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The Relationship Between Cyberabuse in Teen Dating Relationships and Self-Efficacy in a
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Abstract

Interpersonal violence is a prevalent public health issue. Cyberbullying and intimate partner violence (IPV) are two types of interpersonal violence that have major health and wellbeing consequences. The primary goal of this study is to understand the relationship between victimization and perpetration of cyberabuse in teen dating relationships and two types of self-efficacy: general self-efficacy and coping self-efficacy. Secondarily, this study aims to understand how cyberabuse in teen dating relationships is associated with depression, anxiety, and childhood trauma. Study participants were 51 high school girls. No significant relationships were found between perpetration and either type of self-efficacy. Trends towards significance were found for the relationship between victimization and coping self-efficacy. There was a significant relationship between both victimization and perpetration and childhood trauma, such that childhood trauma predicted victimization and trended towards predicting perpetration. There was also a relationship between victimization and anxiety. Results of this study can be used to develop age- and gender-appropriate interventions and prevention programs for adolescent girls.

Keywords: cyberbullying, intimate partner violence, teen dating relationships, adolescence, cyberabuse, self-efficacy

INTRODUCTION AND BACKGROUND

Violence – An Overview

Violence plays a significant role in the human experience, and its impact can be seen in multiple forms in all parts of the world. Overall, violence is among the leading cause of death worldwide for people aged 15-44 years (Dahlberg & Kurg, 2002). Both victims and perpetrators of physical violence and psychological abuse tend to report lower self-esteem, reduced self-worth, and increased self-blame, anger, hurt, and anxiety (Cornelius & Ressegui, 2007). The World Health Organization defines violence as the intentional use of force or power, threatened or actual, against oneself, another person, or against a group or community, that either results in or has a high likelihood of resulting in injury, death, psychological harm, or impaired development. Violence can take many forms, namely physical, sexual, psychological, and deprivation or neglect (World Health Organization, 2011). The World Health Organization's definition covers a broad range of outcomes, including psychological and physical harm. The definition encourages researchers and practitioners to recognize violence that does not necessarily result in injury or death but does cause a substantial burden on individuals, families, and communities. It is therefore imperative that violence be viewed as a public health issue.

One category of violence as defined by the World Health organization is interpersonal violence. Interpersonal violence is the focus of this study. *Interpersonal Violence* refers to violence between individuals. This category of violence is subdivided into *family and intimate partner violence*, which includes child maltreatment, domestic abuse, and elder abuse; and *community violence*, which includes bullying, assault by strangers, and violence related to property crimes (WHO, 2011). The two types of interpersonal violence that are explored in this study are bullying and intimate partner violence.

Bullying

Bullying is defined as unwanted, aggressive behavior, often seen in school or in the workplace, which involves a real or perceived power imbalance. This behavior is repeated or has the potential to be repeated over time. The three major types of bullying are physical, verbal, and social (US Dept. of Health and Human Services, 2013). While bullying can affect anyone of any age, it is especially an issue among school-aged youth. According to the 2011 Youth Risk Behavior Surveillance System put out by the Centers for Disease Control and Prevention, 20% of students in grades 9-12 nationwide experienced bullying in the previous year (CDC, 2011). Similarly, the 2008-2009 School Crime Supplement put out by the National Center for Education Statistics and Bureau of Justice Statistics shows that 28% of students in grades 6-12 nationwide experienced bullying in the previous year (NCES & BJS, 2009). It is important to note that many incidents of bullying go unreported because children who have experienced bullying may fear retaliation by the perpetrator, social isolation, peer rejection, and being viewed as weak.

Bullying can have serious and long-lasting consequences, both for the victims and for the perpetrators. A population-based longitudinal study, for example, found that after controlling for childhood psychiatric problems and family hardships, adults who had been victims of bullying as children had a higher prevalence of agoraphobia, generalized anxiety disorder, and panic disorder. Adults who had been perpetrators of bullying as children were at an increased risk for antisocial personality disorder. Adults who had been both perpetrators and victims as children were at a greater risk for young adult depression, panic disorder, agoraphobia in the case of women, and suicidal ideation in the case of men (Copeland, Wolke, Angold, & Costello, 2013). Another study found that childhood bullying victimization was predictive of negative health, financial, behavioral, and interpersonal outcomes after adjusting for family hardship and childhood

psychiatric problems (Wolke, Copeland, Angold, & Costello, 2013). Victims of bullying also experience decreased academic achievement. They are more likely to have lower grade point averages and standardized test scores and are less likely to participate in school. They are also more likely to miss, skip, or drop out of school. (US Dept. of Health and Human Services, 2013). A longitudinal study found that victims of bullying report decreasing levels of self-worth with increasing levels of victimization (Bogart, Elliott, Klein, Tortolero, Mrug, Peskin, Davies, Schink, & Schuster, 2014). Bullying victimization is not only associated with worse psychosocial health outcomes but also with worse physical health outcomes (Bogart et al., 2014). Perpetrators of bullying are more likely to use and abuse drugs and alcohol in adolescence and adulthood, get into fights, vandalize property, drop out of school, engage in early sexual activity, have criminal convictions and traffic citations as adults, and be more abusive towards romantic partners, spouses, and children as adults (US Dept. of Health and Human Services, 2013).

Cyberbullying

In recent decades, bullying has also taken place via the Internet and other forms of electronic communication. This phenomenon is known as "cyberbullying" (US Dept. of Health and Human Services, 2013). According to the Pew Research Center, 95% of teenagers use the Internet and other electronic media. American teenagers spend approximately 7 hours a day on cell phones and computers. Seventy-five percent of teenagers have cell phones; 73% have social networking accounts such as Facebook, tumblr, Twitter, and MySpace; and 97% play computer- or web-based online roleplaying games such as World of Warcraft and Final Fantasy (Alvarez, 2012). More and more teenagers have mobile, on-demand access to the Internet and electronic communication (Madden, Lenhart, Duggan, Cortesi, Gasser, 2013). This increase in Internet and

electronic communication use has coincided with an increase in cyberbullying. Thirty-two percent of teenagers who engage in electronic communication report being victims of cyberbullying, which includes receiving threatening messages, having private emails or text messages forwarded without consent, having embarrassing photos posted without consent, or having rumors about them spread online (Lenhart, 2007).

