Cyberbullying: Its Social and Psychological Harms Among Schoolers

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Abstract:
Criminal justice around the world has prioritized the prevention and protection of bullying and its victims due to the rapid increases in peer violence. Nevertheless, relatively few studies have examined what treatments or assistance are effective for peer victims to reduce and recover from their social and psychological suffering, especially in cyberbullying cases. Using data derived from the National Crime Victimization Survey-School Crime Supplement data in 2011 and 2013 (N=823), the current study examined the impact of two emotional support groups (i.e., adult and peer groups) on cyberbullying victims' social and psychological harm. The findings indicated that both adult and peer support reduced social and psychological harm inflicted by cyberbullying victimization. Based on these findings, the study recommends developing or modifying existing adult and peer support groups to minimize victims' social and psychological distress.

Introduction

Bullying has been one of the top social and health issues for children and adolescents worldwide (see Zych, Ortega-Ruiz, & Del Rey, 2015; also see stopbullying.org). The term, bullying, was initially interpreted as school violence, which is intentional and repetitive aggression against a student by his/her peer(s) at school environments. Since the term has been more broadly used, bullying has been referred to as not only school violence among peer groups but also some workplace violence among employees. Also, living in the current internet and high-tech era, the place of bullying moves from a physical place to cyberspace. Due to the complications in defining the term, it was not until the early 2010s to have a consensus and commonly adopted bullying definition. Although the target subject has been expanded from schoolers to adults, the current study focuses on school bullying, especially cyberbullying and its social and psychological harms.

The initial school bullying was studied in Scandinavia in the 1970s (Heinemann, 1972; Olweus, 1973; cited in Zych et al., 2015). Since then, studies have been conducted on the bully (Li, 2006, 2007; Mishna, Cook, Gadalla, Daciuk, & Solomon, 2010; Slonje & Smith, 2008), bully-bullied (Mishna, Khoury-Kassabri, Gadalla, & Daciuk, 2012; Mishna et al., 2020; Vieno, Gini, & Santinello, 2011), the bullied (victims) (Chen et al., 2018; Fredrick & Demaray, 2018; Mishna, Cook, Gadalla, Daciuk, & Solomon, 2010), and bystanders such as teachers, parents, caregivers, and/or social support groups who might control, prevent, and assist the bully and the bullied (Bastiaensens et al., 2014; Pozzoli & Gini, 2019).

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Those studies also have examined the effect of school and social systems on school bullying, including physical security and safety systems, crime reporting systems, and school justice systems as well as social justice systems. In particular, the studies examined the bullied and their physical, social, and psychological damage and distress reveal that many peer victims internalize and/or externalize problems such as suicidal ideation and behavior, depression, drug and/or alcohol use, emotional and sleeping problem, and more. These symptoms were identified among the victims of both traditional and cyberbullying. Relatively few studies, however, have examined what treatments or assistance are effective for peer victims reducing and recovering from their suffering.

To bridge the research gap, the current study reviews the definitions of the term, cyberbullying, and operationalize it for this study purposes. And then, using the datasets of the National Crime Victim Survey - School Crime Supplement in 2011 and 2013, the present study examines the effects of adult and peer support for adolescent cyberbullying victims on social harm and psychological harm, where other variables are controlled. Discussions and policy implications are made based on the study findings.

Literature Review

The Definitions of Cyberbullying

To defining the term, cyberbullying, it is necessary to review how the term, bullying, has been defined (e.g., Beran, Rinaldi, Bickham, & Rich, 2012; Choi & Lee, 2017; Choi, Earl, Lee, & Cho, 2019; Hinduja & Patchin, 2013; Inchley et al., 2016; Lessne & Cidade, 2016; Li, 2006, 2007; Litwiller & Brausch, 2013; Rice et al., 2015; Slonje & Smith, 2008; Slonje, Smith, & Frisén, 2013; Smith et al., 2008; Tokunaga, 2010; Watts, Wagner, Velasquez, & Behrens, 2017). In existing bullying literature, the term had been inconsistently defined for individual study purposes until the U.S. federal government agencies developed a uniform definition of bullying in 2014 (see Gladden Gladden, Vivolo-Kantor, Hamburger, & Lumpkin,, 2014). Through a process of consulting with bullying experts and practitioners as well as the people from the federal partner agencies such as the Centers for Disease Control and Prevention (CDC), the National Center for Injury Prevention and Control (NCIPC), and the Department of Education (ED), the term, bullying, was defined as the following:

> any ***unwanted aggressive behavior(s)*** by another youth or group of youths who are not siblings or current dating partners that involves an ***observed or perceived power imbalance and is repeated multiple times or is highly likely to be repeated.*** Bullying may inflict harm or distress on the targeted youth including physical, psychological, social, or educational **harm** (see Gladden et al., 2014, p. 7).

In this definition, youth are school-aged individuals 5 to 18 years of age; the term, unwanted, means the targeted youth want to stop perpetrator(s)' intentional use of aggressive behavior to harm against him or her, regardless of threatened or actual; the term, harm, means any physical, psychological, social and/or educational negative experiences or injuries including physical pain, feelings of distress, social damage of self-reputation at school, and/or limits or damages to educational opportunities (see Gladden et al., 2014, p. 8). According to this definition, cyberbullying was not directly defined or considered as a different type of bullying, but a subcategory of bullying locations occurred in cyberspace using electronic devices (see Gladden et al., 2014, p. 55).

In addition, the term, bullying, is somewhat differently defined in the three commonly used national surveys to measure the prevalence of bullying: (1) the Health Behaviors in School-age Children (HBSC), (2) the Youth Risk Behavior Survey (YRBS), and (3) the School Crime Supplement (SCS). For example, HBSC sees bullying as a student is being bullied when another student, or a group of students, say or do nasty and unpleasant things to him or her. It is also bullying when a student is teased repeatedly in a way he or she does not like or when he or she is deliberately left out of things. But it is not bullying when two students of about the same strength or power argue or fight. It is also not bullying when a student is teased in a friendly and playful way (Inchley et al., 2016, p. 197).

On the other hand, the YRBS defines bullying "when 1 or more students tease, threaten, spread rumors about, hit, shove, or hurt another student over and over again. It is not bullying when 2 students of about the same strength or power argue or fight or tease each other in a friendly way" (CDC, 2018, p. 7). Finally, in the SCS (2015), bullying happens when one or more students tease, threaten, spread rumors about, hit, shove or hurt another student. Bullies are usually stronger, or have more friends or more money, or some other power over the student being bullied. Usually, bullying happens over and over, or the student being bullied thinks it might happen over and over (United States Department of Justice, 2013, p.9). Starting in 2015, the SCS started to include the follow-up questions on repetition and power imbalance to estimate the percentage of bullying experience as outlined in the CDC uniform definition (Lessne & Cidade, 2016).

Instead of developing a new definition for cyberbullying, early studies placed space restriction from traditional bullying to cyberspace where one can access using electronic communication tools (Li, 2006, 2007; Slonje & Smith, 2008; Smith et al., 2008). Consequently, several bullying characteristics have been adopted to the cyberbullying definition such as the repetition of the act, the power imbalance, and the intent of embarrassing or damaging other individuals (Beran et al., 2012; Hinduja & Patchin, 2013; Rice et al., 2015; Slonje et al., 2013). In addition, cyberbullying most often involves abusive or hurtful texts, emails, posts, images, and videos as well as deliberately excluding others online and gossiping or spreading rumors in an attempt to imitate and humiliate targeted individuals (Tokunaga, 2010; Watts et al., 2017).

