

DIFFERENCES BETWEEN PEER VICTIMIZATION IN CYBER AND PHYSICAL SETTINGS AND ASSOCIATED PSYCHOSOCIAL ADJUSTMENT IN EARLY ADOLESCENCE

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The increasing use of cyberspace as a social networking forum creates a new medium for youth to become victims of peer aggression. This study used factor analysis techniques to confirm whether survey questions about frequency of cyber victimization formed a distinct latent construct from questions about relational and overt victimization information in a large ($N = 1,665$) sample of middle school students. A secondary goal was to relate experiences of cyber victimization to symptoms of depression and social anxiety. Results indicate that cyber victimization is separate latent factor from overt and relational victimization. Experiences of cyber victimization were weakly associated with symptoms of social anxiety, but not depression. These results signify that cyber victimization deserves future empirical and clinical attention. © 2009 Wiley Periodicals, Inc.

Technology is advancing rapidly, and America's youth are increasingly participating in Internet-based communications. It is now estimated that at least 90% of adolescents use the Internet, with 50% using it on a daily basis (Lenhart, Madden, & Hitlin, 2005). In addition, nearly half of all adolescents have personal cellular phones, allowing them instant access to text messaging (Lenhart et al., 2005). Given these estimates, it is increasingly clear that cyberspace provides a social networking forum where tech-savvy teenagers can communicate with one another. In fact, the popularity of cyber communication is illustrated by statistics revealing that approximately half of all adolescents communicate with friends and meet new online users via social networking sites (Lenhart & Madden, 2007).

As with social gathering places in the physical world, adolescents meet social challenges in the cyber world. Similar to the school environment (e.g., Nansel et al., 2001), teenagers may be subjected to peer victimization online. Therefore, the goals of the current study were to examine the nature of peer victimization in the cyber world and to explore its relationship to emotional and social functioning.

To understand the phenomenon of cyber victimization, it is important to first discuss peer victimization in the physical world. Adolescents can be victimized via two forms of peer aggression: overt and relational aggression (Crick & Grotpeter, 1995; Prinstein, Boergers, & Vernberg, 2001; Sullivan, Farrell, & Kliewer, 2006). Overt aggression involves physical (e.g., hitting, pushing, flicking, touching) and verbal (e.g., taunting, threatening) forms of aggressive behaviors. In contrast, relational aggression is the intentional manipulation of harm to a victim's social status or relationships and involves behaviors such as social exclusion, rumor spreading, instigating interpersonal peer conflicts, and divulging personal information (Crick & Grotpeter, 1995). Males tend to endorse being victims of overt aggression more often than do females (Nansel et al., 2001; Prinstein et al., 2001), although research findings related to gender differences in relational victimization are unclear. In some adolescent studies, males and females tend to report experiencing similar rates of relational victimization (Grills & Ollendick, 2002; Nansel et al., 2001; Prinstein et al., 2001; Storch, Crisp, Roberti, Bagner, & Masia-Warner, 2005), whereas in other studies using preschool and elementary

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school populations girls report slightly higher rates of relational victimization than boys report (Crick, Casas, & Ku, 1999; Crick & Grotpeter, 1995).

Peer victimization in cyberspace is a special case of peer victimization that occurs through the use of electronic text—either cellular phones or personal computers (Patchin & Hinduja, 2006). Willard (2007) described several cyber aggression techniques that youth employ: (a) harassment; (b) denigration; (c) impersonation; (d) outing/trickery; and (e) exclusion. Harassment—sending abusive or threatening messages to the victim—consists of overt aggression through electronic text format. In contrast, denigration, impersonation, outing/trickery, and exclusion are electronic forms of relational aggression. Denigration involves the posting of embarrassing pictures, rumors, or personal information on a Web site about the victim. Impersonation occurs when the aggressor attempts to manipulate the victim's social relationships by sending messages to others from the victim's phone or e-mail/instant messenger account. Outing/trickery involves divulging personal, sensitive, or embarrassing information sent in confidence in electronic format to unintended recipients. Finally, exclusion involves purposely barring the victim's entrance to an online social activity, such as an online game or private chat room.