There are several important ways in which cyberbullying differs from traditional bullying. First, while people can escape in-person bullying at the end of the school day or work day by distancing themselves from the bully, cyberbullying has the potential to take place at any time of day, regardless of location. Secondly, while the perpetrator is known to victims and witnesses in traditional in-person bullying, perpetrators of cyberbullying can be anonymous. The messages and images that perpetrators post via electronic communication have the potential to reach a much wider audience than traditional bullying, and the sources of these messages are very difficult, oftentimes impossible, to trace. Furthermore, after the perpetrator posts or sends harassing messages or images, this content can be very difficult to delete (US Dept. of Health and Human Services; Melander, 2010). Because cyberbullying can take place in any location at any time, can reach a wider audience, and has the potential to be longer lasting than traditional bullying, the consequences of cyberbullying might be even more severe than those of traditional bullying. Perpetration and victimization of cyberbullying are shown to be associated with lower self-esteem, higher depression and suicidal ideation, and increased school problems and other problematic offline behaviors (Patchin & Hinduja, 2013). As will be discussed later in this paper, there are few studies that address the issue of cyberbullying because it is very difficult to design surveys that fully capture the construct, and thus it is hard to measure cyberbullying.

Intimate Partner Violence

The CDC defines intimate partner violence (IPV) as physical, sexual, or psychological harm by a current or former partner or spouse. In the United States, one in three adolescents is a victim of physical, sexual, emotional, or verbal abuse from an intimate partner, a figure that far exceeds rates of other types of youth violence (CDC, 2006). A significant percentage of adolescents report perpetration or victimization of dating aggression in their current or past relationships. Approximately 10-25% of high school students and 20-30% of college students report involvement in IPV (Cornelius & Ressegui, 2007). Adult IPV has gained recognition as a critical public health problem in recent decades. However, it is still widely thought that IPV is a problem that does not affect adolescents (Buchalter & Offenhauer, 2011). In fact, girls and young women between the ages of 16 and 24 experience the highest rate of intimate partner violence, which is almost triple the national average (US Dept. of Justice, 2006). Unfortunately, limited research to date has examined IPV among youth (Font-Calafell & Bauling, 2006).

Some demographic risk factors for adolescent IPV involvement include lower socioeconomic status and being of an ethnic minority. Other risk factors include prior experience or exposure to violence, attitudes towards violence, and peer influence. Personality characteristics that appear to be risk factors for both perpetration and victimization of IPV include low self-esteem, depression, poor problem solving abilities, and difficulty with communication and emotion regulation. Risky sexual behavior and conflicted relationships are also risk factors for IPV involvement (O'Keefe, 2005). Additionally, childhood abuse is a risk factor for IPV involvement (Wekerle, Leung, Wall, & MacMillan, 2009). On the other hand, perceived availability of social support buffers the relationship between IPV victimization and negative health outcomes. Healthy

parental attachment, social support from family, and spirituality also alleviate the negative consequences of IPV involvement (Kaukinen, 2014).

Adolescent IPV is associated with a plethora of negative health and social consequences. Victimization of IPV in adolescents is associated with increased levels of depression, increased suicidal ideation, increased substance use, and worse educational outcomes. (Banyard & Cross, 2008; Chronister, Marsilglioi, Linville, & Lantrip, 2013; Silverman, Raj, Mucci, & Hathaway, 2001). In adolescent girls, specifically, IPV victimization is associated with loss of a positive self-image; changes in eating, body image, and weight; drug use; riskier sexual behaviors; teenage pregnancy; mental health decline; suicidal ideation; and loss of ability to trust oneself and others. (Chronister et al., 2013; Silverman et al., 2001). The consequences of adolescent IPV victimization continue into adulthood (Adams, Greeson, Kennedy, & Tolman, 2013; Exner-Cortens, Eckenrode, & Rothman, 2013). Women who have been IPV victims as adolescents might obtain less education than their non-victim counterparts, in turn leading to lower financial earnings (Adams et al., 2013). They are also more likely to report binge drinking, depressive symptoms, smoking, suicidal ideation, and future IPV victimization (Exner-Cortens et al., 2013).

When Cyberbullying and Intimate Partner Violence Meet

One particular type of cyberbullying or IPV that has been inadequately explored is cyberabuse in teen dating relationships. The extant research does, however, present some interesting findings. For example, one study found that perpetrators of IPV use often technology to stalk partners. This phenomenon is known as "cyberstalking" (Southworth, Finn, Dawson, Fraser, & Tucker, 2010). Not only does cyberstalking take place among current partners but also often among ex-partners (Lyndon, Bonds-Raacke, & Cratty, 2011). Other cyberbullying behaviors

taking place among dating couples include sending threatening and harassing text messages to a partner and posting compromising photos or videos online (Melander, 2010). According to one study, technology is also used in dating relationships to argue with a partner (10.7%), monitor or control a partner (53.6%), send aggressive comments to a partner (53.6%), and reconnect with a partner after a violent episode or breakup (55.4%) (Draucker & Martsolf, 2010).

Just as cyberbullying differs in many important ways from traditional bullying, electronic IPV differs in many ways from non-electronic IPV. First electronic IPV is "quicker and easier" than non-electronic IPV. With electronic IPV, partners do not have to be in the same physical location, and harmful messages can be transmitted instantly (Melander, 2010). Additionally, a couple's private issues can become public through the use of technology. Some participants discussed the use of social networking sites to harass and embarrass a partner. These harassing and embarrassing messages become available for others to see (Melander, 2010). The increase in electronic IPV has instilled in much of society negative attitudes about electronic technology and social media (Gardner & Davis, 2013). It is important to note, however, that not all use of technology in dating relationships is harmful. For example, technology can be used to establish a relationship with a partner (e.g. through a social networking site or an online dating site) and to communicate day to day with a partner. Technology can also be a means for long-distance partners to stay in touch and feel closer to each other (Draucker & Martsolf, 2010).

In spite of these interesting findings, there are significant gaps in the existing literature. First, much of the existing research has focused on college students (e.g. Melander, 2010; Draucker & Martsolf, 2010; Southworth, et al., 2010; Lyndon, Bonds-Raacke, & Cratty, 2011). However, high school-aged girls experience the highest rates of intimate partner violence (US Dept. of Justice, 2006). Additionally, most of the studies on the topic are descriptive or qualitative in nature

(e.g., Alvarez, 2012; Melander, 2010; Draucker & Martsolf, 2010; Southworth, et al., 2010; Lyndon, Bonds-Raacke, & Cratty, 2011). Many of these studies state that quantitative studies on the topic are needed (e.g., Melander, 2010; Draucker & Martsolf, 2010; Southworth, et al., 2010). Furthermore, the current research does not examine correlates of cyberabuse in teen dating relationships.

