Soc Indic Res (2012) 107:429–447
DOI 10.1007/s11205-011-9856-z

Electronic Bullying and Victimization and Life Satisfaction in Middle School Students

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Accepted: 1 May 2011 / Published online: 25 May 2011

Abstract This study examined the nature and prevalence of electronic bullying and victimization in a sample of middle school students in a southeastern USA school. Relationships among measures of electronic bullying and victimization and global and domain-specific life satisfaction were also investigated. A total of 855 7th and 8th grade US students responded to questions regarding global and domain-based life satisfaction, electronic bullying and victimization behaviors. Although a majority of students reported not engaging in or being the victim of electronic bullying, the small percentage of students who did report these behaviors as being problematic indicated that the behaviors occurred several times a week. Statistically significant correlates of electronic bullying were self-reported grades in school, gender, and parent marital status. Significant correlates of victimization were self-reported grades in school, parent marital status, and ethnicity. The results suggested modest, but pervasive relationships between experiences of electronic bullying and victimization and adolescents' life satisfaction reports across a variety of important life domains. When the effects of demographic variables were controlled, the relationship between electronic victimization and global life satisfaction became non-significant, suggesting that global life satisfaction reports may mask the effects of specific life satisfaction domains.

Keywords Bullying · Electronic bullying · Electronic victimization · Life satisfaction

1 Introduction

On an annual basis in the USA, researchers estimate that more than 3.7 million students in grades 6–10 engage in moderate or serious bullying while more than 3.2 million students are victims of moderate or serious bullying (Nansel et al. 2001). Research in the United Kingdom has also shown that during adolescence, a great deal of violence in schools is due to students bullying their peers (Boulton 1999). One contemporary meta-analysis of studies

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of bullying behaviors spanning nine countries found that the prevalence of bullying others or having been bullied (at least once in the last 2 months) was 20.8% for physical bullying, 53.6% for verbal bullying, 51.4% for social bullying, and 13.6% for electronic bullying (Wang et al. 2009). A survey of almost 16,000 USA students in grades 6–10 found that almost 30% of their sample reported frequent involvement in some form of bullying. More specifically, approximately 13% were bullies, 10.6% were victims, and 6% were bully/victims (i.e., bullying others as well as experience bullying; Nansel et al. 2001). Overall, school bullying has been identified as a major concern among adolescents and school professionals in multiple nations (Boulton et al. 2008; Hawker and Boulton 2000).

Based on research findings, it has been said that "bullying may be the most prevalent form of violence in the schools" (Batsche and Knoff 1994, p. 166). One disturbing reminder of potential violence associated with bullying is found in the research results of a study conducted by the United States Secret Service. In an effort to better understand bullying behavior and the potential consequences, the United States Secret Service embarked on an in-depth investigation of 41 school shooters with incidents having occurred between 1974 and 2000. Through interviews of both friends and family members, it was found that 71% of the shooters had been targets of bullying (Vossekuil et al. 2002). Unfortunately, as the previously mentioned research illustrates, bullying in schools is both serious and pervasive in nature.

Although the number of students engaged in or targeted by bullying behaviors is problematic in and of itself, the potential impact on outcomes such as school achievement, prosocial skills, and psychological well-being for both the victims and perpetrators makes this phenomenon even more significant (Boulton et al. 2008; Hawker and Boulton 2000). Chronic victims of bullying report various physical and mental health problems, including low self-esteem and depression. Victims are also more likely to bring weapons to school and contemplate suicide as compared to their non-bullied peers (Olweus 1993). Interestingly, negative outcomes associated with bullying behaviors are not limited to the victims as many often believe. Research has also found that students who engage in bullying behaviors are more likely to underachieve in school, drop out of school, engage in delinquent or criminal acts, and become abusive spouses or parents (Olweus 1993).

Despite the fact that research on traditional bullying is vast in comparison, only a handful of studies have focused specifically on electronic bullying among children and youth (Kowalski and Limber 2007). In the USA alone, approximately 87% of children aged 12–17 use the internet daily and 45% own cell phones (Lenhart et al. 2005). Even though technology is a part of almost every student's life, relatively little empirical research related to electronic bullying has been done (Nansel et al. 2001; Williams and Guerra 2007; Ybarra and Mitchell 2004a). Considered a contemporary form of bullying, electronic bullying, often referred to as cyber-bullying or online social cruelty, includes bullying through e-mail, instant messaging, websites, chat rooms, or through digital images or messages sent via cell phone (Kowalski and Limber 2007). According to the Director for the Center for Safe and Responsible Internet Use, electronic bullying is discourse that is "defamatory, constitutes bullying, harassment, or discrimination, discloses personal information, or contains offensive, vulgar or derogatory comments" (Willard 2003, p. 66). Essentially, youth utilize electronic means of bullying in order to insult, threaten, taunt, harass, or intimidate a peer (Raskauskas and Stoltz 2007).

Hinduja and Patchin (2008) suggested that this newer form of bullying is the "unfortunate by-product of the union of adolescent aggression and electronic communication, and its growth is giving cause for concern" (p. 131). One recent survey indicated that more than 13 million children in the USA aged 6–17 were victims of electronic bullying.

Overall, approximately one-sixth of primary school age children and one-third of teens reported that they had been threatened, called names, or embarrassed by information shared about them on the internet (Fight Crime: Invest in Kids 2006). Although a large portion of actual electronic bullying behaviors occur outside of the school setting, researchers suggest that these incidents appear to relate to the functioning of students at school as well as the school environment itself, highlighting the importance of investigating this aggressive behavior within the school system (David-Ferdon and Hertz 2007).