Cyber victimization may be particularly harmful to victims for several reasons. First, the potential for adolescents to be victimized extends into the home environment via personal computers or cellular phones, whereas victims of traditional peer aggression can often escape their torment when they are removed from school or other social gathering places. Second, cyber aggressors may be more volatile due to the perceived anonymity of an electronic medium (Patchin & Hinduja, 2006). Third, cyber aggressors have the opportunity to victimize a greater number of people and in front of a larger audience than in traditional peer victimization in which bystanders usually need to be physically present to observe victimization. Finally, there is limited supervision on the Internet—especially outside of chat rooms. Adults are rarely present to intervene when cyber victimization occurs, as suggested by the reported discrepancies between children's and parents' online monitoring activities (Wang, Bianchi, & Raley, 2005). In addition, even if parents are vigilant about monitoring their children's online activities, only 21% of cyber victims report being victimized in public domains such as online chat rooms, which allow for some degree of supervision. The remainder of online peer victimization occurs in less supervised forms, including text messages, e-mails, and online bulletin boards (Patchin & Hinduja, 2006).

Research on peer victimization in cyberspace is still in its infancy, and the majority of studies have been exploratory in nature. The prevalence of lifetime self-reported cyber victimization in adolescence ranges from 6% to 35% (Beran & Li, 2005; Li, 2006; Patchin & Hinduja, 2006; Smith, Mahdavi, Carvalho, & Tippett, 2006; Ybarra & Mitchell, 2004a). Differences in these rates may result from methodological differences in the recruitment of participants and assessment of cyber aggression and victimization. Prevalence rates of online victimization have been higher when participants were asked to endorse specific victimization behaviors or when a thorough definition of cyber aggression was provided (Beran & Li, 2005; Li, 2006; Patchin & Hinduja, 2006; Smith et al., 2006). In contrast, lower estimates of prevalence have been found when youth have simply been asked whether they are victims of cyber aggression or have felt threatened by someone online (Ybarra, 2004; Ybarra & Mitchell, 2004a, 2004b).

Preliminary data on the phenomenon of cyber victimization have indicated that there is a significant relationship between cyber victimization and problems with psychosocial adjustment. Endorsement of cyber victimization is related to depressive symptoms (for males), behavior problems, drug use, and unfavorable attitudes regarding the school environment (Ybarra, 2004; Ybarra & Mitchell, 2004a). These findings, although seminal, may be limited as all victimization and psychosocial indices (e.g., presence of depressive symptoms) were scored dichotomously (yes or no) and psychometrically sound measures of depressive symptoms, drug use, attitudes to school, and

behavior problems were not used. In addition, only frequencies of co-occurrence were reported; no inferential statistics were used to assess significance of relationships or to indicate effect sizes. In other studies with similar limitations, victims of cyber aggression reported feeling angry, sad, and embarrassed (Beran & Li, 2005) and were affected at home and school and with friends (Patchin & Hinduja, 2006). Additionally, cyber victims reported higher rates of substance use, school problems, and peer aggression (Hinduja & Patchin, 2007). Altogether, these studies exploring the relationship between cyber victimization and psychosocial adjustment are limited because no validated measures of psychosocial functioning were used, nor were inferential statistics conducted to assess the strength of such relationships.

Current Study

This study extends past research on cyber victimization in two ways. First, the study uses confirmatory factor analysis to determine whether cyber victimization is a separate latent factor from overt and relational victimization. Second, the current study explores the relationships between cyber victimization and indices of psychosocial maladjustment using previously validated measures of symptoms of depression and social anxiety. The study examines cyber victimization by analyzing survey responses of middle school students. A population of middle school students was used because rates of peer victimization peak in early adolescence (Nansel et al., 2001).