Due to the unique characteristics of cyberspace, such as no space and time restriction and perceived anonymity (Kowalski, Morgan, & Limber, 2012), defining cyberbullying is a challenging task. At the same time, such characteristics also led scholars to agree that cyberbullying can occur at any time in any place. Therefore, based on previous literature, the current study defines cyberbullying as any intentional harm delivered through electronic media, including emails, instant messaging or chat, texts, online gaming, and posts from social media, which may inflict psychological, social, educational and/or physical harm to the targeted youth.

Someone may wonder how cyberbullying can physically harm the youth. There might be no pushing, shoving, or tripping by others in cyberbullying cases, but victims can inflict self-harm as a response to their victimization. For example, from a large risk-behavior screening study with a sample of 4,693 public high school students, Litwiller and Brausch (2013) found that both cyberbullying and traditional bullying victims showed problems with substance use, violent and unsafe sexual behavior. More importantly, both bullying victims also showed suicidal behavior after victimization. Hinduja and Patchin (2010) also found that

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students who experienced both traditional and cyberbullying showed suicidal ideation or attempted to commit suicide. In cyberbullying cases, victims were almost twice more likely to have attempted suicide than those who were not cyberbullying victims.

Cyberbullying Literature Since the Mid 2000s

Since, its inception, many cyberbullying studies have compared the demographic characteristics of bullies and victims of both school bullying (a.k.a., traditional bullying) and cyberbullying (Baldry, Farrington, & Sorrentino, 2017; Li, 2006, 2007; Erdur-Baker, 2010; Slonje & Smith, 2008; Vieno, Gini, & Santinello, 2011; Waasdorp & Bradshaw, 2015), while others focused on psychological characteristics of bullies and victims of both school bullying and cyberbullying such as depression symptoms and suicidal ideation (Bauman et al., 2013; Gradinger et al., 2009; Kubiszewski et al., 2015; Pabian & Vandebosch, 2016). Besides, physical characteristics such as aggression (Gradinger et al., 2009; Mishna et al., 2020) and presence of coping or preventive factors, including peer influence, adult influence, and school safety measures (Charalampous et al., 2018; Meter & Bauman, 2018), were also examined by scholars in various fields.

Cyberbullying literature tends to focus on children and adolescent populations, but some studies also utilized college populations to demonstrate the impacts and factors of cyberbullying (Francisco, Simão, Ferreira, & das Dores Martins, 2015; Gaffney, Ttofi, Farrington, 2019; Goodboy & Martin, 2015; Menesini & Salmivalli, 2017). For example, according to the HBSC 2013/2014 data (Inchley et al., 2019), 10.6 percent out of 176,185 students experienced cyberbullying through messages (e.g., instant messages, emails, text messages) and unflattering or inappropriate pictures as well as by posting them online without permission (8.4 percent out of 178,935 participants). Furthermore, since cyberbullying is not an issue that is confined to one country, scholars worldwide demonstrated their interests and examined factors, impact, and prevention mechanisms regarding cyberbullies and victims. Such a trend of focusing on cyberbullies and victims then expanded to include bully-victims who experienced both spectra of bullying (Del Rey, Elipe, & Ortega-Ruiz, 2012; Vieno, Gini, & Santinello, 2011; Wang et al., 2019).

Even though the majority of cyberbullying literature is focused on the characteristics and factors surrounding bullies and victims, two different areas have emerged. First, widespread use of social networking services and innovative techniques in automated prediction led scholars to develop cyberbullying prediction models using automated detection programs incorporating personality traits and psychological features (Balakrishnan, Khan & Arabnia, 2020; Del Rey, Mora-Merchán, Casas, Ortega-Ruiz, & Elipe, 2018; Fazil & Abulaish, 2018; Rosa et al., 2019). The use of a prediction model is a new area of research that requires rigorous and continuous development as well as evaluation. Second, there is also an emerging trend of focusing on the bystander effects of cyberbullying (Pazzoli & Gini, 2020; Song & Oh, 2018). Studies on bystander effects focus on psychological and situational factors surrounding the bystander. Findings from these two areas are still in their infancy to generalize and require further assessment.

Social and Psychological Harm

As defined by Gladden et al. (2014), it is obvious that the bullied suffer from social, educational, and psychological distress along with physical harms. Existing literature demonstrates how bullying inflicts harm or distress on the victim as well as what mechanisms effectively assist victims in being recovered

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from such distresses. Several studies have found that bullying victimization is related to externalizing and/ or internalizing problems (Cook et al., 2010; Reijntjes et al., 2011). For instance, bullying increases suicidal ideation and behavior (Holt et al., 2015; Kowalski et al., 2014; van Geel et al., 2014), depression (Hawker & Boulton, 2000; Kowalski et al., 2014; Trofi et al., 2014), anxiety (Kowalski et al., 2014), psychotic/psychosomatic/psychological symptoms (Albdour, Hong, Lewin, & Yarandi, 2019; Cunningham et al., 2015; Gini & Pozzoli, 2013; Van Dam et al., 2012), stress (Kowalski et al., 2014), drug and alcohol use (Kowalski et al., 2014; Trofi et al., 2011), emotional (Kowalski et al., 2014) and sleeping problems (van Geel et al., 2016). Additionally, bullying decreases self-esteem (Hawker & Boulton, 2000; Kowalski et al., 2014; Tsaousis, 2016), social-esteem (Hawker & Boulton, 2000), and academic achievement (Nakamoto & Schwartz, 2009).

Table 1 summarizes selected studies that test the impacts of emotional and psychological distresses on the victims of cyberbullying for the purpose of the current study. For example, Albdour, Hong, Lewin, and Yarandi (2019) examined a convenient sample of 150 Arab American adolescents on their cyberbullying experience and its impact on their health. Using the Children's Somatization Inventory (CSI-24) and the Kassler Psychological Distress Scale (K10), they tested the severity of non-specific somatic symptoms, anxiety levels, and depression symptoms experienced by the adolescents who had cyberbullied (perpetrators) and/or had been cyberbullied (victims). Albdour et al. (2019) found that both cyberbullying perpetration and victimization were positively correlated with both physical complaints and psychological distress. However, by controlling the demographic variables, physical complaints were significantly related to cyberbullying perpetrators only ($B = 11.02$, $p<.001$), and psychological distress was only significantly associated with victimization ($B = 3.69$, $p<.05$). Tsaousis (2016) also found that peer victimization was negatively significant with self-esteem through analyzing 121 existing bullying studies published by June 2014. This study also found a significant relationship between bullying behavior and self-esteem, but the degree of association was very low. That is, the victims' self-esteem is more lowered by peer aggression and bullying than the perpetrators' self-esteem.any unwanted aggressive behavior(s) by another youth or group of youths who are not siblings or current dating partners that involves an observed or perceived power imbalance and is repeated multiple times or is highly likely to be repeated. Bullying may inflict harm or distress on the targeted youth including physical, psychological, social, or educational harm (see Gladden et al., 2014, p. 7). With the fact that interpersonal and intrapersonal factors are more likely to influence self-esteem in its development, it is crucial to consider the robust study finding in the development of a victim assistance program for peer victimizations and how other individual characteristics and qualities play a role in bullying and its victimization (Tsaousis, 2016).

To assess if the strength of the association between peer victimization (bullying and peer aggression) and psychosomatic health problems relies on how to measure bullying or peer aggression, Hellström and her colleagues (2017) analyzed 2,578 Swedish adolescents aged 13 –15 years and found that adolescent victims have more significant psychosomatic problems than non-victims. While the impacts on psychosomatic health problems with each measure (bullying, occasional peer aggression, and frequent peer aggression) were not significantly different, the adolescents victimized by both measures (bullying plus occasional peer aggression; and bullying plus frequent peer aggression) showed higher levels of psychosomatic health problems (Hellström et al., 2017).

