more likely to be lonely and had fewer reciprocal friendships, lower social acceptance, and popularity (Schoffstall & Cohen, 2011). Although the study was cross-sectional and causality cannot be inferred, it suggests that further investigation of this theory could provide relevant findings with implications for practice.

Measures and Methods

Research to date on cyberbullying has utilized self-report survey methodology in the vast majority of studies. Questions included in such surveys are generally one of two types: a global item, such as "How often have you been cyberbullied in the last two months?," or behaviorally specific items, such as "How often in the last two months has someone shared private information about you using digital technology?" Some surveys include a definition of cyberbullying, and others do not use the term at all. Although such research has been informative, particularly in the beginning stages of this line of inquiry, the limitations are well known. Self-report is subject to social desirability and mischievous responding, and many results are limited by shared method variance. The small proportion of qualitative studies (e.g., Mishna, Saini, & Solomon, 2009; Mishna, Schwan, Lefebvre, Bhole, & Johnston, 2014) have added depth and nuance to the quantitative findings. A very few researchers (e.g., Bellmore, Calvin, Xu, & Zhu, 2015; Calvin, Bellmore, Xu, & Zhu, 2015; Underwood, Rosen, More, Ehrenreich, & Gentsch, 2012) have used innovative methods that utilize the technological tools that are available, often by partnering with researchers in other fields. Underwood and colleagues (2012) provided BlackBerry devices to young people; all data from those devices were captured for analysis. Thus their findings are based on authentic data. Spears and colleagues (2016) have tested using social media to reduce cyberbullying and have involved youth as coresearchers, ensuring that their views were incorporated into research design. Youth are more aware of current practices, apps, and social media that are widely used and can inform researchers of important items to include. They can also ensure that terminology is appropriate for the target population. Thus the studies are likely to be more thorough and useful than those in which scholars are the only ones conceptualizing a study. More of these authentic studies will allow

direct testing of hypotheses about cyberbullying that are derived from the theoretical perspectives reviewed here.

Because survey research is so prominent in the field of cyberbullying, it bears mention that the surveys used should be the subject of careful scrutiny. Few researchers undertake careful psychometric analyses, often reporting only internal consistency statistics (Card, 2013). Exploratory and confirmatory factor analyses are needed, and evidence of validity should be presented. In addition, when measures are translated, efforts to ensure that the same properties hold for the original and translated versions should be documented (Strohmeier, Aoyama, Gradinger, & Toda, 2013). Without such analyses, the findings must be viewed with caution.

Many studies have used single-item indicators, whereas others use multiple behavioral indicators (Ybarra, boyd, Korchmaros, & Oppenheim, 2012) thought to represent the universe of cyberbullying behaviors. The challenge is that the universe of behaviors is constantly expanding, with new platforms and devices creating additional venues for cyberbullying. Thus a survey with behavioral descriptors may be quickly out of date when new platforms are omitted.

Ybarra and colleagues (2012) tested the effects of various wording and survey formats and found that the most accurate results are obtained when the word *bully* (or *cyberbully*) is used in the survey and when follow-up questions about differential power are answered by those who endorse a bullying experience. It would be helpful if researchers could agree on standard measures to ensure that all used the most accurate, psychometrically sound measures available. We also applaud those researchers who are exploring innovative research strategies that are particularly suited to the study of a digital phenomenon.

Central Research Findings

This overview of this burgeoning research literature focuses on three central questions: (1) What forms does cyberbullying take? (2) What are predictors of engaging in cyberbullying? (3) What are the psychosocial consequences of being a victim of cyberbullying?

Forms and Prevalence

Cyberbullying takes many forms, which continue to evolve as adolescents embrace new platforms with different affordances for social contact. Common cyberbullying behaviors include:

> hacking into another person's online accounts (Facebook, email, school account), unwanted sexual advances through the Internet or mobile device (sexting, explicit messages, or emails), embarrassing or threatening messages sent via text message, posting degrading comments or hate speech, sending embarrassing or threating emails, posting explicit or unwanted pictures without consent or knowledge, creating false profiles and using the imposter to post embarrassing comments, harassing other players during live online gaming, outing someone's sexual status or health status (e.g. STI status) online,

and creating group or website to harass another student or group of students." (Selkie, Kota, Chan, & Moreno, 2015, p. 81)

Although research has yet to identify specific motives for forms of cyberbullying, it is not difficult to imagine that these are behaviors that serve several needs proposed according to choice theory (Tanrikulu, 2014): power (to harm others), freedom (to express these behaviors in a context monitored less by adults), and fun (the sheer enjoyment of constant connectedness with peers, not to mention the reinforcement from likes and comments).

