The Relationship Between Witnessing Cyberbullying and Depressive Symptoms and Social Anxiety Among Middle School Students: Is Witnessing School Bullying a Moderator?

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Abstract

The purpose of this study was to examine the relationship between witnessing cyberbullying and depressive symptoms and social anxiety among middle school students ($N = 146$). Students completed questionnaires assessing experiences witnessing cyberbullying, school bullying, depressive symptoms, and social anxiety. Regression analyses revealed that witnessing cyberbullying was associated with higher levels of depressive symptoms even after controlling for frequency of witnessing school bullying. Further, for depressive symptoms, the moderating effect of witnessing school bullying was significant indicating that students who witnessed both cyberbullying and school bullying reported the highest level of depressive symptoms and those that reported not witnessing either type of bullying reported the lowest level. Contrary to our hypotheses, however, we did not find significant effects for social anxiety. Results indicate witnessing cyberbullying uniquely contributes to depressive symptoms for middle school students and students who witness both cyberbullying and school bullying are at the highest risk for depressive symptoms. Findings suggest the importance of providing programs to support middle school students who witness cyberbullying to reduce the mental health risks associated with being a bystander, particularly for students who also witness school bullying.

Keywords: cyberbullying; bystander; internalizing symptoms

Bullying is defined as "unwanted aggressive behavior(s) by another youth or group of youths, who are not siblings or current dating partners, that involves an observed or perceived power imbalance, and is repeated multiple times or is highly likely to be repeated" (Center for Disease Control and Prevention [CDC], 2020, p. 1). Cyberbullying is bullying that occurs over digital devices (e.g., cell phones, computers, and tablets) and can occur through text, instant messages (SMS), online through social media, or gaming (U.S. Department of Health and Human Services, 2020). Cyberbullying also includes sending, posting, or sharing negative, harmful, or false content about someone else and can include sharing personal information about someone else causing embarrassment or humiliation (U.S. Department of Health and Human Services, 2020). National survey data indicate that both bullying and cyberbullying peaks during middle school, with 28% and 33.0% of middle school students reporting being bullied and cyberbullied, respectively, in the past year (Center for Disease Control, 2020).

Although some researchers have argued that cyberbullying is an extension of school bullying (Li, 2007; Olweus, 2012), others suggest that cyberbullying may be more harmful due to the potential for a larger audience, unlimited access to targets, anonymity, and less adult supervision of technology-based formats compared to the school setting (Sticca & Perren, 2013). Findings from recent meta-analyses indicate that bullying victimization (Moore et al., 2017) and cyberbullying victimization (Fisher et al., 2016) are associated with significant negative outcomes including internalizing symptoms (i.e., depression and anxiety) and suicidal ideation. Additionally, researchers have demonstrated a positive relationship between cyberbullying victimization and social anxiety among middle school students (e.g., Coelho & Romao, 2018; Fahy et al., 2016). Specifically, findings from a cross-sectional study demonstrated that cyberbullying victims reported higher levels of social anxiety than students who were not involved in cyberbullying (Coelho & Romao, 2018). Similarly, results from a longitudinal study demonstrated that cyberbullying victims reported higher levels of social anxiety compared to uninvolved adolescents at a one year follow-up (Fahy et al., 2016).

Mental Health Risks Associated with Witnessing Cyberbullying

Researchers have documented that witnessing cyberbullying is reported by 52.9% of middle school students (DeSmet et al., 2016). Similar to school bullying bystanders, cyberbullying bystanders may defend targets by telling the cyberbully to stop or reporting the incident (DeSmet et al., 2012), reinforce the cyberbully (Bastiaensens et al., 2014; Fisher et al., 2016), join in with the cyberbully (Bastiaensens et al., 2014), or do nothing (Lenhart et al., 2011). Researchers investigating witnessing cyberbullying have examined the reasons why bystanders do or do not intervene (e.g., DeSmet et al., 2016; Bauman et al., 2020; Bussy et al., 2020). Taken together, these studies suggest that cyberbullying bystander behavior is influenced by moral disengagement (Bussy et al., 2020; DeSmet et al., 2016), defender self-efficacy (Bussy et al., 2020), lack of skills, and not knowing what to do (Bauman et al., 2020; DeSmet et al., 2016). Very little research, however, has examined the impact of observing cyberbullying on the bystanders themselves (Doumas & Midgett, 2020; Wright et al., 2018).