Electronic bullying has been distinguished from traditional forms of bullying. To begin, traditional bullying is typically defined as verbal or physical behaviors that occur repeatedly over time, which are characterized by an imbalance of strength or power (Olweus 1993). Bullying occurs when a student is repeatedly harmed in some way, either psychologically and/or physically, by another student or a group of students. Typically, bullies tend to be physically, psychologically, or socially stronger than the children they bully. Traditional bullying can also include more overt physical acts such as shoving and hitting, as well as verbal abuse, such as name-calling and taunting. Traditional bullying can also take on more indirect forms, including rumor spreading and social exclusion (Olweus 1993, 1994).

Results of one anonymous web-based survey of 12–17 year old youth found that, within a year's time, 72% of respondents reported at least one online incident of bullying, 85% of whom also experienced bullying in school (Juvonen and Gross 2008). Researchers found that, when controlling for internet use, repeated experiences of school-based bullying increased the likelihood of repeated electronic bullying, which indicates an overlap in experiences across both contexts. An 85% overlap between online and in-school bullying suggests that electronic space is not an independent environment, but rather it seems to be another forum that essentially extends the school grounds (Juvonen and Gross 2008). Interestingly, students' roles in traditional bullying have also been found to predict the same roles in electronic bullying (Raskauskas and Stoltz 2007). For example, traditional bullies tend to also be electronic bullies while victims of traditional bullying are also likely to be victims of electronic bullying (Beran and Li 2005). Approximately 64% of students surveyed in another study reported that electronic bullying was most likely to start at school as traditional bullying and subsequently continue at home by the same students (Cassidy et al. 2009). For some victims of bullying, the internet may just be an "extension of the schoolyard, with victimization continuing after the bell and on into the night" (Ybarra and Mitchell 2004a, p. 1313).

Although similar in many ways, the literature also establishes that meaningful differences exist between traditional bullying and electronic bullying, further highlighting the need for additional research (Brown et al. 2006; Kowalski and Limber 2007). One of the primary differences between these forms of bullying is the continuous, unrelenting nature of electronic bullying. Essentially, traditional bullying is typically confined to a particular place or time, whereas electronic bullying is almost limitless in nature (Kowalski et al. 2008). Victims of electronic bullying cannot easily escape as this form of harassment can occur in almost any context, at any time of the day via electronic means (Brown et al. 2006; Willard 2006). Another significant difference between traditional bullying and bullying via electronic means involves the component of anonymity (Brown et al. 2006; Kowalski and Limber 2007; Ybarra and Mitchell 2004a). Unlike traditional forms of bullying, research has found that almost half of the victims of electronic bullying do not know the identity of the perpetrator (Kowalski and Limber 2007). Because individuals are hidden behind the security and anonymity of a computer screen, youth engaged in online bullying might act differently than they normally would, letting go of traditional

inhibitions (Berson and Berson 2005; Ybarra and Mitchell 2004b). Interestingly, the internet may actually provide an opportunity for victims of electronic bullying to communicate without fear, allowing for possible revenge against perpetrators (Kowalski and Limber 2007). Although very preliminary, some research has suggested that electronic bullying may in fact be more damaging to youth compared to traditional bullying, resulting in issues such as anxiety, anger, low self-esteem, depression, poor academic performance, school absenteeism, and even suicide (Willard 2006).

Researchers have begun to explore the prevalence and correlates of electronic bullying and victimization. A study conducted by the United States Department of Education found that 90% of children ages 5–17 use computers, and 59% (31 million) have access to the Internet (DeBell and Chapman 2003). With literally millions of children utilizing the internet, it is critical to understand prevalence rates as well as possible factors that contribute to perpetration and victimization. In general, prevalence rates indicate that internet bullying and victimization rates are around 25%, and that this form of bullying has become a global phenomenon (Aricak et al. 2008; Kowalski and Limber 2007; Willard 2006). One study of electronic bullying among middle school students found that 22% of students reported involvement in electronic bullying, including 4% as bullies, 11% as victims, and 7% as both bully-victim (Kowalski and Limber 2007). Results from a survey of 5th, 8th, and 11th grade students found that 9.4% of the students admitted that they had bullied others via e-mail or instant messaging (Williams and Guerra 2007). Overall, it has been estimated that more than 13 million children in the USA ages 6–17 are victims of electronic bullying (Fight Crime: Invest in Kids 2006).

Understanding the nature and frequencies of electronic bullying is important. It is also important to understand the correlates and potential warning signs associated with perpetration and victimization. Warning signs related to victimization include withdrawing from friends and family members, becoming upset about going to school or going outside, avoiding discussions related to activities on the computer, showing feelings of anger, anxiety, or depression following use of the computer, and suddenly not using the computer anymore (Hinduja and Patchin 2007a). In addition, other signs of victimization include having been a victim of traditional bullying at school, a decrease in academic performance, and avoidance of school (Kowalski and Limber 2007). Warning signs related to offending behavior include using the computer at all hours, creating multiple online accounts, and quickly closing or switching screens in the presence of others, avoiding discussions related to activities on the computer, and becoming unusually upset if access to the computer is restricted (Hinduja and Patchin 2007a).

Research has suggested potential warning signs for electronic victimization as well. Overall, research indicates that victims tend to be excluded and rejected by their peers more than bullies (Hawker and Boulton 2000; Juvonen et al. 2003). Victims of electronic bullying may also withdraw from school activities, and become ill, depressed, or even suicidal (Willard 2006). As part of a statewide bullying prevention initiative in Colorado, youth in grades 5, 8, and 11 were surveyed regarding internet bullying, physical bullying, and verbal bullying. The results revealed that internet bullying peaked in middle school and declined in high school, making adolescents a particularly vulnerable population. Interestingly, all three forms of bullying were significantly related to negative peer support, negative school climate, and normative beliefs condoning bullying, which may serve as potential risk indicators (Williams and Guerra 2007). Furthermore, the amount of time a youth spends on the internet as well as their level of computer proficiency have both been implicated in victimization (Wang et al. 2009).

