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## Direct and Indirect Effects of Bullying Victimization on Academic Performance and Mental Health Among Secondary School Students

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**Direct and Indirect Effects of Bullying Victimization on Academic Performance and  
Mental Health Among Secondary School Students**

### **Abstract**

This study examined the associations between bullying victimization and mental health and academic performance outcomes. This study also examined the indirect effect of academic performance on the association between bullying victimization and mental health. Participants included 676 secondary school students from the Southeast region of the United States. Using multi-group path analysis, results revealed that traditional victimization was positively associated with mental health difficulties for both boys and girls. Further, both traditional and cyber victimization were negatively associated with academic performance for girls only. Finally, results indicated that the indirect effect of academic performance on the association between traditional and cyber victimization and mental health was only significant for girls. Findings from this study highlight gender differences in bullying victimization outcomes. Implications for researchers, such as suggestions for future bullying intervention programs, are discussed.

Key words: bullying victimization, cyber victimization, academic performance, mental health

## Introduction

Bullying is a significant public health concern that has gained increasing attention from researchers over the past several decades (Arseneault et al., 2010; Nielsen et al., 2015). Of particular concern is the negative effects of bullying on victimized students (Moore et al., 2017). Various definitions of bullying have been used in the literature, however, in 2014 the National Center for Injury Prevention and Control, the Centers for Disease Control and Prevention, and the U.S. Department of Education collaborated to establish a uniform definition. These authors define bullying as “any unwanted aggressive behavior(s) by another youth or group of youths who are not siblings or current dating partners that involves an observed or perceived power imbalance and is repeated multiple times or is highly likely to be repeated” (Gladden et al., 2014, p. 7). Bullying can be direct (i.e., aggressive behaviors occurring in the presence of the victim) or indirect (i.e., aggressive behaviors not occurring in the presence of the victim), and may take many forms, including physical, verbal, and relational (Gladden et al., 2014). Physical bullying involves the use of physical force (e.g., hitting), verbal bullying involves written or oral communication intended to cause harm (e.g., name-calling), and relational bullying involves the intent to harm the reputation and relationships of the victim (e.g., spreading rumors). These forms of bullying are collectively referred to as traditional bullying (Smith et al., 2008). Another form of bullying has also emerged termed “cyberbullying.” There is currently no consensus as to what constitutes cyberbullying (Englander et al., 2017); however, many definitions include the use of technological devices to execute bullying behaviors (e.g., Patchin & Hinduja, 2006).

Although bullying can occur at any stage of life, research suggests that bullying is most prevalent during adolescence (Hymel & Swearer, 2015). According to data from the School Crime Supplement (SCS) to the National Crime Victimization Survey (NCVS), approximately 1

in 5 students ages 12 to 18 are bullied at school (Seldin et al., 2019). Of these students, about 15% are bullied online or via text. Regardless of whether bullying occurs online or offline, being a victim of bullying is associated with various adverse consequences (Gini et al., 2018; van Geel et al., 2014). For example, victimized students are at a heightened risk for impairments in mental health (Baier et al., 2019), as well as suicidal ideation and behaviors compared to non-victims (Holt et al., 2015). Students who are bullied are also at heightened risk for declines in academic performance (Espelage et al., 2013). At the same time, research also suggests that academic performance is associated with mental health functioning (Kellam et al., 1994). While it is currently established that bullying victimization, academic performance, and mental health functioning are all interrelated, it remains unclear whether academic performance mediates the relationship between bullying victimization and mental health.

### **Relevant Theoretical Framework**

Bullying is a significant societal concern with deleterious effects and many of these negative effects show up in the context of learning and the school environment. One theory of academic performance suggests that school success is influenced by many constructs, including social-psychological influences (Haertel et al., 1983). These correlates include student age or developmental level, ability, motivation, amount or quantity of learning, quality of instruction, psychological environment of the classroom, influence of the home, influence of the peer group, and exposure to mass media. Haertel and colleagues (1983) addressed the effect of social-psychological influences that were left out of many previous theories. More recently, research has shown that there are interrelationships between social, psychological, and academic success. For example, in relation to the current study, bullying victimization is associated with negative academic performance and mental health (AlBuhairan et al., 2017; Dervishi et al., 2019), and

academic performance is associated with difficulties in mental health functioning (Moilanen et al., 2010). Though there is not a specific theory to suggest that there is an indirect effect of academic performance on the association between victimization and mental health difficulties, there is theoretical and empirical support for this notion.