Researchers have suggested that cyberbullying shares some common characteristics with school bullying and that there is considerable overlap between the two (Hase et al., 2015). There are, however, some important differences between witnessing cyberbullying and school bullying. For example, in school bullying, bystanders are often present, whereas for cyberbullying the bystander may witness the bullying after it has occurred (e.g., a message is forwarded to them) (Allison & Bussey, 2016). Additionally, by definition, school bullying occurs during the hours school is in session, whereas witnessing cyberbullying can occur at any time, including the night (Kowalski et al., 2019). Further, passive bystander behavior has been linked to diffusion of responsibility (Bjärehed et al., 2020), moral disengagement (Bussy et al., 2020; DeSmet et al., 2016), low defender self-efficacy (Bussy et al., 2020), and a lack of knowledge or skills to intervene (Bauman et al., 2020; Hutchinson, 2012). These factors may be even more salient in the case of cyberbullying due to characteristics such as limited social and emotional cues (Knauf et al., 2018; Runions & Bak, 2015), anonymity (Knauf et al., 2018), and ease of distributing communication (Runions & Bak, 2015). Thus, cyberbullying bystanders may be at greater risk for negative mental health outcomes than school bullying bystanders.

A growing body of literature indicates witnessing school bullying is associated with mental health risks including feelings of isolation (Hutchinson, 2012), helplessness (Rivers & Noret, 2013), depression, and anxiety (Midgett & Doumas, 2019a; Rivers et al., 2009). Despite the fact that the prevalence of cyberbullying in middle school is higher than the prevalence of school bullying, we could find only two studies conducted on mental health outcomes associated with witnessing cyberbullying. Results from these studies indicate that witnessing cyberbullying is associated with higher rates of depression and anxiety among middle school students (Doumas & Midgett, 2020; Wright et al., 2018). Further, Doumas and Midgett (2020) demonstrated witnessing cyberbullying is related to depression and anxiety over

and above the effects of witnessing school bullying. Neither study, however, addressed the combined effect of witnessing both cyberbullying and school bullying on depressive symptoms and anxiety. Further, we could find no study, to date, addressing the relationship between witnessing either school bullying or cyberbullying and social anxiety among middle school students.

The Present Study

The purpose of this study is to address this gap in the literature by investigating the relationship between witnessing cyberbullying, depressive symptoms, and social anxiety among middle school students. We were interested in social anxiety as several studies have documented the relationship between social anxiety and cyberbullying victimization (e.g., Coelho & Romao, 2018; Fahy et al., 2016), yet we could find no studies examining the relationship between social anxiety and witnessing cyberbullying among middle school students. To achieve this aim, we used a cross-sectional design to examine the relationship between witnessing cyberbullying and depressive symptoms and social anxiety and to examine school bullying as a moderator of these relationships. We selected sixth grade students as bullying peaks at the sixth grade level and the greatest increase in cyberbullying prevalence occurs during the transition from elementary school to middle school (5% to 33%; U.S. Department of Education, 2020). We hypothesized that: (a) witnessing cyberbullying would be positively related to depressive symptoms and social anxiety over and above the effects of witnessing school bullying and (b) witnessing school bullying would moderate the relationship between witnessing cyberbullying and depressive symptoms and social anxiety, such that students witnessing both cyberbullying and school bullying would report the highest level of symptoms.

Materials and Method

Participants

We recruited participants from one public middle school in the Northwest. The school enrollment is 972 students. Of those enrolled, approximately 50% are ethnic minorities (52.0% White, 43.1% Hispanic, 4.9% Multiracial or Other) and 59.2% qualify for free or reduced lunch. Of the 146 participants in the sample, 60% reported their gender as female, 39.3% reported as male, and 0.7% did not report gender. Participant ages ranged from 11-12 years old (M =11.45, SD = .50), with reported ethnic or racial backgrounds of 52.1% White, 30.7% Hispanic, 2.0% African American, 1.4% Asian American, and 13.6% Multiracial or Other.

