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Bullying Involvement and Depression Among Youth with ADHD: Is Positive Parenting Protective?

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Abstract

Background: Youth with attention deficit / hyperactivity disorder (ADHD) are at increased independent risk for bullying involvement *or* depression yet the topic of bullying involvement *and* depression in ADHD is poorly understood and largely considered without a guiding theoretical framework. Research on the relation between ADHD and bullying is still in its early stages and less is known about the risk and protective factors that may contribute to the development or buffering of depression in these youth. Family factors such as positive parenting promote resilience in children with ADHD, help reduce the risk for youth depression and help to protect youth from bullying involvement. However, to date, no research has considered how positive parenting might be associated with depression and bullying involvement in youth who have ADHD. The current study investigated associations between bullying frequency and depression severity among youth with and without ADHD and the influence of positive parenting.

Method: Thirty eight thousand two hundred twenty-one surveys of children and adolescents between the ages of 6 and 18 completed by parents and caregivers as part of the 2018 and 2019 National Survey of Children's Health (NSCH) administrations were included in the current study. The NSCH is a large cross-sectional survey of children and adolescents living in the United States and provides yearly nationally representative estimates of key indicators of child health and well-being. Households were randomly sampled and contacted by mail to identify those with children under 18 years old. For the purpose of this study, information regarding children's mental health (including child ADHD and depression status), bullying involvement, parenting factors, and demographics of youth aged 6 – 17 were examined.

Results: Chi-square tests of independence were conducted to establish external validity of the NSCH sample (Aim 1). Results suggested that youth with ADHD were more likely to be engaged in bullying, particularly as victims and bully-victims, than youth without ADHD. External validity was also established as adolescents with ADHD were more likely to have depression than youth without ADHD, and independent of ADHD, adolescents had higher rates of depression and bully perpetration than children. Children had higher rates of victimization and bully-victimization. Multinomial logistic regressions were conducted to determine if there were positive associations between bullying frequency and depression severity in ADHD and non-ADHD groups (Aim 2). Analyses revealed general trends of positive associations between bully perpetration frequency, bullied frequency and bully-victims and depression severity. ADHD youth generally had increased risk for depression, especially bully-victims with ADHD. Aim 3 examined whether bullying frequency and positive parenting were associated with depression severity. Multinomial logistic regressions revealed an overall trend of positive associations between bullying frequency and depression severity and positive parenting as protective. Ordinal logistic regressions were conducted to assess for positive associations between bully involvement, positive parenting, ADHD and depression severity and protective effects of positive parenting. ADHD moderated the effect of depression most for victim youth. Positive parenting was generally protective across bullying roles, though not significantly more protective for ADHD youth compared to non-ADHD youth.

Discussion: Results largely supported positive associations between all roles of bullying involvement and depression severity for non-ADHD youth. While it was hypothesized that ADHD would moderate associations between bullying frequency and depression severity, our findings did not entirely support this. Infrequent bully perpetrating youth with ADHD were less likely to have mild depression than their non-ADHD peers. Victim youth with ADHD were more likely to have mild and moderate-to-severe depression than their non-ADHD peers, suggesting that victim youth with ADHD are especially vulnerable to depression. Bully-victim youth with ADHD were at increased risk of having mild and moderate-to-severe depression relative to non-bully-victim youth without ADHD. Results on positive parenting were difficult to interpret due to small cell sizes and lack of variability across data. Among ADHD and non-ADHD youth, positive parenting was protective. Findings largely revealed negative associations between bullying involvement x positive parenting and depression severity. Positive parenting did not appear to be more protective among youth with ADHD than youth without ADHD, however ADHD did moderate the risk of depression among bully perpetrators, victim youth, and bully-victims.

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Bullying Involvement and Depression Among Youth with ADHD: Is Positive Parenting Protective?

Within the past decade, youth bullying has been labeled a public health problem (CDC, 2015). The prevalence of youth bullying involvement (as a perpetrator, victim or both) is estimated to be 19% (CDC, 2018). Media reports of youth impacted by bullying have brought considerable public awareness to the topic; parents are particularly concerned about the associated negative psychological consequences (especially depression) which accompany bullying involvement (Clarke, 2017). Youth depression prevalence rates have also increased in the past decade and now exceed 11% (Mojtabai et al., 2016). Not surprisingly, parents identify bullying and depression as the two largest concerns they have for their children (Pew Research Center, 2015). Thus, efforts to further understand bullying involvement and depression have considerable public health value.

Attention deficit / hyperactivity disorder (ADHD) is a childhood-onset disorder which continues to increase in prevalence, with some estimates indicating 11% of youth in the United States have ever been diagnosed with ADHD (Visser et al., 2014). Youth with ADHD are at increased independent risk for bullying involvement (McQuade et al., 2018) and depression (Biederman et al., 2006) yet the topic of bullying involvement and depression *together* within an ADHD population has historically been far less well studied (Zych et al., 2019). Due to its high prevalence rate as well as the independent associations ADHD has with bullying involvement and depression, efforts to understand bullying involvement and depression in ADHD is a clinically significant topic.

Given the challenges that children with ADHD experience across contexts (Bauermeister et al., 2007), better understanding protective factors which might mitigate the risk for bullying

involvement and depression in youth with ADHD is particularly important (Monopoli et al., 2020). Family factors such as positive parenting and parent involvement promote resilience in children with ADHD (Dvorsky & Langberg, 2016; Modesto-Lowe et al., 2008). These same parent-level protective factors have also been found to buffer youth from involvement in bullying (Jackson et al., 2017) including those with depressive symptoms (Hall & Chapman, 2018; Shortt & Spence, 2006), as well as ADHD (Rajendran et al., 2016). For example, there is some evidence that parental warmth and autonomy supportive behaviors serve as a protective factor against bullying involvement in ADHD (Rajendran et al., 2016). Other areas of parenting (e.g., parent-child communication, problem solving techniques) are also mutable and may form the basis for interventions that have not yet been examined in youth with ADHD.

Brief Review of the Literature

Bullying

Bullying is defined as a repetitive aggressive behavior that occurs in an unequal power dynamic between a bully (i.e., perpetrator) and victim (i.e., target) (Olweus, 1993). These interactions are fueled by a bully using a victim's vulnerabilities (e.g., physical strength, social status, appearance, learning problems, family problems) to devalue the victim, making it harder for the victim to respond or cope with the negative interaction (Swearer & Hymel, 2015). Bullying behavior can be enacted through different forms of aggressive behavior, such as physical, verbal, or relational. For example, physical bullying typically describes a situation when a bully confronts a victim face-to-face with a physical action (e.g., hitting, kicking, taunting verbal threats) (Olweus, 1993). Verbal bullying includes name calling and threats, while relational bullying is less obvious and can include spreading rumors, gossiping, and social manipulation and exclusion (Craig et al., 2009; Miller & Vaillancourt, 2007; Olweus, 1993).

Physical bullying is more common in younger children (Björkqvist et al., 1992) whereas verbal and relational bulling are more prevalent in older children and adolescents due to gains in social awareness and normative expectations (Nishina et al., 2005). Overall, age trends for bullying involvement suggest that bullying behavior has been observed as early as preschool (~4 to 5 years old), peaks during the middle school years (~10 to 14 years old) and declines near the later years of high school (~16 to 18 years old) (Currie, 2012; Espelage & Swearer, 2003; Vaillancourt et al., 2010).

Bullying and psychopathology. Studies have long found associations between bullying involvement and psychopathology, both concurrently and prospectively. Specifically, longitudinal studies have found that bullying involvement (i.e., perpetrator, victim, and bully-victim roles) is associated with subsequent depression diagnosis (Copeland et al., 2013; Takizawa et al., 2014) and multiple associated features of depression, including suicidal ideation and attempts (Brunstein Klomek et al., 2007; Kim et al., 2005; Yen et al., 2014), social withdrawal and low self-esteem (Darney et al., 2013). Cross-sectional studies have also reported concurrent associations between bullying involvement and mental health difficulties (e.g., depression), though do not reflect a causal relationship or infer directionality (Singham et al., 2017).

Children who both bully others and are bullied by others (i.e., "bully-victims") have the poorest outcomes and are at the greatest risk for depression and depressive symptoms (Copeland et al., 2013; Kim et al., 2009; Yang et al., 2016). Bully-victims are often perceived as outcasts and tend to provoke negative reactions from others (Juvonen et al., 2003). Additionally, they are less likely to report having significant peer relationships (O'Brennan et al., 2009), report more loneliness (Georgiou & Stavrinides, 2008; Toblin et al., 2005), and have fewer friends than

bullies and victims (Smokowski & Kopasz, 2005; Unnever, 2005). Bully-victims have higher rates of ADHD (Schwartz, 2000; Verlinden et al., 2015) compared to children not involved in bullying, as well as bullies and victims.

Bullying theory. Youth involved in bullying behavior (both perpetration and victimization) exhibit more psychological and behavioral problems than youth who are not involved in bullying (Casper & Card, 2017; deLara, 2019). To better understand the relationship between bullying and psychopathology, Swearer and Hymel (Swearer & Hymel, 2015) developed a bullying theory based upon social ecological (Bronfenbrenner, 1979) and diathesis-stress models. Their bullying model proposes that psychopathology, like depression, results from the interaction between individual differences/biological vulnerabilities (i.e., diatheses) and environmental stressors (e.g., negative life event, experience of bullying as a victim or perpetrator).

ADHD is a diathesis for bullying involvement. Compared to their typically developing peers, youth with ADHD are more likely to be involved in bullying as victims (Schoeler et al., 2019; Sciberras et al., 2012), perpetrators (Holmberg & Hjern, 2008; Hu et al., 2016; Verlinden et al., 2015) and bully-victims (Mayes et al., 2015; Wiener & Mak, 2009). Impulsivity and poor emotion regulation (Diamantopoulou et al., 2005) and weak social skills and emotion regulation (Murray-Close et al., 2010) each contribute to youth with ADHD being disliked by their peers and subsequently, to increased risk of being bullied and/or bullying others (Taylor et al., 2010; Zych et al., 2019). The awareness of being disliked, in turn, can affect self-esteem and increase feelings of loneliness (Oldehinkel et al., 2007), further increasing the risk of being victimized or reacting as a perpetrator in a cyclical, negative feedback loop (Bong et al., 2021; Swearer & Hymel, 2015). Thus, when viewed from the Swearer and Hymel (2015) model, ADHD and its

associated features represents a diathesis for bullying involvement, both as a perpetrator and a victim.

ADHD and Depression

Youth with ADHD demonstrate functional impairments across multiple domains (e.g., social, family, and academic domains) and decreased quality of life compared to youth without ADHD (Bussing et al., 2010; Molina et al., 2009). Among the impairments that youth with ADHD experience, perhaps the most impactful are those in the social domain (Mikami, 2010). Youth with ADHD are often impaired in their abilities to appropriately interact with peers and struggle to make and maintain friendships (Hoza, 2007). Additionally, social impairments are the most resistant to intervention (Hoza, 2007) and have more negative distal consequences into adulthood than other ADHD-associated impairments (see (Shaw et al., 2012) for review).

The positive relationship between interpersonal impairments and depression is particularly well-established in the youth ADHD literature (e.g., (Biederman et al., 2008; Chronis-Tuscano et al., 2010; Meinzer et al., 2016). ADHD symptoms can disrupt peer relationships for those with ADHD and lead to depression (Hoza et al., 2005). In fact, nearly 30% of youth with ADHD meet criteria for depression (Bauermeister et al., 2007; Hassan et al., 2013). Children and adolescents who meet criteria for both ADHD and depression are more functionally impaired than youth who meet criteria for either disorder alone (Biederman et al., 2008).

ADHD and depression theory. As a way to understand this common comorbidity, Meinzer and colleagues (2014) developed an ADHD and depression theory which describes two pathways to depression in youth with ADHD. One pathway suggests that comorbidity is based upon similar etiological variables which contribute to both disorders. Meinzer and colleagues

posit that ADHD and depression are both heritable and have large genetic overlap (Cole et al., 2009), associated with low reward responsivity (Scheres et al., 2007), deficits in emotion regulation (Barkley, 1997; Compas et al., 2009; Walcott & Landau, 2004) and with parents who demonstrate low interpersonal warmth (Humphreys et al., 2013; Ostrander & Herman, 2006).