### **Bullying Victimization and Mental Health**

A growing body of research suggests that being a victim of bullying is associated with difficulties in mental health functioning for both boys and girls (Turner et al., 2013). Students who are bullied are at an increased risk for various internalizing problems including depression (Claes et al., 2015; Davis et al., 2019), anxiety (Schoeler et al., 2018), and poor self-esteem (Evans et al., 2019). Victimized students are also at a greater risk for numerous externalizing problems such as aggression (Evans et al., 2019; Vaillancourt et al., 2013), attention difficulties (Hanish & Guerra, 2002), delinquency (Sosnowski et al., 2016), and substance use (Schoeler et al., 2018), and are more likely to engage in self-harming behaviors (Claes et al., 2015) than their non-victimized peers. Most studies to date that have explored the relationship between bullying victimization and mental health used either internalizing or externalizing indicators of mental health (e.g., Cheng et al., 2008; Christina et al., 2021; Davis et al., 2019; Sosnowski et al., 2016), while fewer studies included both (Evans et al., 2019; Vaillancourt et al., 2013). For a better understanding of the range of mental health outcomes associated with bullying victimization, this study will include both internalizing and externalizing problems.

The negative consequences that result from being bullied are not limited to forms of traditional bullying. Current research on cyberbullying suggests that victims of cyberbullying are also at an increased risk for impaired mental health functioning (Turner et al., 2013). Research has found that victims of cyberbullying are more likely to experience low self-esteem, loneliness,

and depressed mood than their non-victimized peers (Olenik-Shamesh et al., 2012; Patchin & Hinduja, 2010), as well as externalizing problems such as conduct problems, inattention, and hyperactivity (Kim et al., 2019; Sidera et al., 2021). Gender differences have also emerged in the research on cyber victimization and mental health. Kim et al. (2019) found that cyber victimization was positively associated with distress, delinquency, substance use, and suicidal ideation, and that these effects were stronger for girls than boys. In a study by Perren et al. (2010) comparing the outcomes of traditional and cyberbullying, it was found that victims of cyberbullying experienced significantly more depressive symptoms than victims of traditional bullying, indicating that cyberbullying may be more detrimental to students' mental health than traditional bullying. Contrary to this finding, Khong et al. (2020) found that traditional-only and cyber-only victims reported similar levels of internalizing and externalizing problems.

Although it is clear that bullying victimization is linked with mental health difficulties, it is uncertain whether traditional and cyber victimization produce equally negative outcomes. Research comparing the effects of traditional and cyber victimization is inconsistent, with some studies indicating that cyber victimization is associated with more mental health difficulties (Perren et al., 2010; Wigderson & Lynch, 2013) and other studies indicating that traditional and cyber victimization have similar effects (Khong et al., 2020; Olenik-Shemesh, 2012). It is possible that these conflicting findings could be explained by cultural differences, as these studies were all conducted in different global regions. There is evidence that country of origin moderates the relationship between cyber victimization and depression (e.g., see meta-analysis by Yuchang et al., 2019). The current study will help to address the inconsistencies in the current literature by examining whether traditional and cyber victims experience similar mental health outcomes using various indicators of mental health among students in North America.

## **Bullying Victimization and Academic Performance**

Research also suggests that being bullied is linked to poor academic performance (e.g., see meta-analysis by Nakamoto & Schwartz, 2010). A longitudinal study of sixth graders revealed that bullying victimization is associated with decreased academic performance across the middle school years, with stronger perceptions of victimization being associated with lower academic performance (Juvonen et al., 2011). Further, Liu et al. (2018) found that bullying victimization and academic performance were predictive of each other over time. In a study by Mundy et al. (2017) examining the relationship between bullying victimization and academic performance among primary school children, results revealed that victims of bullying experienced deficits in academic functioning, with these effects being more apparent for girls than boys. Girls who were verbally and physically bullied were six to nine months behind in reading, writing, spelling, and grammar/punctuation than their non-victimized peers. Similarly, researchers Riffle et al. (2021) discovered that bullying victimization was significantly and negatively associated with GPA for girls only. Research also suggests that cyber victimization is related to compromised academic performance (Gardella et al., 2017). Wigderson and Lynch (2013) found that cyber victimization was significantly associated with GPA even after accounting for traditional forms of victimization.

While many studies have reported a significant relationship between bullying victimization and academic performance, this relationship still remains unclear in the literature. Numerous studies to date have reported indirect and non-significant relationships between bullying victimization and academic performance (Hanish & Guerra, 2002; Kim et al., 2020; Totura et al., 2014; Vaillancourt et al., 2013). Therefore, additional research is necessary to help resolve these contradictory findings.