On the basis of a large and comprehensive meta-analysis, Kowalski, Giumetti, Schroeder, and Lattaner (2014) reported that prevalence rates for perpetrating cyberbullying average about 10%, with a range of 1–79% across studies, and that approximately 10–40% of adolescents report having been victims of cyberbullying. Those who are victimized by cyberaggression are almost always also involved in perpetrating cyberbullying; a latent class analysis with more than 6,000 European adolescents found that there seems not to be a group that is only victimized by cyberbullying (Schultze-Krumbholz et al., 2015). Perhaps this happens because of the online disinhibition effect (Suler, 2004)—that, in the online context, victims are more likely to retaliate because they are protected by anonymity, invisibility, and lack of concern about physical size. Sadly, victims of cyberbullying are most often hurt by those they know. In a large survey study of U.S. adolescents, of those who had been cyberbullied, 33% reported having been bullied by a friend, and 28% by someone they know from their schools (Waasdorp & Bradshaw, 2015). Research has yet to examine the development of cyberbullying and cybervictimization; it will be important to examine when these behaviors begin and how stable they may be across developmental time.

Antecedents and Possible Causal Factors

Although most research to date is correlational, the large body of work on correlates may suggest some factors that could predict who will engage in cyberbullying, although, of course, determining causality remains challenging. Again on the basis of a comprehensive meta-analysis, Kowalski and colleagues (2014) concluded that perpetrating cyberbullying was positively related to being a victim of cyberbullying, frequency of Internet use, risky online behavior, normative beliefs about aggression, moral disengagement, and anger, and that perpetrating cyberbullying was negatively related to parental monitoring, empathy, school safety, and school climate. A subsequent narrative review of 53 studies of possible antecedents concluded that perpetrating cyberbullying is related to being a boy, technology use, personality factors, values, peer norms, and school risk factors (Baldry, Farrington, & Sorrentino, 2015). The different levels of risk factors fit well with the propositions of social–ecological theories of bullying (Espelage & Swearer, 2004) that a child's behavior is influenced by microsystem factors in the immediate environment, as well as by exosystem factors such as peer norms and school environments.

An important risk factor for engaging in cyberbullying appears to be intense involvement with the Internet. Cyberbullying has been shown to be related to higher use of mobile phones (Arsène & Raynaud, 2014; Shin & Ahn, 2015) and

to frequency of Internet use (Aricak & Ozbay, 2016). For a U.S. sample of third to eighth graders, engaging in cyberbullying was related to involvement with multiple social network sites and also with sharing passwords (Meter & Bauman, 2015). Perpetrating cyberbullying is related to Internet use and using social networking sites more than 2 hours daily (Tsitsika et al., 2015), to intensity of Facebook use (Pabian, De Backer, & Vandebosch, 2015), and to number of Facebook connections who are not friends in real life (Wegge, Vandebosch, Eggermont, & Walrave, 2015). For a large sample of Canadian middle and high school students, engagement with social network sites was related to cyberbullying in a dose–response relationship, though this was fully mediated by being victimized by cyberbullying (Sampasa-Kanyinga & Hamilton, 2015).

Recent evidence also suggests that difficulties in relationships with parents may contribute to risk for perpetrating cyberbullying. In a study of adolescents from Cyprus, perceived parental psychological control predicted cyberbullying directly, and perceived parental support of autonomy protected from perpetrating cyberbullying indirectly via its relation to empathy and recognition of the humanity of victims (Fousiani, Dimitropoulou, Michaelides, & Van Petegem, 2016). For an adolescent sample from the Czech Republic, poor parental attachment predicted membership in a cyberbully-victim group (Bayraktar, Machackova, Dedkova, Cerna, & Ševčíková, 2015).

Recent research confirms that several personality factors predict cyberbullying involvement: low self-esteem (Brewer & Kerslake, 2015), low empathy (Brewer & Kerslake, 2015), anger (Aricak & Ozbay, 2016; Lonigro et al., 2015), and moral disengagement (Bussey, Fitzpatrick, & Raman, 2015). Cyberbullying has been shown to be associated with psychopathy (Pabian et al., 2015), borderline personality features (this relationship was mediated by jealousy; Stockdale, Coyne, Nelson, & Erickson, 2015), and with depression and suicidality (Merrill & Hanson, 2016).