Self-Efficacy – An Important Correlate

Self-efficacy can be defined as the perception of one's ability to accomplish goals (Bandura, 1997). Beliefs of self-efficacy are often the result of experiences of control or lack of control over one's environment (Bandura, Pastorelli., Barbaranelli., & Caprara, 1999). There are multiple types of self-efficacy. General self-efficacy refers to individuals' beliefs in their ability to perform well in a variety of situations (Scherbaum, Cohen-Charash, & Kern, 2006). Coping self-efficacy, on the other hand, refers to individuals' beliefs in their ability to deal with challenges and threats (Chesney, Neilands, Chambers, Taylor, & Folkman, 2006). Other types of self-efficacy include academic self-efficacy, social self-efficacy, emotional self-efficacy (Muris, 2002), sexual self-efficacy (Rosenthal, Moore, & Flynn, 1991), and eating self-efficacy (Glasofer, Haaga, Hannallah, Field, Kozlosky, Reynolds, Yanovski, & Tanofsky-Kraff, 2013). Self-efficacy provides the foundation for human motivation, performance accomplishments, and emotional health and wellbeing (Bandura, 1997). For example, unless people think they can produce what they set out to achieve, they have little motivation to act or to persevere through difficult times.

According to one model, self-efficacy comes from four main sources: performance accomplishments, vicarious experiences, verbal persuasion, and psychological states (Bandura, 1977). Additionally, neighborhood environment appears to be a strong predictor of self-efficacy

(DuPéré, Leventhal, & Vitaro, 2013). One study found that adolescents living in neighborhoods that they perceived to be violent displayed lower self-efficacy than adolescents living in neighborhoods that they perceived to be safe (DuPéré, Leventhal, & Vitaro, 2013). Those who moved to safer neighborhoods exhibited increases in self-efficacy (DuPéré, Leventhal, & Vitaro, 2013). Indirect links between neighborhood violence and mental health were observed. Perceived neighborhood violence was associated with lower self-efficacy, which in turn was associated with internalizing problems, namely anxiety and depression (Dupéré, Leventhal & Vitaro, 2012). This study provides evidence for the link between violence and self-efficacy.

Another risk factor for low self-efficacy is childhood trauma (Diehl & Prout, 2002). Children who are sexually abused are more likely than their non-abused counterparts to feel inferior to their peers and to talk about themselves negatively (Diehl & Prout, 2002). Abused children tend report greater feelings of inadequacy and incompetence and to have a lower sense of self-worth than their non-abused peers (Diehl & Prout, 2002). This is thought to be the case because abused children feel the need to pay more attention to external threats, and as a result, compromise their ability to take care of their own needs, thoughts, and desires (Diehl & Prout, 2002). The detrimental effects of childhood abuse often continue into adulthood. Adults who were abused as children tend to talk negatively about themselves, blame themselves for negative events, and exhibit lower general self-efficacy (Diehl & Prout, 2002).

Literature reveals that low-self efficacy is associated with internalizing mental health issues and risky health behaviors (e.g., Muris, 2002; Steele, Bergin, & Wade, 2011; Nouwen, Urquhart Law, Hussain, McGovern, & Napier, 2009; Alessandri, Capara, Eisenberg, & Steca, 2009). One study examining GSE in adolescents with chronic conditions found that adolescents' perceived self-efficacy predicted emotional, physical, and social quality of life (Cramm, Strating, Roebroeck,

& Nieboer, 2012). Parents' perception of their adolescents' self-efficacy was found to predict adolescents' social quality of life (Cramm, Strating, Roebroeck, & Nieboer, 2012). Another study looking at sexual risk-taking in adolescents found that adolescents' confidence in their ability to say "no" and assert their needs predicted safer sexual behavior (Rosenthal, Moore, & Flynn, 1991).

Lower self-efficacy is associated with depression in adolescents (Muris, 2002). Lack of self-efficacy has been thought to be associated with adolescent depression through mechanisms including an inability to meet the expected standards of others, limited control over negative thoughts, hindered development of supportive social networks, and anticipatory apprehension when faced with challenging situations (Muris, 2002). Another study found that low self-efficacy was related to high levels of trait anxiety/neuroticism and anxiety disorder symptoms (Muris, 2002). A longitudinal study examining self-efficacy and depression in Native American youth found that teenagers with higher self-efficacy have lower depressive symptoms than others their age (Scott & Dearing, 2012). High self-efficacy is also related to other positive health behaviors. For example, high-self efficacy is negatively correlated with weight and eating difficulties in adolescent girls, health self-care, and prosociality (Steele et al., 2011; Nouwen et al. 2009; Alessandri et al., 2009).

A smaller body of literature exists on self-efficacy in adolescent girls. One study found that in adolescent girls, greater GSE and eating self-efficacy was associated with fewer episodes of loss of control (LOC) eating (Glasofer, Haaga, Hannallah, Field, Kozlosky, Reynolds, Yanovski, & Tanofsky-Kraff, 2013). GSE was inversely related to total intake at meals (Glasofer et al., 2013). Another study looked the association between self-efficacy and physical activity in adolescent girls and found that a lifestyle education program helped to increase self-efficacy, which in turn increased physical activity among black and white participants (Dishman, Moti, Saunders, Felton,

Ward, Dowda, & Pate, 2004). In another study, sexually active black adolescents received either a social cognitive intervention intended to increase self-efficacy and condom use or one of two control interventions (Jemmott, Jemmott, Spears, Hewitt, Cruz-Collins, 1992). Participants in the social cognitive intervention group scored higher in perceived self-efficacy and reported greater intentions to use condoms (Jemmott et al., 1992). These studies could all be used to inform potential interventions to increase self-efficacy.

The Present Study: Cyberabuse and Self-Efficacy

The primary aim of the present study was to examine the relationship between both the perpetration and victimization of cyberabuse in teen dating relationships and self-efficacy. In particular, this study examined general and coping self-efficacy as outcomes of interest. Given the strong association between self-efficacy and depression, anxiety, and childhood trauma, this study secondarily looks at the relationship between perpetration and victimization of cyberabuse and depression, anxiety, and childhood trauma. The aims and hypotheses are as follows:

Specific Aim #1: To examine the association between victimization of cyberabuse in teen dating relationships and self-efficacy.