## **Academic Performance and Mental Health**

As described above, research has consistently demonstrated that bullying victimization is associated with mental health challenges, and for many students, it is also associated with academic difficulties. However, academic performance may also be linked to mental health regardless of whether someone is victimized by their peers. Examining the relationship between academic performance and mental health may be useful in gaining an understanding of the relationship between bullying and mental health. A vast amount of research suggests that academic performance is negatively associated with mental health difficulties (Moilanen et al., 2010). For example, van der Ende et al. (2016) demonstrated that poor academic performance predicted both externalizing and internalizing problems among primary school children. Some studies have also found gender differences in the relationship between academic performance and mental health. In a 3-year longitudinal study, Panayiotou and Humphrey (2018) discovered that academic incompetence predicted later internalizing and externalizing problems for girls only. Even a student's beliefs about future academic success might be related to their mental health functioning. Almroth et al. (2018) found that 7th-grade students' future academic aspirations were inversely associated with both internalizing and externalizing problems. More serious problems have also been shown to be connected to academic performance; Orozco et al. (2018) found a significantly higher proportion of suicide attempts in middle school students who rated their academic performance as poor or fair compared to those who rated their performance as good. Further, failing three or more courses was significantly related to suicide attempts.

The inverse relationship between academic performance and mental health difficulties is well established in the literature. However, it remains ambiguous whether this relationship is significant for both boys and girls. van der Ende et al. (2016) found no gender differences in the

association between academic performance and mental health, whereas Panayiotou and Humphrey (2018) found that this relationship was only significant for girls. van der Ende et al. (2016) hypothesized that they did not find any gender differences because their study looked at both externalizing and internalizing problems, whereas most studies that have found gender differences only looked at internalizing problems. However, Panayiotou and Humphrey (2018) included both internalizing and externalizing problems and found gender differences.

### **Mediators between Bullying Victimization and Mental Health**

As described above, bullying victimization, academic performance, and mental health difficulties are all interrelated, but it is not clear how they are related. Though bullying victimization has been connected with mental health challenges (e.g., Dervishi et al., 2019), this association may be direct or indirect (i.e., associated through another variable). In the current study, we tested the indirect effect of academic performance on the association between bullying victimization and mental health. Because bullying victimization is associated with academic performance (AlBuhairan et al., 2017), and academic performance is associated with difficulties in mental health functioning (Moilanen et al., 2010), it follows that academic performance may indirectly explain the relationship between bullying victimization and mental health challenges. Though it has received little empirical attention, there is some support for the notion that academic performance may mediate the association between bullying victimization and mental health. For example, a recent study conducted by Arslan (2021) revealed that academic achievement mediated the relationship between victimization and externalizing problems among elementary school students in Turkey. In other words, externalizing problem behaviors among victimized youth were significantly predicted by academic achievement. Further, Liu et al. (2018) investigated the associations among bullying victimization, depression, and academic

achievement using a sample of Chinese primary school students and discovered that all three variables had significant indirect effects on each other over time.

The few studies to date that have examined the indirect effect of academic performance on the relationship between bullying victimization and mental health have used samples of primary school children. No known studies have investigated this relationship among secondary school students. Further, previous studies have been conducted in Turkey and China; no studies have examined this relationship among children in North America. Therefore, further research is needed to determine whether the indirect effect of academic performance on the association between bullying victimization and mental health holds true for these varying demographic groups. Finally, no studies to date have examined the indirect effect of academic performance on the relationship between cybervictimization and mental health.

### **The Current Study**

Research has clearly demonstrated that many victims of bullying and cyberbullying experience mental health and academic problems (Juvonen et al., 2011; Schoeler et al., 2018; Wigderson & Lynch, 2013). The goal of this study was to examine the direct and indirect effects among these variables. Some studies suggest that the association between victimization and academic difficulties is explained by mental health-related variables (i.e., Okumu et al., 2020), however, the indirect effect of academic difficulties has not received much attention. Further, no known studies on this topic have examined differences between traditional and cyber victimization nor differences across gender and grade level. To address the gaps in the literature, the current study poses the following research questions and hypotheses. First, is there an indirect effect of academic functioning on the association between traditional victimization and mental health difficulties for both boys and girls? We hypothesized that for both boys and girls,

academic performance would have an indirect effect on the association between traditional victimization and mental health difficulties (Arslan, 2021; van der Ende et al., 2016). Second, is there an indirect effect of academic functioning on the association between cyber victimization and mental health difficulties for both boys and girls? While there are no studies to our knowledge that have examined the indirect effect of academic performance on the association between cyber victimization and mental health, we anticipate that similar to traditional victimization (Arslan, 2021), academic performance would have an indirect effect on cyber victimization and mental health difficulties for boys and girls.

## **Method**

### **Participants**

A total of 676 students from one school in the Southeast region of the United States participated in the study, with 296 (43.8%) boys and 377 (55.8%) girls in 6th ( $N = 114$ ), 7th ( $N = 125$ ), 8th ( $N = 120$ ), 9th ( $N = 113$ ), 10th ( $N = 99$ ), 11th ( $N = 63$ ), and 12th ( $N = 42$ ) grade. Three participants indicated “other” or “prefer not to say” and were not included in the analyses since the researchers were examining the models for boys and girls only. The sample represents approximately 70% of the student body. As a whole, the school is 50% White, 27% Black, 15% Hispanic/Latino, 4.4% Asian, and 4.6% one or more races, and 27% are from socioeconomically disadvantaged households. The school is a developmental research school that houses approximately 1800 students in kindergarten-12<sup>th</sup> grade on a single campus.