The second pathway to depression suggested by Meinzer and colleagues posits that depression comorbidities are secondary to the associated functional impairments commonly reported in ADHD (Meinzer et al., 2014). Specifically, youth with ADHD often experience a number of functional impairments which mediate the relationship between ADHD symptoms and depression (Humphreys et al., 2013; Meinzer et al., 2013). For example, social impairments youth with ADHD encounter are well documented. Symptoms of ADHD are related to interpersonal problems (Wiener & Mak, 2009), low acceptance by classmates (Roy et al., 2015; Tseng et al., 2014), and problems getting along with family members (Lifford et al., 2008). Additionally, youth with ADHD often display behaviors that are seen as generally aversive (i.e., loud, intrusive, annoying; (McQuade & Hoza, 2015). These social impairments mediate the relationship between ADHD and depression (Meinzer et al., 2014). Notably, youth with ADHD who are involved in either victimization or perpetration of bullying also experience elevated symptoms of depression (Hu et al., 2016; Roy et al., 2015). Thus, in the context of Meinzer and colleagues' ADHD: depression theory, bullying involvement is consistent with the second pathway between ADHD and depression.

Protective Factors in ADHD

Meinzer and colleague's (2014) theory on ADHD and depression posits that youth's social impairments (e.g., bullying involvement) may be one way to explain ADHD and depression comorbidity. Youth with ADHD vary considerably in the severity and onset of

functional impairments, as well as in the development of comorbid psychiatric disorders (Wåhlstedt et al., 2009). Research on protective factors can help identify developmental epochs when protective factors may be more or less important and, in turn, help to inform prevention and intervention efforts (Zimmerman et al., 2013). Nonetheless, research on protective factors in ADHD is in its infancy (Dvorsky & Langberg, 2016) and more research is needed to better understand putative protective factors for depression and bullying involvement, outcomes commonly associated with ADHD.

The Role of Parenting. Both within and outside the ADHD literature, the influence of family and parenting factors on children's development, self-concept, and social functioning is widely accepted. Attachment theory suggests that the relationships formed in the early years of one's life influence and guide feelings, thoughts, and expectations about ourselves and our relationships with others (Ebrahimi et al., 2017; Wilhelm, 2016). For example, children with a secure attachment to parents and caregivers (e.g., feelings of support and security) tend to have higher levels of confidence and satisfaction and lower levels of conflict in interpersonal relationships. Those with less secure attachment or avoidance attachment style (e.g., rejecting and unsupported by parents) are at risk for lower levels of satisfaction and more conflict in their relationships (Collins et al., 2002). Further, strained relationships between parents and children can spark feelings of inadequacy, self-criticism, and depression among youth and influence how well they are able to get along with others (Besser & Priel, 2003; Ebrahimi et al., 2017).

Children learn social behaviors (e.g., interacting and responding to others) from observing those around them, very often their parents. Thus, understanding associations between parent behavior, parent-child relationships and social behaviors is important. The parenting literature often describes parenting behaviors and styles as either "positive" or "negative."

Positive parenting behaviors (e.g., high in warmth and support and moderate in control) are optimal for healthy social development in youth and associated with higher levels of peer acceptance, lower levels of peer rejection (Clark & Ladd, 2000; Hurt et al., 2007; Kaiser et al., 2011), and less bullying involvement overall (for a meta-analysis see Lereya et al., 2013). Negative parenting behaviors (e.g., criticism, aggression, neglect) are associated with social problems and conflict among youth, such as bullying or victimization, peer rejection and aggression towards peers (Hurt et al., 2007; Kaiser et al., 2011). More specific parenting characteristics such as poor parent-child communication and problem solving have also been associated with youth depression (Sheeber et al., 2000). For children already susceptible to depression, a negative self-perception, and peer conflict through functional impairments associated with ADHD, positive parenting factors have significant potential to protect them from additional negative consequences (Dvorsky & Langberg, 2016).

The Role of Parenting in ADHD. As in the broader literature, parenting behaviors and the parent-child relationship also have a significant impact on the lives of youth with ADHD. Nonetheless, ADHD symptoms in children lead to functional impairments which challenge the quality of parenting that occurs between a parent and child, sacrificing the parent-child relationship. Parents of children with ADHD often report higher stress than parents of children who do not have ADHD (Theule et al., 2011; Tripp et al., 2007). Research on ADHD and parenting suggests that negative parenting behaviors are often triggered by stress and burnout (for a meta-analysis see (Theule et al., 2013). ADHD behavior in youth is a known contributor to parenting stress, as impairments across multiple contexts require increased parent attention and heighten demands of parents' time, resources, and overall stress levels (Dupaul et al., 2001). In turn, elevated levels of stress negatively affect the quality of parenting that occurs between

parent and child (Abidin, 1992; Belsky, 1984; Crnic & Ross, 2017), potentially worsening negative behavior from the child (Joyner & Green, 2009).

Given this parent-child dynamic, it is not surprising that parents of youth with ADHD report experiencing poorer relationships with their children and using less effective parenting practices (Bauermeister et al., 2005; McLaughlin & Harrison, 2006; Whalen et al., 2011). Unfortunately, less effective parenting practices can elicit a negative bidirectional relationship between parents' behaviors towards their child's ADHD symptoms. This bidirectional and cyclical relationship by which the child's behavior affects the parent's behavior toward the child, which in turn affects the child's future behavior, is consistent with Patterson's family coercion theory (Patterson, 1982). Patterson's theory also suggests that over time, parents learn to withdraw to avoid negative interactions with their children. For example, a parent might engage in negative parent practices as a function of feeling frustrated with their child. These negative parenting practices then elicit negative behavior from the child, which then elicits less effective parenting in response (Breaux & Harvey, 2019). This negative feedback loop can carry over into domains outside of the family, such as school and within youths' relationships with teachers and peers (Granic & Patterson, 2006).

Parenting, ADHD, and Depression. Despite well-established associations between effective and ineffective parenting behaviors and behaviors of youth with ADHD, few studies have examined effects of the parent-child relationship or how parent behaviors (e.g., parent-child communication, problem solving) may contribute to high comorbidity rates between ADHD and depression in youth. A few studies have reported that low interpersonal warmth between parent and child is associated with depression in ADHD (Humphreys et al., 2013; Ostrander & Herman,

2006). Likewise, Hipwell and colleagues (Hipwell et al., 2008) found that low parental warmth and harsh punishment predicted depression symptoms in girls with ADHD.

Other studies in the broader, non-ADHD child literature have found conflicting results. For example, Kopala-Sibley et al. (Kopala-Sibley et al., 2017) found no significant link between parenting styles (i.e., authoritarian and permissive) and internalizing symptoms in young children (aged 3 to 9 years). Similarly, in a sample of adolescents, Reitz and colleagues (Reitz et al., 2006) found no significant link between parenting behaviors and depressive symptoms. On the other hand, older studies within the broader youth depression literature have suggested that negative parenting behaviors and family styles breed negative schemas and cognitive styles known to be associated with depression in children (Beck & Young, 1985; Ostrander & Herman, 2006; Randolph & Dykman, 1998). Further, negative schemas and cognitive styles about self and others have been linked to self-esteem, and poor self-esteem to depression. For example, one cross-sectional study found that self-esteem partially mediated the relationship between perceived parental rejection and depressive symptoms in adolescence (Robertson & Simons, 1989). For youth with ADHD who already face several adversities, particularly in the social domain, low self-esteem may substantially increase their risk of depression. Thus, examining mediating effects of a wider variety of parenting behaviors may help to better inform protective factors and effective parenting in this population.

Parenting, ADHD, and Bullying. Research on the association between bullying involvement (bully, victim, and bully-victim) and parenting styles within youth ADHD is sparse. In one study, Rajendran and colleagues (2016) examined the influence of parenting styles on bullying behavior (i.e., perpetrator behavior only) among youth with ADHD or ODD. Results suggested that children of parents who granted more autonomy exhibited reduced bullying

behavior over time. Despite assessing for other parenting behaviors (i.e., parent negative affect, emotionally supportive parenting, and quality of parent-child interactions), support for child autonomy remained the only significant predictor. While this study provides support for assessing the influence of parenting behavior on bullying perpetration, the young ages of participants might help explain the largely null findings. For example, child participants were between 4 and 9 years old, yet bullying behavior peaks in middle school (i.e., between 10 and 14 years old) (Currie, 2012; Espelage & Swearer, 2003). Thus, it is plausible that these younger children had less exposure and opportunity to engage in bullying behaviors than would have older children. Had the study included a wider age range of children and adolescents, parent behaviors may have had more influence on youth involvement in bullying perpetration.

Similar findings were concluded by Kawabata and colleagues (2012) in a study on Taiwanese youth. Maternal overprotection moderated the relationship between hyperactivity and negative peer relationships among students with ADHD, though "bullying behavior" was not specifically named within "negative peer relationships." Maternal affection, however, moderated the association between attention problems and "school social problems" (i.e., bullying, aggression, and peer rejection) in students between 7th and 9th grade, though not for younger students (i.e., grades 1-6) (Kawabata et al., 2012). Unfortunately, the measure used to assess bullying behaviors (i.e., Social Adjustment Inventory for Children and Adolescents (SAICA)) did not distinguish between students' roles in bullying, thus it is impossible to know if maternal affection was most impactful for children who are identified as bullies, victims, or both.

As for the role of victimization, Taylor and colleagues (2020) found that child victimization was significantly negatively correlated with parenting stress/parental isolation (i.e., degree of social support) and mood (i.e., negative affect), suggesting that high ratings of child

bully victimization was associated with parents endorsing more isolation and negative affect (Taylor et al., 2020). While informative, these results must be interpreted with caution given the study's small sample size ($N = 29$). Most recently, Efton and colleagues (Efron et al., 2021) longitudinally assessed whether parenting factors (i.e., self-efficacy, warmth, anger, and consistency) could predict bully victimization in 8 and 9 year old children with and without ADHD. Results conflicted with Taylor et al. (Taylor et al., 2020) in that none of the parenting behaviors fit into their model to predict victimization. Rather, the strongest independent predictor of victimization was teacher-rated conduct problems, followed by medication use. Similar to Rajendran and colleagues (2016), the young ages of participants may have attenuated findings related to parenting. More research is needed to understand the relationship between parenting behaviors and bullying within the context of ADHD (Rajendran et al., 2016).

Currently, there do not appear to be any studies that have examined parenting behaviors and the bully-victim role within the context of ADHD. However, in a broader meta-analysis of parenting behavior and the risk of becoming a bully-victim (Lereya et al., 2013), bully-victims were more likely to be exposed to negative parenting behavior than non-bully-victims, with small to medium effect sizes (0.13-0.68). Additionally, they found that positive parenting, operationalized across included studies by "authoritative parenting, parent-child communication, parental involvement and support, supervision, warmth and affection" (pp. 1093 &1098), was protective against peer victimization with small to moderate effect sizes (-0.17 to -0.42).

The Role of Parenting in ADHD, Depression, and Bullying Involvement. Due to the high prevalence rate of ADHD, as well as the independent associations ADHD has with bullying involvement and depression, efforts to understand bullying involvement and depression in

ADHD is a clinically significant topic (Simmons & Antshel, 2020). It is therefore surprising that this topic has been historically less well examined (Zych et al., 2019).

While a notable comorbidity exists between ADHD and depression (Hoza et al., 2005), not all children with ADHD will develop depression. Similarly, while youth with ADHD are more likely to be involved in bullying than their non-ADHD peers (Mayes et al., 2015; Schoeler et al., 2019; Verlinden et al., 2015), not all children with ADHD bully others or experience victimization. The parent-child relationship and parenting behaviors have long been considered important in children's social development. Given the functional impairments, behavior problems, and heightened parenting stress associated with ADHD, the implementation of effective and positive parenting strategies can be difficult for parents. At the same time, positive parenting is among the strongest factors promoting resilience in children with ADHD (Dvorsky & Langberg, 2016) and protecting youth from further negative consequences, including depression (Hipwell et al., 2008; Humphreys et al., 2013; Ostrander & Herman, 2006) and bullying involvement (Kawabata et al., 2012; Rajendran et al., 2016; Taylor et al., 2020). The current study aims to further understand the relationships between bullying *and* depression in ADHD and the potential protective factor, positive parenting.