METHOD

Participants

Participants included 1,684 students (48% male and 52% female) between the ages of 11 and 16 years from four public middle schools located in the southern United States. The sampled population represented 74% of the total school population attending the four middle schools; in each school, the number of participants ranged from 277 to 571 students. Individual school participation rates ranged from representing 65% to 83% of the schools' total population. Of students surveyed, 33% were enrolled in the sixth grade, 30% in seventh grade, and 37% in the eighth grade. Percentage of students receiving free and reduced lunches ranged from 58% to 80% at the four schools. Approximately 62% of students in the sample listed their ethnicity as White, 25% Black, 1% Asian, 7% Hispanic, 2% Native American, and 4% as other.

Measures

Overt and Relational Victimization. The Victimization of Self (VS) portion of the Revised Peer Experiences Questionnaire (RPEQ; Prinstein et al., 2001) is a nine-item, self-report measure that assesses overt and relational victimization within the previous 30 days. The RPEQ is a revised form of the original Peer Experiences Questionnaire (PEQ; Vernberg, Jacobs, & Hershberger, 1999). The VS scale contains four questions addressing overt forms of victimization and five questions addressing relational victimization. For each item, participants were prompted to endorse the frequency of being a victim of each behavior on a rating scale ranging from one (never) to five (a few times a week). A factor analysis indicated that the VS portion of the RPEQ demonstrates a stable two-factor structure, in which the relational and overt forms of victimization are separate factors (Prinstein et al., 2001). Significant correlations between self-reported and parent-report measures of victimization provide support for the external validity of the original PEQ (Vernberg et al., 1999). In the current study, Cronbach's alphas were adequate for the overt victimization subscale ($\alpha = .70$) and the relational victimization subscale ($\alpha = .81$) according to the guidelines by Nunnally (1967).

Table 1
Correlation Matrix of Overt, Relational, and Cyber Victimization Items

Item	OV1	OV2	OV3	OV4	RV1	RV2	RV3	RV4	RV5	CV1	CV2	CV3	CV4
OV1	1												
OV2	.59	1											
OV3	.59	.58	1										
OV4	.41	.44	.49	1									
RV1	.38	.37	.32	.36	1								
RV2	.36	.39	.33	.33	.76	1							
RV3	.33	.43	.35	.33	.52	.61	1						
RV4	.43	.43	.40	.35	.54	.58	.60	1					
RV5	.34	.38	.34	.29	.50	.51	.55	.51	1				
CV1	.26	.46	.33	.27	.30	.30	.36	.27	.37	1			
CV2	.27	.37	.23	.35	.35	.30	.35	.30	.39	.67	1		
CV3	.17	.42	.30	.32	.32	.27	.35	.26	.39	.75	.77	1	
CV4	.15	.22	.37	.35	.26	.22	.32	.34	.23	.49	.64	.64	1

Note. OV: overt victimization; RV: relational victimization; CV: cyber victimization.

Cyber Victimization. Four self-report questions were added to each of the RPEQ victimization scales. The questions were: (1) A student sent me a text message or instant message that was mean or that threatened me; (2) A student posted a comment on my Web space wall that was mean or that threatened me; (3) A student sent me an e-mail that was mean or that threatened me; and (4) A student created a Web page about me that had mean or embarrassing information and/or photos. The questions paralleled the format of the other RPEQ items and were scored on a 5-point rating scale ranging from 1 (never) to 5 (a few times a week). They assessed the frequency at which students were victimized by peer aggression involving instant messaging, text messaging, personalized Web sites, Web posts, and e-mail. The exact items are listed in Table 1. Cronbach's alphas were adequate (Nunnally, 1967) for the cyber victimization subscale ($\alpha = .74$) and for all 13 relational, overt, and cyber items on the victimization scale ($\alpha = .82$).