Hypothesis 1a: Victims of cyberabuse in teen dating relationships will exhibit lower general self-efficacy than non-victims.

Hypothesis 1b: Victims of cyberabuse in teen dating relationships will exhibit lower coping self-efficacy than non-victims.

Specific Aim #2: To examine the association between perpetration of cyberabuse in teen dating relationships and self-efficacy.

Hypothesis 2a: Perpetrators of cyberabuse in teen dating relationships will exhibit lower general self-efficacy than non-perpetrators.

Hypothesis 2b: Perpetrators of cyberabuse in teen dating relationships will exhibit lower coping self-efficacy than non-perpetrators.

Secondary Aim #1: To examine the association between victimization of cyberabuse in teen dating relationships and depression, anxiety, and childhood trauma.

Hypothesis S1a: Victims of cyberabuse in teen dating relationships will exhibit higher levels of depression than non-victims.

Hypothesis S1b: Victims of cyberabuse in teen dating relationships will exhibit higher levels of anxiety than non-victims.

Hypothesis S1c: Victims of cyberabuse in teen dating relationships will exhibit higher levels of childhood trauma than non-victims.

Secondary Aim #2: To examine the association between perpetration of cyberabuse in teen dating relationships and depression, anxiety, and childhood trauma.

Hypothesis S2a: Perpetrators of cyberabuse in teen dating relationships will exhibit higher levels of depression than non-perpetrators.

Hypothesis S2b: Perpetrators of cyberabuse in teen dating relationships will exhibit higher levels of anxiety than non-perpetrators.

Hypothesis S2c: Perpetrators of cyberabuse in teen dating relationships will exhibit higher levels of childhood trauma than non-perpetrators.

Secondary Aim #3: To examine predictors of victimization and perpetration of cyberabuse in teen dating relationships.

Hypothesis S3a: General self-efficacy, coping self-efficacy, depression, anxiety, and childhood trauma will predict victimization of cyberabuse in teen dating relationships.

Hypotheses S3b: General self-efficacy, coping self-efficacy, depression, anxiety, and childhood trauma will predict perpetration of cyberabuse in teen dating relationships.

The present study is pressing for many reasons. First, no studies to date have examined the relationship between cyberabuse in teen dating relationships and self-efficacy. As was discussed earlier, exposure to interpersonal violence appears to be correlated with lower levels of self-efficacy (DuPéré, Leventhal, & Vitaro, 2013). Understanding the association between this emerging form of interpersonal violence and self-efficacy is vital because, as demonstrated above, self-efficacy is a major contributor to adolescent development (Schunk & Miller, 2002) and is associated with quality of life and health outcomes (Cramm, Strating, Roebroeck, & Nieboer, 2012). Additionally, the existing research exploring the issue of cyberabuse in dating relationships has been largely qualitative in nature (e.g., Alvarez, 2012) and has focused on college students (e.g., Melander, 2010; Draucker & Martsolf, 2010; Southworth, Finn, Dawson, Fraser, & Tucker, 2010; Lyndon, Bonds-Raacke, & Cratty, 2011). Therefore, this study focuses on high schoolers because this age group is most likely to report cyberbullying (Lenhart, 2007) and is not explored in previous literature. Furthermore, this study focuses exclusively on high school girls because girls report disproportionately higher rates of cyberbullying (Hinduja & Patchin, 2008; Smith, Mahdavi, Caravalho, & Tippett, 2006; Lenhart, 2007; Alvarez, 2012) and experience the highest rates of intimate partner violence (US Dept. of Justice, 2006). Finally, the quantitative nature of this study, exploring correlates of cyberabuse in teen dating relationships in high school girls, will inform gender-specific and age-appropriate interventions.

METHODS

This cross-sectional study took place in a Northern California, all-girls high school. This high school was chosen based on the school's accessibility, few administrative barriers to implementation, immediate availability, and expressed desire to host the program. Fifty-one girls took part in this study as part of a voluntary pilot healthy living skills class. Participants were self-selected and were recruited via convenience sampling. Convenience sampling in pilot studies is beneficial since it allows researchers to obtain basic data without the complications inherent in random sampling. Convenience sampling is helpful in documenting common adolescent experiences and is an effective approach to examining relationships among phenomena that change as a function of normative lifespan development, including self-efficacy (Costello, 2009; Raba, 2014). Because the study took place in only one school, a large proportion of the general population could not participate in the study. Within the school, however, all students were equally eligible to participate.

Interested students were given an Informed Consent Form, an Informed Assent Form, and a letter to their parents. In order to participate, students' parents had to sign a consent form indicating their approval of the student's enrollment. Participants and parents were informed that participation was decided on a first-come, first-serve basis. Once they completed all required consent forms, students and/or parents returned completed forms to the school guidance counselor. Participants and their parents were informed that data for this study were to be obtained through an anonymous online survey. Confidentiality and limitations to confidentiality were detailed verbally and on consent forms. Researchers also explained they had obtained approval for the class from the school's administrators and counselors, and that the study was approved by the Institutional Review Board at Stanford University.

Participants were administered an anonymous online survey that was sent to their school email addresses. The survey consisted of several scales assessing traumatic experiences, relationship experiences, attitudes towards relationships and violence, mental health, self-esteem, and self-efficacy. Assessments included were input into Stanford University's distribution/collection software, *Qualtrics*. Upon completion of the assessment package, the participants clicked "complete" and surveys were sent back to *Qualtrics* and securely stored in Stanford University's online system. Data analysis for this study is based on the survey responses of the 51 girls who were in or had been in a dating relationship, and were therefore eligible to respond to the scale measuring dating cyberabuse involvement.

