

Boise State University

ScholarWorks

---

Counselor Education Faculty Publications and  
Presentations

Department of Counselor Education

---

3-2021

## The Association Between Witnessing Cyberbullying and Depressive Symptoms and Social Anxiety Among Elementary School Students

Diana M. Dumas  
*Boise State University*

Aida Midgett  
*Boise State University*

---

This is the peer reviewed version of the following article:

Dumas, D.M., & Midgett, A. (2021). The Association Between Witnessing Cyberbullying and Depressive Symptoms and Social Anxiety Among Elementary School Students. *Psychology in the Schools, 58*(3), 622-637, which has been published in final form at <https://doi.org/10.1002/pits.22467>. This article may be used for non-commercial purposes in accordance with Wiley Terms and Conditions for Use of Self-Archived Versions. This article may not be enhanced, enriched or otherwise transformed into a derivative work, without express permission from Wiley or by statutory rights under applicable legislation. Copyright notices must not be removed, obscured or modified. The article must be linked to Wiley's version of record on Wiley Online Library and any embedding, framing or otherwise making available the article or pages thereof by third parties from platforms, services and websites other than Wiley Online Library must be prohibited.

# The Association Between Witnessing Cyberbullying and Depressive Symptoms and Social Anxiety Among Elementary School Students

**Diana M. Dumas\***

Institute for the Study of Behavioral Health and Addiction  
Boise State University

and

Department of Counselor Education  
Boise State University

**Aida Midgett**

Department of Counselor Education  
Boise State University

## Author Note

Diana M. Dumas  <https://orcid.org/0000-0002-0714-4723>

Aida Midgett  <https://orcid.org/0000-0002-0090-0418>

We have no known conflict of interest to disclose.

\*Correspondence concerning this article should be addressed to Diana M. Dumas at Institute for the Study of Behavioral Health and Addiction, Boise State University, 1910 University Drive, Boise, ID 83725. E-mail: [dianadumas@boisestate.edu](mailto:dianadumas@boisestate.edu)

## Abstract

Cyberbullying is a significant problem among school-aged youth. Although a growing body of literature has documented the association between cyberbullying victimization and mental health risks, there is limited research examining the impact of witnessing cyberbullying, particularly among elementary school students. To address this gap, we conducted a cross-sectional study with elementary school students ( $N = 122$ ). Students completed questionnaires assessing witnessing cyberbullying, witnessing school bullying, bullying victimization, depressive symptoms, and social anxiety. Regression analyses revealed that witnessing cyberbullying was positively associated with depressive symptoms ( $\beta = .25, p < .04$ ) and social anxiety ( $\beta = .30, p < .01$ ), even after controlling for frequency of witnessing school bullying and bullying victimization. Further, the moderating effect of witnessing school bullying was significant for depressive symptoms ( $\beta = -.44, p < .001$ ) and social anxiety ( $\beta = -.31, p < .01$ ), such that students who witnessed cyberbullying only reported the highest level of depressive symptoms and social anxiety. The moderating effect for bullying victimization was not significant. Findings suggest the importance of providing programs to support elementary school students who witness cyberbullying to reduce the mental health risks associated with being a cyberbullying bystander.

**Keywords:** cyberbullying, bystander, depression, anxiety, elementary school

Researchers have defined cyberbullying as “an aggressive, intentional act carried out by a group or individual, using electronic forms of contact, repeatedly and over time against a victim who cannot easily defend him or herself” (Smith et al., 2008, p. 376). Although cyberbullying victimization reaches its peak in middle school (33.0%; Center for Disease Control, 2020), research indicates that cyberbullying begins as early as elementary school, with 18-25% of elementary school students reporting cyberbullying victimization (Kowalski et al., 2019). Findings from recent meta-analyses indicate that being a target of cyberbullying is associated with significant mental health risks, including internalizing symptoms (Fisher et al., 2016; Kowalski et al., 2014) even when controlling for the effects of traditional bullying (Bonanno & Hymel, 2013). The majority of research on cyberbullying, however, has been conducted with middle school students with considerably less research focusing on cyberbullying among students at the elementary school level (Kowalski et al., 2019).

Researchers have identified multiple types of cyberbullying including flaming (e.g., an antagonistic style of online communication), online harassment (e.g., offensive messaging), outing (e.g., sharing individual’s information), exclusion (e.g., blocking from lists), impersonation (e.g., posing as the target), cyber-stalking, sexting (Willard, 2007), grieving (e.g., bullying through online gaming communities) and trolling (e.g., offensive comments posted on websites; Slonje et al. 2013). Cyberbullying can take place on multiple electronic formats including e-mail, instant messages, text messages, chat rooms, websites, blogs, online games, or social networking sites (Kowalski & Limber, 2013). Specific social media tools used for cyberbullying include smartphone apps (e.g., Ugly Meter), Instagram, Snapchat, and Twitter, all of which can be used to harass, intimidate, humiliate, or threaten the target (Chisholm, 2014). Findings from research specific to elementary school students indicates the most common forms of cyberbullying occur through online games, text messages, and social media sites (e.g., Facebook, Twitter, or Instagram), with fewer students in this age group reporting cyberbullying through instant messaging, email, and chat rooms (DePaolis & Williford, 2015).

Research indicates there is considerable overlap between cyberbullying and school bullying (Burton et al., 2012; Hase et al., 2015; Kowalski & Limber, 2013). Although some researchers have suggested that cyberbullying is an extension of traditional face-to-face school bullying (Li, 2007; Olweus, 2012), others argue that cyberbullying may be associated with greater harm than traditional bullying due to the potential for a large audience, unlimited access to targets, and less adult supervision (Sticca & Perren, 2013). Additionally, cyberbullying differs from traditional bullying in that the cyberbully may remain anonymous (Kowalski et al., 2019). Research indicates approximately half of students who are cyberbullied do not know the identity of the perpetrator (Kowalski & Limber, 2007). The inability to identify the cyberbully also makes it difficult to report cyberbullying (Agatston et al., 2007). Further, whereas traditional bullying most often occurs at school during the school day, cyberbullying can be perpetrated at any time of day and on any day of the week (Kowalski et al., 2014). Of the 49 states that require schools to have policies about bullying, most of these include requirements to address electronic bullying (Hinduja & Patchin, 2012). However, because bullying through electronic formats frequently occurs off school grounds, administrators are limited in what they can do to manage cyberbullying (Beale & Hall, 2007).