Newer studies suggest additional environmental risk factors: exposure to antisocial media (defined as television, Internet, DVD, and games depicting antisocial behavior, such as fighting, drug use, stealing, and destroying property; den Hamer & Konijn, 2015), being bullied on school property (Merrill & Hanson, 2016), and playing video games for more than 3 hours a day (Merrill & Hanson, 2016). Other environmental factors may be more protective: eating breakfast daily, playing on sports teams, being physically active (Merrill & Hanson, 2016), and having positive bonds with teachers (Pabian & Vandebosch, 2016). In a rare longitudinal study of risks for cyberbullying, Barlett (2015) suggests that each episode of cyberbullying serves as a learning trial for the perpetrator, serving to consolidate positive attitudes toward cyberbullying. Peer support may reinforce cyberbullying behavior; cyberbullying was associated with perceiving that peers approve of cyberaggression and with perceiving that bystanders join cyberbullying (Bastiaensens et al., 2016).

Although great progress has been made in a short time toward understanding possible developmental antecedents of cyberbullying, the list of possible risk factors to date is disjointed. This research area would benefit from theory, either theories developed to explain the developmental origins of cyberbullying or even borrowing developmental theories from the literature on traditional bullying. In addition, it will be important to investigate possible protective factors in future research.

Psychosocial Outcomes

Cyberbullying is associated with poor psychological adjustment, for victims but also for perpetrators (Kowalski et al., 2014). According to the most recent, comprehensive meta-analytic review, perpetrating cyberbullying was associated with several negative outcomes: drug and alcohol use, anxiety, depression, low life satisfaction, low self-esteem, and poor academic achievement (Kowalski et al., 2014). Being the victim of cyberbullying was associated with high stress levels, suicidal ideation, depression, anxiety, loneliness, somatic problems, conduct and emotional problems, drug and alcohol use, low life satisfaction, lower self-esteem, and reduced prosocial behavior (Kowalski et al., 2014). Because of space limitations, the overview below highlights adjustment outcomes related to victimization, but given that there seems not to be a victim-only group for cyberbullying (Schultze-Krumbholz et al., 2015), many of these outcomes are also be associated with perpetrating cyberbullying.

More recent research confirms that cybervictimization is associated with poor psychological adjustment. Most studies to date have been cross-sectional, in which cybervictimization and adjustment have been measured at the same point in time. For a large U.S. sample of adolescents, cybervictimization predicted internalizing and externalizing problems above and beyond being the victim of traditional bullying (Waasdorp & Bradshaw, 2015). Similarly, for a large sample of Italian 13-year-olds, cybervictimization predicted psychological and somatic problems, even after controlling for computer use and for experiencing traditional bullying (Vieno et al., 2014). A study of cybervictimization with children ages 14–17 from six European countries found that cybervictimization was associated with internalizing, externalizing, and academic problems (Tsitsika et al., 2015).

Other recent studies support the relation between cybervictimization and mental health difficulties, but also suggest possible protective factors. A Swedish population-based study found that cyberharassment was related to health complaints, but that for boys, this relation was moderated by parent/friend support (Fridh, Lindström, & Rosvall, 2015). A large U.S. survey study found that cybervictimization was associated with 11 mental health and substance use problems, but that these associations were weaker for adolescents who reported having frequent dinners with their families (Elgar et al., 2014).

Several recent longitudinal studies confirm the relation between cybervictimization and psychological problems. For a sample of U.S. 13-year-olds, cybervictimization predicted poor academic functioning 1 year later according to school records: poor grades, absenteeism, and behavior problems (Wright, 2015a, 2015b). A 1-year longitudinal study confirmed that cybervictimization predicts negative cognitions and depressive symptoms for a U.S. sample ages 8–13 (Cole et al., 2016). For a U.S. sample ages 16–18, cybervictimization predicted subsequent depression more strongly when adolescents perceived high levels of stress from parents, peers, and academics and when they also perpetrated cyberbullying. A study with Spanish adolescents found that stable cybervictimization across 1 year was associated with depressive symptoms and alcohol problems at Time 2 (Gámez-Guadix, Gini, & Calvete, 2015).

Recent research confirms that cybervictimization may be associated with suicide, for both typically developing and clinical samples. A large survey study of a representative sample of U.S. adolescents found that for this normative sample, cybervictimization was related to suicidal thinking, planning, and attempts but that these relations were mediated by violent behavior, substance abuse, and depression (Reed, Nugent, & Cooper, 2015). In this same study, girls who were cybervictims reported more depression and suicidal behaviors than boys who were cybervictims. Several studies of psychiatric samples have found that cybervictimization is associated with suicidal ideation (Alavi, Roberts, Sutton, Axas, & Repetti, 2015; Roberts, Axas, Nesdole, & Repetti, 2016; Roh et al., 2015).

