

Social Influences on Cyberbullying Behaviors Among Middle and High School Students

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Abstract Cyberbullying is a problem affecting a meaningful proportion of youth as they embrace online communication and interaction. Research has identified a number of real-world negative ramifications for both the targets and those who bully. During adolescence, many behavioral choices are influenced and conditioned by the role of major socializing agents, including friends, family, and adults at school. The purpose of this study was to determine the extent to which peers, parents, and educators influence the cyberbullying behaviors of adolescents. To explore this question, data were analyzed from a random sample of approximately 4,400 sixth through twelfth grade students (49 % female; 63 % nonwhite) from thirty-three schools in one large school district in the southern United States. Results indicate that cyberbullying offending is associated with perceptions of peers behaving similarly, and the likelihood of sanction by adults. Specifically, youth who believed that many of their friends were involved in bullying and cyberbullying were themselves more likely to report cyberbullying behaviors. At the same time, respondents who believed that the adults in their life would punish them for cyberbullying were less likely to participate. Implications for schools and families are discussed with the goal of mitigating this behavior and its negative outcomes among adolescent populations.

Keywords Cyberbullying · Bullying · Peers · Adolescence · Youth · Technology · Cyberspace

Introduction

Over the last decade, youth quickly have acquired a proclivity for computers and the Internet, and have benefited greatly from the social and relational benefits that the Web and electronic communication provides (Lenhart et al. 2011). A meaningful proportion of teens, however, is being exposed to interpersonal violence, aggression, mistreatment, and harassment while online—through what has been termed “cyberbullying,” defined as “willful and repeated harm inflicted through the use of computers, cell phones, or other electronic devices” (Hinduja and Patchin 2009:5; 2012). Via these tools, one can send hurtful and denigrating messages and content to a specific target, to third parties, or to a public forum that many other online users visit. Common forms of cyberbullying include sending threatening messages using a computer or cell phone, posting libelous or harassing messages on one’s Facebook page, or uploading unflattering or humiliating pictures or videos to the Internet without permission (Kowalski and Limber 2007). While previous research has illuminated the nature and extent of cyberbullying behaviors (Patchin and Hinduja 2012), few studies have attempted to better understand the possible underlying causes or correlates of cyberbullying participation.

The current study examines the role of peers, parents, and educators in the prevention of cyberbullying behaviors among a sample of approximately 4,400 middle and high school students from thirty-three schools in one large school district in the southern United States. It is hypothesized that these informal social control groups exert a large influence on the online behaviors of adolescents, with peers likely to

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be the most important during this developmental stage (Warr 1993). Specifically, it is posited that students who have many peers who they believe participate in bullying and cyberbullying will be more likely themselves to cyberbully others, while those who think that their parents or adults at school would sanction them for such behavior will be less likely to participate. Results of this analysis should shed additional light on this emerging problem in a way that will help inform appropriate prevention and response strategies.

The Nature and Extent of Cyberbullying

Research findings on the frequency of cyberbullying vary widely from one study to the next, largely due to different ways that the behavior is defined, and the different sampling and methodological strategies employed (Tokunaga 2010). Among thirty-five articles published in peer-reviewed journals known as of 2011 that included cyberbullying victimization rates, figures ranged from 5.5 to 72 % (Patchin and Hinduja 2012). For example, Finkelhor et al. (2000) found that about 6 % of youth had been harassed online in the previous year while Juvonen and Gross (2008) found that 72 % of youth had been cyberbullied (also within the previous year). Most of the studies reviewed ($n = 22$) estimate that approximately 6–30 % of teens have experienced some form of cyberbullying (Patchin and Hinduja 2012). Relatedly, the number of youth who admit to cyberbullying others at some point in their lives is a bit lower, though quite comparable. Among twenty-seven articles published in peer-reviewed journals known as of 2011 that included cyberbullying offending rates, 3–44 % of teens reported cyberbullying others (Patchin and Hinduja 2012). Despite the variability across studies, these rates demonstrate that a meaningful proportion of adolescents are involved in cyberbullying.