A handful of studies has investigated the presumed outcomes of electronic bullying and victimization. Electronic bullying has been linked to multiple maladaptive emotional, psychological, and behavioral outcomes (Patchin and Hinduja 2006). Similar to traditional bullying, victims of electronic bullying have been found to display more negative psychological and emotional outcomes, particularly, feelings of anger, frustration, and depression (Hinduja and Patchin 2007a). Victims of electronic bullying have also been found to be more likely to report skipping school as well as receiving two or more detentions or suspensions. Furthermore, youth who report being victims of internet harassment were found to be eight times more likely than other youth to report carrying a weapon to school (Wolak et al. 2007; Ybarra et al. 2007a, b).

Victims are not the only at risk population facing negative consequences in regards to this modern form of bullying. Research suggests that students that engaging in internet bullying also experience multiple psychosocial challenges including substance use, delinquency, and poor parent–child relationships (Aricak et al. 2008; Raskauskas and Stoltz 2007; Ybarra and Mitchell 2004a, b).

Although previous research has examined relationships between electronic bullying and victimization and a variety of traditional indicators of adolescent mental health, there have been few studies investigating relationships to individual differences in adolescents' life satisfaction (Willkins-Shurmer et al. 2003). Life satisfaction is defined as an individual's cognitive appraisal of the positivity of her or his own quality of life overall or with specific domains, such as family, friends, or community experiences (Diener 1984). Although related to measures of mental health, life satisfaction measures are distinguishable from measures of depression, anxiety, and so forth. Contextualized within the emerging positive psychology perspective, life satisfaction measures extend beyond assessments of the presence of psychological symptoms or low levels of life satisfaction to assessments that differentiate satisfaction levels above a neutral point (i.e., the absence of dissatisfaction). Thus, life satisfaction measures can be designed to differentiate among satisfaction levels that range from "low" to "neutral" to "mildly high" to "very high", and so forth. In this manner, life satisfaction measures provide a more finely grained analysis of individuals' well-being (Diener 1984).

The few studies that have investigated life satisfaction and bullying behaviors have focused on the victimization component, excluding the possible link between life satisfaction and perpetration. In one of the only empirical studies that examined the relationships between bullying and adolescents' life satisfaction, Flaspohler et al. (2009) found that students who bully and/or are bullied experience reduced life satisfaction and support from peers and teachers as compared to children who are neither victims nor perpetrators of bullying. After controlling for gender and grade, students who were not engaged in bullying reported higher levels of life satisfaction as compared to peers who were bullies or who were bullied. In addition, results from this study found that students who were both bullies as well as victims fared the worst in regard to life satisfaction, indicating a potential additive effect of being both of a bully and victim (Flaspohler et al. 2009).

1.1 Aims of the Current Study

Despite the attention electronic bullying has gained in the popular media, little empirical research on the antecedents and consequences of electronic bullying actually has been undertaken (Cook et al. 2007). With millions of children using the internet and electronic devices every day, it becomes apparent that continued research in the area of electronic aggression and electronic bullying is imperative. To date, researchers have not examined

associations between electronic bullying and victimization and life satisfaction in adolescents. Furthermore, while only a few studies have specifically examined bullying behaviors and life satisfaction, the studies relied upon reports of *global or overall* life satisfaction. Recent findings suggest there may be benefits to using multidimensional measures to fully assess life satisfaction. For example, in their examination of life satisfaction among adolescents, Antaramian et al. (2008) found that family structure differences (i.e., intact vs. non-intact families) were not related to adolescents' reports of their general life satisfaction but did relate to their reports of their satisfaction with their family life suggesting that general life satisfaction reports may mask differences among various specific life domains.

In an effort to better distinguish among these domains, a multi-faceted measure (i.e., Multidimensional Students' Life Satisfaction Scale: Huebner 1994) and a global measure of life satisfaction (Students' Life Satisfaction Scale: Huebner 1991) were employed together in this study. In this manner, an assessment of adolescents' global life satisfaction was obtained along with assessments across five important, specific domains, including family, friends, school, living environment, and self. This approach was expected to provide a more comprehensive, contextualized approach relative to previous studies of the correlates of electronic bullying and victimization.

This exploratory study thus evaluated the relationships among electronic bullying and victimization and global life satisfaction and satisfaction with specific life domains (e.g., family, school) in middle school students. In addition, the current study examined the frequencies and demographic correlates of electronic bullying and victimization among middle school students. As such, three major research questions were investigated, including:

1. What are the frequencies of major forms of electronic bullying and electronic victimization in a sample of middle school students?
2. What are the relationships among demographic variables (i.e., age, gender, ethnicity, socio-economic status, self reported grades, and parent status) and electronic bullying and electronic victimization?
3. What are the relationships among electronic bullying and electronic victimization and adolescents' reports of global and domain-specific life satisfaction (i.e., family, school, friends, living environment, and self)?

2 Method

2.1 Participants

Students in a large middle school (grades 7 and 8) in the Southeastern USA completed measures of life satisfaction and electronic bullying and electronic victimization as part of a larger survey of school climate administered and conducted by school personnel. After accounting for absences and students whose parents refused permission to participate ($n = 11$), a total of 910 students were administered survey packets. After eliminating incomplete surveys, a total of 855 (409 boys and 446 girls) students were included in the analyses. This sample included 443 seventh-grade (214 boys and 229 girls) and 412 eighth-grade students (195 boys and 217 girls). The mean age of participants was 13 (SD = .76 years). A total of 59% of the participants were Caucasian, 28% were African American, 3% were Asian American or Pacific Islander, and 2.6% were Hispanic.