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Table 1. Selected Multivariate Studies on Physical and Psychological Impacts of Cyberbullying

Source	Sample/ Sampling Design	Age range	Method (n)	Types	Symptoms
Albdour et al. (2019)	Arab-American/ Convenience	12-16	Regression (n=150)	Cyber victimization	Psychological distress (+)
				Cyber perpetrator	Physical Complaints (+)
Bauman et al. (2013)	Canada/ 2009 Youth Behavior Risk Survey (YBRS)	High school	(n=1,491)	Cyberbullying	Suicide Attempt (+)
				Cyber Victimization	Suicide Attempt (+)
Bonanno & Hymel (2013)	Canada/ Recruitment	Grade 8- 10	Hierarchical multiple regression analyses (n=399)	Cyberbullying	Depressive symptomatology (+) Suicidal Ideation (+)
				Cyberbullying victimization	Depressive symptomatology (+) Suicidal Ideation (+)
Brewer & Kerslake (2015)	The North West of England/ Recruitment	16-18 years	Regression (n=90)	Cyber perpetrators	Empathy (-) Self-esteem (-)
				Cyber victimization	Self-esteem (-)
Chen et al. (2018)	China/ A two-staged stratified sampling method	15-17 years	Multinomial logistic regressions (n=18,341)	Cyber victimization (Internet victimization)	Symptoms of PTSD (+), Depression (+), Self-harm (+)
Fredrick & Demaray (2018)		13-16 years	(n=403)	Cyber victimization	Depressive symptoms (+) Suicidal ideation (+)
Hay & Meldrum (2010)	Southeastern U.S./ Recruitment	10-21 years	OLS (n=426)	Cyberbullying victimization	Negative emotions (anxiety, depression, low self-worth) (+) Self-harm (+) Suicidal behavior (+)

Landoll et al. (2015)	Southeastern U.S./ Recruitment	14-18 years	Confirmatory factor analyses (n=839)	Cybervictimization	Social anxiety (-) Depressive symptoms from the Center for Epidemiological Studies-Depression Scale (+)
Mishna et al. (2010)	Canada/ a stratified, clustered random sampling	Grade 6, 7, 10, and 11	Chi-square test (n= 2,186)	Cyberbullying	Fun, popular and powerful but with remorse
				Cyberbullying victimization	Anger (+) Sadness (+) Depression (+)
Spears, Slee, Owens, & Johnson (2009)	Australia/ Convenience and purposive sampling	20 students (12-18 years) 10 teachers 6 counselors	Narrative and thematic analyses (n=36)	Cyberbullying victimization	Negative feelings and emotions (e.g., fear, helplessness, unnerving, demeaning, inescapable, unsafe, vulnerable feeling, loneliness, disruption to and dislocation from participant's relationship) (+)
Wang et al. (2010)	The U.S. 2005/2006 HBSC	Grade 6-10	Latent Class Analyses (n=7,475)	Cyberbullying	Depression Medically attended injuries Medicine use

Several studies on bullying treatment and assistance focus on coping mechanisms, including the effect of social or emotional support (Collins & Laursen, 2004; House, 1981; Moss, 1973). Moss (1973) defined the term, social support, as the subjective feelings of being cared for, accepted, loved, needed, and belonged. House (1981) described emotional support as the perception of support conveyed to others, such as the provision of acceptance, reassurance, and encouragement in times of stress or difficulty. It is a widely known fact that positive parental supports and the perceptions of supportive relationships with parents are essential keys to adolescents' wellbeing (Collins & Laursen, 2004). Parental support, however, may not be the most significant factor to prevent and reduce peer victimizations and to support adolescent victims because bullying and/or peer aggression most frequently occur in school settings. That is, other emotional and social support groups are needed for the victims in a school setting such as adult (e.g., teacher and school staff) and/or peer support groups.

A paucity of studies has examined the importance of emotional support groups for adolescent victims seeking help, particularly for the victims of cyberbullying. Yeung and Leadbeater (2010) examined the moderation effect of the three adult emotional support groups (father, mother, and teacher) on the relations between peer victimization and maladaptive outcomes (emotional and behavioral problems) with a total of 664 adolescents over a two-year period (N=664) in the first survey (2003, T1) and N=580 in the follow-up survey (2005, T2). The results showed that both physical and relational (i.e., peers tell lies about the victim) victimizations were positively significant on both emotional and behavioral problems among adolescents. And it was found that females were more emotionally and behaviorally distressed by victimizations than male adolescents (Yeung & Leadbeater, 2010). Particularly, the behavioral problems among female adolescents were positively significant with the relational victimization in T2. In other words, the study found that behavioral problems are caused by relational bullying experiences later years, especially among female victims. One interesting finding of the study was that the higher emotional support from father lowers adolescents' emotional and behavioral problems both in T1 and T2, while their mothers' emotional support significantly moderated their children's emotional problems only in T1. Moreover, teachers' emotional support significantly lowered adolescents' relational problems in T1 and T2, while its significant moderation effects on emotional problems were found in T2. Yeung and Leadbeater (2010) constructed the temporal ordering from bullying to emotional and behavioral harms inflicted on adolescents. They also demonstrated moderated effect of fathers' and teachers' supports on reducing the harm caused by bullying.

Current Study

The current study extends previous research on cyberbullying victimization among youth by examining the impact of the presence of adult and peer support on the level of social and psychological harms. According to the National Crime Victimization Survey-School Crime Supplement (NCVS-SCS) data between 2011 and 2013, cyberbullying victims experience social harm 1.5 times more than traditional bullying victims, and experience twice more psychological harm compared to traditional bullying victims (NCVS-SCS, 2011; 2013). The literature on causes and preventive methods on reducing both social and psychological harm, however, is limited. Therefore, under the assumption that adult and peer support can reduce the level of both social and psychological harm, the current study hypotheses the following:

Hypothesis 1: Cyberbullying victims are less likely to experience social harm with adult support.
Hypothesis 2: Cyberbullying victims are less likely to experience social harm with peer support.
Hypothesis 3: Cyberbullying victims are less likely to experience psychological harm with adult support.
Hypothesis 4: Cyberbullying victims are less likely to experience psychological harm with peer support.

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Methods

Data

The data used in the current study are from the National Crime Victimization Survey (NCVS) School Crime Supplement (SCS). Every year, NCVS interviews each household member who is aged 12 years and older. SCS, as a supplement to the annual NCVS, started collecting data in 1989, then again in 1995. Beginning 1999, NCVS-SCS has been collected every two years. SCS interviews each household member aged 12 to 18 who attends a primary or secondary education program (Bureau of Justice Statistics, 2015). The NCVS-SCS dataset first introduced questions regarding cyberbullying in 2011. Starting in 2015, the NCVS-SCS removed eight cyberbullying-related questions and included one question asking the place of bullying to capture whether the bullying occurred online or by text. Thus, we used the 2011 and 2013 data only for the current study purpose. To include students who experienced cyberbullying, the current study included respondents who indicated experiencing cyberbullying using the cyberbullying-related questions. The questions include posting hurtful information about the victim, purposely sharing private information, photos, or videos on the internet or mobile phones, threatened or insulted victims through email, instant messaging, chat, text message, online gaming, or excluding victims from online communications. We also cross-referenced victims using one question asking the frequency of all these questions. This procedure classified 498 cyberbullying victims from 2011 and 325 cyberbullying victims from 2013 (N=823).