Measures

Tech's Role in Teen Relationships

The independent variables of interest are victimization and perpetration of cyberabuse in teen dating relationships, as measured by the Tech's Role in Teen Relationships Survey (TRTRS). To date, very few instruments examine cyberabuse in teen dating relationships. The TRTRS was developed for Liz Claiborne Inc. by Teenage Research Unlimited in 2006. The survey was developed for an adolescent population. As of now, there is no information available on the psychometric properties of the TRTRS. The current study used two subscales of the TRTRS that dealt specifically with victimization and perpetration of cyberabuse in teen dating relationships. Each subscale consisted of 19 items, all of which had a dichotomous yes/no response set. Two different variables were calculated. First, victimization and perpetration were both defined as binary variables. Participants were classified as a victim if they endorsed any one of the victimization items and were classified as a perpetrator if they endorsed any one of the perpetration

items (See appendix for TRTRS items). Second, a continuous variable for the amount of victimization or perpetration was calculated for each by summing the 19 responses of the respective scales. Thus, both binary and continuous forms of victimization and perpetration were created. The binary variable was used in the ANOVA and logistic regression analyses, and the continuous variable in the correlation analyses.

Generalized Self-Efficacy Scale and Coping Self-Efficacy Scale

The primary dependent variables of interest are general self-efficacy, measured by the Generalized Self-Efficacy Scale, and coping self-efficacy, measured by the Coping Self-Efficacy Scale. The Generalized Self-Efficacy Scale (GSES) consists of 10 items and was developed and normed on adult and adolescent populations for use by individuals over age 12. Responses to questions reflecting optimistic self-beliefs, such as one's perception of the ability to effectively cope with daily stressors and adapt to difficult life experiences, are made on a 4-point scale that ranges from: 1- Not at all true, 2- Hardly true, 3- Moderately true, and 4- Exactly true. Total general self-efficacy score is a continuous variable that is calculated by summing together responses to all 10 items. Scores range from 10 to 40, where higher scores reflect higher levels of general self-efficacy. According to reliability research across 23 nations, Cronbach's alpha for the GSES ranges from .76 to .90, with the majority in the high .80 range (Schwarzer & Jerusalem, 1995; Raba, 2014).

The Coping Self-Efficacy Scale consists of 26 items measuring an individual's perception of his or her competence to carry out coping strategies effectively when faced with a challenge or threat. Participants are asked: "When things are not going well for you, or when you are having problems, how confident or certain are you that you can do the following:" followed by different

types of coping approach items. Item responses exist on an 11-point scale, ranging from: 0 (Cannot do at all) to 5 (Moderately certain I can do), to 10 (Certain I can do). Total coping self-efficacy score is a continuous variable that is calculated by summing together responses to all 26 items. Scores range from 0-260, where higher scores reflect higher levels of coping self-efficacy. Research indicates that Cronbach's alpha for the CSES ranges from .80 to .91 (Chesney et al., 2006; Raba, 2014).

Beck Depression Inventory for Youth

Given the association between self-efficacy and depression, anxiety, and childhood trauma, the secondary variables of interest are depression, measured by the Beck Depression Inventory for Youth; anxiety, measured by the Beck Anxiety Inventory, and childhood trauma, measured by the Childhood Trauma Questionnaire. The Beck Depression Inventory for Youth (BDI-Y) is a 20-item multiple choice self-report inventory used to assess symptoms of depression in youth (Beck, Beck, & Jolly, 2001). Participants rate responses to items on a 4-point scale ranging from 0 to 3, where 0 indicates no symptoms (0 = never) and 3 indicates severe symptoms (3 = always). Items on this scale map onto the Diagnostic and Statistical Manual of Mental Disorders—Fourth Edition, Text Revision (DSM-IV-TR) (American Psychiatric Association, 2000). The BDI-Y includes items about adolescents' negative thoughts about themselves, their lives, and their futures; guilt; sadness; and sleep disturbance. Though not a diagnostic tool, the BDI-Y regularly demonstrates high internal consistency (coefficient alpha = .92; test-re-test correlation = .93) (Beck, Steer, & Brown, 1996). On a sample of adolescent girls (N = 202), stratified by socioeconomic status and ethnicity, alpha coefficients equaled .92 for the BDI-Y (Beck, Beck, & Jolly, 2008). Most estimates of Chronbach's alpha exceed .90 (Stapleton, Sander, & Stark, 2007). Depression is a continuous

variable calculated by summing together responses from all 20 items. Scores range from 0 to 60, with higher scores reflecting higher levels of depression (Raba, 2014).

Beck Anxiety Inventory

The Beck Anxiety Inventory (BAI) consists of 21 items and was developed to assess symptoms that are not shared with depression (Beck & Steer, 1993). Responses about severity of symptoms are on a 4-point scale ranging from 0 (Not at all) to 3 (Severely – I could barely stand it). Anxiety scores are continuous and are calculated by summing together self-reported responses from all 21 items. Scores range from 0 to 64, with higher scores indicating higher levels of anxiety. Coefficient alphas ranged between .91 and .94. The scale has been validated for use with adolescents (Steer, Kumar, Ranieri, & Beck, 1995).

Childhood Trauma Questionnaire

The Childhood Trauma Questionnaire (CTQ) is a 28-item self-report questionnaire that retrospectively assesses trauma experienced in childhood. The CTQ consists of five subscales: physical abuse, emotional abuse, emotional neglect, sexual abuse, and physical neglect. Each subscale consists of five items, and three additional items assess participants' tendencies to minimize or deny abuse. The response set for each of the items are on a 5-point scale, ranging from 1 (Never true) to 5 (Very often true). Total childhood trauma is a continuous variable that is calculated by summing together participant responses to each of the subscale responses. Scores range from 5 to 25, with higher scores reflecting higher levels of trauma. Validity of the CTQ has been established by comparisons with clinician-rated interviews of childhood abuse and therapists' ratings of abuse. The scale has been validated for use in community settings in addition to clinical

settings. Test-retest reliabilities range from .79 to .86 over an average of four months. Internal consistencies for each of the subscales range from .66 to .92 (Scher, Stein, Asmundson, McCreary, & Ford, 2001).

Data Analyses

All analyses were conducted using SPSS 22. In this study, we examined the relationships between self-efficacy, childhood trauma, mood and anxiety symptoms, and victimization and perpetration of cyberabuse in teen dating relationships using ANOVAs, correlations, and logistic regressions. First, ANOVA analyses were used to examine demographic group differences (i.e. victims versus non-victims and perpetrators versus non-perpetrators). Then using ANOVAs, key variables of interest, including self-efficacy, mood symptoms, and trauma were examined for group differences. Then Pearson correlations were examined for relationships between variables. Finally, we performed logistic regression analyses to predict victimization and perpetration of cyberabuse in teen dating relationships. Using forward stepwise procedures, all key variables of interest were entered into the model, including self-efficacy, mood symptoms, and trauma, to predict victimization and perpetration status—victims versus non-victims and perpetrators versus non-perpetrators. At each step with this method, the predictor with the largest score statistic whose significant value is less that .05 is added to the model. It leaves all non-significant predictors out of the model.