Approximately 22% of students reported receiving free or reduced lunch, which was used as an estimate of socio-economic status (SES). Also, 62.5% of students reported that they lived with both their biological mother and father, while the remaining 37.5% reported living with other combinations of adults (i.e., mother and step-father, father and step-mother, or other adults). Finally, 59.1% of students reported that their parents were married, 23.7% reported their parents were divorced, and the remaining 7.2% reported their parents were separated, never married, or widowed.

2.2 Measures

2.2.1 Electronic Bullying and Victimization

For the purposes of this study, an adaptation of Kowalski and Limber's (2007) Electronic Bullying Questionnaire (EBQ) was used. The EBQ is a 23-item self-report measure that was developed for the purpose of assessing electronic bullying among middle school students. In the development of the EBQ, Kowalski and Limber (2007) defined electronic bullying as "bullying through e-mail, instant messaging, in a chat room, on a website, or through a text message sent to a cell phone." The EBQ was patterned in part after the Olweus Bully/Victim Questionnaire (Olweus 1996), a reliable and valid self-report measure that assesses participants' experiences with bullying, both as victims and perpetrators (Olweus 1996; Solberg and Olweus 2003). Similar to the Olweus measure, the EBQ includes questions about participants' experiences with bullying (i.e., both being bullied by and bullying others). Important questions included, "How often have you been bullied electronically in the past couple of months?" and "How often have you electronically bullied someone in the past couple of months?"

Because of space and time constraints, the original 23-item questionnaire was reduced to nine core questions that assessed bullying (four questions), victimization (four questions), and fear of being bullied (one question), eliminating questions concerning how bullying or victimization occurs (e.g., instant message, text, email). With the exception of one question aimed at determining how often the participant is afraid of being bullied electronically, students were asked to respond using the five-point response format from the Olweus Bully/Victim Questionnaire (i.e., it hasn't happened in the past couple of months; only once or twice; two or three times a month; about once a week; several times a week).

At the time of this study, data on the reliability and validity of the EBQ were not available. For the current sample, however, coefficient alphas were .83 for the victimization items and .86 for the bullying items, suggesting acceptable internal consistency reliabilities for the measures. In addition, the mean inter-item correlation value was .41, with values ranging from .17 to .71, suggesting modest to moderate relationships among the items.

2.2.2 Multidimensional Students' Life Satisfaction Scale

Adolescents' life satisfaction judgments were assessed by the Multidimensional Students' Life Satisfaction Scale (MSLSS: Huebner 1994). The MSLSS is a 40-item self-report scale designed for children ages 8–18. Responses are made using a 6-point Likert scale, ranging from 1 = strongly disagree to 6 = strongly agree. The MSLSS assesses satisfaction across five important life domains, including family, friends, school, living environment, and self. Total scores were obtained for each domain by summing the individual items within each

domain and then dividing by the total number of items within the domain. Support for the reliability and validity of the MSLSS have been provided in prior studies (e.g., Huebner 1994; Huebner et al. 1998). Alpha coefficients for the domain-based scores have typically been reported in the .70–.90 range (Gilman et al. 2000; Huebner 1994), with similar test–retest coefficients for 2- and 4-week periods (Huebner et al. 1998). In addition, convergent and discriminant validity has been demonstrated through appropriate correlations with parent reports and other self-report measures (Gilman et al. 2000; Huebner 1994).

2.2.3 Students' Life Satisfaction Scale

The Students' Life Satisfaction Scale (SLSS: Huebner 1991) is a 7-item self report scale designed to assess global life satisfaction in children and adolescents ages 8–18. Like the MSLSS, students rate each item on a 6 point Likert scale response format from 1 = *Strongly Disagree* to 6 = *Strongly Agree*. In addition, two items on the scale are reverse scored. Responses were summed and averaged to obtain a mean global life satisfaction score. The SLSS has consistently demonstrated high reliability and validity. Internal consistency has been reported to range from .82 to .90, test–retest reliability has been reported as .76 over a 2-week interval, and inter-item correlations have ranged from .49 to .73 (Dew and Huebner 1994; Huebner 1991).

2.3 Procedures

During spring 2009, data collection was conducted by the school teachers in their respective home rooms as part of a school-wide assessment of school climate. Passive consent was obtained from parents, resulting in 910 students allowed to participate in the study. A total of 11 students were not allowed to participate. The current study was conducted with permission from the school district, allowing for use and analysis of their archival data.

Survey packets containing student names and unique identification numbers were distributed to each homeroom teacher at the middle school. The homeroom teachers distributed the surveys to their students at the start of the homeroom period as well as read specific instructions regarding the purpose of the study and the confidentiality of student responses in order to increase the likelihood of truthful responses. In an effort to control for possible sequencing effects, a majority of the measures were counterbalanced across individuals. However, two exceptions to this counterbalancing method were made. Paired with demographic items, the SLSS was completed first by all students while the EBQ was completed last. In order to guarantee confidentiality, student identification numbers were used to ensure confidentiality.

2.4 Data Analysis

Descriptive statistics were calculated. Spearman rho and Pearson correlations were calculated for demographic variables and predictor and criterion variables. The amount of missing data for the MSLSS, SLSS, and EBQ was small, ranging from .5 to 4.5%. Given the small amount of missing data, and in order to retain an adequate sample size and statistical power, mean substitution procedures were used to handle missing data (Buhi et al. 2008).