### **Measures**

#### ***Bullying Participant Behavior Questionnaire - Victim Subscale***

The Bullying Participant Behavior Questionnaire (BPBQ; Demaray et al., 2014) is a self-report questionnaire designed to measure participation in bullying situations in the past 30 days

across five separate roles: bully, victim, defender of the victim, assistant to the bully, and outsider. The measure includes a definition of bullying followed by 50 items that are rated on a 5-point response scale ranging from 0 (never) to 4 (7 or more times), with ten items per role. For this study, we used only the Victim subscale, which has 10 items. An example item for the victim role includes, “People have tried to make others dislike me.” Higher scores are indicative of more frequent victimization experiences. Psychometric support for the BPBQ is strong with reliability coefficients ranging from 0.88 to 0.94 (Demaray et al., 2014). Additionally, support was found for the factor structure using exploratory and confirmatory factor analysis (Demaray et al., 2014). In the current study, the internal consistency coefficient was .923.

### ***Cyber Bullying Participant Role Survey***

The Cyber Bullying Participant Roles Scale (CBPRS; Bussey et al., 2015) measures student engagement in four specific roles related to cyberbullying. These roles include cyberbullying (i.e., being the perpetrator/offender), cyber victimization (i.e., being the target/victim), cyber witnessing (i.e., observing cyberbullying), and cyber intervening (i.e., attempting to stop the event or assisting the victim). Only the cyber victimization score was used in this study. Participants are presented with a definition of cyberbullying then are asked to rate the frequency in which they have been involved in each role in the last school term (10 weeks) as it relates to 10 methods of cyberbullying: picture from a mobile phone, Facebook, Twitter, e-mail, mobile phone call, text message on a mobile phone, instant messaging (e.g., MSN), online game, chat room, and picture/video clip (e.g., on YouTube). Items are rated on a 6-point response scale, ranging from 1 (not at all) to 6 (many times a week). Example items include, “How often in the last school term have you been bullied by someone using Facebook?” (cyber victimization) and “How often in the last school term have you tried to help a kid who has been

bullied through Facebook?” (cyber intervening). Psychometric support for the CBPRS is acceptable, with alpha coefficients ranging from 0.76 to 0.91 (Bussey et al., 2015). In the current study, internal consistency for the Victim scale was .873.

### ***Behavior and Emotional Screening System***

The BASC-3 Behavioral and Emotional Screening System Student-Report Form (BASC-3 BESS; Reynolds & Kamphaus, 2015) measures students' perceptions of their own Personal Adjustment (e.g., “I'm happy with why I am”), Internalizing Problems (e.g., “I worry but I don't know why”), and Self-Regulation (e.g., “I have trouble sitting still”). The measure contains 28 items that are rated on a 4-point scale (Never, Sometimes, Often, Almost Always). The total raw score is calculated by summing the responses of the negatively phrased items and the reverse scores of the positively phrased items. This score can then be converted to a T score, in which higher scores indicate an elevated risk for behavioral and emotional difficulties, but in this study, just the total raw score was used. Dever and Gaier (2021) reported evidence for the three-factor structure of the BASC-3 BESS, as well as strong concurrent validity, predictive validity, and test-retest reliability. In the current study, internal consistency was .920.

### ***Grade Point Average (GPA)***

Grade point average was pulled from school records at the end of the second quarter, which closed approximately one month prior to when data were collected with the other measures. GPA was chosen as the method for measuring academic performance because research has demonstrated that GPA is considered one of the strongest predictors of school dropout (e.g., Bowers, 2010; Bowers et al., 2013; Brookhart et al., 2016). GPA is also a better predictor of post-secondary GPA and graduation compared to standardized test scores (Atkinson & Geiser, 2009; Bowen et al., 2009; Geiser & Santelices, 2007). Grades from all classes for the

first and second quarters of the academic year, not just core academic subjects, were included in the GPA calculation. GPA can range from 0.0 to 4.0 with higher scores indicating higher grades and academic success.