Proposed Study

The current proposed study has three aims to contribute to the current gaps and growing literature on bullying and depression in youth with ADHD. The first aim of this study (Aim 1 - Confirmatory) is to simply establish the external validity of the 2018-2019 combined National Survey of Children's Health (NSCH) administrations. The NSCH is an annual population-based, cross-sectional survey of youth between the ages of 0-17 living in households across the United States.

Aim 1 will compare 2018-2019 NSCH findings to the larger bullying and depression in ADHD literature and merely seeks to establish the external validity of the 2018-2019 combined NSCH. It is hypothesized that (1) children and adolescents with ADHD will have increased rates of bullying involvement, especially bullying victimization, compared to children and adolescents without ADHD; (2) adolescents with ADHD (aged 12-17 years) will have increased rates of depression compared to their non-ADHD peers; and (3) adolescents will have higher rates of bullying involvement and depression, independent of ADHD status, compared to children (aged 6-11 years).

The second aim of this study (Aim 2 - Innovative Topic 1) is novel. Aim 2 seeks to consider the association between the frequency of each role of bullying and depression severity. It is hypothesized that (1) in the total sample, there will be a positive association between bullying frequency and depression severity; (2) ADHD will moderate the association between bullying frequency and depression severity such that these associations will be stronger in the ADHD group.

The third and final aim of this study (Aim 3 – Innovative Topic 2) is also novel. Aim 3 seeks to examine whether positive parenting, operationalized in this study by effective problem solving, high levels of communication, parental self-efficacy, and low parenting stress, is associated with depression severity in youth with bullying involvement. It is hypothesized that (1) there will be a negative association between bullying involvement x positive parenting and depression severity; and (2) ADHD will moderate the association between bullying involvement x positive parenting and depression severity such that these associations will be stronger in the ADHD group. Family household income will be a covariate in Aim 3 analyses, as low SES has

been associated with negative parenting practices (Chen & Miller, 2013) and high levels of parental psychological distress (Conger et al., 1992; Roubinov & Boyce, 2017).

Method

Participants

Data was drawn from the 2018 - 2019 NSCH administrations. Respondents of both surveys were parents or caregivers who knew about the child's health and health care needs. The NSCH is an annual survey designed to produce national and state-level data on the physical and emotional health and well-being of American children. The NSCH is funded and directed by the U.S. Department of Health and Human Services, Health Resources and Services Administration, Maternal and Child Health Bureau, and is administered by the U.S. Census Bureau. To meet the inclusion criteria of the current study: 1) selected children and adolescents had to be between the ages of 6-17 at the time of survey completion; 2) and the parent respondent had to have selected "No" to the following two items: "Has a doctor, other health care provider, or educator EVER told you that this child has: Intellectual Disability (formerly known as Mental Retardation)" and "Has a doctor, other health care provider, or educator EVER told you that this child has: Autism Spectrum Disorder (ASD)?"

Procedures

For the 2018 NSCH, a sample of 176,000 households across the 50 states and the District of Columbia were selected from the Census Master Address File. The 2019 NSCH, a sample of 180,000 households across the 50 states and the District of Columbia were selected from the Census Master Address File. In both years, the sample was stratified by state and a child-presence indicator that allowed the Census Bureau to oversample households that were more likely to have children. During data collection, a screener was first used to identify households

with children. If children were present, the respondent (i.e., parent or caregiver) created a roster of children in the household. The roster included the age and other demographics of each child as well as a battery of questions designed to identify children with special health care needs. After completing this screener component of the survey, one child was randomly selected from all children in each household to be the subject of an age-specific topical survey. In total, 30,530 topical surveys were completed in 2018 and 29,433 in 2019. In spring of 2021, the NSCH released a 2018-2019 combined dataset to provide researchers better opportunities to conduct analyses using variables with small(er) sample sizes or low prevalence response options. For the current proposed study, we used the 2018-2019 combined data set. Surveys of children younger than 6 years of age were not included in any analyses as ADHD diagnoses in children younger than 6 have lower reliability (e.g., lesser-known cross-situational impairment, greater likelihood of source bias/ minimal multi-informant data, developmental differences in young children) (O'Neil et al., 2014). After the initial criteria were met for the current study, 41,273 children and adolescents remained as participants in the study. However, once participants with missing data of variables examined were eliminated, n = 38,221 youth, reported on by their parents and caregivers, remained.

See Table 1 for demographic information.

Measures

All data points and variables were derived from parent/caregiver responses on the NSCH screener and subsequent NSCH topical survey.

NSCH Screener and Topical Survey

The pre-survey screener was used to retrieve the following participant demographic questions.

Child Demographics. The age of the child was used to stratify the surveys into two age groups: 6 to 11 years and 12 to 17 years, while the remaining items were used to describe the sample: 1) How old is this child?; 2) What is this child's sex?; 3) What is this child's race/ethnicity?

Parent Demographics. The topical survey was used to retrieve parent/caregiver demographic questions. Data from the following items was used to describe the sample: 1) What is your sex?; 2) What is your age?; 3) What is the highest grade or level of school you have completed?; 4) What is your marital status?; 5) What is the family structure that this child lives in?; 6) In general, how is your physical health?; 7) In general, how is your mental or emotional health?; and 8) "Think about your total combined family income in the last calendar year for all members of the family. What is that amount before taxes?" Household income level (federal poverty level, (FPL)) of the selected child was derived from parent response to the items about family income. Missing values for all of questions assessing household income level were imputed by NSCH study developers with data by the United States Census Bureau.

Bullying Involvement. Bullying involvement was captured by two questions: 1) "During the past 12 months, how often was this child bullied, picked on, or excluded by other children?"; and 2) "During the past 12 months, how often did this child bully others, pick on them, or exclude them?" For both bullying items, respondents were encouraged to report the highest frequency if frequency changed throughout the year. Responses for both bullying items were: (1) Never (in the past 12 months); (2) 1-2 times (in the past 12 months); (3) 1-2 times per month; (4) 1-2 times per week; (5) Almost every day.

To assess for youth who are bully-victims (those whose parents identified as both a victim *and* bully), we created a new variable in our dataset, "bully-victim". The literature on

what constitutes a "bully-victim" is limited and there does not appear to be frequency cut-offs. Similar to "bullying," which is usually just defined as a *repeated* aggressive behavior directed toward another of a lower status with intent to harm, a bully-victim is usually defined as someone who qualifies as both a bully and victim. Thus, in keeping with how the NSCH assessed "bully" or "victim" status, parents had to provide a response of at least a 2 (1-2 times in the past 12 months) in response to both the bully *and* victim NSCH topical survey items to be identified by us as a *bully-victim* within our dataset.

History of Depression. Youth's history of depression was measured by the following questions 1) "Has a doctor of other health care provider EVER told you that this child has: Depression?" Respondents answered with "*Yes*" or "*No*". If "*Yes*", parents were asked to report on a second question, "If yes, does this child CURRENTLY have the condition?", and if "*Yes*", whether their child's current depression severity is: *Mild, Moderate, or Severe*. (The NSCH later recoded these variables in the dataset to none, mild, moderate/severe.)

History of ADHD. Youth's history of ADHD was measured by the following question:1) "Has a doctor or other health care provider EVER told you that this child has Attention Deficit Disorder or Attention Deficit/Hyperactivity Disorder, that is, ADD or ADHD?" Respondents answered with "*Yes*" or "*No*". (Similar to questions assessing youth's history of depression, parents who reported that a doctor or health care provider had "ever" indicated that their child had ADHD, were asked if their child "currently" has ADHD and the severity of ADHD. For the purpose of the current study, we are interested in lifetime ADHD.)

Positive Parenting. In the current study, an omnibus positive parenting variable was constructed by summing parent responses on the following four parenting constructs described

below (α = .86). Scores on this composite ranged from 4 to 16, with lower scores indicating more positive parenting. See Table 2 for parenting factors used to create the positive parenting score.

Problem solving: One item in the 2018 and 2019 NSCH surveys ("When your family faces problems, how often are you likely to work together to solve your problems?") measured problem solving. Participants answered based on the following options: Responses to this item range from 1 to 4 (i.e., *all of the time; most of the time; some of the time; none of the time*) (CAHMI, 2021).

Communication: One item in the 2018 and 2019 NSCH surveys ("How well can you and this child share ideas of talk about things that really matter?") measured communication. Responses to this item ranged from 1 to 4 (i.e., *very well; somewhat well; not very well; not well at all*), according to the NSCH codebook (CAHMI, 2021).

Parenting self-efficacy: One item in the 2018 and 2019 NSCH surveys ("How well do you think you are handling the day-to-day demands of raising children?") measured parental self-efficacy. Responses to this item ranged from 1 to 4 (i.e., *very well; somewhat well; not very well; not well at all*), according to the NSCH codebook (CAHMI, 2021).

Parenting stress: One item in the 2018 and 2019 NSCH surveys ("During the past month, how often have you felt this child is much harder to care for than most children his/her age?") measured parenting stress. Responses to this item ranged from 1 to 5 (*never; rarely; sometimes; usually; always*), however, the NSCH codebook recommended the following response range (1 to 4) for analyses: *never; rarely; sometimes; usually/always* (CAHMI, 2021).

To calculate one positive parenting composite score for each participant, all four parenting items were averaged. These scores ranged from 1 to 4, with increments of .25, with lower scores indicating higher positive parenting. Participants with a perfect score of 1 were

labeled as high positive parenting (HPP, *n* = 11,313), those with scores of 1.25 to 1.75 were labeled as moderately high positive parenting (MHPP, *n* = 20,180), scores of 2 to 2.75 were labeled as moderately low positive parenting (MLPP, *n* = 6,459), and scores ranging from 3 to 4 were labeled as low positive parenting (LPP, *n* = 305).

Covariates. The following variables in the NSCH data were used as covariates and account for in the analyses:

Race: Accepted parenting practices have shown to vary across races (Pinquart & Kauser, 2018; Spriggs et al., 2007). Additionally, ADHD diagnosis and treatment seeking (Coker et al., 2016; Morgan et al., 2013), bullying involvement (Goldweber et al., 2013; Spriggs et al., 2007), and rates of depression diagnoses (Richardson et al., 2003) in children and adolescents have all been found to vary across races.

Child sex and age: Child sex and age were accounted for in the current study given differences in the prevalence rates of depression in males versus females (i.e., depression being more prevalent in females than males; (McGuinness et al., 2012) and with rates of depression increasing among girls as they enter adolescence (Cyranowski et al., 2000). Sex differences are also notable within ADHD, particularly with symptom presentations and impairments looking different in boys versus girls (Arnett et al., 2015).

Statistical Analyses

All data were analyzed with Stata version 17.0. For all analyses in table format, see Table 3. To adjust for the complexity of a national sample design, all analyses in the current study were weighted and standard errors were adjusted per the guidelines of the NSCH (United States Census Bureau, 2020).

Aim 1: (Confirmatory). The first aim of this study was to establish the external validity of the NSCH sample by comparing NSCH findings to the larger bullying: depression in ADHD data.

Hypothesis 1.1 (ADHD and Bullying Involvement): To assess the hypothesis that children and adolescents with ADHD will have increased rates of bullying involvement, especially bullying victimization, compared to youth without ADHD, chi-square test of independence was used to determine if there was a significant difference in bullying involvement between the ADHD and non-ADHD groups.

Hypothesis 1.2 (ADHD and Depression): Given the high comorbidity between ADHD and depression, the difference in prevalence rates of adolescent depression in youth with ADHD and without ADHD, and the functional impairments youth with ADHD experience, it was hypothesized that adolescents with ADHD (aged 12-17 years) would have higher rates of depression compared to their non-ADHD adolescent peers. To determine if there was a significant difference in rates of adolescent depression between the ADHD and non-ADHD groups, a chi-square test of independence was used.

Hypothesis 1.3 (Adolescent and Child Associations of Bullying Involvement and Depression)**:** Previous research has shown that prevalence rates of depressive symptoms increase in adolescence (Costello et al., 2006; Cuijpers & Smit, 2004; Fergusson et al., 2005). In a large meta-analysis (Costello et al., 2006), prevalence rates of depression were 2.8% for children under the age of 13 and 5.7% for teenagers between the ages of 13 and 18. Similarly, bullying involvement has also shown to begin in school-aged children, peaking in early adolescence, and beginning to decline in high school (Espelage & Swearer, 2003; Vaillancourt et al., 2010). Therefore, it was hypothesized that in the current sample, adolescents (aged 12-17 years) will

have significantly higher rates of both bullying involvement (each role) and depression, independent of ADHD status, compared to children (aged 6-11 years). Chi-square tests of independence were used to determine if there was a significant difference between depression and bullying involvement the adolescent and child groups.