It is also clear from the extant research base that cyberbullying experiences can have a significant effect on the emotional and psychological well-being of adolescents. Studies have found that cyberbullying offending is associated with negative emotions such as sadness, anger, frustration, embarrassment, or fear (Hinduja and Patchin 2007; Patchin and Hinduja 2011; Ybarra and Mitchell 2007), and these emotions have been correlated with delinquency and interpersonal violence among youth and young adults (Aseltine et al. 2000; Broidy and Agnew 1997; Mazerolle et al. 2000; Mazerolle and Piquero 1998). In addition, bullying (both offline and online) has been tied to host of other negative psychosocial and behavioral outcomes such as suicidal ideation, dropping out of school, aggression and fighting, drug use, and carrying a weapon to school (Ericson 2001; Hinduja and Patchin 2007, 2008, 2009, 2010a; Rigby 2003; Seals and Young 2003; Slee and Rigby 1993; Ybarra et al. 2007; Ybarra and Mitchell 2004). Despite many efforts to better understand the nature, extent, and consequences of various forms of

bullying, more research is necessary to clarify the most prominent factors that are related directly and indirectly to cyberbullying offending behaviors. Towards this end, it is reasonable to hypothesize that adolescents may be influenced by friends, family, and adults at school.

Social Influences on Adolescent Behavior

When considering the factors that most strongly affect the decision-making of adolescents, much research has focused on the role of social controls. The salience of *formal* social controls, such as the threat of legal sanction, has been mixed in the extant research base with the weight of the evidence suggesting that youth are not generally deterred by overly punitive policies or the threat of arrest (Nagin 1998; Pateroster 1987; Pratt et al. 2006). *Informal* social controls, on the other hand, which tap into the intrinsic desire of individuals to belong to and align with a particular group, have proven to be more influential in constraining deviant adolescent behavior. Much research has shown that youth are induced directly or indirectly to make conventional and normative choices largely because of relationships with peers, parents, educators, and other valued and respected adults (Sampson and Laub 1993; Simons et al. 2005). In a child's early years, the role of parents and educators is most prominent, as children seek out affinity with, and approval from, these adults in their lives (Eisenberg and Fabes 1998; Steinberg 2001). During this growth and socialization process, children observe and internalize behavioral norms and standards of conduct from those adults, and proceed down a pathway of general societal conformity. As adolescents continue to develop, however, the peer group has a much stronger impact in shaping their attitudes and actions (Erikson 1968; Hirschi 1969; Warr 1993). This, of course, can lead to conformity but also sometimes to divergence from the social norm, which we discuss in detail below.

The Influence of Parents and Educators

As noted above, parents have a very strong influence on the behavior of their children. Numerous studies have identified that youth with supportive, involved, attentive, and non-permissive parents are less prone to delinquency (Glueck and Glueck 1950; Simons et al. 2007; Simons et al. 2004). Within these environments, consistent, clear, redundant, age-appropriate instructional messages of prosocial behavior and attitudes by parents can be conveyed, and have been proven very effective (Eisenberg and Fabes 1998; Grusec et al. 1996; Oliner and Oliner 1995). Even in situations where parents are not able to directly supervise the behaviors of their children, the positive relationship (or bond) between parent and child can insulate the youth from participating in deviant activities. As Travis Hirschi (1969:88) observed over four decades ago: "If the bond to the parent is weakened, the probability of

delinquent behavior increases; if this bond is strengthened, the probability of delinquent behavior declines.” Youth who are bonded strongly to their parents will be less likely to behave in a way that is inconsistent with their shared values, whether their parents are around to directly supervise or not.

Additionally, there is much that can be said about the role of educators and schools in promoting positive youth development and insulating students against delinquency in their everyday lives (Perkins 2000; Torney-Purta 2002). This seems particularly true when considering the amount of hours each week that adolescents spend at school interfacing with adults who have the direct and indirect ability to positively influence, guide, and condition their choices. Research has shown that the school experience as a whole, if marked by connectedness, bonding, productive rule-setting, and respectful and warm relationships between teachers and students, can serve as a strong protective factor for youth (Cernkovich and Giordano 1992; Resnick et al. 1993). Accordingly, school-centric efforts that involve sharing appropriate messages within a positive environment have borne fruit in reducing bullying (Battistich et al. 1995, 1997; Black 2007), drug use (Battistich et al. 1995, 2004; Catalano et al. 1996), and delinquency (Catalano et al. 1999; Payne 2008).