Hierarchical regression analyses were subsequently employed to determine the unique relationships among electronic bullying and victimization and the life satisfaction scores,

after partialling out the effects of demographic variables. Before proceeding to the regression analyses, normality of criterion variables was assessed by plotting histograms. Upon inspection, it was observed that friend satisfaction and self satisfaction scores were not normally distributed and demonstrated excessive skew (−1.98 and −1.55 respectively) and kurtosis (5.05 and 3.15 respectively). Despite violation of the normality assumptions, parametric tests were utilized for several reasons. The effect of the violation of the normality assumption on significance tests depends on the sample size, with problems occurring in smaller samples (Cohen et al. 2003). With larger sample sizes, such as the current study, non-normality does not lead to serious problems with significance tests. In addition, both square root and log transformations were conducted, neither of which changed the shape of the distributions. The remaining criterion variables appeared approximately normal and exhibited skew and kurtosis levels within acceptable limits (between −1.0 and 1.0).

3 Results

Frequencies, means and standard deviations for life satisfaction, electronic victimization, and electronic bullying are summarized in Tables 1, 2 and 3. When asked about bullying and victimization in the past few months, 86% of participants reported that they did not partake in any form of electronic bullying while 80% reported they were not victims. Overall, participants self-reported moderate levels of global life satisfaction as measured by the SLSS ($M = 4.55$, SD = 1.06). The MSLSS domain scores indicated that participants were most satisfied with their friends ($M = 5.31$, SD = .87) and least satisfied with school ($M = 4.37$, SD = 1.27).

Electronic bullying was found to be significantly correlated with gender ($r = .13$, $p < .001$), parent marital status ($r = .10$, $p < .005$), and self-reported grades in school ($r = -.18$, $p < .001$). Electronic victimization was significantly correlated with ethnicity ($r = .08$, $p < .05$), grade ($r = -.07$, $p < .05$), SES ($r = .07$, $p < .05$), parent status ($r = .09$, $p < .01$, and self-reported grades in school ($r = -.23$, $p < .001$). Global life satisfaction (i.e., SLSS scores) was significantly correlated with parent custody ($r = -.15$ $p < .001$), parent status ($r = -.20$, $p < .001$) and self-reported grades in school ($r = .29$, $p < .001$). Family satisfaction was correlated with parent custody ($r = -.09$, $p < .01$), parent status ($r = -.15$, $p < .001$) and self-reported grades in school ($r = .20$, $p < .001$). Friend satisfaction was correlated with gender ($r = .16$, $p < .001$), parent status ($r = -.07$, $p < .05$) and self-reported grades in school ($r = .11$, $p < .05$). Living satisfaction

Table 1 Descriptive statistics for measures

Variable	*M*	SD
SLSS	4.55	1.06
Family satisfaction	4.76	1.20
Friend satisfaction	5.31	.87
Living satisfaction	4.80	1.19
Self satisfaction	5.14	.86
School satisfaction	4.37	1.27
Electronic bullying	1.36	.69
Electronic victimization	1.18	.49

Scoring of SLSS: 1 = *Strongly Disagree* to 6 = *Strongly Agree;* Scoring of MSLSS: 1 = *Strongly Disagree* to 6 = *Strongly Agree*

Table 2 Frequencies of electronic bullying and victimization

EBQ electronic victimization questions	Haven't	Once or twice	2–3 a month	Once a week	Several times
How often have you electronically bullied someone in the past couple of months?	680	113	20	18	23
Have you made fun of someone or teased someone else in a hurtful way…?	675	114	37	9	22
Have you told lies or spread rumors about someone else …?	566	180	54	18	39
Have you used someone else's computer username or screen-name to spread rumors or lies about another person?	779	43	15	5	15
EBQ electronic bullying questions	**Hasn't**	**Once or twice**	**2–3 a month**	**Once a week**	**Several times**
How often have you been bullied electronically in the past couple of months?	736	87	16	6	12
Has anyone made fun of you or teased you in a hurtful way…?	693	120	29	4	10
Has anyone told lies or spread rumors about you…?	759	72	14	3	9
Has anyone used your computer username or screen-name to spread rumors or lies about another person?	813	24	9	2	8

was correlated with grade ($r = -.08$, $p < .01$), age ($r = -.09$, $p < .05$), parent status ($r = -.11$, $p < .01$), and self-reported grades in school ($r = .16$, $p < .001$). Self satisfaction was correlated with race ($r = .24$, $p < .001$) and self -reported grades in school ($r = .13$, $p < .001$). Finally, school satisfaction was correlated with gender ($r = .09$, $p < .01$), SES ($r = .22$, $p < .001$), and self- reported grades in school ($r = .13$, $p < .001$).

Zero-order correlations among the major variables are presented in Tables 4 and 5. There were modest, negative correlations between electronic bullying and the global life satisfaction ($r = -.22$), and all of the domain-based measures of life satisfaction (ranging from $r = -.15$ to $-.22$). There were also modest, negative correlations between victimization and global life satisfaction ($r = -.11$) and all of the domain-based measures of life satisfaction (ranging from $r = -.13$ to $-.18$).