### **Witnessing Cyberbullying as a Bystander**

The consequences of cyberbullying are not limited to targets, but extend to students who witness cyberbullying as bystanders (Allison & Bussy, 2016). Although we could not find any data specifically on the prevalence of witnessing cyberbullying among elementary school students, research indicates 52.9% of middle school students report witness cyberbullying in the past six months (DeSmet et al., 2016). Witnessing cyberbullying includes observing bullying that occurring on electronic formats. Bystanders may intervene in cyberbullying either directly (e.g., by telling the cyberbully to stop) or indirectly (e.g., by reporting the incident; DeSmet et al., 2012). Bystanders may also encourage the cyberbully (e.g., through commentary or like buttons; Bastianensens et al., 2014; Fisher et al., 2016), join the cyberbully (e.g., forwarding texts or posts; Bastianensens et al., 2014), or remain passive by doing nothing (Lenhart et al., 2011).

Because more than half of youth report witnessing cyberbullying (DeSmet et al., 2016), there is a need for researchers to learn more about cyberbullying bystanders (Allison & Bussey, 2016). Although there are similarities between being a bystander of school bullying and cyberbullying, there are also some important differences. For example, bystanders are usually present during school bullying, whereas bystanders may witness cyberbullying while it is occurring or after the fact (e.g., a message is forwarded to them; Allison & Bussey, 2016). Additionally, school bullying is limited to school hours, whereas witnessing cyberbullying may occur at any time during the day or night (Kowalski et al., 2019). Further, approximately 55% of student do nothing when they witness cyberbullying (Olenik-Shemesh et al.,

2015). Passive bystander behavior has been linked to moral disengagement (Hymel et al., 2005), diffusion of responsibility (Bjärehed et al., 2020), low defender self-efficacy (Sjögren et al., 2020) and a lack of confidence (Midgett, Doumas, Moran, & Gallo, 2020), knowledge, or skills to intervene (Forsberg et al., 2014; Hutchinson, 2012), and not knowing what to do (Bauman et al. 2020). These factors may play an even greater role in cyberbullying due to the lack of social–emotional cues (Knauf et al., 2018; Runions & Bak, 2015), physical distance (Knauf et al., 2018), and ease of disseminating communication via social networks (Runions & Bak, 2015). Thus, students who witness cyberbullying may be at higher risk for negative outcomes than students who witness school bullying. The majority of research conducted on cyberbullying bystanders, however, has focused on understanding what motivates or poses barriers for students to intervene in cyberbullying situations (e.g., Bastianensens et al., 2014; Bussy et al., 2020; DeSmet et al., 2014; DeSmet et al., 2016; Machackova et al., 2015; Schacter et al., 2016), rather than examining the impact of observing cyberbullying on the bystanders themselves.

### **Mental Health Risks Associated with Witnessing School Bullying and Cyberbullying**

Mental health risks associated with witnessing school bullying among middle school students are well-documented (Hutchinson, 2012; Janson et al. 2009; Midgett & Doumas, 2019a; Rivers & Noret, 2013; Rivers et al., 2009). Research indicates bystanders who witness school bullying report elevated rates of anxiety, depression (Midgett & Doumas, 2019a; Rivers et al., 2009), isolation (Hutchinson, 2012), sadness (Janson et al., 2009), and suicidal ideation (Rivers & Noret, 2013). When students witness bullying, they may feel anxious about becoming a target themselves or experience a degree of co-victimization (Wright et al., 2018). Bystanders may also feel helpless (Janson et al. 2009; Rivers & Noret, 2013), which can lead to passive behavior and contribute anxiety and depressive symptoms.

Despite the high prevalence rate of witnessing cyberbullying and the potential for negative outcomes for cyberbullying bystanders, we could find only two studies examining the mental health risks associated with witnessing cyberbullying (Doumas & Midgett, 2020; Wright et al., 2018). Together, these studies indicate that witnessing cyberbullying is associated with depression and anxiety among middle school students (Doumas & Midgett, 2020; Wright et al., 2018), even when controlling for witnessing school bullying (Doumas & Midgett, 2020). Although these studies extend our understanding of the mental health risks for witnessing cyberbullying among middle school students, we found no studies examining the relationship between witnessing cyberbullying and internalizing symptoms among elementary school students. Further, although Doumas & Midgett (2020) controlled for witnessing school bullying, they did not account for the effects of bullying victimization on depressive symptoms or anxiety.

### **Purpose of the Present Study**

The purpose of the current study is to address this gap in the literature by examining the association between witnessing cyberbullying as a bystander and depressive symptoms and anxiety among elementary school students. In particular, we were interested in social anxiety as several studies have documented the relationship between social anxiety and cyberbullying victimization (Coelho & Romao, 2018; Dempsey et al., 2009; Fahy et al., 2016; Wigderson & Lynch, 2013), yet we could find no studies examining the relationship between social anxiety and witnessing cyberbullying. Our first aim was to test if witnessing cyberbullying is associated with depressive symptoms and social anxiety over and above the effects of witnessing school bullying and bullying victimization. Our second aim was to examine the moderating effect of witnessing school bullying and bullying victimization. That is, we tested whether levels of depressive symptoms and social anxiety are higher for cyberbullying bystanders who also report witnessing school bullying or bullying victimization.

Examining the relationship between witnessing cyberbullying and depressive symptoms and social anxiety will add to the limited research investigating the extension of mental health risks associated with cyberbullying victimization to students who witness cyberbullying as bystanders. Specifically, to date, this is the first study examining mental health risks for cyberbullying bystanders among elementary school students. We hypothesized that: (a) witnessing cyberbullying will be positively related to depressive symptoms and social anxiety over and above the effects of witnessing school bullying and bullying victimization; and (b) the relationship between witnessing cyberbullying and depressive symptoms and social anxiety would be moderated by witnessing school bullying and bullying victimization.

## Method

### **Research Design**

We used a cross-sectional design to examine the relationship between witnessing cyberbullying and depressive symptoms and social anxiety over and above the effects of witnessing school bullying and bullying victimization. We were also interested in the moderating effects of witnessing school bullying and bullying victimization on the relationship between witnessing cyberbullying depressive symptoms and social anxiety.

### **Participants**

Students were recruited from one public elementary school in the Northwest region of the US. Participants included 122 students in 3<sup>rd</sup> – 5<sup>th</sup> grade (43.8% female, 54.5% male; 1.7% other). Participants ranged in age from 8-12 years old ( $M = 9.65$  and  $SD = 1.00$ ). The sample was predominantly White (62.4%), with 17.1% Hispanic, 3.3% African-American, .9% Asian-American, .9% Native American or Pacific Islander, 5.1% more than one race, and 10.3% other.