Aim 2 (Innovative Topic #1): The second aim of this study was to consider the association between bullying frequency (bully and victim only) and depression severity in the total sample and in the ADHD group.

Hypothesis 2.1 (Total Sample Bullying and Depression): To test the hypothesis that, in the total NSCH sample, there would be a positive association between bullying involvement frequency (bully and victim) and depression severity (none, mild, moderate/severe), using an ordinal logistic regression was initially planned. However, despite a large overall sample size, numbers representing bullying involvement, bullying frequency, and depression were low in the context of the larger sample size. As such, multinomial logistic regression model was used as an effective and robust estimation method for dealing with small sample sizes. Bully-victim frequency could not be determined from the NSCH data, thus, I examined whether youth identified as both a bully and a victim (i.e., bully-victims) were reported to have ADHD (yes/no) and whether being a bully-victim with or without ADHD was associated depression severity.

After multinomial logistic regression models were used to find main effects, Adjusted Wald tests, a statistical test used to account for small sample sizes (Ozenne, Fisher, & Budtz-Jørgensen, 2020), were run to assess the significance of groups of coefficients between predictor variables (bullying frequency involvement across bullying roles) and the outcome variable (depression severity).

Hypothesis 2.2 (Bullying Frequency and Depression Severity in ADHD): Given associations found in past research between bullying frequency and depression severity in youth with ADHD (Becker et al., 2017; Kowalski & Fedina, 2011), we hypothesized that ADHD would moderate the association between bullying frequency and depression severity such that these associations would be stronger in the ADHD group than the non-ADHD group. This analysis was a continuation of Aim 2, hypothesis 1. To that point, we used a multinomial logistic regression to determine whether having ADHD (yes/no; interaction variable) affects the strength of the frequency of bullying involvement and depression severity relationship. As in Aim 2, hypothesis 1, bully-victim frequency could not be determined from the pre-collected data, thus, bully-victim was examined as a dichotomous (yes/no) variable, rather than as a frequency variable. Adjusted Wald tests were run to assess the significance of coefficients between various predictor variables (bullying frequency involvement and ADHD across bullying roles) and the outcome variable (depression severity).

Aim 3 (Innovative Topic #2): The third aim of this study was to examine whether bullying involvement and positive parenting, operationalized by effective problem solving (McCoy et al., 2008), high levels of communication (Gulliford et al., 2015), low levels of parental stress (Putnick et al., 2008), and high levels of self-efficacy (Heath et al., 2015; Primack et al., 2012), is associated with depression severity. (See Table 2 for parenting factors used to create the positive parenting score.) For these analyses, positive parenting scores were constructed by first summing parent responses on four parenting constructs (problem solving, communication, parenting self-efficacy, and parenting stress; $\alpha = .86$). Scores on this composite ranged from 4 to 16, with lower scores indicating more reported positive parenting. Scores for positive parenting were then averaged and grouped into one of four categories, high positive

parenting (HPP), moderately high positive parenting (MHPP), moderately low positive parenting (MLPP), and low positive parenting (LPP).

Hypothesis 3.1 (Positive Parenting and Depression Severity, Total Sample): Past research suggests that positive parenting is a protective factor for youth with depression (Meinzer et al., 2015). Initially I hypothesized that there would be a negative association between bullying involvement x positive parenting and depression severity (outcome variable) such that positive parenting would have a stronger protective effect for youth involved in bullying than for youth who were not involved in bullying. Upon learning more about the data and analytic techniques, my mentors and I came to realize that testing whether positive parenting has a stronger protective effect for youth involved in bullying than for youth who were not involved in bullying was not testable. Instead, I tested whether positive parenting had a protective effect on youth involved with bullying. Subsequent references to Aim 3, Hypothesis 1 will reflect this change.

To assess for Aim 3, hypothesis 1, we used a multinomial logistic regression to determine whether positive parenting affects youth's depression severity. Adjusted Wald tests were run to assess the significance of coefficients between various predictor variables (bullying frequency involvement and positive parenting across bullying roles) and the outcome variable (depression severity).

Hypothesis 3.2 (Positive Parenting and Depression Severity in ADHD): Given substantial evidence that positive parenting can buffer negative consequences associated with ADHD (Dvorsky & Langberg, 2016; Modesto-Lowe et al., 2008), I initially hypothesized that positive parenting would have a stronger protective effect (i.e., no depression or low depression severity) for youth with ADHD involved in bullying than for youth without ADHD involved in bullying. Similar to Aim 3, Hypothesis 1, I realized that this hypothesis was not testable. Upon consulting

with my mentors, it was decided that I would test if positive parenting was protective or youth with ADHD involved in bullying. Subsequent references to Aim 3, Hypothesis 2 will reflect this change.

For these analyses, due to low numbers of youth with ADHD, depression, *and* bullying involvement in the context of the larger sample size (see Table 10), the outcome variable depression severity (none, mild, moderate/severe) was changed to examined whether youth had diagnoses of depression (i.e., yes or no). As a result of dichotomizing depression, logistic regression was used instead of multinomial regression to determine whether having bullying involvement and *lower* positive parenting predicts depression in youth with ADHD. As with the other hypotheses in Aims 2 and 3, adjusted Wald tests were run to assess the significance of coefficients between various predictor variables (bullying involvement and positive parenting across bullying roles) and the outcome variable (depression).

Results

Population Descriptive Data and Frequencies

Descriptive statistics are presented in Table 1. Frequencies and cell count of all study variables for Aims 1, 2, and 3 can be found in the Appendix and in Tables 4-6 and A1-A4. Results of Aims 1, 2, and 3 can be found in Tables 4-10.

Population Descriptive Data

Table 1 presents a description of the population of the sample. All data on youth were provided by a parent or a caregiver. Half of the sample was female (50.3%) and 67.6% of the sample of youth were identified as White. The sample of youth was divided into child and adolescent groups for some analyses. The mean age of child group (ages 6-11) was 8.6 years, and the mean age of the adolescent group (ages 12-17) was 14.7 years. Regarding bullying

involvement for the whole sample, 51.4% were reported to not be involved in bullying at all, while nearly 2% were identified as bully perpetrators, 30% were identified as being victims, and 17.6% were reported to be bully-victims. 9.8% of youth were reported by their parents to have ADHD. Nearly 96% of youth were reported to not have current depression, 1.9% were reported to have mild depression, 1.8% having moderate depression, and 0.3% having severe depression. Due to low percentages of moderate and severe depression, these groups were combined for analyses. Of parents and caregiver reporters, 69.2% were woman and most parents (43.6%) were between the ages of 40-49 at the time they completed the survey. 23.6% of parents/caregivers who completed the survey had a Bachelor's degree, while 14.4% had a Master's degree, 13.3% had completed some college, and 15.8% completed high school or obtained their GED. 72% of the sample of parents identified as married. 40% and 25% identified their physical health as "very good" and "excellent," respectively. 38.3% identified their mental health as "very good," while 37.7% described their mental health as "excellent." Nearly 32.3% of the sample identified themselves as 400% of the Federal Poverty Level (FPL), while 28.7% reported being 200-399% above the FPL. As for family structure, the highest percentage of youth were reported to live with two biological or adoptive parents at the time the survey was completed (58.8%). Next most common family structure was living with a single mother (18%) and living with two parents with at least one being biological (5.7%). Lastly, 29.6% of parents reported high positive parenting (HPP), 53% reported moderately high positive parenting (MHPP), 17% reported moderately low positive parenting (MLPP), and .8% reported low positive parenting (LPP).

Results of Study Aims and Hypotheses

Aim 1

Hypothesis 1.1 (ADHD and Bullying Involvement). A chi-square test of independence examined roles of bullying involvement in non-ADHD and ADHD groups. The relationship between these variables was significant, $\chi 2(3) = 866.68$, $p < .001$. Among youth without ADHD, 53.51% were identified to not be involved in bullying, whereas 1.89%, 28.4%, and 16.21% were identified as bully perpetrators, victims, and bully-victims, respectively. Among youth with ADHD, 31.5% were not involved in bullying, while 3.74%, 34.25% and 30.41% were identified as bully perpetrators, victims, and bully-victims, respectively. See Table 4.

These results supported Hypothesis 1.1 and indicate that youth with ADHD have higher rates of all forms of bullying involvement than youth who do not have ADHD.

Hypothesis 1.2 (ADHD and Depression). A chi-square test of independence identified rates of ADHD and depression in adolescents (ages 12-17 years old). Results showed a significant association between depression and ADHD, $X^2(1) = 1009.35$, $p = .000$ with about 25% of adolescents with ADHD also having depression compared to 6.5% of adolescents without ADHD having depression. These results supported hypothesis 1.1 and indicate that adolescents with ADHD have increased rates of depression compared to their non-ADHD peers. See Table 5.

Hypothesis 1.3 (Depression and Bullying Behavior in Children and Adolescents). Chi-square tests examined depression and bullying involvement in children and adolescents. First, a chi-square test identified a significant association between the child and adolescent groups and depression, $X^2(1) = 882.09$ $p = .00$. Results found that independent of ADHD, adolescents were about four times more likely to be diagnosed with depression than children (8.6% and 2%, respectively). This was consistent with our hypothesis that adolescents would have higher rates of depression than children. A chi square test also identified a significant association between bullying involvement in the child versus adolescent groups $X^2(3) = 1171.56$,

p =.00. Specifically, adolescents had higher rates of bully perpetration (2.38%) than children (1.76%), while children had higher rates of being bullied (32.5%) and bully-victims (22.2%) than adolescents (25.48% and 13%, respectively). These results partially supported our hypothesis, as we hypothesized that adolescents would have increased rates of bullying engagement overall (Zwierzynska, Wolke, & Lereya, 2013). See Table 6.

Despite the elevations in childhood victimization and bully-victimization, findings from Aim 1 demonstrate a high degree of external validity, suggesting that the data from the NSCH and the results from the current study can be generalized to different populations.

Aim 2

Hypothesis 2.1 (Bully Involvement Frequency and Depression Severity)

Bully Perpetration Frequency. As seen in Table 7, multinomial logistic regression analyses indicated significant positive associations between bully perpetration frequency and depression severity, after controlling for youths' age, race, and sex. Specifically, relative to youth who do not bully others, youth who infrequently bullied others were 2.3 times more likely to have mild depression (b = .83, [95% CI: .56, 1.11], p < .001) than no depression and 2.79 times more likely to have moderate-to-severe depression than no depression (b = 1.03, [95% CI: .72, 1.34], p < .001). Likewise, relative to youth not engaged in bully perpetration, youth who frequently bullied others were 14.64 times more likely to be mildly depressed than to not be depressed (b = 2.68, [95% CI: 1.72, 3.65], p < .001) and 12.59 times more likely to be moderately-to-severely depressed than to have no depression (b = 2.53, [95% CI: 1.86, 3.21], p < .001). Adjusted Wald tests also indicated that higher frequency of bullying others increased the likelihood of youth experiencing both mild (p < .001) and moderate-to-severe depression (p <

.001). Positive associations between bully perpetration frequency and depression severity were consistent with our hypothesis.

Victim Frequency. Multinomial logistic regression analyses indicated significant positive associations between victim frequency and depression severity, controlling for youths' age, race, and sex. Specifically, relative to youth who were not bullied by others, infrequent victims were 4.60 times more likely to have mild depression (b = 1.53, 95% CI: [1.19, 1.87], $p < .001$) than no depression and 4.21 times more likely to have moderate-to-severe depression than no depression (b = 1.44, 95% CI: [1.06, 1.82], $p < .001$). Likewise, relative to non- victim, frequent victims were 15.47 times more likely to be mildly depressed than not depressed (b = 2.74, 95% CI: [2.31, 3.17], $p < .001$) and 25.88 times more likely to be moderately-to-severely depressed than to have no depression (b = 3.25, 95% CI: [2.82, 3.69], $p < .001$). Adjusted Wald tests also indicated that higher frequency of being bullied increased the likelihood of youth experiencing both mild ($p < .001$) and moderate-to-severe depression ($p < .001$). Positive associations between the frequency of being bullied and depression severity were consistent with our hypothesis.