Ideally, both parents and educators can work together to support youth during the identity formation process that occurs during this tenuous point of their developmental trajectory. Their positions in the home and school provide them with a powerful but carefully-scrutinized platform for modeling the importance and benefits of appropriate, conforming choices to adolescents who are looking for guidance and assistance but also who are fiercely protective of their increasing freedoms and individuality, as well as the way in which they want to represent themselves to their peer group (Battistich et al. 1997; Eisenberg and Fabes 1998; Grotevant 1998). The effectiveness of the messages conveyed and the behavioral direction the youth follows, then, seem to depend on which is stronger: the strength of the social bond between youth and the adults in their life, or that between youth and their peers (Warr 1993).

The Role of Peers

It is widely understood that peers play a dominant role in the socialization of youth, and perhaps one that has increased in recent decades (Brown 2004; Brown et al. 2008; Steinberg and Monahan 2007). Particularly in the United States, some have argued that “parental authority and control over socialization ... [have been] ceded to peers” (Warr 2002:20). This may result from the widespread availability of cars, jobs, and ample free time (as compared to the Eastern world) in which to hang out with friends. The relationship between peers and delinquency has been studied at length (Akers 1998; Cloward and Ohlin 1960;

Warr 2002) over the last half-century by researchers across a variety of academic disciplines. A constant finding in this literature is the overall strength of peer influences as a predictor of adolescent behavioral choices (Dishion et al. 1996; Fergusson et al. 1999; Hawkins et al. 1992).

When a youth starts to run in a circle of deviant peers, he or she is presented with more criminal opportunities, and partaking in misbehavior becomes more attractive in a collective setting or “intimate personal groups” rather than as a singular individual (Cloward and Ohlin 1960; Haynie 2001; Sutherland 1947). In this environment, deviant peer norms are reinforced through the fear of shaming or ridicule, the desire to demonstrate loyalty, and the desire to maintain status or rank—which all can be characterized as informal methods of social control (Warr 2002). The relationship between peer influence and the acceptance of delinquent behavior is magnified when adults are not doing their part in positively affecting youth choices (e.g., when youth have inconsistent or weak (Germán et al. 2009; Kerr and Stattin 2000) or hostile and dysfunctional (Rothbaum and Weisz 1994) interactions with their parents).

It also should be mentioned that the impact of peers and their behavioral choices seems to be stronger than individual delinquent tendencies or values, once again underscoring the importance of this relationship (and consequently, the need to counter it) (Matsueda and Heimer 1987; Warr and Stafford 1991). We particularly see this link in pre-adolescence (Elliott et al. 1985) and adolescence (Hawkins et al. 1992). For example, hanging out in delinquent friendship networks increases one’s participation in crime, alcohol, and drug use (Fergusson et al. 1999; Kandel 1978; Patterson and Dishion 1985), and other forms of wrongdoing (e.g., De Kemp et al. 2006; Deptula and Cohen 2004; Laird et al. 1999; Matsueda 1982). In addition, having delinquent friends is more predictive of delinquency participation than cognitive support or the learning of techniques of the misbehaviors (Akers et al. 1979; Akers and Lee 1996).

There does remain some contention among researchers as to the temporal ordering of these constructs at its onset (Kandel 1978; Matsueda and Anderson 1998; Thornberry et al. 1994). The question is: do delinquent peer associations cause a law-abiding youth to turn to delinquency, or do delinquent youth seek each other out? In other words, which came first: the relationship or the behavior? Several longitudinal studies have found that spending time with delinquent peers precedes delinquency participation (Elliott and Menard 1996; Warr 2002). Over time, though, it is generally agreed upon that the relationship is reciprocal as delinquent peer groups induce delinquency in non-delinquent youths (the role of influence), and already-delinquent youths seek out or meet up with similarly delinquent youths (the role of selection). In fact, Warr has argued that scholars should

“abandon the either/or, or black/white conception of causal direction” and simply conclude that there is a strong link with peer influence being “the principal proximate cause of most criminal conduct ...” (Warr 2002:43, 136).

The Current Study

Given the literature reviewed above, it is clear that there are a number of potent factors within the constellation of social forces operating in the lives of youth. Some of these may serve to compel adolescents to behave in positive and prosocial ways (e.g., parents and educators), and others may do the opposite by leading them in the other direction (e.g., delinquent peers). As outlined above, these control agents do not work in isolation but play off of each other as well. Parents and educators might serve to attenuate or weaken the effect of delinquent peers if they carry out their roles effectively, while ineffectiveness on their part perhaps enhances the power of negative socialization from peers. Failure to properly monitor, train, and discipline children no doubt increases the likelihood that they will gravitate towards delinquent peer associations (Dishion et al. 1991; Patterson and Dishion 1985). Appropriate monitoring and instruction tends to lead to a healthier social bond between the adult and child, which can serve to dissuade and buffer against unhealthy peer relationships (Warr 1993, 2002).