Social Anxiety. The Social Anxiety Scale for Adolescents (SAS-A; La Greca, 1998), a 22-item measure of social anxiety (including 4 filler items), was used to assess overall anxiety related to social situations within the past 30 days. Respondents indicated the degree to which each item was true of them on a 5-point rating scale ranging 1 (not at all true) to 5 (true all the time). The SAS-A has been shown to discriminate between adolescents with and without significant social anxiety (Ginsburg, La Greca, & Silverman, 1998; La Greca, 1998). A factor analysis conducted by La Greca (1998) revealed that the SAS-A is composed of three factors: Social Avoidance and Distress-General (SAD-G), Social Avoidance and Distress-New (SAD-N), and Fear of Negative Emotion (FNE). SAD-G reflects general social anxiety and avoidance, SAD-N indicates social anxiety and avoidance arising from novel social situations, and FNE highlight fears and anxiety related to receiving social criticism. Due to moderate to high correlations among the three subscales ($r = .48-.66$) (Storch, Masia-Warner, Crisp, & Klein, 2005; Storch, Masia-Warner, Dent, Roberti, & Fisher, 2004) only the broad social anxiety scale (SAD-G) was calculated in the current study. In a previous study, the SAS-A had adequate 12-month test-retest reliability ($r = .60$) (Storch et al., 2004) and convergent validity with the Revised Children's Manifest Anxiety Scale (Inderbitzen-Nolan & Walters, 2000) and Social Phobia and Anxiety Inventory (Olivares, Garcia-Lopez, Hidalgo, & Caballo, 2004). Numerous studies have found the SAS-A to demonstrate divergent validity with

measures of depressive symptomatology (Inderbitzen-Nolan & Walters, 2000; Myers, Stein, & Aarons, 2002; Storch et al., 2005). Cronbach's alpha was .92 in the current study.

Depression. The Center for Epidemiology Studies Depression Scale (CES-D; Radloff, 1977) is a 20-item measure of depressive symptomatology commonly used with adolescent populations (Dierker et al., 2001; Myers & Winters, 2002; Roberts, Lewinsohn, & Seeley, 1991). Respondents were prompted to rate the frequency of depressive symptoms experienced in the past week on a scale from 1 (less than once a day) to 4 (5–7 days a week). The CES-D demonstrated adequate to good test–retest reliability ($r = .45-.71$) and good internal consistency ($\alpha = .85-.90$) (Fountoulakis et al., 2007; Roberts, Andrews, Lewinsohn, & Hops, 1990). Convergent validity for the CES-D has been found with the Beck Depression Inventory, Zung Depression Rating Scale, Kellner Symptom Questionnaire, and the Major Depression Inventory (Fountoulakis et al., 2007). Divergent validity for the CES-D has been found using measures of positive affect and emotionality (Joseph, 2006; Ryff et al., 2006). Cronbach's alpha was .85 in the current study.

Procedure

Participants completed the survey packet—consisting of the RPEQ with cyber aggression questions, CES-D, the SAS-A, and a demographic questionnaire (age, gender, and grade)—in their first period classrooms on the day of survey administration. The purpose of the survey was to assess school needs in preparation for the implementation of a school bullying prevention program in the school district. In recognition of best practices in bullying prevention (Whitted & Dupper, 2005), the school psychology department in the school district initiated this needs assessment to demonstrate the need for prevention and to increase teacher buy-in for implementing the program the following school year. This needs assessment involved measuring rates of all forms of peer aggression and victimization (including through cyber outlets). In addition, the district assessed symptoms of depression and anxiety to determine whether victimization in students was related to problems with psychosocial functioning. Student responses were anonymous, as they did not put their names on response sheets. The link between bullying and depression and anxiety has been repeatedly presented in the research literature with cross-sectional, retrospective, and longitudinal study designs (e.g., Grotperter & Crick, 1996; Juvonen, Graham, & Schuster, 2003; Ybarra & Mitchell, 2004a). The school district assumed all costs related to the survey administration. The Institutional Review Board granted approval for the researchers to access this archival data set that was administered as part of routine evaluation of bullying administered on behalf of the school district. Participation was voluntary, and students were assured that their responses would remain confidential. No identifying information was contained on packets, and no compensation was provided. Students who were absent on the day of the survey administration did not complete the survey.