Procedures

Researchers collected data in the fall of 2018. All 6th grade students (N = 354) were recruited to participate in the study. The principal sent all parents/guardians an informational packet including a letter inviting their student(s) to participate in the study and an informed consent form for them to sign if they agreed to their child's participation. The school counselor also sent consent forms home with students. During monitoring announcements, school personnel reminded students to return parent/guardian informed consent forms. Students returned signed consent forms to their homeroom teacher who then provided the returned forms to the school counselors. Students with parental consent also provided assent before completing the study survey. A total of 146 (41.2%) students returned a signed parent-guardian consent form and assented to participate. Researchers collected all data in the form of paper/pencil, self-report surveys during classroom time, which took approximately 30 minutes to complete. Researchers distributed packets to students containing either the study survey for participants or crossword puzzles for non-participants in their homeroom classroom during class time. The University Institutional Review Board approved all study procedures.

Measures

Depressive Symptoms

We measured depressive symptoms with the 20-item Center for Epidemiological Studies Depression Scale for Children (CES-DC; Weissman et al., 1980). Participants rate items on a four-point Likert Scale ranging from 0 (*Not at All*) to 3 (*A Lot*). Researchers sum items for a total score. 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." Researchers have normed this scale on children and 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

We measured social anxiety using the 22-item Social Anxiety Scale for Adolescents (SAS-A; La Greca & Lopez, 1998). For this study, we used a 9-item scale comprised of the Social Avoidance and Distress Scale – General and Fear of Negative Evaluation Scale (see Willford et al., 2012). Participants rate items on a five-point Likert Scale ranging from 0 (*Not at All*) to 4 (*All the Time*). Researchers sum items for a total score. Example items include "I'm worried about what others say about me," and "I'm afraid others won't like me." Researchers have normed this scale on middle school students and have reported good construct validity (La Greca & Lopez, 1998; Inderbitzen-Nolan & Walters, 2000) and adequate to good reliability with a Cronbach alpha coefficients ranging from .70 - .89 (Inderbitzen-Nolan & Walters, 2000). For the current sample, Cronbach's alpha was .90.

Witnessing Cyberbullying and School Bullying

We measured witnessing cyberbullying using the question: "How often have you seen cyberbullying in the past month?" We provided an example of cyberbullying. The item is rated on a 5-point Likert Scale ranging from 0 (*Never)* to 4 (*Several Times a Day*). Researchers have used this item to measure the frequency of cyberbullying among middle school students (Doumas & Midgett, 2020). For witnessing school bullying, we used the global item from the Olweus Bullying Questionnaire (Olweus, 1996): "How often have you seen another student being bullied at school in the past 30 days?" The item is rated on a 5-point Likert Scale ranging from 0 (*I Have Not)* to 4 (*Several Times a Week*). The questionnaire has moderate to high internal reliability ranging from $\alpha = .74 - .98$ and satisfactory construct validity (Kyriakides et al., 2006).

Data Analytic Plan

We conducted all analyses using SPSS version 25. We examined all variables to confirm that distributions had acceptable skew and kurtosis. We calculated bivariate correlations among predictor and dependent variables prior to conducting the main regression analyses. Our aim was to assess the relationship between witnessing cyberbullying and depressive symptoms and social anxiety and the moderating effects of witnessing school bullying. To test this aim, we conducted two hierarchical regression analyses with interaction effects used to test for moderation. We mean centered all predictor variables to reduce problems of multicollinearity introduced into equations containing interaction terms (Aiken & West, 1991). We entered frequency of witnessing cyberbullying and frequency of witnessing school bullying on Step 1 and the two-way interaction term witnessing cyberbullying x witnessing school bullying on Step 2. We plotted simple slopes to examine the direction and degree of significant interactions testing moderator effects (Aiken & West, 1991). We set alpha levels for all tests at $p < .05$. We calculated effect size using the R^2 with .01 considered small, .09 considered medium, and .25 considered large (Cohen, 1969).