Dependent Variables

Social harm. In the current study, social harm was measured through students' answers on whether or not they were staying away from seven different places in school (e.g., school entrance, hallways and stairs, cafeteria, restrooms, parking lot, other school building, or other school ground) or route to school, as well as avoiding any online activities. Dichotomized response options for the nine items were summed across the items to reflect the severity of social harm as a count variable. An index reliability of Cronbach's alpha is 0.78, and the higher numbers represent the higher severity of social harm.

Independent Variables

Adult support. Adult support was measured with six 5-point Likert scale questions that asked the support from adult figures in school, including teachers who cared, noticed, listened, told positive stuff, wished the best, and believed the students (e.g., "There is an adult at school who believes that you will be …" or "Teachers care about students."; Strongly Negative = 0, Negative = 1, Nuetral = 2, Positive=3 Strongly Positive = 4). All Likert scale questions were summed across six items then divdied by six to reflect the severity of adult supports from strongly negative (= 0) to strongly positive (= 4). An index reliability of Cronbach's alpha is 0.83, and the higher number represents more support from adult figures in school.

Peer support. Peer support was measured with one 4-point Likert scale question that asked the presence of friends whom the respondent can talk to, cares about feelings, and what happened to the students (i.e., "Would you agree, at school, you have a friend you can talk to, who cares about your feelings and what happens to you."; Strongly Disagree = 0, Disagree = 1, Agree = 2, Strongly Agree = 3).

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Control Variables

School experience and safety features. To capture the impact of negative experiences in school, the current study utilized victimization report questions regarding hate-related words on race, religion, ethnicity, disability, gender, and sexual orientation (e.g., "Were any of the hate-related words related to you race?"). Those who reported any one of the above victimizations were coded as 1 and 0 otherwise. The physical atmosphere of the school can also influence students' social and psychological harm. Thus, the study utilized a dichotomized question regarding the presence of hate symbols in school (0 = No, 1 = Yes). In a similar vein, the study also included the nine dichotomized safety features at school (e.g., the presence of security guards or assigned police officers, metal detectors, visitor sign-in process, security cameras, and the code of student conduct) to represent none (0) to high (9) physical safety levels.

Demographic features. The current study included three demographic variables as covariates: gender (0 =Male, 1 = Female), age (12 – 18), and ethnicity (0= Others, 1= Caucasian).

Analytical Strategies

The two dependent variables for the current study, social and psychological harm, are the count variables. Although the Linear Regression Model (LRM) has often been applied to count outcomes, this can result in inefficient, inconsistent, and biased estimates. Even though there are situations in which the LRM provides reliable results, it is much safer to use models designed explicitly for count variable outcomes.

By utilizing count models, the current study assumed that every bullying victim has a positive probability of experiencing any given level of social and/or psychological harm. Depends on individual characteristics, the probability of being a victim may differ across victims, but all victims have some probability of experiencing harm. . To run count models, the study began with the Poisson Regression Model (PRM). Both social harm and psychological harm variable, however, contained strong evidence of over-dispersion (Social harm: G^2= 1275.79, p = 0.001; X^2= 2121.42 p = 0.001 and Psychological harm: G^2= 959.02, p = 0.001; X^2= 1555.81, p = 0.001). Thus, instead of applying the PRM, we ran the Negative Binomial Regression Model (NBRM) for both models. The NBRM improves upon the underprediction of zeros in the PRM by increasing the conditional variance without changing the conditional mean. The NBRM allows examining the over-dispersed portion of the count variable, which indicates that the variance exceeds the mean, and the distribution of outcomes is determined by both random and non-random (i.e., risk heterogeneity and/or event dependence) processes (Park & Eck, 2013; Winkelmann, 2008). The physical atmosphere of the school can also influence students' social and psychological harm.

Results

Table 2 presented the descriptive statistics of measures utilized in the current study. Among 823 cyberbullying victims aged 12 to 18 in public and private schools in the United States, approximately 24 percent of students expressed experiencing some level of social harm (26 percent of females; 20 percent of males), while approximately 19 percent experienced some level of psychological harm (22 percent of females; 15 percent of males). The current data contained 66 percent of white students compared to other races, and most of the school on the data showed at least one safety features in school. Majority of cyberbullying victims in the current data did not experience hate words in school (70 percent), but approximately half of students (52 percent) saw hate-related words or symbols written in his or her school.

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Table 2. Descriptive Statistics

Variable	N	Mean	St.d.	Min	Max
Social Harm	823	0.51	1.25	0	9
Psychological Harm	823	0.38	0.95	0	6
Adult Support	823	3.27	0.55	1	4
Peer Support	823	3.43	0.79	0	4
Hate Words	823	0.30	0.46	0	1
Hate Symbols in School	823	0.52	0.50	0	1
Presence of Safety Features	823	5.88	1.38	0	9
Caucasian	823	0.66	0.47	0	1
Gender (Female=1, Male=0)	823	0.61	0.49	0	1
Age	823	14.88	1.81	12	18

Note. St.d. = Standard Deviation

Social Harm

Table 3 showed the outcome of NBRM for cyberbullying victims with social harm. Findings from Table 3 supported hypothesis one, the presence of adult support reduces the level of social harm by cyberbullying victims. The results also supported hypothesis two, the presence of peer support reduced the level of social harm. When students felt substantial support by adult figures in school, their rate for social harm would be expected to decrease by a factor of 0.64 while holding all other variables in the mode constant. For example, when a student has no adult support, his/her/their social harm is equal to 100.

If the student has some peer support (1 unit increases), that student's social harm would down to 64 from 100, indicating a 36 percent decrease. When students felt the more substantial support by their peers, their rate for social harm would be expected to decrease by a factor of 0.73, while holding all other variables in the model constant. We further dicussed this issue in the next section.

The current study also included measures of hate words and hate symbols because of the possibility for cyberbullying victims to experience social harm due to negative school experiences. The findings indicated that cyberbullying victims who heard hate-related words were 2.76 times more likely to experience social harm. Seeing signs of hate symbols in school also increased social harm by 1.54 times. The level of social harm by cyberbullying victims was reduced for every additional year in school by 13 percent. Unlike previous literature, we did not find any statistical significance between male and female cyberbullying victims' level of social harm, as well as differences in race.

Table 3. Negative Binomial Regression Model for Cyberbullying Victims with Social Harm

	ß	(Std.err)	IRR	(Std.err)
Adult Support	-0.45**	0.14	0.64**	0.09
Peer Support	-0.32***	0.10	0.73***	0.07
Hate Words	1.02***	0.17	2.76***	0.48
Hate Symbols in School	0.43*	0.18	1.54*	0.27
Presence of Safety Features	0.03	0.06	1.03	0.07
Caucasian	-0.20	0.17	0.82	0.14
Female	-0.28	0.17	1.33	0.23
Age	-0.14**	0.05	0.87**	0.04
Constant	2.97	0.91	19.49	3.78

Notes. Std. err = Standard Error; IRR = Incident-Rate Ratios
* *p*<0.05, ** *p*<0.01, *** *p*<0.001

Psychological Harm

Table 4 indicated the outcome of PRM for cyberbullying victims with psychological harm. As shown in Table 4, the presence of both adult and peer support reduced the level of psychological harm. Cyberbullying victims experienced less psychological harm by the presence of adult support (31 percent) and peer support (28 percent). These findings supported the hypotheses three and four of the current study.