Implications for Prevention and Intervention

Given the serious psychosocial consequences of cybervictimization, programs to prevent and reduce cyberbullying are urgently needed. Cyberaggression poses serious challenges for prevention and intervention because the behaviors occur on diverse digital platforms, outside the scope of monitoring of many parents and other concerned adults. Although completely eradicating cyberaggression may be unrealistic, programs should be designed with that goal in mind because even a single experience may cause prolonged pain, perhaps in part because of the often highly public nature of cyberbullying and the fact that the person can reexperience it repeatedly by reading the hurtful digital content (Underwood & Ehrenreich, 2017). These programs could be informed by existing evidence-based bullying interventions but will likely be more effective if they are tailored to specific features of cyberbullying: the facts that perpetrators do not have to look their victims in the eye but can instead hide behind a screen, that physical size and strength is less relevant than skill and creativity in using technology, and that the harm done by cyberbullying is so immediately public and the humiliation long-lasting.

Effective programs to prevent and reduce cyberbullying will likely be guided by the burgeoning research literature on antecedents and risk factors, but translating the numerous findings into effective strategies will be challenging. Just as research in this area would be strengthened by theory to guide hypotheses, research on intervention would benefit from the guidance of theories to help in setting priorities. Social–ecological theories of cyberbullying suggest that successful prevention and intervention approaches will have to address risk factors at multiple levels (Cross et al., 2015), by addressing individual risk factors (such as empathy, moral engagement), family factors (parenting engagement with children's online lives), peer influences (peer attitudes toward cyberbullying and the extent to which peers engage in cyberbullying), online influences (access to technology), and community-level factors (school transitions, whether laws prohibit cyberbullying). All of these may be highly suitable targets for intervention (Ang, 2015). The disinhibition effect strongly suggests that interventions to reduce cyberbullying will need to address perceptions of anonymity, dissociative imagination, and the desire to reveal one's true self online. The TPB proposes that intervention programs should target perpetrator's attitudes and normative beliefs and bolster the self-efficacy of victims

(Ajzen, 1991). Choice theory suggests that cyberbullying satisfies individuals' needs for fun and power (Tanrikulu, 2014), which poses serious challenges for prevention and intervention because it is difficult for interventionists to reduce the extent to which adolescents enjoy and receive peer reinforcement for cyberbullying.

Although few interventions to date have been guided by these theoretical perspectives, some programs show promise of success (for an overview, see Zych, Ortega-Ruiz, & Del Rey, 2015). Following a school-based prevention program with 16- to 18-year-olds in Greece that included group-based discussions to raise awareness of the harm caused by cyberbullying, participants' moral engagement scores increased (Barkoukis, Lazuras, Ourda, & Tsorbatzoudis, 2016). German adolescents (ages 11–17) who participated in a 10-week intervention to increase empathy showed decreases in cyberbullying and increases in empathy, though increases in empathy were not found to be associated with decreases in cyberbullying (Schultze-Krumbholz, Schultze, Zagorscak, Wölfer, & Scheithauer, 2016).

However, other well-designed, even theoretically motivated programs seem to have less impact. One such program using a social–ecological framework was called Cyber-Friendly Schools and addressed the five C's of cyberbullying (online contexts, online controls, confidentiality, conduct, and content; Cross et al., 2015). After 18 months of intervention, self-reported cyberbullying had decreased, but this positive effect had dissipated by 1 year later. A 3-year, randomized control trial of the effectiveness of the Second Step program (a year-long classroom-based intervention to teach social skills) with a large sample of U.S. sixth graders found no direct effects of the intervention on rates of cyberbullying (Espelage, Low, Van Ryzin, & Polanin, 2015).

One strong hope for preventing and reducing cyberbullying might be motivating peers to intervene with each other, especially given that cyberbullying happens on digital platforms that may be outside the realm of adult supervision. Studies with university students suggest that bystanders notice cyberbullying only about 68% of the time; of those who notice, only 10% intervene directly, but 68% intervene indirectly after the event (Dillon & Bushman, 2015). In a clever experimental study, empathy training had a short-term effect on adolescents' forwarding a mean message mocking a peer, but the long-term impact of the empathy training was small (Barlińska, Szuster, & Winiewski, 2015). Whether and how adolescents are willing to intervene with peers to stop cyberbullying may depend on their own victimization experiences; adolescents who had been victims of cyberbullying reported more negative bystander responses than those who had not been victimized, though girls who had been cyberbullied reported more positive, prosocial bystander behaviors than male victims (Cao & Lin, 2015). Here again, although interventions to reduce cyberbullying might borrow strategies from interventions to reduce traditional bullying, the specific guidance offered may have to be tailored to the unique features of the digital context; the risk of physical harm is low but the risks of long-lasting reputational harm and inviting attacks are great.