Table 3 Descriptive statistics for electronic bullying and victimization

	N	*M*	SD
Electronic victimization			
How often have you electronically bullied someone in the past couple of months?	857	1.22	.65
Have you made fun of someone or teased someone else in a hurtful way…?	856	1.27	.66
Have you told lies or spread rumors about someone else …?	857	1.17	.57
Have you used someone else's computer username or screen-name to spread rumors or lies about another person?	856	1.09	.48
Electronic Bullying			
How often have you been bullied electronically in the past couple of months?	854	1.35	.85
Has anyone made fun of you or teased you in a hurtful way…?	857	1.35	.83
Has anyone told lies or spread rumors about you…?	857	1.58	1.02
Has anyone used your computer username or screen-name to spread rumors or lies about another person?	857	1.17	.65

Response options for the EBQ are as follows: 1 = Hasn't happened; 2 = Once or twice; 3 = 2 or 3 times a month; 4 = Once a week; 5 = Several times a week

Table 4 Correlations among demographic variables, bullying, victimization, and life satisfaction

	Bully	Victim	SLSS	Family	Friend	Living	Self	School
Grade	−.04	−.07*	.03	.002	.06	−.08*	.01	−.03
Sex	.13**	.02	−.05	−.02	.16**	−.03	.01	.09*
Race	−.07	.08*	−.02	.04	.02	.05	.24**	.22**
SES	.06	.07*	−.05	−.06	−.05	−.06	.22**	.05
Age	.04	−.03	−.04	−.05	−.02	−.09**	−.004	−.02
Custody	.04	.05	−.152**	−.093**	−.034	−.06	.001	.02
Status	.10**	.09**	−.20**	−.15**	−.07*	−.11**	−.04	−.03
Grades	−.18**	−.23**	.29**	.20**	.11**	.16**	.13**	.13**

Race is coded 1 = Minority Race/Ethnicity and 0 = Caucasian. Sex is coded 0 = Male and 1 = Female. SES is coded 0 = regular lunch and 1 = free or reduced rate lunch. Custody = Parent Custody. Status = Parent Status. Grades = Self reported grades

* $p < .05$; ** $p < .01$

Table 5 Correlations among life satisfaction, bullying, and victimization

	Global	Family	Friend	Living	Self	School	Bully	Victim
Global	–							
Family	.60*	–						
Friend	.40*	.40*	–					
Living	.53*	.66*	.53*	–				
Self	.47*	.55*	.67*	.56*	–			
School	.43*	.58*	.46*	.51*	.58*	–		
Bully	−.22*	−.22*	−.19*	−.19*	−.21*	−.15*	–	
Victim	−.11*	−.15*	−.13*	−.14*	−.18*	−.16*	.41*	–

* $p < .01$

Independent-samples *t* tests were also conducted in order to compare electronic bullying and victimization scores across gender, ethnicity, socioeconomic status, parent custody and parent marital status (Table 6). Significant differences were found regarding electronic bullying for gender (males $M = 1.28$, $SD = .61$; females $M = 1.43$, $SD = .74$; $t\ (849) = -3.26$, $p < .01$, $d = -.22$), parent marital status (biological parents married $M = 1.32$, $SD = .66$; other marital status $M = 1.42$, $SD = .72$; $t\ (842) = -2.15$, $p < .01$, $d = -.14$), and parent custody (live with both biological parents $M = 1.32$, $SD = .65$; live with other combination of adults $M = 1.43$, $SD = .43$; $t\ (849) = -2.21$, $p < .05$, $d = -.20$). Significant differences were found regarding electronic victimization for gender (males $M = 1.22$, $SD = .61$; females $M = 1.15$, $SD = .35$; $t\ (849) = 1.97$, $p < .05$, $d = -.60$), ethnicity (Caucasian $M = 1.16$, $SD = .41$; African-American $M = 1.24$, $SD = .58$; $t\ (743) = 2.02$, $p < .05$, $d = .17$), parent marital status (biological parents married $M = 1.14$, $SD = .40$; other marital status $M = 1.24$, $SD = .60$; $t\ (843) = -2.96$, $p < .01$, $d = -.20$), and parent custody (live with both biological parents $M = 1.15$, $SD = .43$; live with other combination of adults $M = 1.24$, $SD = .58$; $t\ (850) = -2.45$, $p < .01$, $d = -.18$).

Hierarchical multiple regression analyses were used to assess the relationship between electronic bullying and victimization and life satisfaction, as measured by the MSLSS domain-based scores and SLSS global score, after controlling for significant demographic variables. In all, twelve regression analyses were run with electronic bullying and victimization as predictor variables and global and domain-based life satisfaction measure as criterion variables. After controlling for demographic variables in Step 1 of each of the analyses, the electronic bullying or victimization scores were entered in Step 2 in order to determine their unique effects on the criterion variables. The regression models are presented in Tables 7 and 8. Overall, after controlling for demographic relationships, electronic bullying related significantly to global life satisfaction (beta $= -.14$, $p < .001$; $\Delta R^2 = .02$), family satisfaction (beta $= -.17$, $p < .001$; $\Delta R^2 = .03$), friend satisfaction (beta $= -.19$, $p < .001$; $\Delta R^2 = .03$), living satisfaction (beta $= -.16$, $p < .001$; $\Delta R^2 = .02$), self satisfaction (beta $= -.18$, $p < .001$; $\Delta R^2 = .03$), and school satisfaction (beta $= -.14$, $p < .001$; $\Delta R^2 = .02$). Also, electronic victimization, related significantly to family satisfaction (beta $= -.11$, $p < .001$; $\Delta R^2 = .01$), friend satisfaction (beta $= -.10$, $p < .005$; $\Delta R^2 = .01$), living satisfaction (beta $= -.11$, $p < .005$; $\Delta R^2 = .01$), self satisfaction (beta $= -.17$, $p < .001$; $\Delta R^2 = .03$), and school satisfaction (beta $= -.14$, $p < .001$; $\Delta R^2 = .02$).