Bully-Victims (yes/no). Multinomial logistic regression analyses indicated significant positive associations between being a bully-victim and depression severity, controlling for youths' age, race, and sex. Specifically, relative to non-bully-victim, youth who were identified as bully-victims were 4.99 times more likely to have mild depression than no depression (b = 2.01, 95% CI: [1.57, 2.44], $p < .001$) and 7.45 times more likely to have moderate-to-severe depression than no depression (b = 2.17, 95% CI: 1.77, 2.58], $p < .001$). Positive associations between being a bully-victim and depression severity were consistent with our hypothesis.

Hypothesis 2.2 (Bully Involvement Frequency and ADHD)

Bully perpetrators (frequency) and ADHD (yes/no) Groups. As shown in Table 8, multinomial logistic regression analyses indicated significant associations between bully perpetration frequency, ADHD, and depression severity, after controlling for youths' age, race, and sex. Non-bully perpetrating youth with ADHD were less likely to have both mild depression than no depression (b = 0.70, 95% CI: .32, 1.07], $p < .001$) and moderate-to-severe depression than no depression (b = 0.80, 95% [CI: .41, 1.18], $p < .001$), relative to the reference group. Compared to youth who did not bully others and did not have ADHD, youth who infrequently bullied others and did not have ADHD were 26.16 times more likely to have mild depression than no depression (b = 3.26, 95% [CI: 2.14, 4.39], $p < .001$) and 15.18 times more likely to be moderately-to-severely depressed than to have no depression (b = 2.72, 95% CI: [1.71, 3.73], $p < .001$). Youth who infrequently bullied others and had ADHD were 6.68 times more likely to have mild depression (b = 1.90, 95% [CI: 1.58, 2.22], $p < .001$) and 8.30 times more likely moderate-to-severe depression (b = 2.12, 95% [CI: 1.75, 2.48], $p < .001$) compared to non-bully perpetrating youth without ADHD. Among youth who frequently bullied others, those without ADHD were 11.98 times more likely to have mild depression (b = 2.48, 95% [CI: 2.02, 2.88], $p < .001$) and 18.81 times more likely to have moderate-to-severe depression (b = 2.93, 95% [CI: 2.51, 3.36], $p < .001$) than youth who do not bully others and do not have ADHD. Youth who frequently bullied and had ADHD were 9.38 times more likely to have mild depression than no depression (b = 2.24, 95% [CI: 1.52, 2.98], $p < .001$) and 25.92 times more likely to have moderate-to-severe depression than no depression (b = 3.26, 95% [CI: 2.42, 4.09], $p < .001$) than non-bully perpetrators without ADHD.

Post hoc adjusted Wald tests indicated a significant difference between infrequently bully perpetrating youth with and without ADHD and mild depression, (p = .02), with non-ADHD youth having a greater likelihood of mild depression than youth with ADHD.

These findings were both consistent and inconsistent with our hypothesis. Consistent with our hypothesis, youth with ADHD and high bully perpetration frequency were more likely to have moderate-to-severe depression than no depression relative to the reference group compared to bully perpetrating youth without ADHD. It was not consistent with our hypothesis that youth with infrequent bully perpetration and no ADHD would be at greater risk for mild depression than youth with infrequent bully perpetration with ADHD.

Victim (frequency) and ADHD (yes/no) Groups. Table 8 displays multinomial logistic regression analyses that found significant positive associations between victim frequency, ADHD, and depression severity, controlling for youths' age, race, and sex. Compared to non-victim youth without ADHD, non-victim youth with ADHD were 3.78 times more likely to have mild depression than no depression (b = 1.33, 95% CI: .90, 1.76], p < .001) and 4.30 times more likely to have moderate-to-severe depression than no depression (b = 1.46, 95% [CI: 1.02, 1.90], p < .001). Youth who were infrequent victims without ADHD were 13.85 times more likely to have mild depression than no depression (b = 2.63, 95% [CI: 2.05, 3.20], p < .001) and 29.17 times more likely to be moderately-to-severely depressed than to have no depression (b = 3.37, 95% CI: [2.82, 3.91], p < .001) compared to non-victims without ADHD. Youth who were infrequent victims with ADHD were 4.44 times more likely to have mild depression (b = 1.49, 95% [CI: .93, 2.05], p < .001) and 11.85 times more likely to have moderate-to-severe depression than no depression (b = 2.46, 95% [CI: 1.78, 3.16], p < .001) compared to non-victims without ADHD. Frequent victims without ADHD were 19.97 times more likely to have

mild depression (b = 2.99, 95% [CI: 2.57, 3.42], p < .001) and 27.96 times more likely to have moderate-to-severe depression (b = 3.33, 95% [CI: 2.85, 3.81], p < .001) than non-victims without ADHD. Frequent victims without ADHD were 9.64 times more likely to have mild depression (b = 3.55, 95% [CI: 3.00, 4.09], p < .001) and 87.59 times more likely to have moderate-to-severe depression (b = 3.64, 95% [CI: 3.92, 5.02], p < .001) compared to non-victims without ADHD (see Table 12).

Post hoc Adjusted Wald tests indicated a significant difference between infrequent victims with and without ADHD and mild depression, (p = .001), ADHD as potentially protective against depression. Similarly, among infrequent victims with and without ADHD and moderate-to-severe depression (p = .014), the significant p value again suggested that youth without ADHD were at increased risk of moderate-to-severe depression compared to youth with ADHD. A significant difference between frequent victims with and without ADHD with mild depression (p = .03) suggested that among more frequent victims, having ADHD increased the risk of also having mild depression. Lastly, consistent with the last group, a significant difference between frequent victims with and without ADHD and moderate-to-severe depression, (p < .001) suggested that among frequent victims, having ADHD increased the risk of having moderate-to-severe depression.

Results examining victim frequency, ADHD, and depression severity were both consistent and inconsistent with our hypothesis. Consistent with our hypothesis, frequent victims with ADHD had increased risk of having mild and moderate-to-severe depression compared to youth without ADHD. A result we did not anticipate was among infrequent victims, ADHD appeared to be potentially protective against mild depression. Results indicated that infrequent

victims without ADHD were at higher risk of mild and moderate-to-severe depression compared to infrequent victims with ADHD.

Bully-Victims (yes/no) and ADHD (yes/no) Groups. As reflected in Table 8, a multinomial logistic regression analysis indicated significant positive associations between being a bully-victim with and without ADHD and depression severity, controlling for youths' age, race, and sex. Relative to non-bully-victims without ADHD, youth who were identified as bully-victims with ADHD were 24.73 times more likely to have mild depression than no depression (b = 3.21, 95% CI: [2.72, 3.69], p < .001) and 48.28 times more likely to have moderate-to-severe depression than no depression (b = 3.88, 95% CI: 3.38, 4.38], p < .001). These findings were consistent with our hypothesis.

Aim 3

Hypothesis 3.1 (Bully Involvement, Positive Parenting, and Depression Severity). Multinomial logistic regression analyses revealed some significant positive associations between bully involvement, positive parenting, and depression severity. In the following analyses, covariates included youths' age, race, and sex, and family SES. (See Table 9.)

Bully perpetration and Positive Parenting. Compared to non-bully perpetrating youth with HPP (reference group of the multinomial logistic regression), bully perpetrators with HPP were less likely to have mild depression than no depression (b = 0.66, 95% CI: [.14, 1.18], p = .013), but 5.21 times more likely to have moderate-to-severe depression than no depression (b = 1.65, 95% [CI: .18, 2.11], p < .001). Non-bully perpetrator youth with MHPP were 5.81 times more likely to have mild depression than no depression (b = 1.76, 95% [CI: 1.28, 2.24], p < .001) and 28.32 times more likely to be moderately-to-severely depressed than to have no depression (b = 3.34, 95% CI: [2.89, 3.80], p < .001) relative to the reference group. Bully

perpetrators with MHPP were 13.45 times more likely to have mild depression than no depression (b = 2.60, 95% [CI: 1.67, 3.53], $p < .001$) and 82.85 times more likely to have moderate-to-severe depression than no depression (b = 4.42, 95% [CI: 3.69, 5.15], $p < .001$) compared to non-perpetrators with HPP. Youth identified as bully perpetrators with MLPP and mild depression were no different statistically than the reference group. Bully perpetrators with MLPP were 14.17 times more likely to be moderately-to-severely depressed than not depressed (b = 2.65, 95% [CI: .85, 4.54], $p < .001$) relative to the reference group. Youth with no bully perpetration and LPP were 6.76 times more likely to have mild depression than no depression (b = 1.91, 95% [CI: .76, 3.06], $p < .001$) and 12.06 times more likely to have moderate-to-severe depression (b = 2.49, 95% [CI: 1.59, 3.39], $p < .001$) than non-perpetrators with HPP. The group of bully perpetrators with LPP and mild depression were not statistically significant than the reference group, however bully perpetrators with LPP were 49.21 times more likely to have moderate-to-severe depression than no depression (b = 3.90, 95% [CI: 1.57, 6.22], $p < .001$), relative to non-bully perpetrators with HPP.

Post hoc adjusted Wald tests revealed statistically significant differences between several bully perpetration and positive parenting groups. First, the adjusted Wald test revealed a statistically significant difference in the log-odds of non-bully perpetrating youth with MHPP with mild depression and bully perpetrating youth with MHPP with mild depression, Wald $\chi2(1) = 3.82$, $p = .05$, suggesting that bullying perpetration increases the risk of mild depression for youth with MHPP. Adjusted Wald test revealed a statistically significant difference in the log-odds of non-bully perpetrating youth with MLPP and mild depression and bully perpetrating youth with MLPP with mild depression, Wald $\chi2(1) = 1255.42$, $p < .001$, suggesting the influence of bully perpetration increasing the risk for mild depression. Among youth with

moderate-to-severe depression, the adjusted Wald test revealed statistically significant differences in the log-odds non-bully perpetrating youth with MHPP and bully perpetrating youth with MHPP, Wald $\chi2(1) = 10.97$, $p = .001$, as well as non-bully perpetrating youth with MLPP and bully perpetrating youth with MLPP, Wald $\chi2(1) = 554.52$, $p < .001$, again suggesting the influence of bully perpetration as increasing the risk for moderate-to-severe depression.

Positive parenting was generally protective among bully perpetrating youth. As shown in Table 9, bully perpetrating youth with HPP had the lowest risk of mild depression (RRR = 1.93) followed by bully perpetrators with MHPP (RRR = 13.45), bully perpetrators with MLPP (RRR = 0.88), and bully perpetrators with LPP (RRR = 4.30). A similar trend was revealed among youth with moderate-to-severe depression, as youth with bully perpetration and HPP had the lowest risk of moderate-to-severe depression (RRR = 5.21) compared to bully perpetrators with MHPP (RRR = 4), MLPP (RRR = 2.65) and LPP (RRR = 3.90).

Findings were both consistent and inconsistent with our hypothesis. While there was an overall negative association between bully perpetration and depression severity, positive parenting was only somewhat protective against moderate-to-severe depression. Bully perpetrators with moderately high positive parenting had a higher risk of moderate-to-severe depression than youth with moderately low positive parenting, which was unexpected.

Victims and Positive Parenting. Victims with HPP and mild depression were not statistically different ($p > .05$) than the reference group (i.e., never bullied, HPP). Victims with HPP were 9.56 times more likely to have moderate-to-severe depression than no depression ($b = 2.26$, 95% [CI: 1.44, 3.07], $p < .001$) than non-victims with HPP. Among youth with MHPP, non-victims were 6.86 times more likely to have mild depression than no depression ($b = 1.93$, 95% [CI: 1.22, 2.63], $p < .001$) and 57.36 times more likely to be moderately-to-severely

depressed than to have no depression (b = 4.05, 95% CI: [3.27, 4.83], p < .001), relative to non-victims with HPP. Victims with MHPP were 16.50 times more likely to have mild depression than no depression (b = 2.80, 95% [CI: 1.61, 4.02], p < .001) and 144.73 times more likely to have moderate-to-severe depression than no depression (b = 4.97, 95% [CI: 4.00, 5.95], p < .001) compared to non-victims with HPP. Among youth with MLPP, non-victims were 3.04 times more likely to have mild depression than no depression (b = 1.11, 95% [CI: .22, 2.00], p = .014) and 7.81 times more likely to have moderate-to-severe depression than no depression (b = 2.06, 95% [CI: 1.16, 2.95], p < .001) compared to non-victims with HPP. Youth identified as victims with MLPP were 4.76 times more likely to be mildly depressed than not depressed (b = 1.56, 95% [CI: .85, 2.27], p < .001) and 25.69 times more moderately-to-severely depression (b = 3.25, 95% [CI: 2.44, 4.05], p < .001) relative to non-victims with HPP. Among youth with LPP, non-victims were 13.66 times as likely to experience mild depression than no depression (b = 2.61, 95% [CI: 1.89, 3.34], p < .001) and 106.30 times more likely to have moderate-to-severe depression (b = 4.67, 95% [CI: 3.85, 5.48], p < .001) compared to non-victim s with HPP. Victims with LPP were 25.33 times as likely to have mild depression than no depression (b = 3.23, 95% [CI: 1.76, 4.71], p < .001) and 360.41 times as likely to have moderate-to-severe depression than no depression (b = 5.89, 95% [CI: 4.57, 7.20], p < .001) relative to non-victims with HPP.