### **Procedures**

Data were collected in the fall of 2019 from one elementary school in an urban county in the Northwest. All students in the 3<sup>rd</sup>, 4<sup>th</sup>, and 5<sup>th</sup> grade ( $N = 253$ ) were recruited to participate in the study. Consent forms were sent home to parents. Students with parental consent also provided informed assent. School counseling graduate students trained all 3<sup>rd</sup> - 5<sup>th</sup> grade students in the program. Only students with both parental consent and assent, however, were eligible to participate in the study. Parental consent was obtained from 134 students (52.9%). Of the students with parent/guardian informed consent, 14 were absent the day of data collection and the remaining 122 provided assent for a final response rate of 48.2%. Students completed data collection during class time in the school's cafeteria. Participants were provided pizza after completing study procedures as an incentive for participation. All study procedures were approved by the University Internal Review Board and the school district.

### **Measures**

#### ***Depressive Symptoms***

The Center for Epidemiological Studies Depression Scale for Children (CES-DC; Weissman et al., 1980) was used to measure depressive symptoms. The CES-DC is a 20-item self-report measure. Items are rated on a four-point Likert Scale ranging from 0 (*Not at all*) to 3 (*A lot*). Example items include "I was bothered by things that usually don't bother me," "I felt like I was too tired to do things," and "I felt sad." Items are summed to provide a total score. Higher scores indicate increasing levels of depression with a cut off score of 15 indicating significant levels of depressive symptoms (Weissman et al., 1980). This scale has been normed on children and adolescents and researchers have reported good construct validity and good reliability with a Cronbach alpha coefficient of .89 (Fendrich et al., 1990). For the current sample, Cronbach's alpha was .92.

#### ***Social Anxiety***

The Social Anxiety Scale for Children- Revised (SASC-R; La Greca & Stone, 1993) was used to measure social anxiety. The SASC-R includes 22 items that make up three subscales. For this study, we used the 4-item Social Avoidance and Distress Scale – General, which measures avoidance of social interactions. Items are rated on a five-point Likert Scale ranging from 1 (*Not at all*) to 5 (*All the time*). Example items include "It is hard to ask others to do things with me," "I am quiet when I'm with a group of people," "I feel shy even with peers I know very well." Items are summed to provide a total score. Higher scores indicate increasing levels of social anxiety with means ranging from  $M = 7.28$  ( $SD = 2.74$ ) to  $M = 8.56$  ( $SD = 3.44$ ) in the normative sample of elementary school students (La Greca & Stone, 1993). Researchers have reported good construct validity (La Greca & Stone, 1993; Sanna et al., 2009; Storch et al. 2003) and adequate to good reliability with a Cronbach alpha coefficient reported at .69 (La Greca & Stone, 1993) to .85 (Reijntjes et al., 2007). For the current sample, Cronbach's alpha was .79.

### ***Witnessing Cyberbullying and Witnessing School Bullying***

Witnessing cyberbullying and witnessing school bullying were assessed using questions from prior research on witnessing bullying (Midgett & Dumas, 2019a). Students were asked: “How often have you seen the following types of bullying in the past month?” The types of bullying listed were physical, verbal, relational, and cyberbullying. Examples of each type of bullying were provided. The items are rated on a 5-point Likert Scale ranging from 0 (*Never*) to 4 (*Several times a day*). For witnessing school bullying, we summed the three school bullying items (i.e., physical, verbal, relational) to obtain the frequency of witnessing school bullying variable ( $\alpha = .78$ ). We used the cyberbullying item to measure frequency of witnessing cyberbullying.

### ***Bullying Victimization***

Bullying victimization was assessed using the global item: “How often have you been bullied in the past month?” from the Olweus Bullying Questionnaire (Olweus, 1996). The item is rated on a 5-point Likert Scale ranging from 0 (*Never*) to 4 (*Several times a week*). The Olweus Bullying Questionnaire has moderate to high internal reliability ranging from  $\alpha = .74 - .98$  and satisfactory construct validity (Kyriakides et al., 2006).

### **Power Analysis**

We conducted an a priori power analysis using the G\*Power 3.1.3 program (Faul et al., 2007) for the regression analyses. Results of the power analysis indicated for power of  $\geq 0.80$  to detect a medium effect size with an alpha level of .05, a sample size of 103 is needed. Thus, our sample is adequate for the proposed analyses.

### **Data Analysis**

All analyses were conducted using SPSS version 25. All variables were examined for skew and kurtosis. Bivariate correlations among predictor and dependent variables were calculated prior to conducting the main regression analyses. Our aims were to assess 1) the relationship between witnessing cyberbullying and depressive symptoms and social anxiety and 2) the moderating effects of witnessing school bullying and bullying victimization on the relationship between witnessing cyberbullying and depressive symptoms and social anxiety. To test these aims, two hierarchical regression analyses were conducted with interaction effects used to test for moderation. All predictor variables were mean centered to reduce problems of multicollinearity introduced into equations containing interaction terms (Aiken & West, 1991). We entered the sex and grade on Step 1 as control variables as research indicates gender and age are related to cyberbullying (Guo, 2016). On Step 2 we entered the frequency of witnessing cyberbullying, frequency of witnessing school bullying, frequency of bullying victimization and the two-way interaction terms witnessing cyberbullying x witnessing school bullying and witnessing cyberbullying x bullying victimization. Simple slopes were plotted to examine the direction and degree of significant interactions testing moderator effects (Aiken & West, 1991). Alpha levels for all tests were set at  $p < .05$ . We calculated effect size using the  $R^2$  with .01 considered small, .09 considered medium, and .25 considered large (Cohen, 1969).

## **Results**

### **Preliminary Analyses and Descriptive Statistics**

Means, standard deviations, and bivariate correlations for predictor and outcome variables are presented in Table 1. Skew and kurtosis were satisfactory and did not substantially deviate from the normal distribution for all variables. Although several of the correlations between the predictor variables were significant at  $p < .01$ , the variance inflation factor (VIF) ranged between 1.48 – 1.97, with corresponding tolerance levels ranging from .51 - .68. The VIF is well below the rule of thumb of  $VIF < 10$  (Norman & Streiner, 2008), suggesting acceptable levels of multicollinearity among the predictor variables. Overall, 38.8% ( $n = 47$ ) of students reported witnessing cyberbullying at least once in the past 30 days. Of the 47 student who reported witnessing cyberbullying, 66.0% ( $n = 31$ ) also reported having witnessing school bullying and 51.1% ( $n = 24$ ) reported experience bullying victimization at least once in the past 30 days.