These observations lead us to the main questions of the current work: Are students who report that their peers have engaged in bullying or cyberbullying more likely to report that they themselves have recently engaged in cyberbullying? Are students who perceive that parents and schools will respond to bullying and cyberbullying less likely to report that they have engaged in cyberbullying? In short, do peers and parents/schools influence the behavioral choices of students to participate in cyberbullying? It is essential to answer these questions in order to then determine how best to promote factors that contribute to conventional online behavior, and defend against those that lead to wrongdoing among this population.

Method

Participants and Procedure

The data for the current study came from a survey distributed in the spring of 2010 to a random sample of 4,441 students from 33 middle and high schools (6th through 12th grades) in one of the largest school districts in the United States. Adolescents within this particular age group are subject to cyberbullying experiences at a disproportionate

rate and therefore represent an appropriate study population (Patchin and Hinduja 2012). Administrators across the district were asked to randomly select two to three classrooms from each grade level at each school for participation in this study. Passive consent was obtained from parents in the schools involved; this has been an appropriate and successful method in other studies seeking to explore interpersonal violence and cyberbullying among secondary school students (see e.g., Kowalski and Limber 2007; Smith et al. 2008). Letters were sent home to parents explaining the nature and purpose of the project and those parents who wished to have their child(ren) excluded were asked to indicate that preference on a form and return it to the school. There was a 99 % completion rate from students who were not absent from school the day the survey was conducted. Those parents who declined their child’s involvement cited the fact that students were voluntarily requested (though not required) to reveal their sexual orientation via the survey.

School administrators were informed that “the purpose of this study is to acquire data and provide information to school personnel in the hopes of promoting a better understanding of students’ perceptions of, familiarity with, and attitudes toward, using the Internet in various ways and to support subsequent policy response” and that “the data collected will be a valuable contribution to the District’s overall understanding of this new form of adolescent aggression and will help determine how behavior in the virtual world translates into the physical realm on our campuses.” They consequently informed the teachers as such, and gave them an informational packet that included directions to be read to their class regarding the facilitation of the survey. Specifics included its general purpose, the fact that participation was voluntary, and that no identifying information would be requested. Survey administration occurred in a group format with students filling out a multi-page web-based survey within each school’s computer lab. To make access easy, IT Administrators at each school placed a shortcut icon on the desktop of all computer workstations within campus computer labs. Students who chose not to participate were asked to silently read, study, or work on their school materials.

Teachers were advised to give students privacy while they completed the survey, and were asked to ensure that students were not looking at the computer monitors and survey responses of others. They were also available to answer any questions and clear up any confusion a student may have had while participating. After data cleaning and removal of those with inconsistent or problematic answers, the final sample size totaled 4,441 students.

The sample obtained is expected to represent the broader population of middle and high school students in the district. When comparing the demographic breakdown of respondents to that of the overall district, the numbers were

Table 1 Sample demographic characteristics (N = 4,441)

	Sample (%)	Population (%)	t value
<i>Gender</i>			
Female	49.1	49.1	0.27
Male	50.5	50.9	-0.27
Missing	0.3		
<i>Grade</i>			
6th	17.0	14.0	5.22*
7th	17.4	14.4	5.19*
8th	21.0	14.0	11.40*
9th	16.5	15.6	1.645
10th	11.4	14.3	-6.06*
11th	8.8	14.0	-12.10*
12th	7.6	13.7	-15.13*
<i>Race</i>			
White/Caucasian	37.3	39.5	-2.69*
Hispanic or Latin American	24.5	25.7	-1.56
Black/African American	23.9	28.4	-6.75*
Multiracial	2.5	2.7	-0.68
Asian	4.4	3.1	4.27*
American Indian or Native	0.9	0.6	2.41*
Other	5.8		
Missing	0.7		

* statistically significant difference between sample and population ($p < .05$)

largely similar, though there were several demographic characteristics where our sample differed from the population (see Table 1). We employed a one sample *t* test to determine the extent to which the sample was representative of the larger population and found that sample included significantly more middle school students than high school students and fewer White non-Hispanic and African American students than the population as a whole. Despite these differences, the sample was deemed diverse and largely representative, thereby permitting further analyses.