Table 6 Results of *T* tests and descriptive statistics

	Group						95% CI for mean difference	*t*	*df*	*d*
	Male			Female						
	M	SD	*n*	*M*	SD	*n*				
Victim	1.22	.61	407	1.15	.35	444	.000–.132	1.97*	849	−.03
Bully	1.28	.61	408	1.43	.74	443	−.001–.134	−3.25**	849	−.22
	Caucasian			Minority			95% CI for mean difference	*t*	*df*	*d*
	M	SD	*n*	*M*	SD	*n*				
Victim	1.16	.415	505	1.24	.578	240	.011–.157	2.27*	743	.17
Bully	1.37	.680	505	1.31	.626	239	−.161–.043	−1.13	742	−.09
	7th Grade			8th Grade			95% CI for mean difference	*t*	*df*	*d*
	M	SD	*n*	*M*	SD	*n*				
Victim	1.21	.54	441	1.15	.44	410	.000–.127	1.80	849	.12
Bully	1.39	.72	441	1.33	.65	410	−.034–.149	1.23	849	.08
	FRL			No FRL			95% CI for mean difference	*t*	*df*	*d*
	M	SD	*n*	*M*	SD	*n*				
Victim	1.23	.61	184	1.17	.46	656	−.151–.010	−1.72	838	−.13
Bully	1.39	.64	183	1.35	.70	656	−.148–.072	−.623	837	−.05
	Custody both			Custody other			95% CI for mean difference	*t*	*df*	*d*
	M	SD	*n*	*M*	SD	*n*				
Victim	1.15	.43	533	1.24	.58	319	−.154–.017	−2.45**	850	−.18
Bully	1.32	.65	532	1.43	.43	319	−.203–.012	−2.21*	849	−.20
	Bio married			Other status			95% CI for mean difference	*t*	*df*	*d*
	M	SD	*n*	*M*	SD	*n*				
Victim	1.14	.40	500	1.24	.60	345	−.174–.029	−2.96**	843	−.20
Bully	1.32	.66	498	1.42	.72	346	−.198–.009	−2.15*	842	−.14

Race is coded 1 = Minority Race/Ethnicity and 0 = Caucasian. Sex is coded 0 = Male and 1 = Female. SES is coded 0 = regular lunch and 1 = free or reduced rate lunch. Custody is coded as 0 = live with both biological parents and 1 = other combination of adults. Status is coded as 0 = Married and 1 = Other status

* $p < .05$; ** $p < .01$

4 Discussion

This study explored experiences of electronic bullying and victimization among middle school students in a suburban USA school. A total of 14% of the students reported engaging in electronic bullying behaviors, while 20% reported being victims of electronic bullying. Of more concern is the fact that of those students who reported victimization and

Table 7 Summary of regression analyses with predictor variable electronic bullying

	B	SE*B*	*β*	ΔR^2	ΔF
Family satisfaction					
Demographics	.23	.04	.19	.07	8.16*
Demographics & victimization	−.31	.06	−.17	.03	25.03*
Friend satisfaction					
Demographics	.06	.03	.07	.04	5.27*
Demographics & victimization	−.24	.04	−.19	.03	30.00*
Living satisfaction					
Demographics	.18	.04	.14	.05	6.33*
Demographics & victimization	−.27	.06	−.15	.02	19.43*
Self satisfaction					
Demographics	.12	.03	.14	.06	7.48*
Demographics & victimization	−.23	.04	−.18	.03	26.70*
School Satisfaction					
Demographics	.17	.05	.13	.07	9.07*
Demographics & victimization	−.26	.06	−.14	.02	15.84*
Global life satisfaction (SLSS)					
Demographics	.28	.04	.26	.13	16.19*
Demographics & victimization	−.22	.05	−.144	.02	17.51*

* $p < .01$

Table 8 Summary of regression analyses with predictor variable electronic victimization

	B	SE*B*	*β*	ΔR^2	ΔF
Family satisfaction					
Demographics	.23	.04	.18	.07	8.14*
Demographics & victimization	−.28	.09	−.11	.01	10.52*
Friend satisfaction					
Demographics	.06	.03	.07	.04	5.25*
Demographics & victimization	−.18	.06	−.10	.01	8.11*
Living satisfaction					
Demographics	.18	.04	.14	.05	6.32*
Demographics & victimization	−.27	.09	−.11	.01	9.53*
Self satisfaction					
Demographics	.12	.03	.14	.06	7.52*
Demographics & victimization	−.30	.06	−.17	.03	22.95*
School satisfaction					
Demographics	.17	.05	.13	.07	9.13*
Demographics & victimization	−.37	.09	−.14	.02	16.19*
Global life satisfaction (SLSS)					
Demographics	.28	.04	.26	.13	16.21*
Demographics & victimization	−.08	.07	−.04	.001	1.17

* $p < .01$

bullying, 3% of students reported being victims of electronic bullying several times a week while 1.4% reported engaging in electronic bullying several times a week, indicating that a small portion of students engage in or suffer from chronic forms of electronic bullying.

Electronic bullying displayed statistically significant associations with student gender, parent marital status, and self-reported grades in school. Electronic victimization showed statistically significant associations with student ethnicity, grade level, SES, parent marital status, and self-reported grades in school. Furthermore, students who did not live with both biological parents were more likely to be both victims and perpetrators of electronic bullying compared to students living with both biological parents. Similarly, students whose biological parents were not married were more likely to be both victims and perpetrators as compared to students whose biological parents were married. These differences suggest that both bullies and victims may be more likely to come from non-intact family situations as compared to their peers.

Student gender also related significantly to experiences of electronic bullying and victimization. In this sample, female students were more likely to engage in electronic bullying, and females and minority students were more likely to be victims. These results were not necessarily expected as previous studies have suggested that females are more likely to be victims of electronic bullying whereas males are more likely to be aggressors (Kowalski and Limber 2007; Wang et al. 2009). However, girls outnumbered boys (446–409) in this sample, possibly accounting for the differences among studies. It may also be important to consider that in regard to traditional bullying, girls tend to utilize relational aggressive acts more than boys (Crick and Bigbee 1998; Crick and Grotpeter 1995; French et al. 2002). Similarly, contrary to the findings of this study, previous research has suggested that minority students are more often involved in electronic bullying behaviors as aggressors rather than as victims (Wang et al. 2009). Thus, although generalizable demographic differences may emerge as more research findings appear in the literature, it does appear safe to conclude that individuals can be subjected to and engage in electronic bullying regardless of age, gender, ethnicity, academic performance, and SES (Aricak et al. 2008).