### **Depressive Symptoms**

Results for the regression analyses for depressive symptoms are presented in Table 2. The adjusted  $R^2$  for the model was  $R^2 = .26$ . As seen in Table 2, the main effect for witnessing cyberbullying was significant ( $p < .04$ ), over and above the effects of witnessing school bullying and bullying victimization. Additionally, the cyberbullying bystander x school bullying bystander interaction term was significant ( $p < .001$ ). To examine the nature of the interactions, tests of simple slopes were graphed and interpreted using Aiken and West's (1991) procedures. Figure 1 presents the significant two-way cyberbullying bystander x school bullying bystander for depressive symptoms. Examination of the slopes in Figure 1 indicates students who reported witnessing cyberbullying only reported the highest level of depressive symptoms and students who did not report witnessing either cyberbullying or school bullying reported the lowest level of depressive symptoms. As seen in Figure 1, students who witnessed cyberbullying only had a mean score of  $> 25.0$ , which is well above the clinical cutoff score of 15.

### **Social Anxiety**

Results for the regression analyses for anxiety are presented in Table 2. The adjusted  $R^2$  for the model was  $R^2 = .24$ . As seen in Table 2, the main effect for witnessing cyberbullying was significant ( $p < .01$ ), over and above the effects of witnessing school bullying and bullying victimization. Additionally, the cyberbullying bystander x school bullying bystander interaction term was significant ( $p < .01$ ). To examine the nature of the interactions, tests of simple slopes were graphed and interpreted using Aiken and West's (1991) procedures. Figure 2 presents the significant two-way cyberbullying bystander x school bullying bystander for social anxiety. Examination of the slopes in Figure 2 indicates students who reported witnessing cyberbullying only reported the highest level of social anxiety and students who did not report witnessing either cyberbullying or school bullying reported the lowest level of social anxiety. As seen in Figure 2, students who witnessed cyberbullying only had a mean score of  $> 9.5$ , which above the normative mean range of 7.28 to  $M = 8.56$ .

## **Discussion**

The present study investigated the association between witnessing cyberbullying and depressive symptoms and social anxiety among elementary school students. We also tested the moderating effect of witnessing school bullying and bullying victimization on the relationship between witnessing cyberbullying and depressive symptoms and social anxiety. Overall, our findings suggest that witnessing cyberbullying is associated with depressive symptoms and social anxiety over and above the effects of witnessing school bullying and bullying victimization. Further, we found that students who reported witnessing cyberbullying only reported the highest levels of depressive symptoms and social anxiety among elementary school students whereas students who did not report witnessing cyberbullying or school bullying reported the lowest level of depressive symptoms and social anxiety.

Data from this study indicate that 38.8% of elementary school students reported witnessing cyberbullying in the past month. To our knowledge, this is the first study to report data on the prevalence of witnessing cyberbullying among elementary school students. Although lower than prevalence rates reported for middle school students (52.9%; DeSmet et al., 2016), the rates reported in middle school research were over a period of 6 months. In the current study, the 38.8% prevalence rate was for the past month. Thus, had we asked students to report over a longer time period, results may have been similar or approached rates reported by middle school students.

Consistent with our first hypothesis, results indicated a significant association between witnessing cyberbullying and depressive symptoms and social anxiety over and above the effects of witnessing school bullying and bullying victimization. This finding is consistent with research conducted with middle school students demonstrating that witnessing school bullying is associated with depression and anxiety even when controlling for bullying victimization (Midgett & Dumas, 2019a; Rivers et al., 2009). Findings also parallel research indicating that witnessing cyberbullying is associated with depression and anxiety (Dumas & Midgett, 2020; Wright et al., 2018), even after controlling for the effects of witnessing school bullying (Dumas & Midgett, 2020). Results of this study extend this research by demonstrating similar findings among a sample of elementary school students who witness cyberbullying as bystanders. Findings of this study add to the growing body of literature suggesting that the negative consequences of cyberbullying extend beyond witnessing school bullying students and beyond students directly involved in bullying as targets.

There are several possible explanations for the association between witnessing cyberbullying bystander and depressive symptoms and social anxiety. Students who witness cyberbullying may perceive the bullying event as serious and experience distress related to the discrepancy between the belief they should intervene and acting passively (Midgett & Doumas, 2019a). This experienced dissonance between attitudes and behavior might account for symptoms of depression and anxiety reported by students who witness bullying (Rivers et al., 2009). Additionally, bystanders may feel helpless and anxious when they witness cyberbullying but do not know how to intervene (Doumas & Midgett, 2020). Dissonance, feelings of helplessness, and anxiety about being targeted may all contribute to depression and anxiety among student bystanders (Midgett & Doumas, 2019a). Not having the skills to intervene may also contribute to social anxiety, particularly when peers are present.

Although we hypothesized that students who witness both cyberbullying and school bullying would report the highest level of depressive and social anxiety, we found that students who were cyberbullying bystanders only had the highest level of symptoms of depressive symptoms and social anxiety. Additionally, the moderating effect of bullying victimization was not significant. Findings suggest that witnessing cyberbullying in the absence of witnessing school bullying may pose a unique risk for depressive symptoms and social anxiety. Witnessing school bullying may provide students opportunities to intervene appropriately. For example, research indicates 78.2% of elementary school students report bullying to an adult (Midgett et al., 2018). Reporting bullying to an adult may increase both skills and self-efficacy. When these students also observe cyberbullying, they may feel more confident to intervene due to their experiences with school bullying. In contrast, students who only witness cyberbullying may feel more helpless, particularly because the identity of the cyberbully is often unknown (Kowalski & Limber, 2007) and cyberbullying may occur during the evening, at night, or on the weekend (Kowalski et al., 2019).

### **Limitations and Future Directions**

Although this study is the first study to examine mental health risks for elementary school students who witness cyberbullying, some limitations deserve note. First, the sample was recruited from one elementary school in the Northwest and was relatively small. Future studies should include larger samples from multiple elementary schools to increase generalizability. Next, because we used a cross-sectional design, it is not possible to determine the causal direction of the relationship between witnessing cyberbullying and depressive symptoms and social anxiety. Although it is more likely that depressive symptoms and social anxiety are caused by witnessing cyberbullying than the reverse, future research utilizing a longitudinal design is needed to clarify the direction of the relationship. Finally, we used a single item to measure witnessing cyberbullying and bullying victimization. Although use of one item to measure is common in bullying research with elementary school students (e.g., Axford, 2020; Kärnä et al., 2011), using a multiple-item scale would improve the reliability and validity of the measure in future research.