A careful screening procedure was used to exclude surveys from analyses if respondents circled the same number to every item on the survey (including reverse-worded items). Missing item or variable data were handled separately. Mean imputation was used to insert item scores on variables in which subjects were missing less than 15% of total items on the scale. Participants' scores on variables were excluded listwise from analyses if more than 15% of item responses were missing.

RESULTS

Prevalence of Cyber Victimization

Fourteen percent ($N = 239$) of the students in the sample indicated that they had been victims of cyber aggression at least one time in the past 30 days. Significant gender differences were found in reports of cyber victimization ($\chi^2(1) = 11.80; p < .001$); a larger proportion of females (17%)

reported cyber victimization than did males (11%). However, Cramer's V statistic for this difference was .09, indicating a weak relationship between gender and cyber victimization. There were no differences in endorsement of cyber victimization between the four schools ($F(3) = .879$; $p = .45$).

Confirmatory Factor Analysis

To determine whether participants' responses to the RPEQ and cyber victimization items formed a three-factor structure consisting of (1) overt victimization items, (2) relational victimization items, and (3) cyber victimization items, a confirmatory factor analysis of the correlation matrix (Table 1) was conducted with MPlus 5.1 software (Muthén & Muthén, 2008). Each item was treated as an ordinal variable.

Goodness-of-fit indices were analyzed according to guidelines by Hu and Bentler (1999), who proposed that for a model to fit the data adequately, the root mean square error of approximation (RMSEA) values should be at or below 0.06 and the Comparative Fit Index (CFI) and the Tucker–Lewis Index (TLI) should both be at or above 0.95. In the current analysis, the RMSEA was 0.05, the CFI was .98, and the TLI was 0.98. Thus, the proposed 3-factor model is an appropriate fit for the data. Individual factor loadings of each item are listed in Table 2.

Hierarchical Regression Analyses

Independent hierarchical regression analyses were conducted to determine the relationship between experiences of cyber victimization and self-reported symptoms of depression and social anxiety. Only students who endorsed cyber victimization at least one time in the past 30 days ($N = 239$) were included in these analyses. Assumptions of normality, independence, linearity, and equality of variances were tested prior to conducting regression analyses. In addition, correlations between independent variables were examined to ensure that multicollinearity would not confound results. The correlation coefficients depicting the relationships between variables are presented in Table 3. The correlations indicate that there is a weak relationship between cyber and overt forms of victimization and cyber and relational forms of victimization. The relatively weak relationship indicates that there is a small degree of overlap among endorsement of cyber victimization in relation

Table 2
Individual Item Loadings for the Three-Factor Model

Item	Factor 1: Overt Victimization (OV)	Factor 2: Relational Victimization (RV)	Factor 3: Cyber Victimization (CV)
OV1	.72		
OV2	.80		
OV3	.74		
OV4	.63		
RV1		.82	
RV2		.85	
RV3		.75	
RV4		.74	
RV5		.68	
CV1			.84
CV2			.87
CV3			.88
CV4			.70

Note. For specific item wordings for OV and RV items, Prinstein et al. (2001).

Table 3
Correlation Matrix of Peer Victimization and Psychosocial Adjustment

	RPEQ–Overt	RPEQ–Relational	Cyber	CES-D	SAS-A
RPEQ–Overt	1				
RPEQ–Relational	.47	1			
Cyber	.27	.31	1		
CES-D	.32	.37	.26	1	
SAS-A	.29	.41	.20	.51	1

Note. All correlations are significant at $p < .01$.

to other forms of victimization. Mean scores on all independent and dependent variables by gender are presented in Table 4. Gender differences existed across the three forms of victimization. Females reported greater frequency of relational and cyber victimization than did males, and males reported greater frequency of overt victimization than did females.