RESULTS

Table 1

Description of Sample According to Victimization Status

	Victim		
Characteristic	Yes (N=12)	No (N=39)	p
Race/Ethnicity[a]			.458
Southeast Asian	1	4	
Caucasian	5	18	
South Asian	0	3	
Hispanic	3	7	
Multiple	1	6	
Other	2	1	
Sexual Orientation[a]			.002
Heterosexual	8	38	
Bisexual	4	1	
Mean Year in School[b] **(SD)**	3.3 (1.2)	2.5 (1.2)	.089
Mean Age (SD)[b]	16.2 (1.3)	15.5 (1.9)	.099

    a.   Analyses were done with Chi-Square tests
    b.   Analyses were done with ANOVAs

Table 2

Description of Sample According to Perpetration Status

	Perpetrator		
Characteristic	Yes (N=11)	No (N=40)	p
Race/Ethnicity[a]			.134
Southeast Asian	0	5	
Caucasian	6	17	
South Asian	0	3	
Hispanic	3	7	
Multiple	0	7	
Other	2	1	
Sexual Orientation[a]			.291
Heterosexual	9	37	
Bisexual	3	2	
Mean Year in School (SD)[b]	3.2 (1.2)	2.5 (1.2)	.122
Mean Age (SD)[b]	16.1 (1.4)	15.5 (2.0)	.185

    a.   Analyses were done with Chi-Square tests
    b.   Analyses were done with ANOVAS

Though the sample was ethnically diverse, the majority of participants (45%) were Caucasian

(n=23). Most participants (90%) identified as heterosexual (n=46). On average, victims were older

than non-victims, and perpetrators were older than non-perpetrators. Neither of these age

differences were statistically significantly different (p = .099 and p = .185, respectively). Bisexual

participants were more likely to be victimized than heterosexual participants (p = .002). This was

not the case for perpetration. Neither victimization status nor perpetration status differed according

to racial/ethnic identification.

Table 3
Self-Efficacy and Associated Traits by Victimization Status

Characteristic	Victim		F(df, error)	p
	Yes (Mean [SD])	No (Mean [SD])		
General Self-Efficacy	28.8 (3.9)	30.3 (4.8)	1.059 (1, 49)	.309
Coping Self-Efficacy	146.0 (52.6)	167.0 (42.0)	2.042 (1, 49)	.159
Childhood Trauma	50.6 (17.9)	42.8 (4.5)	6.386 (1,49)	.015
Depression	58.2 (11.3)	49.5 (7.2)	1.801 (1, 49)	.186
Anxiety	58.1 (12.5)	51.2 (7.0)	5.950 (1, 49)	.018

Analyses were done with ANOVAs

Table 4
Self-Efficacy and Associated Traits by Perpetration Status

Characteristic	Perpetrator		F(df, error)	p
	Yes (Mean [SD])	No (Mean [SD])		
General Self-Efficacy	30.2 (3.4)	29.9 (4.9)	0.038 (1, 49)	.847
Coping Self-Efficacy	153.1 (54.1)	164.6 (42.7)	0.554 (1, 49)	.460
Childhood Trauma	49.7 (18.9)	43.2 (4.8)	4.005 (1, 49)	.051
Depression	57.3 (11.1)	54.8 (7.6)	0.734 (1, 49)	.396
Anxiety	56.4 (12.4)	51.9 (7.7)	2.247 (1, 49)	.140

Analyses were done with ANOVAs

Victimization and Self-Efficacy

In the ANOVA analyses utilizing the binary form of victimization and perpetration, neither

general self-efficacy scores nor coping self-efficacy scores differed significantly according to

whether participants were victims of dating cyberabuse (F[1, 49] = 1.059, p = .309; and F[1, 49]

= 2.042, p = .159, respectively). However, a trend was found in the correlation between continuous

victimization variable and coping self-efficacy (r = -.262, p = .064), suggesting that as coping self-efficacy increases, victimization of dating cyberabuse decreases.

Perpetration and Self-Efficacy

Neither general self-efficacy scores nor coping self-efficacy scores differed significantly according to whether participants were perpetrators of dating cyberabuse (F[1, 49] = 0.038, p = .847; and F[1, 49] = 0.554, p = .460, respectively). Furthermore, neither general self-efficacy nor coping self-efficacy were associated with perpetration of cyberabuse in teen dating relationships (r = -.070, p = .624 and r = -.092, p = .522, respectively). The hypothesis that perpetration of cyberabuse in teen dating relationships would be associated with lower general self-efficacy and coping self-efficacy therefore did not hold true in this data.

Childhood Trauma

Pearson correlational analyses demonstrate strong relationships between total childhood trauma and coping self-efficacy (r = -.331, p = .018), such that higher coping self-efficacy is associated with lower levels of trauma. In addition, childhood trauma was associated with depressive (r = .546, p < .001) and anxiety symptoms (r = .588, p < .001), indicating that higher levels of childhood trauma are associated with higher levels of both depression and anxiety.

ANOVA analyses demonstrated that total childhood trauma differed significantly between victims and non-victims of dating cyberabuse (F[1, 49] = 6.386, p = .015), and trended towards being significantly different between perpetrators and non-perpetrators of dating cyberabuse (F[1, 49] = 4.005, p = .051). In both cases, victims and perpetrators reported more childhood trauma

than non-victims and non-perpetrators, respectively. Victimization of cyberabuse in teen dating relationships was significantly correlated with total childhood trauma scores (r = .282, p = .045).

Depression and Anxiety

There were no differences in depressive symptom levels according to either victimization status or perpetration status (see Tables 3 and 4). Anxiety levels were significantly different between victims and non-victims (F[1, 49] = 5.950, p = .018), but not between perpetrators and non-perpetrators (see Tables 3 and 4). However, Beck Depression Inventory scores trended towards being significantly correlated with victimization (r = .260, p = .065). Beck Anxiety Inventory scores were significantly correlated with victimization (r = .331, p = .018), such that higher anxiety was associated with higher levels of victimization. None of these relationships held true for perpetration.