### **Implications**

Data from this study indicate that nearly 40% of elementary school students reported witnessing cyberbullying in the past month. Thus, a significant amount of students may be experiencing depressive and social anxiety related to observing cyberbullying. Mental health professionals in the elementary school setting need to be aware that the impact of cyberbullying extends beyond youth who are targets of cyberbullying to those who witness cyberbullying as bystanders. Thus, it is important to address mental health risks for elementary school students who witness cyberbullying as part of bullying prevention programs. Primary prevention for cyberbullying may include developing a school wide definition of cyberbullying and an anti-cyberbullying policy, as well as providing school wide cyberbullying training (Davis & Schmidt, 2016). School administrators can make it clear to teachers, school personnel, parents, and students that cyberbullying is serious, as well as clearly outlining the consequences of violating school policy (Beale & Hall, 2007). School personnel can advocate for providing education about witnessing cyberbullying, cyberbullying bystander behavior, and how to report cyberbullying. School personnel can also educate parents about cyberbullying and how the impact extends to students who witness cyberbullying. Schools can also require students and their parents sign a policy in which students agree not to use electronic devices to harass other students and parents agree to be responsible for their children's use of electronic devices outside of school (Beale & Hall, 2007). Involving parents is particularly important as cyberbullying extends beyond school grounds and school hours (Elsaesser et al., 2017).

Findings also have important implications for addressing mental health risks for elementary school students who witness cyberbullying. In particular, school psychologists and counselors need to be aware that depressive symptoms and social anxiety may be even higher among bystanders who witness cyberbullying only. Research highlights the



importance of a systematic, whole-school approach to effectively prevent and manage all forms of bullying behavior, including cyberbullying (Pearce et al., 2011). However, according to a meta-analysis, only a few of these types of programs include a bystander component as part of comprehensive interventions (Polanin et al., 2012). Research evaluating school-wide bullying prevention programs that include bystander intervention have demonstrated that these programs are effective in reducing cyberbullying (Williford et al., 2013), as well as reducing depression and anxiety among students trained in the program (Williford et al., 2012). Similarly, research indicates stand-alone bystander interventions are also effective in reducing depression and anxiety for students trained to intervene in bullying situations (Dumas et al., 2019; Midgett & Dumas, 2019b; Midgett et al., 2017; Midgett, Dumas, Peralta, et al., 2020). Therefore, implementing school-based programs that include a bystander component (e.g., KiVA; Salmivalli et al., 2011) or stand-alone bullying bystander interventions (e.g., STAC, Midgett et al., 2015) may be promising approaches for reducing the mental health risks associated with witnessing cyberbullying.

Furthermore, witnessing cyberbullying as a bystander is associated with depressive symptoms and social anxiety for elementary school students. Additionally, students witnessing cyberbullying only reported the highest rates of depressive symptoms and social anxiety, with depressive symptom well above the clinical cutoff and social anxiety above mean scores in normative samples. Therefore, it is important for elementary school mental health professionals to assess students' experiences with bullying, including witnessing cyberbullying and school bullying. Another way mental health professionals can support cyberbullying bystanders is to provide skills they can use to intervene when they witness cyberbullying. For example, recommendations for school psychologist in helping to develop cyberbullying prevention plans includes the need for bystanders to protest and report incidences of cyberbullying (Diamanduros et al., 2008). In a recent study examining bystander behavior related to school bullying, findings suggest that telling the bully to stop and telling an adult result in stopping the bullying 53% and 51% of time, respectively (Bauman et al., 2020). Providing skills for students to act in appropriate ways when they observe cyberbullying may lead to decreases in depressive symptoms and social anxiety associated with witnessing cyberbullying.

### Conclusion

This study is the first study to examine the association between witnessing cyberbullying and depressive symptoms and social anxiety among elementary school students. Findings indicate that witnessing cyberbullying is prevalent in elementary school and is positively associated with depressive symptoms and social anxiety even when controlling for witnessing school bullying and bullying victimization. Further, students who witnessed cyberbullying only reported the highest level of depressive symptoms and social anxiety. These findings highlight the importance of implementing bullying bystander interventions to reduce cyberbullying and the associated mental health risks for student bystanders as early as elementary school.

### References

- Agatston, P. W., Kowalski, R., & Limber, S. (2007). Students' perspectives on cyber bullying. *Journal of Adolescent Health, 41*(6), S59-S60. <https://doi.org/10.1016/j.jadohealth.2007.09.003>
- Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions*. US Sage Publications, Inc.
- Allison, K. R., & Bussey, K. (2016). Cyber-bystanding in context: A review of the literature on witnesses' responses to cyberbullying. *Children and Youth Services Review, 65*, 183-194. <https://doi.org/10.1016/j.chilyouth.2016.03.026>
- Axford, N., Bjornstad, G., Clarkson, S., Ukoumunne, O. C., Wrigley, Z., Matthews, J., Berry, V., & Hutchings, J. (2020). The effectiveness of the KiVa bullying prevention program in Wales, UK: Results from a pragmatic cluster randomized controlled trial. *Prevention Science, 21*, 615–626. <https://doi.org/10.1007/s11121-020-01103-9>
- Bastiaensens, S., Vandebosch, H., Poels, K., Van, C. K., Desmet, A., & De, B. 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*(1), 259–271. <https://doi.org/10.1016/j.chb.2013.10.036>
- Bauman, S., Yoon, J., Iurino, C., & Hackett, L. (2020). Experiences of adolescent witnesses to peer victimization: The bystander effect. *Journal of School Psychology, 80*, 1-14. <https://doi.org/10.1016/j.jsp.2020.03.002>
- Beale, A. V., & Hall, K. R. (2007). Cyberbullying: What school administrators (and parents) can do. *The Clearing House: A Journal of Educational Strategies, Issues and Ideas, 81*(1), 8-12. Retrieved from <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.459.8529&rep=rep1&type=pdf>