Table 4. Negative Binomial Regression Model for Cyberbullying Victims with Psychological Harm

	ß	(Std.err)	IRR	(Std.err)
Adult Support	-0.37*	0.16	0.69*	0.11
Peer Support	-0.33**	0.11	0.72**	0.08
Hate Words	1.20***	0.19	3.32***	0.65
Hate Symbols in School	0.06	0.19	1.06	0.21
Presence of Safety Features	-0.01	0.07	1.00	0.07
Caucasian	-0.15	0.19	0.85	0.17
Female	0.58**	0.19	1.78**	0.35
Age	-0.14**	0.05	0.87**	0.04
Constant	2.49	1.01	12.04	12.18

Notes. Std. err = Standard Error; IRR = Incident-Rate Ratios
* *p*<0.05, ** *p*<0.01, *** *p*<0.001

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Unlike social harm, cyberbullying victims with psychological harm were not significantly affected by negative school experiences and environments, such as hearing hate words or seeing hate-related symbols on school property.Besides, victims with psychological harm were 78 percent more likely to be female. Similar to social harm model, the finding also indicated that the level of psychological harm among cyberbullying victims was reduced for every additional year in school by 13 percent.

Discussions

The current study examined the effects of adult and peer support on social and psychological harm among adolescent victims of cyberbullying aged 12 to 18 using the NCVS-School Crime Supplement data in 2011 and 2013. As found, almost all victims reported that they experienced certain degrees of social and psychological distress from their cyberbullying victimization. The results supported the four research hypotheses that assumed the negative relationship between two types of harms (social and psychological harm) and two emotional support groups (peer and adult). First we found that peer support lowered not only the levels of social harm but also psychological harm among adolescent victims of cyberbullying. It is not surprising that most students have at least one close friend at school. Although we would like to capture a more versatile measure of peer support, we were unable to provide a more sophisticated measure of peer support due to the distribution of the measure and lack of peer support variables in the dataset. Several existing studies found that peer support has a positive impact on students' experience at school by creating a socio-emotional climate and providing social and emotional support and functions as school bullying intervention and prevention (Cowie, 2011; Naylor & Cowie, 1999; Cowie & Olafsson, 2000; Tzani-Pelpelasi et al., 2019; Yin et al., 2017). Although these studies did not test peer support directly on cyberbullying victimization, it is clear that peers and fellow students play critical roles to the bullied to overcome their social and psychological damage and distress from the peer bullies. There is a common phrase used in South Korea: Wounds from people are eventually healed by people. In other words, social and psychological harms from peers at school are healed by peers. The current study clearly demonstrated such proverb.

Second, we found a positive effect of adult support on both social and psychological harms among adolescent victims of cyberbullying. That is, adult support alleviates the levels of social and psychological distress suffering among peer victims. Yeung and Leadbeater (2010) found that adult emotional support moderates the association between peer victimization and emotional and behavioral problems among adolescents. In particular, the higher father and teacher's emotional support, the lower the adolescent victims' emotional and behavioral problems caused by both physical and relational victimization concurrently and across time (Yeung & Leadbeater, 2010). Although Yeung and Leadbeater (2010) did not separately measure cybervictimization from physical and relational victimization, it was obvious that adult support moderates emotional and behavioral maladaptive outcomes among adolescent victims of peer aggression and harassment.

According to Mitchell and her colleagues (2016), adolescent victims had the most emotional harm by mixed harassment incidents (in-person and technology-involved) because of being victimized in multiple places such as school, home, and cyberspace. To our knowledge, the current study is the first study that empirically examined the effects of adult and peer support on social and psychological harm among adolescent victims of cyberbullying, as well as the first study finding the positive impacts of adult and peer support on cyber victimization. The result of the current study also supports the finding of Yeung and Leadbeater's study (2010) that adult support makes a difference for peer-victimized adolescents.

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Third, it was not our main focus but worth to mention the important finding of the relationships between both hate words and hate symbols in school and the levels of social harm. It was not a surprising finding that adolescent victims were not only physically but also verbally abused by their peers, using hate words related to various personal factors. However, it is necessary to pay good attention to the positive relationship between hate symbols in school and social harm. Neutrality in the school environment has been highly emphasized by many scholars and teachers, especially in public schools, in order to provide a safer and better learning environment by eliminating any confusion or animosity for students on polarized opinions on any controversial topics in social justice (see Hart, 1964; Kelly, 2001; and Kyritsis & Tsakyrakis, 2013). The finding of the current study lets us rethink about the carelessness, negligence, or insensitivity on hate symbols among teachers and/or school administrators as well as the pain of the adolescent victims caused by inattentive and/or unintentional hazardous school climates. Besides, it implies the importance of school justice systems and disciplines against any violations of human rights. As described earlier, however, both variables, hate words and the presence of hate symbols in school, were measured with one dichotomized item, so it is recommended for future studies to measure them with more sophisticated items to investigate the impacts of hate on perpetrators and victims.

There are several limitations to the current study concerning the data. Similar to many other self-reported survey data, the NCVS-SCS contains issues regarding sampling error. Even though the NCVS-SCS collects data from the nationally representative samples, any given NCVS-SCS student sample may differ from estimates that would have been produced from other student samples. In addition, the NCVS-SCS asks on an entire year of school victimization in every two years. Thus, at the response process stage, students may forget an event or telescope forward or backward. Since 2011, there were a total of four NCVS-SCS datasets that include cyberbullying related items. Starting in 2015, NCVS-SCS substituted the eight cyberbullying-related questions to one question that asks the place of bullying with an option to choose online or by text. For this reason, we used the 2011 and 2013 datasets only in the current study. It is recommended for future studies to examine the 2015 and 2017 datasets for the comparison purpose. The current study combined two NCVS-SCS data to demonstrate the relationship between peer and adult support on bullying victims. Due to the data limitation, we cannot control or examine the temporal ordering between bullying and support from adults and peer groups. Instead, this study assumed the more significant impact of adult and peer support on bullying victims. Therefore, future studies should address the issue of the temporal ordering between bullying and supports.

Another concern in this study is that there is no way to identify whether the findings of this study are the result of the adult and/or peer support programs already being effective. There is no such question indicating whether or not individual participants' school has such programs in the NCVS-SCS questionnaire. As stated, we measured peer and adult support regardless of the existence of such support programs. Hence, the findings of this study should be cautiously interpreted, and it is also recommended for future studies to address and/or resolve the issue of a black-box approach, caused by the limitation of using secondary data. Furthermore, the current study only includes both adult and peer support at school. Since it is plausible to obtain both supports from outside school boundaries, expanding the scope to include support from other adults and peers is also encouraged for further assessment.

According to Yeung and Leadbeater (2010), teachers' emotional support could reduce emotional and behavioral problems among adolescents. Unfortunately, the NCVS-SCS data did not allow us to differentiate the emotional support from teachers only. There were three items asking students' experiences

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with teachers, but those items asked overall perceptions of teachers rather than personal experience with teachers. Therefore, the current study was unable to demonstrate the impact of teacher support separately from adult support. Lastly, due to the data restriction, we were unable to construct a robust measure that represents peer support. Unlike the adult support measure that draws from six items, the peer support measure came from one item. Aforementioned, there is no other nationally representative dataset containing cyberbullying victimization and various adult and peer support items to the authors' knowledge, so we recommend adding more cyber victimization and peer support items on the NCVS-SCS or constructing another nationally representative platform data that specify cyber victimization of students.