Preliminary Analyses and Descriptive Statistics

We present means, standard deviations, and bivariate correlations for predictor and outcome variables in Table 1. Skew and kurtosis were satisfactory and did not substantially deviate from the normal distribution for all variables. Although the correlation between the predictor variables was significant at $p < .05$, the variance inflation factor (VIF) ranged between 1.04 – 1.11, with corresponding tolerance levels ranging from .90 - .96. The VIF is well below the rule of thumb of VIF < 10 (Norman & Streiner, 2008), suggesting acceptable levels of multicollinearity. Overall, 26.7% ($n = 39$) of students reported witnessing cyberbullying at least once in the past month. Of the 39 students who reported witnessing cyberbullying, 74.4% ($n = 29$) also reported having witnessing school bullying at least once in the past month.

Depressive Symptoms

We present results for the regression analyses for depressive symptoms in Table 2. The adjusted R^2 for the model was $R^2 = .15$. This is a medium to large effect size. As seen in Table 2, the main effect for witnessing cyberbullying was significant ($p < .01$) over and above the effects of witnessing school bullying. Additionally, the witnessing cyberbullying x witnessing school bullying interaction term was significant ($p < .05$). To examine the nature of the interactions, we graphed and interpreted tests of simple slopes using Aiken and West's (1991) procedures. We present the significant two-way witnessing cyberbullying x witnessing school bullying interaction for depressive symptoms in Figure 1. Examination of the slopes in Figure 1 indicates students who reported witnessing both cyberbullying and school bullying reported the highest level of depressive symptoms, whereas those who reported not witnessing either

type of bullying reported the lowest levels. As hypothesized, witnessing cyberbullying was positively related to depressive symptoms over and above the effects of school bullying and the highest levels of depressive symptoms were reported among students witnessing both types of bullying.

Social Anxiety

We present results for the regression analyses for social anxiety in Table 2. The adjusted R^2 for the model was $R^2 = .03$. This is a small effect size. As seen in Table 2, contrary to our hypothesis, we found no significant effects for social anxiety.

Discussion

The purpose of this study was to examine the association between witnessing cyberbullying and depressive symptoms and social anxiety among middle school students. We included witnessing school bullying as a moderating variable to address the significant overlap between cyberbullying and school bullying (Hase et al., 2015) and examine which students are at the highest risk for negative mental health outcomes. To our knowledge, this is the first study to examine the association between witnessing cyberbullying and social anxiety among middle school students, as well as examining the moderating effect of witnessing school bullying on the relationship between witnessing cyberbullying and the associated mental health risks. Our findings suggest that witnessing cyberbullying is uniquely associated with depressive symptoms, over and above the effect of witnessing school bullying. Additionally, results indicate that students who witness both cyberbullying and school bullying report the highest rates of depressive symptoms. In contrast, we found no significant effects for social anxiety.

Findings from this study parallel prior research indicating witnessing cyberbullying is associated with depression among middle school students (Doumas & Midgett, 2020; Wright et al., 2018) even when controlling for the effects of witnessing school bullying (Doumas & Midgett, 2020). The current study replicates these finding and extends the literature by demonstrating that students who report witnessing both cyberbullying and school bullying reported the highest level of depressive symptom. Thus, findings of this study add to the limited research suggesting that negative outcomes associated with cyberbullying extend beyond student targets and may be particularly pronounced for students witnessing both cyberbullying and school bullying. One explanation for the association between witnessing cyberbullying and depressive symptoms is that bystanders may feel helpless, similar to feelings that occur when witnessing school bullying (Rivers & Noret, 2013). When students do not know how to intervene and act passively, they may feel helpless, which may contribute to depression. Feelings of helplessness may be intensified for students who witness both cyberbullying and school bullying due to either more frequent exposure or exposure to multiple types of bullying situations.

In contrast, we did not find any significant effects for the relationship between witnessing cyberbullying and social anxiety. This finding is not consistent with prior research demonstrating a positive association between witnessing cyberbullying and anxiety among middle school students (Doumas & Midgett, 2020; Wright et al., 2012). We suspect this discrepancy is due to the differences in anxiety constructs measured in prior studies and the one used in this study. Specifically, Doumas and Midgett (2020) and Wright et al. (2018) examined general anxiety whereas in the current study, we measured social anxiety. We chose to examine social anxiety in particular, as several studies have documented the relationship between cyberbullying victimization and social anxiety (e.g., Coelho & Romao, 2018; Fahy et al., 2016), yet we could find no studies examining the relationship between social anxiety and witnessing cyberbullying. It is possible that even though targets of cyberbullying experience social anxiety, witnessing cyberbullying leads to feelings of general anxiety, but not social anxiety.