- Bjärehed, M., Thornberg, R., Wänström, L., & Gini, G. (2020). Mechanisms of moral disengagement and their associations with indirect bullying, direct bullying, and pro-aggressive bystander behavior. *The Journal of Early Adolescence*, 40(1), 28-55. <https://doi.org/10.1177/0272431618824745>
- Bonanno, R. A., & Hymel, S. (2013). Cyber bullying and internalizing difficulties: Above and beyond the impact of traditional forms of bullying. *Journal of Youth and Adolescence*, 42(5), 685-697. <https://doi.org/10.1007/s10964-013-9937-1>
- Burton, K. A., Florell, D., & Wygant, D. B. (2013). The role of peer attachment and normative beliefs about aggression on traditional bullying and cyberbullying. *Psychology in the Schools*, 50(2), 103-115. <https://doi.org/10.1002/pits.21663>
- Bussey, K., Luo, A., Fitzpatrick, S., & Allison, K. (2020). Defending victims of cyberbullying: The role of self-efficacy and moral disengagement. *Journal of School Psychology*, 78, 1-12. <https://doi.org/10.1016/j.jsp.2019.11.006>
- Center for Disease Control and Prevention. (2020). #StopBullying. Retrieved from <https://www.cdc.gov/injury/features/stop-bullying/index.html>
- Chisholm, J. F. (2014). Review of the status of cyberbullying and cyberbullying prevention. *Journal of Information Systems Education*, 25(1), 77-87. Retrieved from <http://jise.org/volume25/n1/JISEv25n1p77.pdf>
- Coelho, V. A., & Romão, A. M. (2018). The relation between social anxiety, social withdrawal and (cyber) bullying roles: A multilevel analysis. *Computers in Human Behavior*, 86, 218-226. <https://doi.org/10.1016/j.chb.2018.04.048>
- Cohen, J. (1969). *Statistical power analysis for the behavioural sciences*. Academic Press.
- Dempsey, A. G., Sulkowski, M. L., Nichols, R., & Storch, E. A. (2009). Differences between peer victimization in cyber and physical settings and associated psychosocial adjustment in early adolescence. *Psychology in the Schools*, 46(10), 962-972. <https://doi.org/10.1002/pits.20437>
- DePaolis, K., Williford, A. (2015). The nature and prevalence of cyber victimization among elementary school children. *Child Youth Care Forum*, 44(3), 377-393. <https://doi.org/10.1007/s10566-014-9292-8>
- DeSmet, A., Bastiaensens, S., Van Cleemput, K., Poels, K., Vandebosch, H., Cardon, G., & De Bourdeaudhuij, I. (2016). Deciding whether to look after them, to like it, or leave it: A multidimensional analysis of predictors of positive and negative bystander behavior in cyberbullying among adolescents. *Computers in Human Behavior*, 57, 398-415. <https://doi.org/10.1016/j.chb.2015.12.051>
- DeSmet, A., Bastiaensens, S., Van Cleemput, K., Poels, K., Vandebosch, H., & De Bourdeaudhuij, I. (2012). Mobilizing bystanders of cyberbullying: an exploratory study into behavioural determinants of defending the victim. *Annual Review of Cybertherapy and Telemedicine*, 10, 58-63. <https://doi.org/10.3233/978-1-61499-121-2-58>
- DeSmet, A., Veldeman, C., Poels, K., Bastiaensens, S., Van Cleemput, K., Vandebosch, H., & De Bourdeaudhuij, I. (2014). Determinants of self-reported bystander behavior in cyberbullying incidents amongst adolescents. *Cyberpsychology, Behavior, and Social Networking*, 17(4), 207-215. <https://doi.org/10.1089/cyber.2013.0027>
- Diamanduros, T., Downs, E., & Jenkins, S. J. (2008). The role of school psychologists in the assessment, prevention, and intervention of cyberbullying. *Psychology in the Schools*, 45(8), 693-704. <https://doi.org/10.1002/pits.20335>
- Doumas, D. M., & Midgett, A. (2020). Witnessing cyberbullying and internalizing symptoms among middle school students. *European Journal of Investigation in Health, Psychology and Education*, 10(4), 957-966. <https://doi.org/10.3390/ejihpe10040068>
- Doumas, D. M., Midgett, A., & Watts, A.D. (2019). The impact of a brief, bullying bystander intervention on internalizing symptoms: Is gender a moderator of intervention effects? *School Psychology International*, 40(3), 275-293. <https://doi.org/10.1177/0143034319830149>
- Elsaesser, C., Russell, B., Ohannessian, C. M., & Patton, D. (2017). Parenting in a digital age: A review of parents' role in preventing adolescent cyberbullying. *Aggression and Violent Behavior*, 35, 62-72. <http://dx.doi.org/10.1016/j.avb.2017.06.004>
- Fahy, A. E., Stansfeld, S. A., Smuk, M., Smith, N. R., Cummins, S., & Clark, C. (2016). Longitudinal associations between cyberbullying involvement and adolescent mental health. *Journal of Adolescent Health*, 59(5), 502-509. <https://doi.org/10.1016/j.jadohealth.2016.06.006>
- Fendrich, M., Weissman, M. M., & Warner, V. (1990). Screening for depressive disorder in children and adolescents: Validating the center for epidemiologic studies depression scale for children. *American Journal of Epidemiology*, 131(3), 538-551. <https://doi.org/10.1093/oxfordjournals.aje.a1155299>