Conclusion

The important thing in human relations is a consideration, respect, and concern for others. However, if these concerns and considerations are distorted and appear as violence, no one will want to engage. With the development of technological civilization, many people are changing to a society that places indirect contact over a face-to-face, personal work rather than collaboration, and anonymity rather than naming. As Aristotle said, however, humans are social animals (see Loard, 2013); we seek the meaning of our existence under constant relationships with others. Because of this, violence in relations force to leave more profound and fatal wounds on the victim. In particular, bullying victimizations during the sensitive adolescence period may place unforgettable scars on the victim's remaining life. This current study empirically demonstrated the possibility that such wounds, social and psychological harms, can be alleviated and restored by the support of adults and peers. Moreover, the current study indicates that psychological harm is more prevalent among cyberbullying victims compared to social harm, which warrants intervention and prevention programs to mediate existing psychological harm and reduce future harm by cyberbullying. Even though the percentage of experiencing social harm is relatively lower compared to psychological harm, the presence of social harm also cannot be ignored, and warrant intervention and prevention. Based on findings, we believe that developing new adult and peer supporting programs or enhancing existing assisting programs can be vital methods to help distressed students' recovery process, while enhancing knowledge on cyberbullying: prevention and danger. It is people who cause problems, and it is also people who solve the problems. Perhaps being wounded by a person and healed by another person is a way that we live in society. There is growing evidence of the effectiveness of peer supporting programs across the literature (Adickes et al., 2013; Tzani-Pelpelasi et al., 2019. Williford et al., 2012; Yerger and Gehret, 2011). The sustainability of such programs, however, needs to be carefully managed with surrounding factors within the school environment and students' characteristics.

Declaration of Interest Statement

The authors declare that they have no conflicts of interest.

References

Adickes, J., Worrell, K., Klatt, C., Starks, J., Vosicky, A., & Moser, C. S. (2013). Bullying. Journal of Occupational Therapy, Schools, and Early Intervention, 6(1), 1-13. Http://doi.org/10.1080/19411243.2013.771099

International Journal of Cybersecurity Intelligence and Cybercrime, Vol. 4, Iss. 1, Page. 25-45, Publication date: March 2021.

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Albdour, M., Hong, J., Lewin, L., & Yarandi, H. (2019). The impact of cyberbullying on physical and psychological health of Arab American adolescents. *Journal of Immigrant and Minority Health, 21*, 706-715.

Aristole (2013). *Aristotle's Politics*, 2nd. (Carnes Lord, Trans.) Chicago, IL: University of Chicago Press. (Original work written 350 B.C.E.)

Balakrishnan, V., Khan, S., & Arabnia, H. R. (2020). Improving Cyberbullying Detection using Twitter Users' Psychological Features and Machine Learning. *Computers & Security*, 101710.

Baldry, A. C., Farrington, D. P., & Sorrentino, A. (2017). School bullying and cyberbullying among boys and girls: Roles and overlap. *Journal of Aggression, Maltreatment & Trauma*, 26(9), 937-951.

Bastiaensens, S., Vandebosch, H., Poels, K., Van Cleemput, K., DeSmet, A., & De Bourdeaudhuij, I. (2014). Cyberbullying on social network sites. An experimental study into bystanders' behavioural intentions to help the victim or reinforce the bully. *Computers in Human Behavior, 31*, 259-271.

Bauman, S., Toomey, R. B., & Walker, J. L. (2013). Associations among bullying, cyberbullying, and suicide in high school students. *Journal of adolescence, 36*(2), 341-350.

Bonanno, R. & Hymel, S. (2013). Cyber bullying and internalizing difficulties: above and beyond the impact of traditional forms of bullying. *Journal of Youth Adolescnece, 42*, 685-697.

Brewer, G. & Kerslake, J. (2015). Cyberbullying, self-esteem, empathy and loneliness. *Computers in Human Behavior, 48*, 255-260.

Campbell, M. A., Slee, P. T., Spears, B., Butler, D., & Kift, S. (2013). Do cyberbullies suffer too? Cyberbullies' perceptions of the harm they cause to others and to their own mental health. *School Psychology International, 34*(6), 613–629. https://doi.org/10.1177/0143034313479698

Campbell, M., Spears, B., Slee, P., Butler, D., & Kift, S. (2012). Victims' perceptions of traditional and cyberbullying, and the psychosocial correlates of their victimisation. *Emotional and Behavioural Difficulties, 17*(3 - 4), pp. 389-401.

Cantor, D., & Lynch, J. P. (2000). Self-report surveys as measures of crime and criminal victimization. *Criminal Justice, 4*, 85-138.

Centers for Disease Control and Prevention (2018). Youth risk behavior surveillance—United States, 2017. *Morbidity and Mortality Weekly Report--Surveillance Summaries, 67*(8), 1-478. Retrieved from https://www.cdc.gov/healthyyouth/data/yrbs/pdf/2017/ss6708.pdf

Centers for Disease Control and Prevention (2019). Youth Risk Behavior Surveillance System (YRBSS): 2019 National Youth Risk Behavior Survey Questionnaire. Retrieved from https://www.cdc.gov/healthyyouth/data/yrbs/pdf/2019/2019_YRBS-National-HS-Questionnaire.pdf

Charalampous, K., Demetriou, C., Tricha, L., Ioannou, M., Georgiou, S., Nikiforou, M., & Stavrinides, P. (2018). The effect of parental style on bullying and cyber bullying behaviors and the mediating role of peer attachment relationships: A longitudinal study. *Journal of Adolescence, 64*, 109-123.

Chen, Q., Lo, C., K.M, Zhu, Y., Cheung, A., Chan, K. L., & Ip, P. (2018). Family poly-victimization and cyberbullying among adolescents in a Chinese school sample. Child *Abuse & Neglect, 77*, 180-187.

International Journal of Cybersecurity Intelligence and Cybercrime, Vol. 4, Iss. 1, Page. 25-45, Publication date: March 2021.

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Choi, K. S., Earl, K., Lee, J. R., & Cho, S. (2019). Diagnosis of cyber and non-physical bullying victimization: A lifestyles and routine activities theory approach to constructing effective preventative measures. *Computers in Human Behavior, 92*, 11-19.

Choi, K. S., & Lee, J. R. (2017). Theoretical analysis of cyber-interpersonal violence victimization and offending using cyber-routine activities theory. *Computers in Human Behavior, 73,* 394-402.

Cohen, S., & Willis, T. A. (1985). Stress, social support, and the buffering hypothesis. *Psychological Bulletin, 98*(2), 310-357.

Cowie, H. (2011). Peer support as an intervention to counteract school bullying: Listen to the children. *Children & Society, 25*, 287-292.

Cowie, H. & Olafsson, R. (2000). The role of peer support in heling the victims of bullying in a school with high levels of aggression. *School Psychology International*, 21(1), 79-95.

Del Rey, R., Elipe, P., & Ortega-Ruiz, R. (2012). Bullying and cyberbullying: Overlapping and predictive value of the co-occurrence. *Psicothema, 24*(4), 608-613.

Del Rey, R., Mora-Merchán, J. A., Casas, J. A., Ortega-Ruiz, R., & Elipe, P. (2018). 'Asegúrate'Program: Effects on Cyber-Aggression and Its Risk Factors. *Comunicar: Media Education Research Journal, 26*(56), 39-48.

Ditzen, B. & Heinrichs, M. (2014). Psychobiology of social support: The social dimension of stress buffering. *Restorative Neurology and Neuroscience, 32*(1), 149–162.

Erdur-Baker, Ö. (2010). Cyberbullying and its correlation to traditional bullying, gender and frequent and risky usage of internet-mediated communication tools. *New Media & Society, 12*(1), 109-125.

Fazil, M., & Abulaish, M. (2018). A hybrid approach for detecting automated spammers in twitter. *IEEE Transactions on Information Forensics and Security, 13*(11), 2707-2719.

Francisco, S. M., Simão, A. M. V., Ferreira, P. C., & das Dores Martins, M. J. (2015). Cyberbullying: The hidden side of college students. *Computers in human behavior, 43*, 167-182.

Fredrick, S. S. & Demaray, M. K. (2018). Peer victimization an suicidal ieation: The role of gender and depression in a school-based sample. *Journal of School Psychology, 67*, 1-15.