Adjusted Wald tests revealed statistically significant differences between three victim/non-victim and positive parenting groups. First, the adjusted Wald test revealed a statistically significant difference in the log-odds of non-victims with MHPP with moderate-to-severe depression and victims with MHPP with moderate-to-severe depression, Wald $\chi 2(1)$ = 7.26, p = .007. This finding suggests that among youth with MHPP, victims were at increased

risk for moderate-to-severe depression compared to non-victims with MHPP. Similarly, there was a statistically significant difference in the log-odds of non-victims youth with MLPP with moderate-to-severe depression and bully perpetrating youth with MLPP, Wald $\chi2(1) = 16.58$, $p <$ .001 and non-victims and moderate-to-severe depression with LPP and bully perpetrating youth with LPP, Wald $\chi2(1) = 4.46$, p = .035, suggesting that being bullied significantly increased risk for moderate-to-severe depression among victims.

As was with bully perpetration, positive parenting was generally seen as protective among victims. Victims with HPP had the lowest risk of mild depression (RRR = 2.13) compared to victims with MHPP (RRR = 16.50), MLPP (RRR = 4.76), and LPP (RRR = 25.33). Youth with the lowest positive parenting scores had the highest risk of mild depression. Among youth with moderate-to-severe depression, victims with HPP had the lowest risk of moderate-to-severe depression (RRR = 9.56) compared to victims with MHPP (RRR = 144.73), MLPP (RRR = 25.69), and LPP (RRR = 360.41).

Findings were consistent with our hypothesis that there would be a negative association between victims x positive parenting and depression severity. Positive parenting was generally protective against depression among victim (and non-victims).

Bully-Victims and Positive Parenting. Bully-victim youth with HPP and mild depression were not significantly different ($p > .05$). than the reference group (i.e., non bully-victim with HPP). Bully-victim youth with HPP were 44.29 times more likely to have moderate-to-severe depression than no depression ($b = 3.79$, 95% CI: [2.92, 1=4.66], $p < .001$). Bully-victim youth with HPP and mild depression did not significantly differ from the reference group, ($p > .05$). Relative to non-bully-victims, non-bully-victims with MHPP were 10.07 times as likely to have mild depression than no depression ($b = 2.31$, 95% CI: [.96, 3.66], $p = .001$) and 120.65 times

more likely to have moderate-to-severe depression than no depression (b = 4.79, 95% CI: [3.28, 6.31], p < .001). Bully-victims with MHPP were 5.18 times more likely to have mild depression than no depression (b = 1.64, 95% CI: [.82, 2.47], p < .001) and 41.74 times as likely to have moderate-to-severe depression than youth not engaged in bully-victimization with HPP. Among youth with MLPP and compared to non-bully-victims with HPP, non-bully-victims were 15.04 times as likely to have mild depression than no depression (b = 2.71, 95% CI: [1.87, 3.54], p < .001) and about 152 times as likely to have moderate-to-severe depression than no depression (b = 5.02, 95% CI: [4.21, 5.83], p < .001). Bully-victims with MLPP were 10.21 times as likely to have moderate-to-severe depression than no depression (b = 2.32, 95% CI: [.63, 4.02], p = .007). There was not a significant difference between bully-victim youth with MLPP and mild depression relative to non-bully-victims with HPP, (p > .05). Relative to non-bully-victims with HPP, non-bully-victims with LPP were 7.94 times more likely to have mild depression than no depression (b = 2.07, 95% CI: [1.02, 3.12], p < .001) and 40.58 times as likely to have moderate-to-severe depression than no depression (b = 3.70, 95% CI: [3.70, .44], p < .001). Bully-victims with LPP were 24.92 times as likely to have mild depression than no depression (b = 3.22, 95% CI: [1.72, 4.71], p < .001) and 304.84 times as likely to have moderate-to-severe depression than no depression (b = 5.72, 95% CI: [4.71, 6.73], p < .001) relative to the non-bully-victim youth the HPP.

Adjusted Wald tests revealed statistically significant differences between some bully-victim and positive parenting groups. First, adjusted Wald test revealed statistically significant differences in the log-odds of non-bully-victim youth with MLPP and mild depression and bully-victim youth with MLPP and mild depression, Wald $\chi 2(1) = 15.18$, p < .001, as well as between non-bully-victim youth with MLPP and moderate-to-severe depression and bully-victim youth

with MLPP, and moderate-to-severe depression Wald $\chi2(1) = 11.66$, $p = .001$. A similar trend was found among non-bully-victim youth with LPP and bully-victim youth with LPP, Wald $\chi2(1) = 24.05$, $p < .001$, suggesting that youth who are bully-victims have increased risk of mild and moderate-to-severe depression.

Positive parenting had a protective effect against both mild and moderate-to-severe depression for bully-victims, however this trend was less linear. Overall, the risk of mild depression generally increased with lower positive parenting. Bully-victim youth with HPP had the lowest risk of mild depression (RRR = 3.01) compared to bully-victim youth with MHPP (RRR = 5.18), MLPP (RRR = 23.27), and LPP (RRR = 24.92). Youth with the lowest positive parenting scores had the highest risk of mild depression. A less linear trend was revelated among bully-victim youth with moderate-to-severe depression. Bully-victim youth with MLPP had the lowest risk of moderate-to-severe depression (RRR = 10.21), followed by bully-victim youth with MHPP (RRR = 41.74), HPP (RRR = 44.29), and LPP (RRR = 304.84).

These findings were generally consistent with our hypothesis that there would be a negative association between bully-victim youth x positive parenting and depression severity. Positive parenting was generally protective against depression among bully-victim youth, however the trend was less linear for bully-victim youth with moderate-to-severe depression than bully-victim youth with mild depression.

Hypothesis 3.2 (Bully Involvement, Positive Parenting, ADHD, and Depression Severity). Table 10 reflects binomial logistic regression analyses which revealed significant positive associations between being bully involvement, positive parenting, ADHD and depression severity. In the following analyses, covariates included youths' age, race, and sex, and family SES.

Bully perpetration, Positive Parenting, and ADHD. As shown in Table 10, insufficient variation in data and a low number of cases perfectly predicting the outcome variable (depression) resulted in Stata dropping all cases in Group 1 (i.e., bully perpetration, HPP, and no ADHD, $n = 78$) and Group 2 (i.e., bully perpetration, HPP, and ADHD, $n = 8$) from the analysis and therefore no predictions were made about depression for these groups. As for bully perpetrators with MHPP and no ADHD, there was not a significant difference compared to non-bully perpetrators with MHPP and no ADHD, ($p > .05$). However, bully perpetrators with MHPP and ADHD were 65.37 times as likely to be depressed than not depressed ($b = 4.18$, 95% CI: [2.25, 6.10], $p < .001$). Youth identified as bully perpetrators with MLPP and no ADHD were almost 10 times more likely to have depression than no depression ($b = 2.28$, 95% CI: [1.27, 3.29], $p < .001$) relative to the reference group. There was a similar finding for youth identified as bully perpetrators with MLPP and ADHD as they were 12.68 times more likely to have depression than not have depression ($b = 2.54$, 95% CI: [1.40, 3.67], $p < .001$). There was no association between bully perpetrating youth with LPP and no ADHD and the outcome variable of depression, bully perpetrating youth with LPP and ADHD were nearly 1,353 times more likely to have depression than not ($b = 7.21$, 95% CI: [5.11, 9.29], $p < .001$). Bully perpetrating youth with LPP and ADHD were substantially more likely to experience depression compared to bully perpetrators, with or without ADHD, with higher positive parenting.

Post hoc adjusted Wald tests revealed statistically significant differences between two bully perpetration, positive parenting groups, and ADHD groups. First, the adjusted Wald test revealed a statistically significant difference in the log-odds of bully perpetrating youth with MHPP and no ADHD and bully perpetrating youth with MHPP and ADHD, Wald $\chi2(1) = 13.55$, $p < .001$, suggesting that having ADHD significantly increased the risk of depression, despite

youth having moderately high positive parenting. A similar trend was found among bully perpetrating youth with LPP and no ADHD and bully perpetrating youth with LPP and no ADHD, Wald $\chi 2(1) = 35.65$, $p < .001$, again providing evidence that having ADHD significantly increased the risk of depression.

Taken together, while it appeared moderately high positive parenting did not adequately protect bully perpetrating youth with ADHD from depression, it was difficult to discern whether positive parenting was generally protective against depression for bully perpetrating youth with and without ADHD, as no overall trend was found in the analysis. (See Table 10.)

Victim, Positive Parenting, and ADHD. Overall, all findings within this category of victims were significant and appeared to follow two main trends. First, victims with ADHD, across all positive parenting groups, were more likely to be depressed than victims without ADHD. Further, with higher positive parenting, victims experienced lower odds of having depression compared to their victim peers with less positive parenting. Specifically, victims with HPP and no ADHD were 3.35 times more likely to be depressed than not depressed, ($b = 1.21$, 95% CI: [.43, 1.99], $p = .002$), whereas victims with HPP and ADHD were 18.36 times more likely to be depressed than not depressed, ($b = 2.91$, 95% CI: [1.68, 4.15], $p < .001$). Among youth with MHPP, victims without ADHD were seven times more likely to be depressed than not depressed, ($b = 1.92$, 95% CI: [1.24, 2.60], $p < .001$). Victims with MHPP and ADHD were nearly 29 times more likely to be depressed than not depressed, ($b = 3.36$, 95% CI: [2.63, 4.10], $p < .001$). Similarly, victims with MLPP and no ADHD were around 21 times more likely to be depressed than not depressed ($b = 3.05$, 95% CI: [2.33, 3.76], $p < .001$), while victims with MLPP and ADHD were 78.26 times more likely to be identified as having depression, ($b = 4.36$, 95% CI: [3.61, 5.11], $p < .001$). Victims with LPP and no ADHD were about 30 times more

likely to have depression than no depression (b = 3.40, 95% CI: [2.22, 4.59], $p < .001$) while victims with LPP and ADHD were 219.20 times more likely to have depression than no depression, (b = 5.39, 95% CI: [4.05, 6.72], $p < .001$).

Post hoc adjusted Wald tests revealed statistically significant differences among bullied, positive parenting, and ADHD groups. First, the adjusted Wald test revealed a statistically significant difference in the log-odds of victim youth with HPP and no ADHD compared to victim youth with HPP and ADHD, Wald $\chi2(1) = 8.53$, $p = .004$, suggesting having ADHD increased depression despite high positive parenting. Similarly, a statistically significant difference was revealed between victim youth with MHPP and no ADHD and victim youth with MHPP and no ADHD, Wald $\chi2(1) = 46.87$, $p < .001$, again suggesting having ADHD increased depression despite having moderately high positive parenting. There was a significant difference found between victim youth with MLPP and no ADHD and victim youth with MLPP and no ADHD, Wald $\chi2(1) = 30.00$, $p < .001$, suggesting that having ADHD increased depression despite some positive parenting (MLPP). As well as for victim youth with LPP and no ADHD and victim youth with LPP and no ADHD, Wald $\chi2(1) = 6.33$, $p = .012$, suggesting that having ADHD increased depression.

Findings of this analysis also provide support for positive parenting as protective against depression for both ADHD and non-ADHD groups. Victim youth with ADHD and HPP had the lowest risk of depression (OR = 18.36), followed by MHPP (OR = 28.79), MLPP (OR = 78.26), and LPP (OR = 219.20). Similarly for victim youth without ADHD, victim youth with HPP had the lowest risk for depression (OR = 3.35), followed by victim youth with MHPP and no ADHD (OR = 6.82), victim youth with MLPP and no ADHD (OR = 21.11), and finally bulled youth with LPP and no ADHD (OR = 29.96).