In the first regression analysis, scores on the CES-D were entered as dependent variables. Eleven participants were excluded from this analysis because they were missing more than 15% of their CES-D responses, leaving a sample size of 228. Gender was entered into block one because there are significant gender differences in CES-D scores (see Table 4). Cyber victimization scores were entered into block two of the equation. To control for overlap among cyber victimization and victimization in the physical world, overt and relational victimization scores were entered into block three of the equation. A summary of the model and corresponding regression coefficients are presented in Table 5. After controlling for gender differences in endorsement of depressive symptoms, cyber victimization accounted for a 5.3% increase in explanation of variance

Table 4
Gender Differences in Mean Scores on the PEQ–RPEQ with Cyber Questions, SAS-A, and CES-D

Measure	Males Mean (SD)	Females Mean (SD)	Total Mean (SD)	Cohen's <i>d</i>
RPEQ Overt Subscale	5.66 (2.49)	5.24 (2.00)***	5.45 (2.29)	.19
RPEQ Relational Subscale	5.58 (2.32)	5.88 (2.51)*	5.75 (2.42)	.12
RPEQ Cyber Subscale	4.26 (.99)	4.40 (1.24)***	4.34 (1.14)	.12
SAS-A	34.91 (13.26)	41.36 (14.58)**	38.27 (14.30)	.46
CES-D	34.30 (8.96)	37.02 (11.32)***	35.76 (10.35)	.27

Note. SD: standard deviation. Significant gender difference at the * $p < .05$, ** $p < .01$, and *** $p < .001$ levels.

Table 5
Hierarchical Regression Analysis Relating Victimization and Gender to Depression (N = 228)

Model	Variable	<i>B</i>	<i>SE B</i>	β	Model <i>R</i> ²
Step 1	Gender	2.93	1.54	.13	.02
Step 2	Gender	2.98	1.51	.13	.07
	Cyber Victimization	1.93	.36	.23*	
Step 3	Gender	3.26	1.44	.14*	.18
	Cyber Victimization	.44	.37	.08	
	RPEQ Relational Victimization	.70	.27	.18*	
	RPEQ Overt Victimization	.71	.19	.26*	

Note. * $p < .05$.

Table 6
Hierarchical Regression Analysis Relating Victimization and Gender to Social Anxiety (N = 223)

Model	Variable	<i>B</i>	<i>SE B</i>	β	Model <i>R</i> ²
Step 1	Gender	4.95	2.18	.15*	.02
Step 2	Gender	5.09	2.07	.16*	.12
	Cyber Victimization	2.46	.49	.32*	
Step 3	Gender	5.31	1.95	.16*	.26
	Cyber Victimization	1.19	.50	.15*	
	RPEQ Relational Victimization	.81	.36	.15*	
	RPEQ Overt Victimization	1.23	.26	.32*	

Note. **p* < .05.

in CES-D scores. When overt and relational victimization were added to the model, explanation of CES-D score variance increased 11.4% and cyber victimization was no longer significantly related to CES-D scores.

A second hierarchical regression analysis was conducted with score on the SAS-A entered as the dependent variable. Sixteen participants were excluded from this analysis because they were missing more than 15% of their SAS-A responses, leaving a sample size of 223. As was done in the model with SAS-A score as the dependent variable, gender was entered into block one because there are significant gender differences in SAS-A scores (see Table 4). Cyber victimization scores were entered into block two of the equation. To control for overlap among cyber victimization and victimization in the physical world, overt and relational victimization scores were entered into block three of the equation. A summary of the model and results are presented in Table 6. After controlling for gender differences in endorsement of social anxiety symptoms, cyber victimization accounted for a 10% increase in explanation of variance in SAS-A scores. Cyber victimization remained significant after controlling for relational and overt victimization. Inclusion of relational and overt victimization accounted for a further 14% increase in explanation of variance in SAS-A scores.

DISCUSSION

The goals of the current study were twofold. The first goal was to determine whether cyber victimization was a separate construct from relational and overt victimization or an extension of these forms of peer victimization. The second goal was to relate cyber victimization to symptoms of depression and social anxiety using measures with established psychometrics.