### **Procedure**

Data for this project were collected in early Spring 2021 semester as part of a larger school-wide assessment, as requested by the administrators. With input from district administrators and school counselors, the researchers suggested a set of surveys that would be used to assess the current school climate, which included bullying and peer victimization, social emotional health, and a survey of school climate (which is not included in the present study). The district does not have an explicit bullying prevention program, but they do include character education and social-emotional learning. In accordance with district policy, survey-based research is allowed to use a passive parent consent process if the study is approved for such by the Institutional Review Board. Due to an affiliation with a research university, during enrollment and registration, parents acknowledge that their child will be involved in research and that they will be notified of the nature of the research project. Students completed the surveys electronically on Chromebooks during their advisory/homeroom period in Spring 2021 with their teacher present (for in-person students) and available (for virtual students) for questions. At the completion of the survey, students were reminded that if they were distressed after answering these questions that counselors in Student Services were available to talk. The counselors reported to the researchers that no students came to their offices following the survey.

### **Data Analysis Plan**

Path analysis using Mplus 8.0 (Muthén & Muthén, 2017) was utilized to analyze the data to be able to answer the main research questions and preliminary analyses were conducted using

SPSS 24. For the path analysis, the observed variables included two independent variables (Traditional Victimization and Cyber Victimization), a covariate (Grade Level), a mediator (Grade Point Average, GPA), and one dependent variable (Mental Health Difficulties). There were 28 participants with incomplete responses for Traditional Victimization and Cyber Victimization and no missing data for GPA and Mental Health Difficulties. Given the small amount of missing data (<5%), those cases were not included in analyses. Both research questions involved examining indirect effects, which was accomplished using bootstrapping, which is the preferred method for testing indirect effects (Hayes, 2009; Preacher & Hayes, 2008; Shrout & Bolger, 2002). Bootstrapping involves a sampling with replacement procedure where a random group of the participants are withdrawn from sample, analyzed, the replace. The re-sampling and analysis were repeated 5000 times in the present study. Bootstrapping provides estimated standard errors, confidence intervals, and *p*-values for total, direct, and indirect effects. Within Mplus, the MODEL INDIRECT statement was used to calculate indirect effects. To examine whether the same pattern of results was the same for boys and girls (Research Question 2), a multi-group path analysis was conducted using the GROUPING command. Using these commands allows for testing conditional indirect effects, in this case the “condition” is gender. The multi-group path analysis gives parameter values, standard errors, confidence intervals, and *p*-values for all parameters and effects separately for boys and girls.

## **Results**

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

Means, standard deviations, and correlations among variables for boys and girls are presented in Table 1. Traditional Victimization and Cyber Victimization were moderately and positively correlated for both boys and girls. There were weak negative correlations between



GPA and both types of victimization for girls and boys. Mental Health Difficulties were weakly and positively correlated with both types of Victimization and negatively correlated with GPA. Collinearity was assessed by examining tolerance and VIF and values were within the recommended ranges (Kline, 2011). Skewness and kurtosis values were within recommended ranges as well, but the Kurtosis value for Cyber Victimization was at the top of the range (9.036) but still under 10.

### **Indirect Effect of Academic Performance**

A multi-group path analysis model was conducted to answer both research questions. Refer to Figure 1 and 2 for a diagram of a simplified model with standardized path coefficients for boys and girls, respectively. See Table 2 for the standardized and unstandardized path coefficients, standard errors, and  $p$ -values for all paths. Though a single model was tested, results are discussed separately for boys and girls and Traditional Victimization and Cyber Victimization both to enhance interpretation. As listed in the table and figures, the covariate of Grade Level was not significant for boys, but it was significant for girls.

*Traditional Victimization.* For boys, the path from Traditional Victimization to Academic Performance was not significant ( $\beta = -.117, p = .105$ ). The path between Traditional Victimization and Mental Health Difficulties was positive and significant ( $\beta = .224, p = .002$ ) and the path between Academic Performance and Mental Health Difficulties was negative and significant ( $\beta = -.191, p < .001$ ). This indicates higher levels of traditional victimization and lower GPA are related to more difficulties with mental health for boys. The indirect effect of Academic Performance on the association between Traditional Victimization and Mental Health Difficulties was not significant ( $\beta = .022, p = .166$ ).

A different pattern of results emerged for girls compared to boys. Unlike boys, for girls the path from Traditional Victimization to Academic Performance was negative and significant ( $\beta = -.200, p < .001$ ). Similar to boys, the path between Traditional Victimization and Mental Health Difficulties was positive and significant ( $\beta = .156, p = .006$ ) and the path between Academic Performance and Mental Health Difficulties was negative and significant ( $\beta = -.207, p < .001$ ). The indirect effect of Academic Performance on the association between Traditional Victimization and Mental Health Difficulties ( $\beta = .041, p = .025$ ) was significant for girls, as well as the direct effect ( $\beta = .156, p = .006$ ).

*Cyber Victimization.* For boys, the path from Cyber Victimization to Academic Performance was also not significant ( $\beta = -.102, p = .146$ ). Unlike Traditional Victimization, the path between Cyber Victimization and Mental Health Difficulties was not significant ( $\beta = .135, p = .135$ ). Similar to Traditional Victimization, the indirect effect was not significant ( $\beta = .020, p = .225$ ), and the direct effect was not significant ( $\beta = .033, p = .762$ ).