Prediction of Victimization and Perpetration

Of all of the variables put into the model to predict victimization, including total childhood trauma, depression, anxiety, general self-efficacy, and coping self-efficacy, only total childhood trauma predicted victimization. Childhood trauma alone predicted victimization (X^2 [1] = 5.80, p = .016). Childhood trauma accounted for 16.2% of the variance and correctly classified 82.4% of participants. The odds of victimization for participants who experienced childhood trauma are 1.12 times the odds of victimization for participants who have never experienced childhood trauma (95% CI: .99-1.27).

Similar results were found for perpetration. Only total childhood trauma trended towards prediction of perpetration of cyberabuse in teen dating relationships. Childhood trauma alone

trended towards predicting perpetration (X^2 [1] = 3.29, p = .072). Childhood trauma accounted for 9.5% of the variance and correctly classified 80.4% of participants. The odds of perpetration for participants who experienced childhood trauma are 1.067 times the odds of perpetration for participants who have never experienced childhood trauma (95% CI: .97-1.17).

DISCUSSION

This is one of the few studies that has examined victimization and perpetration of cyberabuse in teen dating relationships. The primary goal of this study was to examine the relationships between victimization and perpetration of cyberabuse in teen dating relationships and two types of self-efficacy, namely general self-efficacy and coping self-efficacy. While there were no significant relationships for perpetration, there were trends towards significance for victimization and coping self-efficacy, such that higher levels of victimization were associated with lower levels of coping self-efficacy.

Secondarily, this study aimed to examine the relationships between victimization and perpetration of cyberabuse in teen dating relationships and depression, anxiety, and childhood trauma, all of which are associated with self-efficacy. Strong correlations were found between victimization of teen dating cyberabuse and childhood trauma and anxiety, indicating that victims had higher levels of anxiety and childhood trauma. Trends towards significance were found for the relationship between victimization and depression. Interestingly, childhood trauma was the best predictor victimization of dating cyberabuse, whereas depression, anxiety, and self-efficacy did not predict victimization. Participants who had experienced childhood trauma were at a higher odds of being victims of cyberabuse in teen dating relationships.

No significant relationships were found for perpetration. A trend towards a significant difference was found in experience of childhood trauma between perpetrators and non-perpetrators, suggesting that perpetrators experienced higher levels of childhood trauma than non-perpetrators. Childhood trauma trended toward predicting perpetration of dating cyberabuse, whereas depression, anxiety, and self-efficacy did not predict perpetration. Participants who had experienced childhood trauma were at a higher odds of being perpetrators of cyberabuse in teen dating relationships.

The results of this study indicate that the correlates of cyberabuse in teen dating relationships might be stronger for victims than for perpetrators, at least among adolescent girls. One important implication of this finding is that resources should be allocated to providing support for victims of cyberabuse in teen dating relationships. Another implication is that resources should directed to prevention of cyberbullying in teen dating relationships. This means targeting potential perpetrators as well as potential victims. For this reason, this study looked at both victims and perpetrators of cyberabuse in teen dating relationships.

While our main hypotheses were not completely supported, there were many significant findings with childhood trauma, including associations with lower levels of coping self-efficacy, higher levels of depression and anxiety, and greater likelihood of victimization and perpetration. An equally important if not more important implication of this study, therefore, is that it would be beneficial to allocate resources to early intervention and prevention of childhood trauma, especially given the finding that childhood trauma predicts victimization. This finding is consistent with previous research which has found that early traumatic experiences are a risk factor for victimization later in life (e.g., Gidycz, Coble, Latham, & Layman, 1993). Previous research has also found that early childhood trauma is a risk factor for future perpetration of abuse (e.g., Wolfe,

Werkele, Scott, Straatman, & Grasley, 2004). Alleviating the effects of childhood trauma could help prevent victims from involvement in future harmful activities, including cyberabuse in dating relationships. These important findings also suggest that taking childhood trauma and related psychiatric comorbidities, such as anxiety and depression, into account when developing interventions would make for more successful programs than if one did not take these factors into account.

This study represents an important contribution to the field of youth interpersonal violence. To our knowledge, it is the first study to examine dating cyberabuse among adolescent girls. The quantitative nature of this study provides useful information that can be used to develop age- and gender-appropriate interventions targeting both victimization and perpetration of cyberabuse in teen dating relationships and self-efficacy. This study is also the first to examine the relationship between cyberabuse in teen dating relationships and self-efficacy.

While this study builds upon the existing research in significant ways, it also presents some important limitations. The first limitation is the study's cross-sectional design. Because of the cross-sectional nature of the study, we cannot establish a causal relationship between cyberabuse in teen dating relationships and self-efficacy. Future researchers should consider a longitudinal design in order to understand the temporal relationship between dating cyberabuse and self-efficacy. A second limitation is the study's small sample size of 51 participants. Indeed, it is possible that the lack of statistically significant findings is due to the small sample size. We did, however, notice trends towards significance for victimization. A larger sample size, therefore, would likely have yielded significant results. Future studies should therefore recruit more participants. Relatedly, future studies should recruit participants from more than one school or geographic region. Participants in the present study were recruited from one high school, and

therefore may not be representative of all adolescent girls in dating relationships. Because of the small sample size, the present study did not have enough power to include covariates in the statistical analysis. Future research should include covariates in order to gain a more complete understanding of the relationship between cyberabuse in teen dating relationships and self-efficacy. This study is also limited in that it does not use a validated measure of cyberabuse in dating relationships. To our knowledge, no such measure exists. Developing a validated instrument to measure cyberabuse in dating relationships is an important direction for future research. Finally, results of this study might be subject to social desirability bias or recall bias, since the findings are based on self-report.

In spite of its limitations, this study presents several significant public health implications. First, this study highlights the need to view interpersonal violence as a critical public health problem. This study also illuminates how cyberabuse in teen dating relationships is associated with other aspects of health and wellbeing. Currently, the Youth Risk Behavior Surveillance System (YRBSS) includes items on bullying and intimate partner violence, but to date does not include items on cyberbullying or cyberabuse in dating relationships (CDC, 2013). This study highlights the need to include such items on public health surveys so as to inform appropriate interventions and prevention programs.