Gaffney, H., Ttofi, M. M., & Farrington, D. P. (2019). Evaluating the effectiveness of school-bullying prevention programs: An updated meta-analytical review. *Aggression and violent behavior, 45*, 111-133.

Gini, G., & Pozzoli, T. (2009). Association Between Bullying and Psychosomatic Problems: A Meta-Analysis. *Pediatrics, 123*(3), 1059–1065.

Gini, G., & Pozzoli, T. (2013). Bullied children and psychosomatic problems: A meta analysis. *Pediatrics, 132*, 720–729.

Gladden, R.M., Vivolo-Kantor, A.M., Hamburger, M.E., & Lumpkin, C.D. (2014). *Bullying Surveillance Among Youths: Uniform Definitions for Public Health and Recommended Data Elements, Version 1.0.* Atlanta, GA; National Center for Injury Prevention and Control, Centers for Disease Control and Prevention, and U.S. Department of Education.

International Journal of Cybersecurity Intelligence and Cybercrime, Vol. 4, Iss. 1, Page. 25-45, Publication date: March 2021.

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Glanz, K. & Schwartz, M. D. (2008). Stress, coping, and health behavior. In Karen Glanz, Barbara K. Rimer, and K. Viswanath (Eds.), *Health Behavior and Health Education: Theory, Research, and Practice, 4th* ed. (pp. 211-236). San Francisco, CA: John Wiley & Sons, Inc.

Goodboy, A. K., & Martin, M. M. (2015). The personality profile of a cyberbully: Examining the Dark Triad. *Computers in human behavior, 49*, 1-4.

Google, Inc. (2020). Google scholar. Retrieved from https://scholar.google.com/intl/en/scholar/help.html Gradinger, P., Strohmeier, D., & Spiel, C. (2009). Traditional bullying and cyberbullying: Identification of risk groups for adjustment problems. *Zeitschrift für Psychologie / Journal of Psychology, 217*(4), 205-213.

Hard, R. L. (1964, November). Must schools be neutral? *Educational Leadership*. Retrieved from http://www.ascd.org/ASCD/pdf/journals/ed_lead/el_196411_hart.pdf

Hay, C. & Meldrum, R. (2010). Bullying victimization and adolescent self-harm: Testing hypotheses from general straing theory. *Journal of Youth Adolescence, 39*, 446-459.

Hawker, D.S.J., & Boulton, M.J. (2000). Twenty years' research on peer victimization and psychosocial maladjustment: a meta-analytic review of cross-sectional studies. *Journal of Child Psychology and Psychiatry, 41*, 441–455.

Heaney, C. A. & Israel, B. A. (2008). Social networks and social support. In Karen Glanz, Barbara K. Rimer, and K. Viswanath (Eds.), *Health Behavior and Health Education: Theory, Research, and Practice, 4th* ed. (pp. 189-210). San Francisco, CA: John Wiley & Sons, Inc.

Hellström, L., Beckman, L., & Hagquist, C. (2017). Does the strength of the association between peer victimization and psychosomatic health problems depend on whether bullying or peer aggression is measured? *Child Indicator Research, 10*, 447-459.

Hinduja, S., & Patchin, J. W. (2010). Bullying, cyberbullying, and suicide. *Archives of Suicide Research, 14*(3), 206-221.

Holt, M.K., Vivolo-Kantor, A.M., Polanin, J.R., Holland, K.M., DeGue, S., Matjasko, J.L., et al. (2015). Bullying and suicidal ideation and behaviors: A meta-analysis. *Pediatrics, 135*(2), 496-509. http://dx.doi.org/10.1542/peds.2014-1864

House J.S. (1981). *Work Stress and Social Support*. Reading, MA: Addison-Wesley.

Inchley, J., Currie,, D., Young, T., Samdal, O., Torsheim, T., Augustson, L., Mathison, D., Aleman-Diaz, A., Molcho, M., Weber, M., & Barnekow, V. (2019). Growing up unequal: gender and socioeconomic differences in young people's health and well-being. *Health Behaviour in School-aged Children (HBSC) Study: International Report from the 2013 / 2014 Survey*. Copenhagen, WHO Regional Office for Europe, 2016 (Health Policy for Children and Adolescents, No. 7). Retrieved from http://www.euro.who.int/__data/assets/pdf_file/0003/303438/HSBC-No.7-Growing-up-unequal-Full-Report.pdf?ua=1

Jayaratne, S. & Ches, W. A. (1984). The effects of emotional support on perceived job stress and strain. *Journal of Applied Behavioral Science, 20*(2), 141-153.

Kowalski, R. M., Morgan, C. A., & Limber, S. P. (2012). Traditional bullying as a potential warning sign of cyberbullying. *School Psychology International, 33*(5), 505-519.

Kowalski, R.M., Giumetti, G.W., Schroeder, A.N., & Lattanner,M.R. (2014). Bullying in the digital age: A critical review and meta-analysis of cyberbullying research among youth. *Psychological Bulletin, 140*, 1073–1137.

Kubiszewski, V., Fontaine, R., Potard, C., & Auzoult, L. (2015). Does cyberbullying overlap with school bullying when taking modality of involvement into account?*Computers in Human Behavior, 43*, 49-57.

Kyritsis, D. & Tsakyrakis, S. (2013). Neutrality in the classroom. *International Journal of Constitutional Law, 11*(1), 200-217.

Landoll, R. R., La Greca, A. M., Lai, B. S., Chan, S. F., & Herge, W. M. (2015). Cyber victimization by peers: Prospective associations with adolescent social anxiety and depressive symptoms. *Journal of Adolescence, 42*, 77-86.

Leiner, B. M., Cerf, V. G., Clark, D. D., Kahn, R. E., Kleinrock, L., Lynch, D. C., ... & Wolff, S. (2009). A brief history of the Internet. *ACM SIGCOMM Computer Communication Review, 39*(5), 22-31.

Lessne, D., & Cidade, M. (2016). Split-Half Administration of the 2015 School Crime Supplement to the National Crime Victimization Survey: Methodology Report. NCES 2017-004. *National Center for Education Statistics*.

Li, Q. (2006). Cyberbullying in schools: A research of gender differences. *School psychology international, 27*(2), 157-170.

Li, Q. (2007). New bottle but old wine: A research of cyberbullying in schools. *Computers in human behavior, 23*(4), 1777-1791.

Litwiller, B. J., & Brausch, A. M. (2013). Cyber bullying and physical bullying in adolescent suicide: the role of violent behavior and substance use. *Journal of Youth and Adolescence, 42*(5), 675-684.

Menesini, E., & Salmivalli, C. (2017). Bullying in schools: the state of knowledge and effective interventions. *Psychology, health & medicine, 22*(sup1), 240-253.

Mishna, F., Cook, C., Gadalla, T., Daciuk, J., & Solomon, S. (2010). Cyber bullying behaviors among middle and high school students. *American Journal of Orthopsychiatry, 80*(3), 362-374.

Mishna, F., Khoury-Kassabri, M., Gadalla, T., & Daciuk, J. (2012). Risk factors for involvement in cyber bullying: Victims, bullies and bully–victims. *Children and Youth Services Review, 34*(1), 63-70.

Mishna, F., Schwan, K. J., Birze, A., Van Wert, M., Lacombe-Duncan, A., McInroy, L., & Attar-Schwartz, S. (2020). Gendered and sexualized bullying and cyber bullying: Spotlighting girls and making boys invisible. *Youth & Society, 52*(3), 403-426.

Mitchell, K. J., Jones, L. M., Turner, H. A., Shattuck A., & Wolak, J. (2016). The role of technology in peer harassment: Does it amplify harm for youth? *Psychology of Violence, 6*(2), 193-204.