For girls, the path between Cyber Victimization and Academic Performance ( $\beta = -.182, p = .007$ ) was significant and the path between Cyber Victimization and Mental Health Difficulties ( $\beta = .159, p = .544$ ) was not. The indirect effect was significant ( $\beta = .038, p = .028$ ), but the direct effect was not significant ( $\beta = .040, p = .544$ ).

### **Discussion**

The present study examined the direct effect of bullying victimization on mental health and academic performance while simultaneously examining the indirect effect of academic performance on the association between bullying victimization and mental health in a sample of secondary school students. Findings were compared for traditional victimization (i.e., physical, relational, and verbal forms of victimization that occur offline) and cyber victimization (i.e.,

victimization that involves the use of electronic devices). Previous studies have investigated the association between bullying victimization and mental health and academic outcomes, but few have examined the indirect effect of academic performance on bullying victimization and mental health. Results revealed a different pattern of relationships depending on gender and type of victimization.

As expected and consistent with previous studies (e.g., Vaillancourt et al., 2013), traditional victimization was significantly related to mental health problems. For both boys and girls, greater experiences of traditional victimization were related to greater mental health problems. This relationship did not hold true for cyber victimization, which is inconsistent with previous findings (Baier et al., 2019; Wigderson & Lynch, 2013). For both boys and girls, there was not a significant association between cyber victimization and mental health problems. One potential explanation for this finding is the large percentage of students in our sample who reported never experiencing cyber victimization. Seventy-one percent of students reported never experiencing cyber victimization, whereas only 33% of students reported never experiencing traditional victimization. The large percentage of students who reported never experiencing cyber victimization may explain why we did not find a significant relationship between cyber victimization and mental health problems.

Research to date examining the relationship between bullying victimization and academic performance has not been consistent, with some studies reporting non-significant findings (e.g., Totura et al., 2014). Similar to previous findings (Mundy et al., 2017; Riffle et al., 2021), results from the current study revealed that bullying victimization was significantly and negatively related to academic performance for girls only. Results indicate that for girls, both traditional and cyber victimization were directly related to lower academic performance. Consistent with

previous findings, these results suggest that girls may be more vulnerable to the negative effects of victimization than boys (Brown et al., 2014; Carbone-Lopez et al., 2010).

This study also examined the indirect effect of academic performance on the association between bullying victimization and mental health for both boys and girls. Analyses revealed that the indirect effect of academic performance was significant for girls only and it applied to both traditional and cyber victimization. However, the indirect effect of academic performance was not significant for boys for either the association between cyber victimization and mental health difficulties, nor traditional victimization and mental health difficulties. We also found that for both boys and girls that there was a negative association between GPA and mental health difficulties, with lower GPA being related to more mental health difficulties (and higher GPA with fewer mental health difficulties). The pattern of results around GPA suggests that while academic performance and mental health are connected for both boys and girls, the way in which academic performance is tied to victimization experiences and mental health differs for boys and girls. Future studies should explore these associations, particularly in a longitudinal framework which could lead to causal inferences about the directionality of the effects.

### **Strengths and Limitations**

The current study has several strengths. For starters, the indirect effect of academic performance on the association between bullying victimization and mental health has not received much attention and no studies to date have examined this relationship among Western children. Further, a large sample of racially and ethnically diverse middle and high school students were recruited for the study. This study also included both traditional and cyber victimization. Additionally, we used a broad definition and measure of mental health that includes both internalizing (e.g., symptoms of depression and anxiety) and externalizing (e.g.,

symptoms of hyperactivity and self-regulation difficulties) components, whereas many previous studies have looked at only one or the other. Lastly, given that research has found differences between boys and girls and their experiences with victimization (Felix & McMahon, 2006) and mental health (Vaillancourt et al., 2013), we captured gender differences in the models.

While this study has many strengths, there are also several limitations that should be considered. First, due to the cross-sectional nature of this study, causality cannot be established. It is possible that additional factors may have influenced the effect of bullying victimization on academic performance and mental health, therefore, only an association can be concluded. Using cross-sectional analyses to test for indirect effects may also reveal that a mediator variable exists even if it does not (Maxwell et al., 2011). Further, we used GPA to measure academic performance, which does not fully portray students' academic abilities. Incorporating additional measures of academic performance (e.g., standardized test scores, self-report measures, parent/teacher ratings) would provide a more accurate representation of students' performance in school and would also reveal whether bullying victimization lowers academic performance across all subject areas. Finally, the use of self-reports to measure bullying victimization and mental health is a limitation. Self-reported data poses a challenge for researchers because respondents may not be entirely truthful in their responses. It is possible that students in this study may have over- or under-reported their experiences, making the data less accurate.