Limitations and Future Directions

Although this study adds to the limited research examining negative mental health outcomes for students who witness cyberbullying, there are some limitations. First, we recruited the sample from one middle school in the Northwest. Researchers should use larger samples from several middle schools in future studies to increase generalizability. Next, because we utilized cross-sectional methodology, we cannot make statements about the causal direction of the relationship between witnessing cyberbullying and depressive symptoms. We recommend future research using a longitudinal design. Finally, we used a single item to measure witnessing cyberbullying. Using a multiple-item scale would improve the reliability and validity of the measure in future research.

Implications for Practice

School counselors play an integral role in bullying prevention through developing school anti-bullying policies and implementing bullying prevention programs (American School Counseling Association [ASCA], 2019). Results from this study indicate in the past 30 days, 26.7% of students reported witnessing cyberbullying and of these, 74.4% also reported witnessing school bullying. Counselors can benefit from understanding that the impact of cyberbullying does not only affect targets of cyberbullying, but the effects extends to cyberbullying bystanders. Thus, it is imperative to address mental health risks for middle students who witness cyberbullying within prevention programs for bullying.

Research evaluating bullying prevention programs that include bystander training have demonstrated significant reductions in internalizing symptoms among students trained in the program (Doumas et al., 2019b; Midgett & Doumas, 2019b; Midgett et al., 2017; Midgett et al., 2020; Williford et al., 2012). A recent review of the cyberbullying literature, however, indicates the most frequently used program components include education on cyberbullying, coping skills and empathy training, communication and social skills, and digital citizenship (Hutson et al., 2018), not bystander training. For school counselors, we recommend adopting comprehensive interventions that include a bystander component (e.g., KiVA; Salmivalli et al., 2011), or brief, bullying bystander interventions that focus specifically on bystander training (e.g., STAC, Midgett et al., 2015). Bystander training provides information on bullying and cyberbullying, negative outcomes for students involved in bullying, including bystanders, and ways bystanders can appropriately intervene in bullying and cyberbullying situations. By selecting a program that includes bystander training, school counselors can provide students with skills to reduce both cyberbullying and the negative outcomes associated with witnessing cyberbullying.

Additionally, peer support programs are important approaches that address the socio- emotional needs of students, increase outreach to students, and provide positive influences that can impact the school climate (ASCA, 2015). Bystander training promotes students as peer advocates who can create a positive school climate by supporting the socio-emotional needs of their peers when intervening in bullying situations. Additionally, bystander training captures a number of the ASCA (2019) mindsets and behavior standards, including promoting student development of effective coping skills, including the use of empathy, to advocate on behalf of their peers who are targets of bullying. In addition, bystanders are trained to use critical thinking skills to problem solve, supporting the development of social maturity to address bullying situations appropriately. Thus, bystander training promotes the socio-emotional development of students, as well as providing students an opportunity to positively impact school climate.

Counselors outside of the school setting can also teach youth who witness cyberbullying effective strategies so that they know what to do, thereby reducing helplessness and depressive symptoms. In a recent study examining bystander behavior, 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 youth to act in appropriate ways when they observe cyberbullying may lead to negative outcomes associated with witnessing cyberbullying and school bullying. It may also be important for counselors to make sure to assess both witnessing cyberbullying and witnessing school bullying, rather than asking about bullying in general, as findings from this study suggest that those who witness both are at the greatest risk for depressive symptoms.

Conclusion

This is the first study to examine the association between witnessing cyberbullying and depressive symptoms and social anxiety and the moderating effect of witnessing school bullying among middle school students. Findings indicate that witnessing cyberbullying is positively related to depressive symptoms over and above the effects of witnessing school bullying. Additionally, students who witness both cyberbullying and school bullying report the highest levels of depressive symptoms. Results underscore the importance of implementing bullying bystander interventions to reduce cyberbullying and the associated negative outcomes for cyberbullying bystanders.

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Table 1

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

Measure	1	2	3	4
1. Depressive Symptoms	—			
2. Social Anxiety	.67**	—		
3. Witnessing Cyberbullying	.25**	.10	—	
4. Witnessing School Bullying	.29**	.15	.20*	—
M	14.65	6.87	0.53	0.78
SD	10.79	7.34	1.06	0.91

* $p < .05$, ** $p < .01$.