Measures

Cyberbullying

The dependent variable in this analysis, *cyberbullying offending*, represents the respondent’s self-reported participation in the previous 30 days with 9 different forms of online aggression (see Table 2). Our cyberbullying offending measure included a variety of behaviors ranging from relatively minor (I posted mean or hurtful comments about someone online) to more serious (I threatened to hurt someone online). The response set for these questions was:

Table 2 Prevalence and type of cyberbullying Offending (N = 4,441)

	% few times or more (n)
I cyberbullied others	4.9 (210)
I posted mean or hurtful comments about someone online	4.5 (195)
I spread rumors about someone online	3.7 (157)
I threatened to hurt someone online	3.2 (141)
I threatened to hurt someone through a cell phone text message	3.2 (141)
I pretended to be someone else online and acted in a way that was mean or hurtful to them	2.4 (107)
I posted a mean or hurtful picture online of someone	2.4 (103)
I created a mean or hurtful web page about someone	2.1 (87)
I posted a mean or hurtful video online of someone	2.0 (94)
One or more of the above behaviors	11.2 (487)

Reflects experiences within the previous 30 days

never, once, a few times, many times, or every day. Therefore, our 9-item summary scale ranged from 0 to 36 (mean = 1.05; SD = 4.48) with higher values representing more participation in cyberbullying behaviors (Cronbach’s $\alpha = .965$).

Since the operationalization of cyberbullying measures has been an issue of contention in the literature (see Patchin and Hinduja (2012) for a discussion of these methodological issues), we want to further justify our particular approach. This cyberbullying measure was developed and refined over the course of 5 years and five different studies to ensure that the questions were clearly worded, well-defined, and capable of capturing the most relevant behaviors. In addition to the strong internal consistency reported in the current sample, similar reliability coefficients were found in earlier samples of middle and high school students (Cronbach’s α range = .74 to .97). We also used factor analysis (principal components extraction) to establish construct validity and found that all items loaded on one factor (loadings ranged from .749 to .949; Eigenvalue = 7.34).

Peer Involvement in Bullying and Cyberbullying

The first independent variable in this analysis, *peer involvement*, represented the respondent’s self-reported perceptions of the extent to which his or her peers had participated in bullying or cyberbullying. Specifically, students were asked how many of their friends had “bullied someone at school,” “bullied someone while using a

computer,” and “bullied someone with their cell phone.” The response set for these questions was: none, a few of them, some of them, most of them, and all of them. As a result, we created a 3-item summary scale that ranged from 0 to 12 (mean = 0.97; SD = 2.18) with higher values representing a belief that more of one’s peers have participated in bullying and cyberbullying (Cronbach’s $\alpha = .887$).

Perceived School and/or Parent Sanction for Cyberbullying

The second independent variable in this analysis, *informal sanction*, represented the respondent’s self-reported perceptions about the likelihood that someone would be punished for engaging in cyberbullying. Specifically, students were asked how likely someone at their school would “get caught,” “be punished by the school,” or “be punished by their parents.” Responses to these questions ranged from very unlikely (0) to very likely (3). Students were also asked whether they thought the teachers at their school took bullying and cyberbullying very seriously (two separate questions). Responses to these questions ranged from strongly disagree (0) to strongly agree (3). These questions were combined to create a 5-item summary scale that ranged from 0 to 15 (mean = 7.70; SD = 3.59) with higher values representing a higher likelihood of apprehension and punishment by one’s school or parent(s) (Cronbach’s $\alpha = .798$).

Other Demographic Control Variables

In addition to the aforementioned variables, the analyses also included other demographic measures to control for some potentially important spurious relationships. *Male* was a dichotomous item where 1 = male and 0 = female. As reported in Table 1, the sample was evenly divided across gender. *White* was a dichotomous variable where 1 = White and 0 = non-White. Approximately 38 % of respondents were White. Finally, *Age* was included as a continuous variable representing the respondents age in years (range 10–18; mean = 14.1).