### **Future Directions**

The sample in this study included students in sixth through twelfth grade. Future research should examine elementary, middle, and high school students separately to discover if differences exist among these groups. Future studies should also examine whether there are differences in outcomes among various racial and ethnic groups. Further, as it is well established

that bullying victimization is linked to poor academic performance and mental health difficulties (e.g., Schoeler et al., 2018; Vaillancourt et al., 2013), future research should explore protective factors that mitigate these relationships. It may also be helpful to explore whether being a victim of multiple forms of victimization (i.e., traditional and cyber victimization) is associated with increased mental health difficulties than being a victim of only one form, as these findings have been inconsistent (Beckman et al., 2012; Khong et al., 2020).

### **Implications and Conclusions**

Though the nature of this study does not allow for causal conclusions, it appears that bullying victimization leads to poor academic and mental health outcomes. Further, results of this study suggest that academic performance may mediate the relationship between bullying victimization and mental health for girls. In other words, it appears that for girls, bullying victimization may be connected to poor academic performance, which in turn predicts mental health problems. These findings suggest that designing intervention programs for victimized youth that target academic performance may prevent the development of subsequent mental health challenges. It may also be helpful for intervention programs to address academic performance and mental health simultaneously, as many victimized youth experience both adverse outcomes (AlBuhairan et al., 2017).

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Table 1. Means, Standard Deviations, Intercorrelations, and Ranges for Study Variables.

	TradVic	CyberVic	GPA	MH	Girl Mean (sd)	Observed Range (possible range)
TradVic	-	.454**	-.225**	.240**	5.66 (7.72)	0-40 (0-40)
CyberVic	.433**	-	-.208**	.214**	11.72 (3.82)	10-45 (10-60)
GPA	-.146*	-.152*	-	-.337**	3.24 (.84)	.14-4 (0-4)
MH	.329**	.231**	-.316**	-	28.99 (13.85)	1-80 (0-84)
Boy Mean (sd)	5.61 (8.08)	11.55 (4.41)	3.10 (1.00)	23.56 (12.21)		

Note: \* =  $p < .05$ , \*\* =  $p < .01$ . Correlations for Girls above diagonal and Boys below diagonal. TradVic = Traditional Victimization; CyberVic = Cyber Victimization; GPA = Grade Point Average; MH = Mental Health Difficulties.

Table 2  
*Standardized and Unstandardized Coefficients, Standard Errors, and p-values for Indirect Effect of GPA on Association between Victimization and Mental Health Difficulties*

	<i>B</i>	$\beta$	<i>SE</i> $\beta$	<i>p</i>
<u>Boys</u>				
TradVic → MH	.366	.224	.071	<.01
CyberVic → MH	.100	.033	.110	.762
GPA → MH	-2.993	-.191	.062	<.01
TradVic → GPA	-.012	-.117	.072	.105
CyberVic → GPA	-.020	-.102	.070	.146
Grade (covariate)	.219	.029	.058	.615
TradVic with CyberVic	15.54	.436	.096	<.001
<u>Girls</u>				
TradVic → MH	.310	.156	.056	.006
CyberVic → MH	.159	.040	.066	.544
GPA → MH	-3.782	-.207	.059	<.001
TradVic → GPA	-.022	-.201	.062	.001
CyberVic → GPA	-.040	-.182	.068	.007
Grade (covariate)	1.038	.124	.047	.007
TradVic with CyberVic	14.266	.483	.067	.000
<b><u>Indirect Effects</u></b>				
Boys				
TradVic → MH	.037	.022	.016	.165
CyberVic → MH	.059	.020	.016	.225
Girls				
TradVic → MH	.082	.041	.018	.025
CyberVic → MH	.150	.038	.017	.028

Note: TradVic = Traditional Victimization; CyberVic = Cyber Victimization; MH = Mental Health Difficulties