- Festl, R., Scharkow, M., & Quandt, T. (2013). Peer influence, internet use and cyberbullying: A comparison of different context effects among German adolescents. *Journal of Children and Media*, 7(4), 446-462. <https://doi.org/10.1080/17482798.2013.781514>
- Fisher, B. W., Gardella, J. H. & Teurbe-Tolon, A. R. (2016). Peer cybervictimization among adolescents and the associated internalizing and externalizing problems: A meta-analysis. *Journal of Youth Adolescence*, 45(9), 1727–1743. <https://doi.org/10.1007/s10964-016-0541-z>
- Forsberg, C., Samuelsson, M., & Thornberg, R. (2014). Bystanders to bullying: Fourth- to seventh-grade students' perspectives on their reactions. *Research Papers in Education*, 29(5), 557-576. <https://doi.org/10.1080/02671522.2013.878375>
- Guo, S. (2016). A meta-analysis of the predictors of cyberbullying perpetration and victimization. *Psychology in the Schools*, 53(4), 432-453. <https://doi.org/10.1002/pits.21914>
- Hase, C. N., Goldberg, S. B., Smith, D., Stuck, A., & Campaign, J. (2015). Impacts of traditional bullying and cyberbullying on the mental health of middle school and high school students. *Psychology in the Schools*, 52(6), 607-617. <https://doi.org/10.1002/pits.21841>
- Hinduja, S., & Patchin, J. W. (2012). Cyberbullying: Neither an epidemic nor a rarity. *European Journal of Developmental Psychology*, 9(5), 539-543. <https://doi.org/10.1080/17405629.2012.706448>
- Hutchinson, M. (2012). Exploring the impact of bullying on young bystanders. *Educational Psychology in Practice*, 28(4), 425-442. <https://doi.org/10.1080/02667363.2012.727785>
- Hymel S., Rocke-Henderson N., Bonanno R.A. (2005). Moral disengagement: A framework for understanding bullying among adolescents. *Journal of Social Sciences*, 8(1), 1-11.
- Janson, G. R., Carney, J. V., Hazler, R. J., & Oh, I. (2009). Bystander's reactions to witnessing repetitive abuse experiences. *Journal of Counseling & Development*, 87(3), 319-326. <https://doi.org/10.1002/j.1556-6678.2009.tb00113.x>
- Kärnä, A., Voeten, M., Little, T. D., Poskiparta, E., Kaljonen, A., & Salmivalli, C. (2011). A large-scale evaluation of the KiVa antibullying program: Grades 4–6. *Child development*, 82(1), 311-330. <https://doi.org/10.1111/j.1467-8624.2010.01557.x>
- Knauf, R.-K., Eschenbeck, H., & Hock, M. (2018). Bystanders of bullying: Social-cognitive and affective reactions to school bullying and cyberbullying. *Cyberpsychology: Journal of Psychosocial Research on Cyberspace*, 12(4), Article 3. <http://dx.doi.org/10.5817/CP2018-4-3>
- 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(4), 1073-1137. <https://doi.org/10.1037/a0035618>
- Kowalski, R. M., & Limber, S. P. (2007). Electronic bullying among middle school students. *Journal of Adolescent Health*, 41(6), S22-S30. <https://doi.org/10.1016/j.jadohealth.2007.08.017>
- Kowalski, R. M., & Limber, S. P. (2013). Psychological, physical, and academic correlates of cyberbullying and traditional bullying. *Journal of Adolescent Health*, 53(1), S13-S20. <https://doi.org/10.1016/j.jadohealth.2012.09.018>
- Kowalski, R. M., Limber, S. P., & McCord, A. (2019). A developmental approach to cyberbullying: Prevalence and protective factors. *Aggression and Violent Behavior*, 45, 20-32. <https://doi.org/10.1016/j.avb.2018.02.009>
- 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(4), 1073-1137. <https://doi.org/10.1037/a0035618>
- La Greca, A. M., & Stone, W. L. (1993). Social anxiety scale for children-revised: Factor structure and concurrent validity. *Journal of Clinical Child Psychology*, 22(1), 17-27. [https://doi.org/10.1207/s15374424jccp2201\\_2](https://doi.org/10.1207/s15374424jccp2201_2)
- Lenhart, A., Madden, M., Smith, A., Purcell, K., Zickuhr, K., & Rainie, L. (2011). *Teens, kindness and cruelty on social network sites: How American teens Navigate the new world of "digital citizenship"*. Pew Research Center. Retrieved from <https://www.pewresearch.org/internet/2011/11/09/teens-kindness-and-cruelty-on-social-network-sites/>
- Li, Q. (2007). New bottle but old wine: A research of cyberbullying in schools. *Computers in Human Behavior*, 23(4), 1777-1791. <https://doi.org/10.1016/j.chb.2005.10.005>
- Machackova, H., Dedkova, L., & Mezulanikova, K. (2015). Brief report: The bystander effect in cyberbullying incidents. *Journal of Adolescence*, 43, 96-99. <https://doi.org/10.1016/j.adolescence.2015.05.010>
- Midgett, A., & Doumas, D. M. (2019a). Witnessing bullying at school: The association between being a bystander and anxiety and depressive symptoms. *School Mental Health*, 11(3), 454-463. <https://doi.org/10.1007/s12310-019-09312-6>

- Midgett, A., & Doumas, D. M. (2019b). The impact of a brief bullying bystander intervention on depressive symptoms. *Journal of Counseling & Development, 97*(3), 270-280. <https://doi.org/10.1002/jcad.12267>
- Midgett, A., Doumas, D. M., & Johnston, A. (2018). Establishing school counselors as leaders in bullying curriculum delivery: Evaluation of a brief, school-wide bystander intervention. *Professional School Counseling, 21*(1), 1-9. <https://doi.org/10.1177/2156759X18778781>
- Midgett, A., Doumas, D. M., Moran, M., & Gallo, L. (2020). Evaluation of a brief, school-based bystander bullying intervention: A pilot study conducted at an ethnically-blended, low-income school. *Journal of Educational and Psychological Research, 2*, 52-60. <https://doi.org/10.33140/JEPR.02.02.01>
- Midgett, A., Doumas, D. M., Peralta, C., Bond, L., & Flay, B. (2020). Impact of a brief, bystander bullying prevention program on depressive symptoms and passive suicidal ideation: A program evaluation model for school personnel. *Journal of Prevention and Health Promotion, 1*(1), 80-103. <https://doi.org/10.1177/2632077020942959>
- Midgett, A., Doumas, D. M., Sears, D., Lundquist, A., & Hausheer, R. (2015). A bystander bullying psychoeducation program with middle school students: A preliminary report. *The Professional Counselor, 5*(4), 586-500. <https://doi.org/10.15241/am.5.4.48>
- Midgett, A., Doumas, D. M., & Trull, R. (2017). Evaluation of a brief, school-based bullying bystander intervention for elementary school students. *Professional School Counseling, 20*(1), 172-183. <https://doi.org/10.5330/1096-2409-20.1.172>
- Norman, G. R., & Streiner, D. L. (2008). *Biostatistics: The bare essentials* (3rd ed.). B.C. Decker, Inc.
- Olenik-Shemesh, D., Heiman, T., & Eden, S. (2015). Bystanders' behavior in cyberbullying episodes: Active and passive patterns in the context of personal-socio-emotional factors. *Journal of Interpersonal Violence, 32*, 23-48. <https://doi.org/10.1177/08862605155855311>
- Olweus, D. (2012). Cyberbullying: An overrated phenomenon? *European Journal of Developmental Psychology, 9*(5), 520-538. <https://doi.org/10.1080/17405629.2012.682358>
- Pearce, N., Cross, D., Monks, H., Waters, S., & Falconer, S. (2011). Current evidence of best practice in whole-school bullying intervention and its potential to inform cyberbullying interventions. *Journal of Psychologists and Counsellors in Schools, 21*(1), 1-21. <https://doi.org/10.1375/ajgc.21.1.1>
- Polanin, J. R., Espelage, D. L., & Pigott, T. D. (2012). A meta-analysis of school-based bullying prevention programs' effects on bystander intervention behavior. *School Psychology Review, 41*(1), 47-65. <https://doi.org/10.1080/02796015.2012.12087375>
- Reijntjes, A., Dekovic, M., & Telch, M. J. (2007). Support for the predictive validity of the SASC-R: Linkages with reactions to an in vivo peer evaluation manipulation. *Journal of Anxiety Disorders, 21*(7), 903-917. <https://doi.org/10.1016/j.janxdis.2006.10.007>
- Rivers, I., & Noret, N. (2013). Potential suicide ideation and its association with observing bullying at school. *Journal of Adolescent Health, 53*(1), 36. <https://doi.org/10.1016/j.jadohealth.2012.10.279>
- Rivers, I., Poteat, V. P., Noret, N., & Ashurst, N. (2009). Observing bullying at school: The mental health implications of witness status. *School Psychology Quarterly, 24*(4), 211-223. <https://doi.org/10.1037/a0018164>
- Runions, K. C., & Bak, M. (2015). Online moral disengagement, cyberbullying, and cyber-aggression. *Cyberpsychology, Behavior, and Social Networking, 18*(7), 400-405. <https://doi.org/10.1089/cyber.2014.0670>
- Salmivalli, C., Voeten, M., & Poskiparta, E. (2011). Bystanders matter: Associations between reinforcing, defending, and the frequency of bullying behavior in classrooms. *Journal of Clinical Child & Adolescent Psychology, 40*(5), 668-676. <https://doi.org/10.1080/15374416.2011.597090>
- Sanna, K., Rachel, P.W., Hanna, E., Tuula, H., Leena, J., Marja-Leena, M., Katja, J., & Irma, M. (2009). Psychometric evaluation of social phobia and anxiety inventory for children (SPAI-C) and social anxiety scale for children-revised (SASC-R). *European Child & Adolescent Psychiatry, 18*(2), 116-124. <https://doi.org/10.1007/s00787-008-0712-x>
- Schacter, H. L., Greenberg, S., & Juvonen, J. (2016). Who's to blame?: The effects of victim disclosure on bystander reactions to cyberbullying. *Computers in Human Behavior, 57*, 115-121. <https://doi.org/10.1016/j.chb.2015.11.018>
- Sjögren, B., Thornberg, R., Wänström, L., & Gini, G. (2020). Associations between individual and collective efficacy beliefs and students' bystander behavior, *57*(11), 1710-1723. *Psychology in the Schools*. <https://doi.org/10.1002/pits.22412>
- Slonje, R., Smith, P. K., & Frisé, A. (2013). The nature of cyberbullying, and strategies for prevention. *Computers in Human Behavior, 29*(1), 26-32. <https://doi.org/10.1016/j.chb.2012.05.024>