Data Analysis

Statistical analyses were conducted using SPSS (version 19.0). We first computed descriptive statistics to better understand the characteristics of the sample and nature of cyberbullying perpetrated by the students in this population. We then computed two ordinary least-squares (OLS) regression models to estimate the relationship between peer

bullying behaviors, informal sanctioning, and cyberbullying offending while controlling for age, gender, and race. OLS regression is appropriate given the continuous nature of the dependent variable. We also performed a number of regression diagnostic analyses (reviewing univariate statistics and correlation matrices and computing variance inflation factor and tolerance statistics) to rule out multicollinearity and other potential threats (e.g., outliers) to the statistical models. In all models, statistical significance was determined using an alpha level of .05 (two-tailed tests).

Results

Table 2 presents the proportion of students in our sample who reported participating in various forms of cyberbullying in the previous 30 days. Given that a primary feature of cyberbullying is that it is repeated behavior, Table 2 only includes those students who reported that they had participated in each of the activities “a few times” or more. As noted in Table 2, 4.9 % of the students indicated that they had cyberbullied others. The most commonly reported specific type was posting hurtful comments (4.5 %).

Table 3 presents the results of the OLS regression model that estimates the effect of peer involvement in bullying and perceptions of informal sanctioning on cyberbullying behaviors. Before including the independent variables of interest in this study, the demographic variables were entered for control purposes (see Table 3, Model 1). As can be seen, males and older youth were slightly (but significantly) more likely to engage in cyberbullying behaviors. Additionally, White students were less likely to report participation. These variables together, however, explained very little (less than 1 %) of the variation in cyberbullying behaviors ($r^2 = .005$). Once peer involvement in bullying and perceived likelihood of informal sanctions were added to the model (see Model 2), the proportion of explained variance increased significantly ($r^2 = .378$). Specifically, students who reported that their friends had participated in cyberbullying were much more likely to also report that they themselves had engaged in cyberbullying. Moreover, students who said that their school or parents would take bullying and cyberbullying seriously and were likely to punish such behaviors were significantly less likely to report that they had participated. These findings support our hypothesis that certain informal social control mechanisms (i.e., peers, parents, educators) do have an important impact on the cyberbullying behaviors of adolescents.

To assess the nature of these relationships even further, we computed a 2×3 table representing the mean cyberbullying offending scores for students by peer behaviors (peers bullies/peers not bullies) and perceived adult responses (adult sanction likelihood low, medium, and

Table 3 Ordinary least squares regression: the effect of peers and informal sanctioning on cyberbullying behaviors (N = 4,441)

	Model 1: control variables		Model 2: cyberbullying offending	
	b (S.E.)	β	b (S.E.)	β
Constant	-0.449 (0.507)		0.366 (0.467)	
Male	0.353 (0.136)	0.039*	0.345 (0.106)	0.040**
White	-0.301 (0.140)	-0.033*	-0.093 (0.110)	-0.010
Age	0.102 (0.035)	0.044**	-0.012 (0.029)	-0.005
Peer involvement			1.210 (0.025)	0.603***
Informal sanction			-0.064 (0.016)	-0.052***
F (df)	7.38 (3)		511.497 (5)	
R ² (adjusted R ²)	0.005 (0.004)		0.378 (0.377)	

* $p < .05$; ** $p < .01$;
*** $p < .001$ (two-tailed)

Table 4 Summary table of means for the effect of adult response and peer behaviors on cyberbullying

	Adult sanction likelihood			
	Low	Medium	High	Marginal
Peers not bullies	0.88	0.50	0.23	0.52
Peers are bullies	19.47	8.78	16.79	13.36
Marginal	2.18	0.77	0.56	1.01

high; see Table 4). The adult sanction likelihood scale was created by using the mean (medium) and one standard deviation below (low) and above (high) as cutoffs. For students who did not have friends who were bullies, as the likelihood of adult sanction for bullying/cyberbullying increased, participation in cyberbullying markedly decreased. This pattern was not as evident among students who associated with others who bully. Confirming the earlier analyses, students who reported that their peers had been involved in bullying were much more likely themselves to cyberbully, although the effect of perceived adult sanction was not as prominent.

Discussion

If a student’s close peer group bullies others online, is she more likely to do so than if those in her social group did not participate in cyberbullying? If a student has internalized the fact that his parents and school are not dismissive of online bullying and take it seriously by meting out sanctions, is he less likely to participate in cyberbullying? These were the major questions we sought to answer through this study, particularly due to the historically prominent influence of peers in shaping youthful behavior, and the traditionally insulating role of the family and school in socially controlling the actions of children and teens (Cernkovich and Giordano 1992; Steinberg 2001; Warr 2002). In general, the answer to both of these questions was a moderate “yes.”