Moss E. G. (1973). *Illness, Immunity, and Social Interaction*. New York: John Wiley and Sons.

Naylor, P. & Cowie, H. (1999). The effectiveness of peer support systems in challenging school bullying: The perspectives and experiences of teachers and pupils. *Journal of Adolescence, 22*(4), 467-479.

Pabian, S., & Vandebosch, H. (2016). An investigation of short-term longitudinal associations between social anxiety and victimization and perpetration of traditional bullying and cyberbullying. *Journal of Youth and Adolescence, 45*(2), 328-339.

International Journal of Cybersecurity Intelligence and Cybercrime, Vol. 4, Iss. 1, Page. 25-45, Publication date: March 2021.

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Park, S, M., & Eck, J. E. (2013). Understanding the random effect on victimization distribution: A statistical analysis of random repeat victimizations. *Victims & Offenders, 8*(4), 399-415.

Pozzoli, T., & Gini, G. (2019). Behavior during cyberbullying episodes: Initial validation of a new self-report scale. *Scandinavian Journal of Psychology, 61*, 22-29.

Reijntjes, A., Kamphuis, J.H., Prinzie, P., Boelen, P.A., van der Schoot, M., & Telch, M.J. (2011). Prospective linkages between peer victimization and externalizing problems in children: a meta-analysis. *Aggressive Behavior, 37*, 215–222.

Rosa, H., Pereira, N., Ribeiro, R., Ferreira, P. C., Carvalho, J. P., Oliveira, S., Coheur, L., Paulino, P., Veiga Simão, A. M., & Trancoso, I. (2019). Automatic cyberbullying detection: A systematic review. *Computers in Human Behavior, 93*, 333-345.

Sarason, I. G., & Sarason, B. R. (2009). Social support: Mapping the construct. *Journal of Social and Personal Relationships, 26*(1), 113–120.

Slavin, L. A. & Rainer, K. L. (1990). Gender differences in emotional support and depressive symptoms among adolescents: A prospective analysis. *American Journal of Community Psychology, 18*(3), 407-421.

Slonje, R., & Smith, P. K. (2008). Cyberbullying: Another main type of bullying? *Scandinavian Journal of Psychology, 49*(2), 147-154.

Smith, P. K., Mahdavi, J., Carvalho, M., Fisher, S., Russell, S., & Tippett, N. (2008). Cyberbullying: Its nature and impact in secondary school pupils. *Journal of Child Psychology and Psychiatry, 49*(4), 376-385.

Song, J., & Oh, I. (2018). Factors influencing bystanders' behavioral reactions in cyberbullying situations. *Computers in Human Behavior, 78*, 273-282.

Spears, B., Slee, P., Owens, L., & Johnson, B. (2009). Behind the scenes and screens: Insights into the human dimension of covert and cyberbullying. *Journal of Psychology, 217*(4), 189-196.

Thoits, P. A. (1995). Stress, coping, and social support processes: Where are we? What next? In *Special issue: Forty years of medical sociology: The state of the art and directions for the future.* Edited by Mary L. Fennell. *Journal of Health and Social Behavior 35* (extra issue): 53–79.

Tokunaga, R. S. (2010). Following you home from school: A critical review and synthesis of research on cyberbullying victimization. *Computers in Human Behavior, 26*, 277-287.

Tsaousis, I. (2016). The relationship of self-esteem to bullying perpetration and peer victimization among schoolchildren and adolescents: A meta-analytic review. *Aggression and violent behavior, 31*, 186-199.

Ttofi, M.M., Farrington, D.P., Lösel, F., & Loeber, R. (2011a). Do the victims of school bullies tend to become depressed later in life? A systematic review and meta analysis of longitudinal studies. *Journal of Aggression, Conflict and Peace Research, 3,* 63–73.

Tzani-Pelpelasi, C., Ioannou, M., Synnott, J., & McDonnell, D. (2019). Peer support at schools: The buddy approach as prevention and intervention strategy for school bullying. *International Journal of Bullying Prevention, 1*, 111-123.

International Journal of Cybersecurity Intelligence and Cybercrime, Vol. 4, Iss. 1, Page. 25-45, Publication date: March 2021.

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United States Department of Justice. Office of Justice Programs. Bureau of Justice Statistics. (2011). National Crime Victimization Survey: School Crime Supplement. Ann Arbor, MI: Inter-university Consortium for Political and Social Research [distributor], 2013-03-26. https://doi.org/10.3886/ICPSR33081.v1

United States Department of Justice. Office of Justice Programs. Bureau of Justice Statistics. (2013). National crime victimization survey: School crime supplement. Ann Arbor, MI: Inter-university Consortium for Political and Social Research [distributor]. 2014-12—2. https://doi.org/10.3886/ICPSR34980.v1

Van Dam, D.S., van der Ven, E., Velthorst, E., Selten, J.P., Morgan, C., & de Haan, L. (2012). Childhood bullying and the association with psychosis in non-clinical and clinical samples: a review and meta-analysis. *Psychological Medicine, 42*, 2463–2474.

Van Geel, M., Goemans, A., & Vedder, P.H. (2016). The relation between peer victimization and sleeping problems: A meta-analysis. *Sleep Medicine Reviews, 27*, 89-95. http://dx.doi.org/10.1016/j.smrv.2015.05.004

Vieno, A., Gini, G., & Santinello, M. (2011). Different forms of bullying and their association to smoking and drinking behavior in Italian adolescents. *Journal of School Health, 81*(7), 393-399.

Waasdorp, T. E., & Bradshaw, C. P. (2015). The overlap between cyberbullying and traditional bullying. *Journal of Adolescent Health, 56*(5), 483-488.

Wang, J., Ianotti, R. J., Luk, J. W., & Nansel, T. R. (2010) Co-occurrence of Victimization from Five Subtypes of Bullying: Physical, Verbal, Social Exclusion, Spreading Rumors, and Cyber. *Journal of Pediatric Psychology, 35*(10), 1103–1112.

Watts, L. K., Wagner, J., Velasquez, B., & Behrens, P. I. (2017). Cyberbullying in higher education: A literature review. *Computers in Human Behavior, 69*, 268-274.

Williford, A., & Depaolis, K. J. (2016). Predictors of cyberbullying intervention among elementary school staff: the moderating effect of staff status. Psychology in the Schools, 53(10), 1032-1044. http://doi.org/10/1022/pits.21973.

Winkelmann, R. (2008). *Econometric analysis of count data.* Heidelberg: Springer Science & Business Media

Yerger, W., & Gehret, C. (2011). Understanding and dealing with bullying in schools. *The Educational Forum, 75*(4), 315–326. https://doi.org/10.1080/00131725.2011.602468.

Yeung, R. & Leadbeater, B. (2010). Adults make a difference: The protective effects of parent and teacher emotional support on emotional and behavioral problems of peer-victimized adolescents. *Journal of Community Psychology, 38*(1), 80-98.

Yin, X., Wang, L., Zhang, G., Liang, X., Li, J., Zimmerman, M. A., & Wang, J. (2017). The promotive effects of peer support and active coping on the relationship between bullying victimization and depression among Chinese boarding students. *Psychiatry Research, 256*, 59-65.

Zych, I., Ortega-Ruiz, R., & Del Rey, R. (2015). Scientific research on bullying and cyberbullying: Where have we been and where are we going. *Aggression and Violent Behavior, 24*, 188-198.

Zych, I., Ortega-Ruiz, R., & Rey R. D. (2015). Systematic review of theoretical studies on bullying and cyberbullying: Facts, knowledge, prevention, and intervention. *Aggression and Violent behavior, 23*, 1-21.

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