- 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. <https://doi.org/10.1111/j.1469-7610.2007.01846.x>
- Sticca, F., & Perren, S. (2013). Is cyberbullying worse than traditional bullying? Examining the differential roles of medium, publicity, and anonymity for the perceived severity of bullying. *Journal of Youth and Adolescence*, *42*(5), 739-750. <https://doi.org/10.1007/s10964-012-9867-3>
- Storch, E. A., Eisenberg, P. S., Roberti, J. W., & Barlas, M. E. (2003). Reliability and validity of the Social Anxiety Scale for Children—revised for Hispanic children. *Hispanic Journal of Behavioral Sciences*, *25*(3), 410-422. <https://doi.org/10.1177/0739986303256915>
- Weissman, M. M., Orvaschel, H., & Padian, N. (1980). Children's symptom and social functioning: Self-report scales. *Journal of Nervous and Mental Disorders*, *168*(12), 736-740.
- Wigderson, S., & Lynch, M. (2013). Cyber- and traditional peer victimization: Unique relationships with adolescent well-being. *Psychology of Violence*, *3*(4), 297-309. <https://doi.org/10.1037/a0033657>
- Willard, N. E. (2007). *Cyberbullying and cyberthreats: Responding to the challenge of online social aggression, threats, and distress*. Research Press.
- Williford, A., Boulton, A., Noland, B., Little, T. D., Karna, A., & Salmivalli, C. (2012). Effects of the KiVa anti-bullying program on adolescents' depression, anxiety and perception of peers. *Journal of Abnormal Child Psychology*, *40*(2), 289-300. <https://doi.org/10.1007/s10802-011-9551-1>
- Williford, A., Elledge, L. C., Boulton, A. J., DePaolis, K. J., Little, T. D., & Salmivalli, C. (2013). Effects of the KiVa antibullying program on cyberbullying and cybervictimization frequency among Finnish youth. *Journal of Clinical Child & Adolescent Psychology*, *42*(6), 820-833. <https://doi.org/10.1080/15374416.2013.787623>
- Wright, M. F., Wachs, S., & Harper, B. D. (2018). The moderation of empathy in the longitudinal association between witnessing cyberbullying, depression, and anxiety. *Cyberpsychology: Journal of Psychosocial Research on Cyberspace*, *12*(4), Article 6. <https://doi.org/10.5817/CP2018-4-6>

Table 1

*Means, Standard Deviations, and Bivariate Correlations for Outcome and Predictor Variables*

Measure	1	2	3	4	5	6	7
1. Depressive Symptoms	—						
2. Social Anxiety	.67**	—					
3. Sex	-.11	.08	—				
4. Grade	-.08	-.16	.12	—			
5. Witnessing Cyberbullying	.19*	.26**	-.03	-.06	—		
6. Witnessing School Bullying	.33**	.26**	-.19*	-.22*	.53**	—	
7. Bullying Victimization	.38**	.39**	-.09	-.21*	.35**	.54**	—
<i>M</i>	16.59	6.63	—	—	0.92	3.66	0.80
<i>SD</i>	12.92	3.26	—	—	1.44	3.37	1.27

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

Table 2

*Summary of Hierarchical Regression Analyses for Depressive Symptoms and Social Anxiety*

Predictor	Depressive Symptoms					Social Anxiety				
	R <sup>2</sup> Δ	B	SE B	β	95% CI	R <sup>2</sup> Δ	B	SE B	β	95% CI
Step 1	.02					.02				
Sex		-2.47	2.29	-.10	[-6.99, 2.06]		0.69	.57	.11	[-.45, 1.82]
Grade		-1.07	1.48	.07	[-4.00, 1.86]		-0.72	.37	-.18*	[-1.45, .01]
Step 2	.25***					.20***				
Witnessing School Bullying		1.02	.43	.26*	[.16, 1.87]		0.09	.11	.09	[-.13, .31]
Bullying Victimization		2.94	1.04	.29**	[.88, 5.00]		0.82	.27	.29**	[.29, 1.35]
Witnessing Cyberbullying		2.22	1.04	.25*	[.16, 4.29]		0.68	.27	.30**	[.15, 1.21]
School Bullying x Cyberbullying		-.88	.24	-.44***	[-1.34, -.41]		-0.16	.06	-.31**	[-.28, -.04]
Victimization x Cyberbullying		-.18	.51	-.03	[-1.19, .83]		-0.01	.13	-.01	[-.27, .25]

Note. *N* = 122. SE = standard error. CI = confidence interval.

\* *p* < .05; \*\**p* < .01; \*\*\**p* < .001.