Relatedly, this study's focus on adolescent girls reinforces the importance of creating age-, gender-, and culturally-appropriate interventions and prevention programs. Based on this study's findings, childhood trauma and related psychiatric comorbidities are important factors that should be kept in mind when developing programs. An example of such a program is one that is currently in the early stages of being implemented in an all-girls Catholic high school in California (Keller, Trettin, Tai, Lin, & Raba, 2012). The goal of the program is to empower adolescent girls through

helping them develop strong foundations for healthy familial, platonic, and romantic relationships. Some key determinants that this program seeks to address are self-efficacy and acceptance of and attitudes towards interpersonal violence. Modeled after a trauma recovery and empowerment program for women, the content of the high school program was appropriately tailored to adolescent girls. For example, conversations with the girls about their experiences with and attitudes towards violence are the basis for several of the program's activities. The topics addressed in the curriculum were also informed by needs assessments with the girls. Topics include risk factors and perceived risk of abuse, technology and electronic abuse, healthy communication, emotion recognition, awareness of self and others, boundary setting, assertiveness skills, and physical empowerment. The program is offered for one hour a week, and alternates between teaching psychoeducation and life skills one week and physical self-defense the other week. Pilot data shows that girls who participated in the program exhibited significant increases in self-defense and general and coping self-efficacy, and significant decreases in depressive symptoms, acceptance of rape myths, and acceptance of abusive behavior. Components of this successful program could be used to develop a program that specifically addresses electronic communication and cyber safety. For instance, computer classes and health classes in schools could address electronic abuse prevention skills and can train students to identify warning signs of electronic abuse among their peers.

It is important to note that while the increased prevalence of electronic communication and social media has presented more opportunities for intimate partner violence, these tools also have many benefits. Electronic communication and social media can be used to establish and strengthen healthy relationships, can help build personal identity, and can enhance social and political involvement. In fact, it is has been said that "girls and young women become more social and

confident [through cyber technology] and develop a new sense of identity and agency that helps them break free from cultural and social non-feminist expectations and stereotypes" (Shariff, 2008 in Alvarez, 2012). Focusing solely on the negative aspects of electronic communication could potentially perpetuate the problem of cyberabuse in teen dating relationships. Youth should undoubtedly learn skills to build healthy relationships and a healthy sense of self and to stay safe in cyberspace. However, instead of eliminating or limiting youth's use of electronic technology and social media, we can instead use these tools to empower youth. Employees at social networking sites such as Facebook, tumblr, Twitter, and MySpace can use the findings of this study to promote healthy electronic communication, healthy relationships, and healthy self-identity via social media. Youth can also start campaigns via social media to address these important issues.

Addressing the public health issue of cyberabuse in teen dating relationships will likely have a positive impact on other aspects of youth's health and wellbeing, thereby helping them to become more positive and productive members of society.

APPENDIX

TRTRS Victimization Items

While in a relationship, have you ever **had a boyfriend/girlfriend…**
- Check up on you (where you are, what you're doing, who you're with, etc.) **10 times per day** on your cellphone
- Check up on you (where you are, what you're doing, who you're with, etc.) **20 times per day** on your cellphone
- Check up on you (where you are, what you're doing, who you're with, etc.) **30 times per day** on your cellphone
- Email or text message you **10 times per hour** to check up on you (where you are, what you're doing, who you're with, etc.)
- Email or text message you **20 times per hour** to check up on you (where you are, what you're doing, who you're with, etc.)
- Email or text message you **30 times per hour** to check up on you (where you are, what you're doing, who you're with, etc.)
- Call you names or put you down using a cellphone, email, IM, text, web chat, a blog, etc.
- Say really mean things to you using a cellphone, email, IM, texting, etc. because he/she was mad at you
- Spread rumors about you using a cellphone, email, IM, text, web chat, a blog, a networking site, etc.
- Threaten to share private or embarrassing pictures/videos of you
- Share private or embarrassing **pictures** of you
- Share private or embarrassing **videos** of you
- Call your cellphone or send emails, text messages, etc. when you didn't want him/her to just to make you mad
- Use a cellphone, email, text messages, chat, etc. to threaten to hurt you physically
- Ask you via cellphone, email, IM, text, chat, etc. to have sex or to engage in sexual acts when you didn't want to
- Use information posted on a networking site against you (to harass, put you down, etc.)
- Pretend to be you on email, text messages, IM, chat, a networking site, etc.
- Make you afraid to not respond to a cellphone call, email, IM, text, etc. because of what he/she might do
- Buy you a cellphone or buy minutes for you to call/use talking to him/her

TRTRS Perpetration Items

While in a relationship, have you ever **done the following to a boyfriend/girlfriend…**
- Check up on him/her (where he/she is, what he/she is doing, who he/she is with, etc.) **10 times per day** on your cellphone
- Check up on him/her (where he/she is, what he/she is doing, who he/she is with, etc**.) 20 times per day** on your cellphone
- Check up on him/her (where he/she is, what he/she is doing, who he/she is with, etc**.) 30 times per day** on your cellphone

- Email or text message him/her **10 times per hour** to check up on him/her (where he/she is, what he/she is doing, who he/she is with, etc.)
- Email or text message you **20 times per hour** to check up on him/her (where he/she is, what he/she is doing, who he/she is with, etc.)
- Email or text message you **30 times per hour** to check up on him/her (where he/she is, what he/she is doing, who he/she is with, etc.)
- Call him/her names or put you down using a cellphone, email, IM, text, web chat, a blog, etc.
- Say really mean things to him/her using a cellphone, email, IM, texting, etc. because you were mad at him/her
- Spread rumors about him/her using a cellphone, email, IM, text, web chat, a blog, a networking site, etc.
- Threaten to share private or embarrassing pictures/videos of him/her
- Share private or embarrassing **pictures** of him/her
- Share private or embarrassing **videos** of him/her
- Call his/her cellphone or send emails, text messages, etc. when he/she didn't want you to just to make him/her mad
- Use a cellphone, email, text messages, chat, etc. to threaten to hurt him/her physically
- Ask him/her via cellphone, email, IM, text, chat, etc. to have sex or to engage in sexual acts when he/she didn't want to
- Use information posted on a networking site against him/her (to harass, put him/her down, etc.)
- Pretend to be him/her on email, text messages, IM, chat, a networking site, etc.
- Make him/her afraid to not respond to a cellphone call, email, IM, text, etc. because of what you might do
- Buy him/her a cellphone or buy minutes for him/her to call/use talking to you

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