Because cyberbullying is by its very nature a digital phenomenon, perhaps prevention and intervention programs could be strengthened by taking advantage of the fun and appeal of digital technology for youth. Thirteen different prevention and intervention programs have used information and computer technologies (ICTs) to deliver the intervention in the form of serious games, virtual reality, and

other digital activities (Nocentini, Zambuto, & Menesini, 2015), but only four of these showed any evidence of effectiveness. One example of an effective program, Cyberprogram 2.0, resulted in reduced cyberbullying and increased empathy for 13- to 15-year-olds in Spain (Garaigordobil & Martinez-Valderry, 2015a) and also increased positive conflict-solving strategies and self-esteem (Garaigordobil & Martinez-Valderry, 2015b). An especially promising digital approach to prevention of cyberbullying may be serious game design. Serious game design could be guided by an intervention mapping protocol, beginning with surveys and focus groups with adolescents and parents and educators, meta-analyses of research literature, and moving toward game design, implementation, and assessment of effectiveness (DeSmet et al., 2016).

Future Directions

Future research on cyberbullying would benefit from being guided by theory. Theory would be helpful in generating hypotheses that build on previous work, integrating the massive number of recent research findings in some meaningful way, or perhaps in illuminating results that demand new theories.

Future research on cyberbullying will also need to fully consider the challenge that cyberaggression may be extremely low-base-rate behavior but so lethally hurtful that even a single experience of victimization could cause long-term pain. This poses serious challenges for all forms of measurement. Surveys often focus on frequency, but someone who reports having experienced cyberbullying rarely may still have been harmed by an agonizing experience. Studies that capture content may miss the few key episodes of cyberbullying, in part because of the tremendous volume of many adolescents' digital communication. To understand the extent to which rare experiences of cyberbullying may be intensely painful, experience sampling or diary-type methods could be helpful, in which participants receive daily text messages asking them a few short questions about online experiences and then are directed to more detailed online questionnaires if they have experienced cyberaggression. More qualitative approaches may also be fruitful: simply asking youth to describe their most painful online experiences, then following up with questions to assess important dimensions of those episodes.

Asking youth about their worst online experiences may force researchers to expand our definitions of cyberaggression. When asked about "the worst thing that ever happened to you online," a sample of U.S. 13-year-olds reported the following: "Being excluded to some parties"; "I figured out a girl that I knew and we were friends blocked me"; "My best friends hung out without me, and posted it on Instagram"; "My friends went out without me and posted pictures on Instagram then denied they were out together"; "Not anything specific, but I don't like when people post pictures or tweet about a party that I wasn't invited to" (Underwood & Faris, 2015). In this same study, 47% of 13-year-olds reported feeling excluded by their friends at least sometimes because of posts they saw on social media. Over a third of this sample admitted to posting pictures online for the purpose of making others feel excluded. Posting pictures of small-group gatherings on social media could be a highly subtle form of cyberaggression, one that poses serious challenges

for victims. Peers might be reluctant to confront each other about this behavior because it could be viewed as nothing but fun and friendly sharing, though youth clearly understand that it hurts others (Underwood & Faris, 2015). Even the most vigilant parent who might try to monitor adolescents' social media for cyberbullying might not be able to detect this behavior that young adolescents report to be hurtful.

Present definitions of cyberbullying may not include online behaviors that are a frequent source of pain for many youth. Fully understanding cyberaggression will require asking youth to help us understand what hurts them most in particular types of digital communication, what types of peer responses are more helpful and effective, and how caring adults could best support them.

Conclusions

As we continue to try to understand the phenomenon of cyberbullying, it will be important to be mindful that adolescents move seamlessly between offline and online social contexts (boyd, 2014); a clear distinction between the online and offline social worlds may exist only in adults' minds. Adolescents co-construct their offline and online identities (Subrahmanyam, Smahel, & Greenfield, 2006). Adolescents who engage in bullying offline are more likely to engage in cyberbullying (Kowalski et al., 2014), and adolescents are most likely to be hurt online by peers they know (Waasdorp & Bradshaw, 2015).

As we continue to try to understand cyberbullying, researchers will need to test existing developmental theories in this new context, develop new theories as needed, and engage in ongoing conversations with adolescents to help us understand what online experiences distress them the most.

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