These findings were generally consistent with our hypothesis as positive parenting appeared protective against depression for victim youth with ADHD (and youth without ADHD). However, when comparing victim youth with ADHD and victim youth without ADHD of similar positive parenting groups, the presence of having ADHD still increased the risk of depression despite having exposure to positive parenting.

Bully-Victim, Positive Parenting, and ADHD. Binomial logistic regressions indicated several significant associations between engagement in bully-victim behavior, positive parenting, ADHD and having depression. Bully-victim youth with HPP and no ADHD were 4.53 times more likely to be depressed than not depressed, (b = 1.51, 95% CI: [.40, 2.62], p = .008), however there was not a significant association between bully-victim youth with HPP and ADHD and depression. Among youth with MHPP, bully-victim youth with no ADHD were almost 12 times more likely to be depressed than not depressed, (b = 2.48, 95% CI: [1.47, 3.49], p < .001). Bully-victim youth with MHPP and ADHD were 28.5 times more likely to be depressed than not depressed, (b = 3.35, 95% CI: [2.45, 4.26], p < .001). Similarly, bully-victim youth with MLPP and no ADHD were 20.29 times more likely to be depressed than not depressed (b = 3.01, 95% CI: [2.13, 3.90], p < .001), while bully-victim youth with MLPP and ADHD were almost 118 times more likely to be identified as having depression than no depression, (b = 4.77, 95% CI: [3.89, 5.64], p < .001). Bully-victim youth with LPP and no ADHD were about 43 times more likely to have depression than no depression (b = 3.76, 95% CI: [2.17, 5.35], p < .001) while bully-victim youth with LPP and ADHD were about 119 times more likely to have depression than no depression, (b = 4.78, 95% CI: [3.63, 5.94], p < .001).

Post hoc adjusted Wald tests revealed statistically significant differences between bully-victim MHPP and MLPP positive parenting, and ADHD groups. Specifically, the adjusted Wald

test revealed a statistically significant difference in the log-odds of bully-victim youth with MHPP and no ADHD and bully-victim youth with MHPP and ADHD, Wald $\chi2(1) = 5.18$, $p = .023$. Additionally, a statistically significant difference was found between bully-victim youth with MLPP and no ADHD and victim youth with MLPP and ADHD, Wald $\chi2(1) = 44.03$, $p < .001$. These findings provide support for ADHD moderating the associations between bully-victim involvement x positive parenting and depression for bully-victims with parents who engage in MHPP and MLPP, specifically that having ADHD increased risk of depression despite positive parenting.

Among bully-victim youth, positive parenting appeared nearly equally as protective against depression for ADHD and non-ADHD youth. Bully-victim youth with ADHD and HPP was not statistically significant, however bully-victim youth with ADHD and MHPP were 28.5 times as likely to have depression, compared to OR = 117.92 for bully-victims with ADHD and MLPP and OR = 119.10 for bully-victim youth with LPP and ADHD. Non-ADHD youth risk for depression followed a similar trend, with evidence that risk for depression increases with less positive parenting, see Table 14. These findings were generally consistent with our hypothesis as positive parenting appeared protective against depression for youth with ADHD (and youth without ADHD). However, among bully-victim youth in similar positive parenting groups, having ADHD still increased the risk of depression compared to youth without ADHD.

Discussion

The current study aimed to contribute to the existing gaps and current literature on bullying and depression in youth with ADHD and examine positive parenting as a potential buffer to the negative effects youth encounter, particularly youth with bullying involvement and ADHD. This study was novel given: 1) the association between the frequency of bullying

involvement and depression severity for youth with and without ADHD was examined, 2) the association between bullying involvement x positive parenting and depression/depression severity was investigated to better understand ADHD and depression comorbidity and contribute to the growing literature in this area, and 3) ADHD was considered as a moderator in bullying involvement x positive parenting and depression to help inform interventions for youth with ADHD. It is important to note several key methodological points about the current study to best interpret findings. First, all data included in this study were parent/caregiver report. Parents reported on their perceived knowledge of their children's engagement in bullying, which may or may not have been an accurate reflection of youth's true experiences (Shakoor et al., 2011). Additionally, parents' positive parenting scores and subsequent positive parenting grouping for analyses were configured based on parents' perception of their own parenting behaviors, potentially skewing results (Korelitz & Garber, 2016). Further, parents were asked in a survey format if they had been told by a health care professional that their child had depression or ADHD, among other conditions. It is unknown if youth met specific criteria in the *Diagnostic and Statistical Manual of Mental Disorders – 5th Edition (DSM-5*; APA, 2013) required to be diagnosed with either of these conditions, therefore findings as they relate to ADHD and depression should be interpreted with caution. Lastly, frequency tables and descriptions of study aims' hypotheses were included to highlight low cell sizes and context for large RRRs and ORs in the analyses. It is likely that some of the results presented in this study were inflated due to an overall large sample size and low numbers of parent reported depression and bullying involvement, particularly when analyzed together (e.g., Aim 3, bully involvement x ADHD x positive parenting and depression severity). With these methodological limitations in mind, the results will be further discussed.

Aims and Hypotheses

Aim 1

Hypothesis 1.1 (ADHD and Bullying Involvement). The hypothesis that youth with ADHD would have increased rates of bullying involvement, especially victimization, compared to you who do not have ADHD was assessed to determine external validity and was largely supported. It was hypothesized that victimization would have the highest discrepancy between youth with and without ADHD, as youth with ADHD have a higher likelihood to experience social challenges given impulsivity and poor emotion regulation (Diamantopoulou, Henricsson, & Rydell, 2005) increasing their vulnerability of victimization (Murray-Close et al., 2010). However, this study found the role of bully-victim, had the largest discrepancy between youth with and without ADHD. While 16.21% of youth without ADHD were identified as bully-victims by parents, 30.41% of youth with ADHD were identified as bully-victims. This finding supports the growing need for the bullying/ADHD literature to examine bully-victims. Research has consistently determined that youth engaged in both bullying and victimization of others ("bully-victims") have the poorest outcomes and are at the greatest risk for depression and depressive symptoms (Copeland et al., 2013; Kim et al., 2009; Yang et al., 2016). The ADHD research has also supported that youth with ADHD may be more inclined to respond reactively and aggressively if bullied (Taylor, Saylor, Twyman, & Macias, 2010), potentially contributing to parents identifying their child as a bully perpetrator rather than a victim. This finding emphasizes the importance of bullying/ADHD research focusing on bully-victims as youth whose potentially ADHD-driven social and functional impairments leave them vulnerable to poor outcomes.

Hypothesis 1.2 (ADHD and Depression). The hypothesis that adolescents with ADHD would have increased rates of depression compared to their non-ADHD adolescent peers was examined to assess for external validity. In the current study, youth with ADHD were nearly 6 times more likely to have depression than youth without ADHD. Findings supported the hypothesis and were consistent with previous studies (Angold, Costello, & Erklani, 1999; Biederman et al., 2008; Chronis-Tuscano et al., 2010; Meinzer et al., 2013). It is well documented that adolescents with ADHD have increased rates of depression. Meinzer's depression theory suggests that ADHD and depression have similar etiological variables that contribute to both disorders (e.g., complex interactions between contextual, genetic, biological, cognitive, and interpersonal variables) and because depression symptoms are often secondary to the associated functional impairments commonly reported in ADHD (see Meinzer et al., 2013). Our findings add to the current literature on ADHD and depression comorbidity in adolescents.

Hypothesis 1.3 (Depression and Bullying Behavior in Children and Adolescents). Assessing for external validity, we hypothesized that adolescents would have higher rates of depression, independent of ADHD status, compared to children. Study results supported this hypothesis as adolescents were over four times more likely to be depressed than children. This finding is consistent with previous research (Costello et al., 2006; Cuijpers & Smit, 2004; Fergusson et al., 2005). Youth tend to develop depressive symptoms during the transition from childhood to adolescence given puberty, increased social roles and adult responsibilities, and increased academic and interpersonal stressors (Malhotra & Sahoo, 2018).

Adolescents were also hypothesized to have higher rates of bullying involvement than children. However, findings from the current study were mixed. Parents identified slightly higher percentages of bully perpetration in adolescents (2.4%) than children (1.8%), though higher rates

of victimization in children (32.5%) than adolescents (25.5%), and higher rates of bully-victimization in children (22.2%) than adolescents (13%). While percentages between children and adolescents were not drastically different, the results were not expected. One possibility to explain this finding is that NSCH bullying items only assessed bullying involvement over the past year. It is possible that parents have received more feedback about their children's bullying involvement from teachers and other children's parents over the past year compared to adolescents, who tend to engage in less obvious bullying tactics (Nishina, Juvoven, & Witkow 2005) and therefore, parents may be able to easily recount their younger children's bullying involvement. To this point, parents may have less knowledge of their children's social interactions and social behavior as they enter adolescence (Larrañga, Yubero, & Navarro, 2018). Bullying involvement presents differently across age and development, which may not be captured adequately by the NSCH survey. For example, relational or indirect bullying tends to be less obvious and can include spreading rumors, gossiping, and social manipulation and exclusion (Craig et al. 2009; Miller & Vaillancourt 2007; Olweus, 1993). Physical (direct) bullying is more common in younger children (Bjorkqvist, Osterman, & Kaukiainen 1991) and relational (indirect) bullying is more prevalent in older children and adolescents due to gains in social awareness and normative expectations (Nishina, Juvoven, & Witkow 2005). Therefore, it is possible that parents who responded in the current study may have been less aware of their adolescents' involvement in bullying, compared to younger children, resulting in lower reported frequencies for victimization and bully-victimization.

Aim 2

All analyses in Aim 2 controlled for child age, child sex, and child race.

Hypothesis 2.1 (Bully Involvement Frequency and Depression Severity). The purpose of Aim 2 was to consider the association between the frequency of each bullying role and depression severity. This aim was novel because no other cross-sectional study has ever examined the association between frequency of bullying involvement on levels of depression severity. It was hypothesized that the associations of frequency of each bullying role and depression severity would be positive (i.e., higher frequency of bullying engagement, increased likelihood for heightened depressed severity).

Bully Perpetration. Associations between bully perpetration frequency and depression severity were largely consistent with the hypothesis. Analyses found that infrequent bully perpetrators (i.e., youth who bullied others 1-2 times a year or 1-2 times a month) were significantly more likely to have moderate-to-severe depression than no depression compared to the reference group. Similarly, frequent bully perpetrators (i.e., youth who bullied 1-2x a week or almost every day) were found to be significantly more likely to have mild depression and moderate depression than non-bully perpetrating youth. These findings are consistent with previous studies that have examined bullying perpetration and depression in youth (Kumpulainen, Räsänen, & Puura, 2001; Kaltiala-Heino & Fröjd, 2011; Vaughn et al., 2010). Results also suggested that with increased frequency of bully perpetration, youth were more likely to have mild and moderate-to-severe depression compared to less frequent bully perpetrators.

A more unique finding was that infrequently bullying others did not significantly increase the risk of mild depression and while significant, minimally increased risk of moderate-to-severe depression. Youth who infrequently bullied others were significantly less likely to be mildly depressed than not depressed relative to the reference group. One possible explanation for this

curious finding might be that bully perpetration must occur more consistently to be associated with depression. In the current study, "infrequent perpetrators" captured youth whose parents reported their child to bully at a frequency of once a year to once a month in the past year (e.g., 1 to 12 occurrences).

Another explanation for this finding is that bullying others may be protective against mild depression. Low self-esteem is a construct that has often been considered to be independently associated with depression and bully perpetration in youth (Choi & Park, 2018; Fiorilli, Capitello, Barni, Buonomo, & Gentile, 2019). Some research has shown that those who bully others have lower self-esteem, increasing their risk for depression (Donnellan et al., 2005; Reijntjes et al., 2011). However, research on low self-esteem and bullying perpetration is mixed. Some studies have found associations with increased self-esteem among bully perpetrators (Choi & Park, 2018; Kaukiainen, Salmivalli, Lagerspetz et al, 2002; Seals & Young, 2003), while other studies have reported no relation between self-esteem and bullying (Luk et al., 2016). It is possible that some bully perpetrating youth in the current study had less risk of mild depression given their infrequent bullying perpetration.