The hypothesis that cyber victimization is a separate construct from relational and overt victimization was confirmed in this study. Confirmatory factor analysis of the RPEQ victimization scale with included cyber victimization questions indicated that overt, relational, and cyber victimization were separate latent factors. Therefore, this study demonstrates that cyber victimization is a disparate form of victimization, separate from either overt or relational victimization. However, it should be noted that the separate forms of victimization continued to be weakly related to one another, indicating some overlap between factors. These findings indicate that, as children and adolescents become increasingly familiar with navigating cyberspace (Lenhart & Madden, 2007), it will be important to recognize cyber victimization as a unique phenomenon that youth may encounter regardless of whether they are exposed to overt or relational aggression in other settings. It is therefore essential that cyber victimization also be specifically assessed (in addition to overt and relational victimization) when gathering information about individual or group victimization experiences (Willard,

2007). The cyber questions used to assess cyber victimization in the current study may be a useful tool for researchers and practitioners to add to the RPEQ (Prinstein et al., 2001) when assessing rates of victimization among adolescent samples.

Our second study goal was to assess the relationship between cyber victimization and psychosocial adjustment using established indicators of depressive and social anxiety symptoms. Although past research has demonstrated relationships among peer victimization, depression, and social anxiety (e.g., Nansel et al., 2001; Prinstein et al., 2001; Storch & Masia-Warner, 2004), cyber victimization was only associated with symptoms of social anxiety, not depression, after controlling for relational and overt victimization. Furthermore, the effect size for this relationship was rather small. Instead, relational victimization was the form of victimization most highly associated with symptoms of social anxiety. These findings do not provide support to previous research findings suggesting that cyber victimization is related to increased levels of self-reported depression in males (Ybarra, Alexander, & Mitchell, 2005; Ybarra & Mitchell, 2004a).

Future research will be needed to determine whether larger effect sizes exist between cyber victimization and problems with psychosocial adjustment when the victim knows the aggressor is from the same school versus an aggressor with whom the victim does not have regular contact. If so, it will also be important to investigate strategies that children use to cope with cyber victimization and to develop interventions to promote disengagement from victimization based on these strategies, as has been suggested for other forms of peer victimization (Lodge & Feldman, 2007). However, because overt and relational victimization are more strongly related to both symptoms of depression and social anxiety, it is important to continue to conduct research to learn more about them.

There are several limitations that should be considered when interpreting these data. First, the correlational nature of this study limits our ability to draw conclusions about causal relationships. Research is needed to clarify the direction of causality between cyber victimization and depression and social anxiety using longitudinal designs. Additionally, we relied on self-report data to indicate rates of victimization, depression, and anxiety. When assessing cyber victimization, it is difficult to use objective reports of victimization or reports from parents and teachers due to the private nature of online and cellular phone communication. Regardless, parent and teacher reports of other forms of victimization and symptoms of depression and anxiety would have strengthened the validity of this study by providing support for student self-report data. Future research should also investigate whether different forms of cyber victimization exist, such as those with relational aggression goals and those with overt aggression goals, and if they differ as a function of media used (e.g., telephone or computer). Also, it may be important to extend the cyber victimization behaviors listed in the measure to conform with the range of behaviors described by Willard (2007). Finally, the study did not control for amount of Internet use, as that may serve as a variable that is associated with both frequency of victimization and adjustment. Additional research is necessary to understand whether cyber victimization differs with increased access to the Internet. Also, it will be important to determine whether cyber victimization changes across the developmental period.

Implications for Research, Policy, and Practice

The finding that cyber victimization is a separate latent construct from relational and overt victimization emphasizes the need for further research into the nature of this form of relating. Additionally, the high frequency of cyber victimization among a sample of students suggests that cyber victimization may be a widespread form of relating for many American youth. It may be beneficial for parents to discuss cyber victimization with their children and to encourage them to recognize and report incidents of cyber aggression (Keith & Martin, 2005). Schools should also take

proactive steps to decrease opportunities for cyber victimization by developing and strictly enforcing policies regarding appropriate use of Internet and cellular phones on school grounds (Keith & Martin, 2005) and providing immediate and consistent discipline for aggressors both on- and offline. This may include providing clearly stated rules to students about appropriate Internet use, adult presence in computer laboratories, and investigation of reports of cyber victimization.

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