Table 2

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

Predictor	Depressive Symptoms					Social Anxiety				
	ΔR^2	B	SE B	β	95% CI	ΔR^2	B	SE B	β	95% CI
Step 1	.12***					.03				
Witness Cyberbullying		2.00	0.82	.20*	[.40, 3.62]		0.52	0.58	.08	[-.63, 1.68]
Witness School Bullying		3.01	0.95	.25**	[1.13, 4.90]		1.13	0.68	.14	[-.22, 2.47]
Step 2	.03*					.00				
Witness Cyberbullying		2.43	0.84	.24**	[.78, 4.08]		0.64	0.60	.09	[-.55, 1.84]
Witness School Bullying		3.26	0.95	.27***	[1.38, 5.14]		1.20	0.69	.15	[-.17, 2.56]
Witness Cyberbullying x Witness School Bullying		-1.54	0.78	-.16*	[-3.07, -.01]		-0.44	0.56	-.07	[-1.54, .68]
Total R²	.15***					.03				

Note. N = 146. SE = standard error. CI = confidence interval.
* *p* < .05, ***p* < .01, ****p* < .001.

Figure 1.

Means for Depressive Symptoms by Cyberbullying Bystander and School Bullying Bystander Status
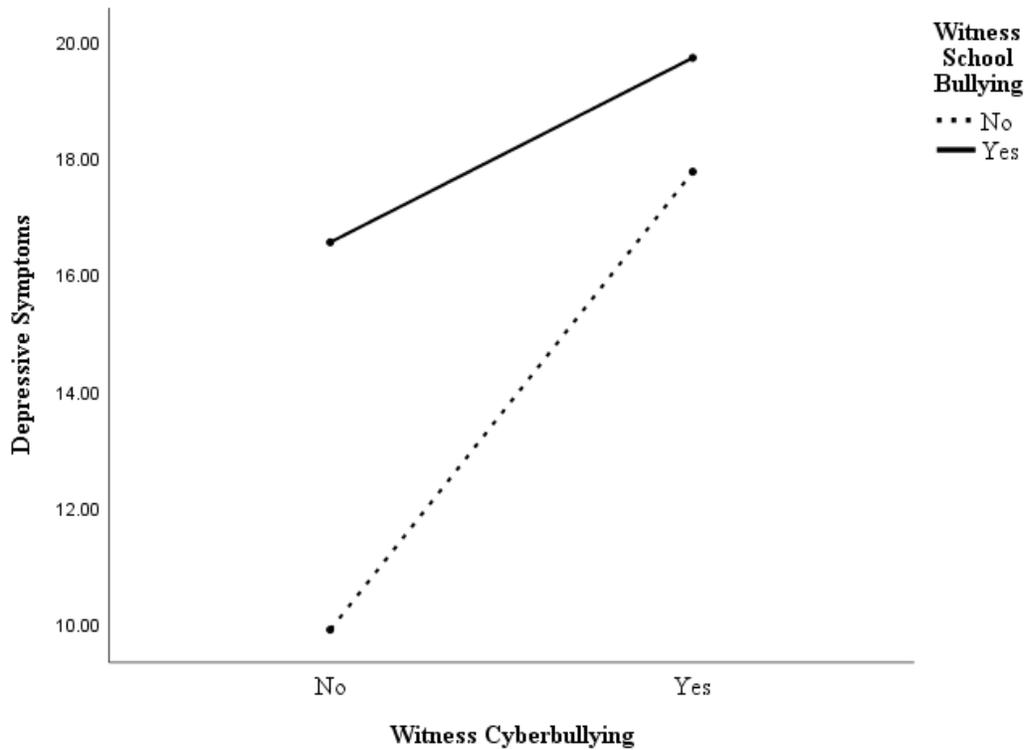
Note. Simple slopes are shown depicting the direction and degree of significant interactions testing moderator effects ($p < .05$). Students who reported witnessing cyberbullying and school bullying reported the highest level of depressive symptoms and students who reported not witnessing either cyberbullying or school bullying reported the lowest level of depressive symptoms.