The current work found that a relatively small but non-negligible number of youth have participated in a variety of cyberbullying behaviors within the previous 30 days. The prevalence rates are on the lower end of those commonly reported in the literature (Patchin and Hinduja 2012). This can be explained largely by our decision to have students report only their most recent experiences with cyberbullying (within the previous 30 days) and that we only classify those who reported repeated experiences (a few times or more) as having participated in cyberbullying. We believe that it can be difficult for adolescents to remember exactly when they did something if it happened too long ago. Asking them to focus on only the previous 30 days helps to ensure that it actually happened fairly recently.

The study also found that students who reported that many of their friends had bullied others (at school, using a computer, and using a cell phone) were significantly more likely to have also reported that they too had cyberbullied others. Breaking the data down even further, only 4 % of the respondents who said none of their friends had cyberbullied others in the previous 6 months reported that they had cyberbullied others in the last 30 days. In contrast, 62 % of the students who said “all” or “most” of their friends had cyberbullied others in the previous 6 months reported that they had done the same.

Moreover, respondents who reported that a sanction was likely from their parents or school were significantly less likely to report involvement. It is clear that when parents or teachers at school explicitly convey to their children and students that bullying behaviors are not appropriate, the youth are less likely to participate in those behaviors. This was especially true for the respondents who did not associate with peers who bully others, but even true among those who did. As discussed above, close monitoring and supervision by parents of adolescents does tend to lead to a lower likelihood of deviant peer associations (Laird et al. 2003). Moreover, research has shown that opening the lines of communication between parent and teen children provides a protective benefit in decreasing a variety of specific risky behaviors (Miller et al. 2000), including those that are

largely peer-driven. Its deterrent value seems to exponentially grow, however, when coupled with support within a positive, consistent infrastructure of parenting practices (Hill et al. 2005; Rodgers 1999). Here, parents can engage actively in continual dialogue with their children about various behaviors, and even provide opportunities to practice and refine social skills and competencies (such as conflict resolution, empathy, the sharing of controversial opinions (Laird et al. 1994)).

Implications for Policy and Practice

Several specific implications for the prevention of cyberbullying behaviors naturally follow from the results of this study. It must be reiterated that teens are figuring out who they are through identify formation, exploration, and production (boyd 2006; Calvert 2002; Erikson 1950; Turkle 1995). Dominant in this process is the desire to become their own person making autonomous decisions that maximize positive self-attitudes and minimize negative self-attitudes and create an attractive social identity (Jang and Thornberry 1998; Kaplan 1980). This aspiration can sometimes come into conflict with their strong, continual need for social acceptance, as “individuals respond to the most available behavioral models that allow them to preserve their existing social circles” (Payne and Cornwell 2007). An overarching concern for youth, then, is to maintain harmony between their actions and those of their friends—those who belong to their social circle and thereby provide them with identity, belonging, and a set of social norms inherent to that collective (Coleman 1990).

With this in mind, it seems promising to empower a critical mass of youth to step up as leaders to model positive choices that personally matter to them (e.g., peer respect and acceptance rather than exclusion, rejection, and harassment) in a very visible manner in their schools. As a consequence, positive anti-bullying behavioral models will then become available, accessible, relatable, and ideally attractive to other youth who know “right” from “wrong” but may be hesitant to step up without others leading the way. These positive choices may gain traction and allegiance among the student body over time, further strengthening the social identity that those leaders—and now the peers that support and mirror them—represent (Payne and Cornwell 2007).

One formal way this can be fostered is through the use of peer mentoring programs. These generally involve student leaders advising and counseling other students about issues affecting them, and have been shown to be effective in reducing traditional bullying and interpersonal conflict within schools (Mahdavi and Smith 2002; Pepler et al. 1993). This programming should be an integral part of any comprehensive approach to address cyberbullying because it focuses on the role of the peer group and social setting in

which harassment and interpersonal conflict occur (Boulton 2005; O’Connell et al. 1999; Smith 2004). Furthermore, it naturally implicates some of the nuances of peer group dynamics—which strongly affect the overall behavioral choices of students at school (Cowie 1999; Salmivalli 1999).