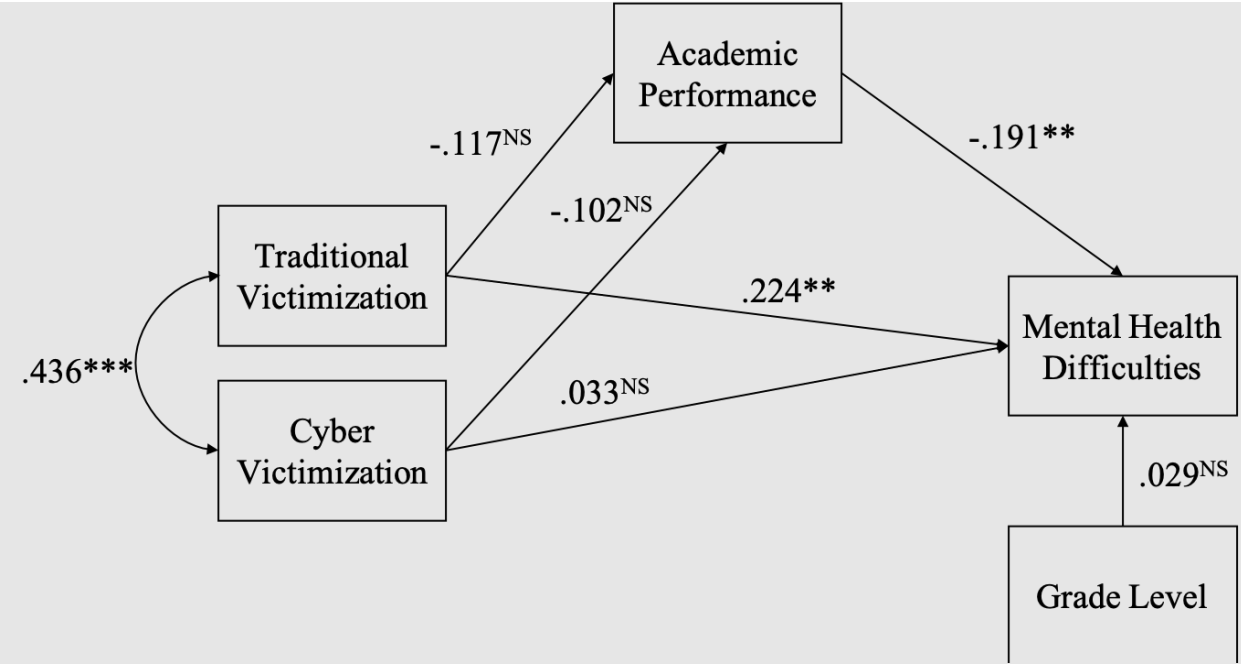


Fig. 1. Standardized estimates for the path model for boys. NS = not significant, \*\*\* =  $p < .001$ .

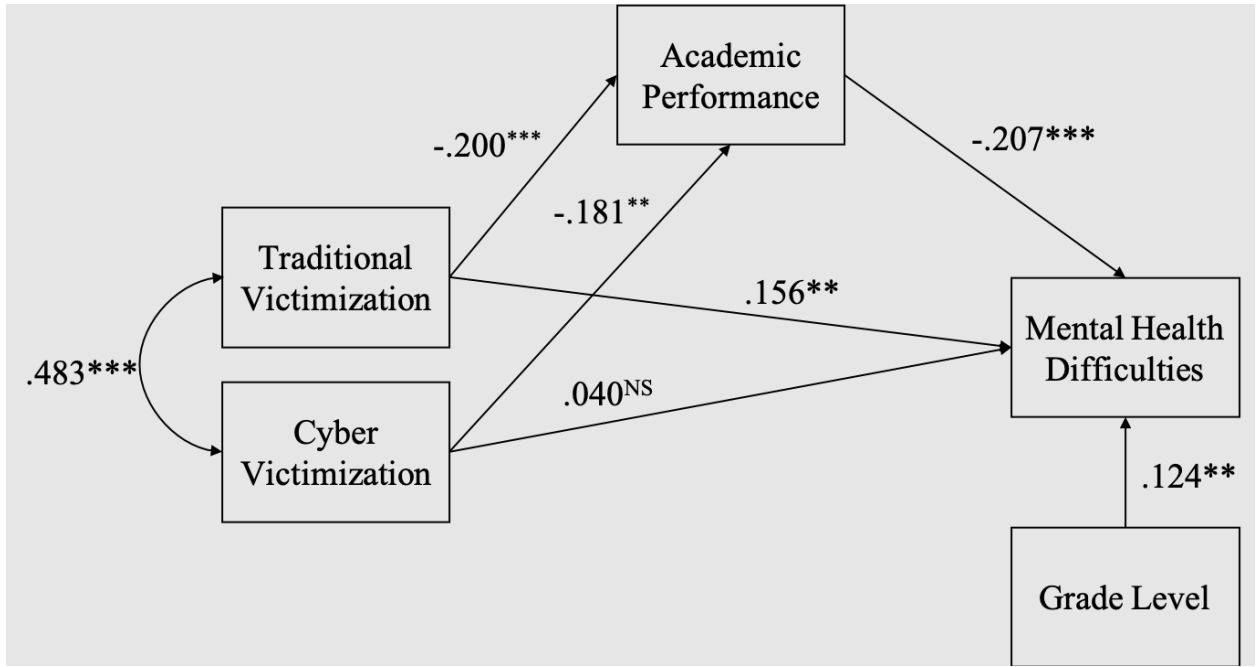


Fig. 2. Standardized estimates for the path model for girls. NS = not significant, \* =  $p < .05$ , \*\* =  $p < .01$ , \*\*\* =  $p < .001$ .