The differences in the findings of studies of the experiences of early adolescents with electronic bullying and victimization merit further consideration. The differences may be due to various issues related to the novelty of the research area. These issues include differences across studies in terms of the definitions of bullying and victimization, samples, and measures. For example, little information is available regarding the psychometric properties of the existing measures of electronic bullying and victimization. Because of the unknown validity of the measures, students who have may been exposed to electronic bullying may not recognize it as such due to how and what is being asked of them. These students may not recognize that what they have experienced is, in fact, a form of bullying (Aricak et al. 2008; Kowalski and Limber 2007). For another example, differences in the age levels of student samples are likely important. As children progress through school, their access to and use of electronic technologies and social networking cites is likely to increase, which may in turn result in an increase in electronic bullying (Kowalski and Limber 2007). Finally, differences in the modalities associated with electronic bullying are likely critical to understand. Although the original questionnaire used in this research study asked about bullying modalities (i.e., cell phone, emails, social network sites), these questions had to be removed because of space and time limitations. Variation may occur due to differences in access and therefore exposure to the type of bullying that occurs. For example, many schools and public libraries in the USA now have computers available to students, which may account for an increase in electronic bullying due to computer use as compared to more personal, costly devices such as cell phones.

This study also investigated the relationship between electronic bullying and victimization and adolescents' reports of global and domain-specific life satisfaction (family, school, friends, self, and living environment). The findings revealed modest, negative correlations between electronic bullying and victimization and global life satisfaction and satisfaction with family, friends, living environment, self, and school. Thus, the presumed effects of electronic bullying and victimization although modest, appear quite pervasive, occurring across multiple important life domains.

In general, these results are consistent with traditional bullying and life satisfaction research, which indicates that students who report being bullies and victims of traditional bullying have lower levels of life satisfaction compared to their peers (Flaspohler et al. 2009). Specifically, research examining on-line harassment suggests that those with lower levels of self-esteem are more likely to respond maladaptively compared to their non - victimized peers (Hinduja and Patchin 2007b). Similarly, research has found that both overt victimization and relational victimization experiences correlate with reduced levels of life satisfaction (Martin and Huebner 2007). In contrast, students who report higher levels of life satisfaction tend to report better interpersonal, intrapersonal, and academic outcomes. Youth who report higher levels of life satisfaction also report higher levels of personal control, self-esteem, extraversion, hope, self-efficacy, and interpersonal skills. These youth also report higher school grades, better peer relationships, and more positive school experiences (Gilman and Huebner 2006; Suldo and Huebner 2006).

After controlling for significant demographic relationships, the results of the hierarchical multiple regression analyses, controlling for significant demographic relationships, revealed comparable findings to those based on the zero-order correlations, with one exception. With demographic variables were controlled, the relationship between electronic victimization and global life satisfaction became non-significant whereas relationships with the domain-based measures remained significant. This finding suggests the possibility that global measures of life satisfaction may mask important relationships on occasion. The finding of the non-significant relationship with overall life satisfaction is consistent with the previously mentioned study by Antaramian et al. (2008), in which differences in family structure (i.e., intact vs. non-intact) related significantly to satisfaction with family life, but not with overall life satisfaction. Thus, further research is needed to determine the relative sensitivity of global and domain-based life satisfaction measures in various contexts. Future research should also explore whether or not the modest relationships with the various life satisfaction reports generalize across different samples of adolescents or whether there are potential moderators of the relationships (e.g., differences in social support), such that some students experience more detrimental consequences that others from this new form of bullying. For example, Flaspohler et al. (2009) found that the relationships between victimization and life satisfaction were stronger for students with low social support from peers and teachers.

Overall, this study has several major limitations. First, data were obtained from students from a Southeastern USA middle school with characteristics that were not representative of the USA as whole, which may limit the generalizability of the findings. More research is needed in order to investigate the relationship between electronic bullying and life satisfaction with more representative samples of students as well as with students from other age ranges. Another limitation of this study was the cross-sectional design, which cannot shed light on the directionality of the relationships between electronic bullying and life satisfaction. Longitudinal analyses are needed to clarify the directionality of the relationships, including the possibility of bidirectional relationships.

The findings of this exploratory research study have important implications for not only youth engaging in and victimized by electronic bullying, but also for parents and human services professionals alike. As previously discussed, bullying from peers has been identified as one of the most problematic behavioral concerns among adolescents (Boulton 1999; Boulton et al. 2008; Hawker and Boulton 2000). With the high prevalence rates of electronic bullying and victimization, such experiences have become a global phenomenon, meriting considerable concern (Aricak et al. 2008; Kowalski and Limber 2007; Willard 2006). Given that a majority of students report that electronic bullying is most likely to start at school and continue at home, it is important for parents and school and community professionals to take such behavior seriously and educate themselves about its nature, frequency, and correlates (Cassidy et al. 2009; Kowalski et al. 2008). Furthermore, it is critical that preventative and palliative strategies are developed to address concerns related to electronic bullying and victimization. The available evidence suggests that electronic bullying and victimization are related to lower subjective well-being, in the form of reduced life satisfaction, for both parties. As technology continues to progress, it is likely that adolescents' use of electronic communication technologies will increase, therefore, continued research is critical to understand this new form of bullying and its consequences.

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