In addition marshaling the power of peers, results of the current study also speak to the importance of school-based responses to bullying and cyberbullying. As such, schools should have a policy prohibiting all forms of peer harassment and mistreatment. All forms of bullying that ultimately result in, or have a foreseeable likelihood of resulting in, a substantial disruption of the learning environment—regardless of where and when the behaviors occurred—are well within the legal authority of the school to address (Hinduja and Patchin 2010b). The school, then, needs to make it clear to students that these behaviors are unacceptable and will be subject to appropriate discipline. In addition, it is important that all school staff repeatedly convey to students that cyberspace-based wrongdoing is just as serious as on-campus bullying because of its real world consequences and fallout.

Finally, parents need to encourage the responsible use of technology among their children. Parents should do their best to keep up with the online behaviors of their children and have regular conversations with them about the importance of responsibly using technology. In addition, they can monitor their child’s activities while online—especially early in their exploration of cyberspace. This can be done informally (through active participation in their son or daughter’s Internet experiences) and formally (through rule-setting). Parents also should cultivate and maintain an open, candid line of communication with their children, in order to convey certain familial standards and lessons that may not be grasped easily by a comparatively shortsighted adolescent.

If a child is engaging in bullying or cyberbullying, they need to be properly and reasonably disciplined and instructed within the household. Depending on the level of seriousness of the incident, and whether it seems that the child has realized the inappropriate nature of his or her behavior, consequences should be firmly applied (and escalated if the behavior was repetitive). Moving forward, it is essential that parents pay even greater attention to the Internet and cell phone activities of their children to make sure that they have internalized the conveyed lessons and are acting in responsible ways. The ultimate purpose, of course, is to prevent these kinds of inappropriate behaviors from occurring again in the future (Australian Communications and Media Authority 2010; Mishna et al. 2009; Rigby 2008).

Limitations

There are some limitations to this study that must be acknowledged. First, the sampling techniques employed do

not allow us to generalize the results to the universe of public school students in the United States, as a probability sampling technique of the entire nation was not possible for this study. Future research should replicate this study in other districts or a more broadly representative sample. Another limitation is that the data were collected at one point in time. As a result, we are unable to ensure proper temporal ordering of the independent and dependent variables and therefore do not know which came first: the peer's behavior or the respondent's behavior. As discussed above, this is a common limitation in studies that attempt to explore the influence of peers. While we are unable to say for certain that a student's peers caused him or her to engage in cyberbullying, we can conclude that peers (along with parents and educators) are an important correlate of cyberbullying behaviors.

Finally, it is also important to point out the inherent limitations of asking adolescents to self-report their behaviors. For example, participation in cyberbullying may have been underreported because of the tendency of individuals to provide socially desirable answers. Some have argued that data stemming from individuals' recollection about the past is inherently unreliable because of the tendency for them to misrepresent or distort facts from a previous time period (Horvath 1982; Morgenstern and Barrett 1974). This threat was limited in the current study by asking students to report only on relatively recent experiences. Similarly, it is potentially problematic to use a teen's report of their peer's behaviors as a measure of those peer's actual behaviors. Teens could simply be reflecting their own behaviors on others or may think that their friends are behaving in certain ways, when they really are not (Jussim and Osgood 1989; Moffitt and Caspi 1998; Warr 1993). Future studies might consider a third party reporter (such as a parent or teacher) who can provide another perspective of this problem.

Conclusions

Overall, the current findings indicate that teens' cyberbullying behaviors are influenced by the behaviors of both peers and meaningful adults in their lives. This is consistent with the weight of the research on risk and protective factors associated with youth deviant behavior more generally. Results indicate that peer behavior, or at least perceptions of peer behavior, are related to participation in cyberbullying. The study also provides additional evidence of the importance of parents and educators taking cyberbullying behaviors seriously because those students who believed that they would be sanctioned were less likely to engage in cyberbullying. In short, parents, educators, and teens themselves need to work together to establish a climate at school and in

the community where bullying in all its forms is socially condemned and formally prohibited and sanctioned (when necessary) (Hinduja and Patchin 2012). Through such efforts, the quality of relationships between all stakeholders will be enhanced, and can consequently contribute towards the establishment of healthier behavioral norms among those youth—both online and offline.

Conflict of interest The authors report no conflicts of interest.

Author Contributions S.H. and J.P. both conceived of the study, participated in its design and execution, and drafted the manuscript equally. They both read and approved the final manuscript.

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