Lastly, a third explanation for this unexpected result could be parents lack of awareness of their child's mild depression (Johnco & Rapee, 2018). Youth with mild depression may exhibit fewer obvious depressive symptoms than youth with more severe or impairing depressive symptoms, and therefore mild depressive symptoms might go overlooked by parents (Pavuluri & Birmahar, 2004). It is likely that parents would have greater awareness of more severe and impairing depressive symptoms, potentially explaining why infrequent bully perpetrators were found to have increased risk for moderate-to-severe depression than non-perpetrating youth and less risk for experiencing mild depression relative to non-bullies.

Bullied. Frequency of being bullied and increased depression severity were positively associated and consistent with our hypothesis. Findings highlighted that victim youth have increased risk of having both mild depression and moderate-to-severe depression than non-victim youth. Additionally, findings supported that youth bullied at a higher frequency (i.e., weekly or daily) have a significantly increased risk of depression compared to youth bullied less frequently.

Being bullied has shown to have both direct and indirect associations with depression. Longitudinal studies have reported on direct associations and dose-response relationships, showing that bully victimization can lead to heightened depression (Moore et al., 2014; Woke, Copeland, Angold, & Costello, 2019) and higher chronicity of bullying over time leads to more adverse outcomes (Schreier, Wolke et al., 2009). The current study was cross-sectional and thus while temporal sequencing of bully victimization and depression in youth is unknown, capturing the frequency of being bullied over a year may speak to a dose-response relationship.

Bully-Victim (yes/no). Youth who both bullied others and experienced bully victimization over the past year were more likely to have mild and moderate-to-severe depression than no depression relative to non-bully-victims. The findings supported our hypothesis. Past research has consistently found that youth engaged in both bullying and victimization of others have the poorest outcomes and are at the greatest risk for depression and depressive symptoms (Copeland et al., 2013; Kim et al., 2009; Yang et al., 2016).

Hypothesis 2.2 (Bully Involvement Frequency, ADHD, and Depression Severity). The aim of Aim 2, Hypothesis 2 was to investigate if ADHD would moderate the association between bullying frequency and depression severity such that these associations would be stronger in the ADHD group.

Bully Perpetration and ADHD. Results for bully perpetration and ADHD were mixed. Among infrequent bully perpetrators, the presence of ADHD appeared protective against mild depression. Results indicated that infrequent bully perpetrators without ADHD had lower risk of mild depression than those with ADHD. A subsequent adjusted Wald test between those groups revealed the significant effect of ADHD on the relative risk of depression.

Consistent with our hypothesis, among youth with high bully perpetration frequency, youth with ADHD were 25.9 times as likely to have moderate-to-severe depression than no depression relative to the reference group. Youth without ADHD were only 18.8 times as likely to have moderate-to-severe depression than no depression relative to the reference group.

Other findings within the bully perpetration and ADHD analyses were less consistent with our hypothesis. Among youth with mild depression, ADHD appeared to be protective across all bully perpetration frequencies. Among youth with moderate-to-severe depression, ADHD appeared to be protective against depression except for high frequency bully perpetrators.

A possible explanation to understand the unexpected findings is that having ADHD might be protective against depression for youth engaged in bully perpetration. Given the novelty of assessing ADHD as a moderator between bully perpetration frequency and depression severity, there are no other studies of which to compare the current findings; however, it may be plausible that youth with ADHD have received behavioral or psychopharmacological treatments which may buffer the experience of having depression. As reported previously, ADHD and depression often occur comorbidly and thus can have similar symptoms (Meinzer et al., 2014). Research on the psychopharmacological treatment of comorbid ADHD and depression have found that there are antidepressants effective in treating symptoms of both disorders (Pliszka, 1998; Turgay & Ansari, 2006). There has also been evidence to support that ADHD medication is associated with

reduced rates of concurrent depression in youth (Chang, D'Onofrio, Quinn, Lichtenstein, & Larsson, 2016). Non-psychopharmacological treatments such as cognitive behavioral therapy have also been shown to be effective in treating youth depression and ADHD, though there is mixed evidence to support its effectiveness treating ADHD without the addition of medication (Boyer, Geurts, Prins, & Van der Oord, 2015; Shrestha, Lautenschleger, & Soares, 2020; Spirch, Safren, Finkelstein, Remmert, & Hammerness, 2016).

A second explanation why bully perpetrating youth with ADHD appeared less depressed than non-bully perpetrators without ADHD could be due to a single informant approach. While the use of multiple informants has been recommended in child and adolescent assessment of mental health symptoms, children and their parents have been found to have conflicting perspectives on the severity of youth depressive symptoms, with correlations in the low to moderate range (.20-.30) (De Los Reys & Kazdin, 2005; Humphreys et al., 2007). Prior research has found that parents tend to underreport internalizing symptoms and youth tend to report higher levels of depressive symptoms than their parents (Pavuluri & Birmahar, 2004). Thus, it is possible that parent-only reporting of their children's symptoms of depression may not capture the true extent of depression severity in bully perpetrating youth.

Bullied and ADHD. Frequency of being bullied was positively associated with mild and moderate-to-severe depression severity for youth with ADHD. Youth with more frequent bullying and ADHD had an increased risk of mild depression and moderate-to-severe depression relative to the reference group. Among victim youth without ADHD, the increased frequency of being bullied had a limited effect on depression severity.

ADHD moderated the associations between frequent victim youth with and without ADHD and mild depression (p = .03), as well as frequent victim youth with and without ADHD

and moderate-to-severe depression (p = .01), suggesting that frequent victim youth with ADHD are especially vulnerable to depression. While ADHD also moderated the associations between infrequent victim with mild depression and infrequent victim youth with moderate-to-severe depressive, ADHD appeared to be protective against depression, as youth with ADHD were less likely to have depression than their non-depressed peers. One explanation to explain this finding is that victim youth with ADHD might have received treatments and additional supportive resources that victim youth without ADHD have not been afforded, buffering the onset or presence of depressive symptoms.

Youth with ADHD had slightly lower odds of having moderate-to-severe depression relative to the reference group compared to frequent victim youth without ADHD. This finding was similar to the trend revealed within infrequent bully perpetration among youth with ADHD. As with bully perpetrators, an explanation for this trend might be reliability of parent report versus youth report of bullying involvement and depressive symptoms. Bullying primarily occurs within a peer group and often when there is not an adult present, therefore parents often have limited knowledge of bullying behavior until it becomes chronic or begins to interfere with their functioning (Vaillancourt, Brittain, et al., 2010). A similar explanation can be given for depressive symptoms, as parents may not be aware of the extent of their child's depressive symptoms and may mistake symptoms of depression for other common child/adolescent behaviors.

Study cell sizes and the numbers of youth identified as infrequent victim with ADHD and experiencing mild or moderate depression should also be considered. As shown in Table 8, while the reference group for these analyses (i.e., youth never bullied and no ADHD) contained N = 18,180 youth, only n = 91 and n = 134 youth were identified as infrequent victims without

ADHD who had mild and moderate-to-severe depression, respectively. Similarly, only *n* = 63 youth were identified by parents as infrequent victims with ADHD with mild depression, and *n* = 73 youth as infrequent victims without with ADHD. These cell counts were among the lowest in this analysis, potentially skewing the findings.

Bully-Victim (yes/no). As expected, bully-victims with ADHD were at increased risk of having both mild and moderate-to-severe depression relative to non-bully-victim youth with no ADHD. Specifically, bully-victims with ADHD were around 24.7 times more likely to be mildly depressed and 48.3 times more likely to have moderate-to-severe depression than their peers not involved in bullying and without ADHD, emphasizing increased vulnerabilities and risk for depression for bully-victims with ADHD. Other studies have found that bully-victims have high rates of ADHD (Schwartz, 2000; Verlinden et al., 2015). The ADHD x bullying x depression literature has often failed to include assessment of bully-victims in their research design, more commonly only dichotomizing bullying roles as either a bully or a victim (Simmons & Antshel, 2020). By only assessing victimization and perpetration as separate constructs, this research fails to consider the highest risk group for the poorest outcomes. To better understand ADHD youth's involvement in bully-victim behavior and the clinical interventions that will be most impactful for this unique group, it is critical that researchers include the role of bully-victims in their research. The bully-victim, ADHD and depression findings are some of the most compelling of the current study and speak to the clinical significance of this topic.

Aim 3

All analyses in Aim 3 controlled for child age, child sex, child race, and family SES.

Hypothesis 3.1 (Bully Involvement, Positive Parenting, and Depression Severity). The aim of Aim 3, Hypothesis 1 was to investigate if there were negative associations between

bullying involvement x positive parenting and depression severity and whether positive parenting would have a protective effect for youth involved in bullying.

Bully perpetration and Positive Parenting. Results from the bully perpetration involvement x positive parenting and depression severity analyses were challenging to interpret given small variability across positive parenting groups, inconsistent trends, and low frequencies of depression. (See Tables 9 and A3.) With regard to bully perpetrators with mild depression, the only interpretable comparison between youth with and without bully perpetration was among youth with MHPP, as the introduction of bully perpetration increased the risk of mild depression. Other groups with mild depression were unable to be interpreted due to a lack of data (i.e., MLPP groups) and no significance difference (i.e., LPP) to the reference group. (See Table 9.)

Youth with bully perpetration and high positive parenting were significantly *less* likely to have mild depression than youth with HPP and no bully perpetration. This finding was unexpected. One way to consider this finding is to consider that of the four parenting groups, majority of parents reporting on bully perpetration (80%) rated themselves as engaging in HPP (see Table A3 for frequency data). Among parents with self-reported HPP, the data were heavily skewed in the direction of either their child having no engagement in bully perpetration and no depression (~33%) or yes engagement in bully perpetration and no depression (63.7%). There was little variability across levels of depression severity. Thus, despite parents reporting their child as a bully perpetrator, very few youths were reported to have mild depression or moderate-to-severe depression. This finding is inconsistent with the larger literature on bully perpetration and depression (Copeland et al., 2013; Takizawa et al., 2014), as it would be expected that youth who bully others would have higher rates of depression than youth not engaged in bullying.

Positive parenting appeared to be somewhat protective against moderate-to-severe depression among bully perpetrators, as bully perpetrating youth with higher positive parenting had a lower risk of depression compared to youth with low positive parenting. One association that was not expected among bully perpetrators with moderate-to-severe depression was that youth with moderately high positive parenting had a higher risk of depression than youth with moderately low positive parenting. A likely explanation for this is that there was little to no variability across levels of depression severity for youth with moderately low positive parenting.

Bullied and Positive Parenting. Results from the bullied x positive parenting and depression severity analyses were less inconsistent than the bully perpetration analyses likely due to greater variability in parent responses. Across bullied and non-victim youth parenting groups, there were three main trends that emerged: 1) there were negative associations between higher positive parenting and lower risk of mild and moderate-to-severe depression, consistent with the hypothesis, 2) victim youth had higher risks of depression than non-victim youth across all parenting groups, emphasizing the effect of bullying on mild and moderate-to-severe depression among victim youth, and 3) positive parenting was protective, however was not necessarily more protective for victim youth than non-victim youth.

Across parenting groups, apart from youth with HPP, victim youth were at increased risk for depression compared to non-victim youth. Victim youth with HPP were less likely than non-victim youth with HPP to have mild depression. This finding suggests that high positive parenting moderated the effect of mild depression rather than being bullied, emphasizing the protective effect of high positive parenting for victim youth. Victim youth with MHPP had a higher risk of mild depression than non-victim youth with MHPP. This trend was also consistent when comparing bullied and non-victim youth with MLPP and LPP with mild depression. A

similar trend was noted among youth with moderate-to-severe depression. Bulled youth were consistently at higher risk for moderate-to-severe depression compared to their non-bullied peers. These findings emphasize the effect of being bullied on youth's increased depression, across all positive parenting groups.

Despite the notable effect of being bullied on the risk for mild and moderate-to-severe depression, results from this analysis also emphasize the protectiveness of positive parenting for bullied and non-victim youth. Victim youth with MHPP were 16.5 times more likely to be mildly depressed relative to the reference group whereas victim youth with the lowest form of positive parenting (LPP) were 25.3 times more likely to be mildly depressed than the reference group. As with the bully perpetration youth, victim youth with MLPP appeared to fall out of this trend.

Among youth with moderate-to-severe depression, victim youth with the highest positive parenting had the lowest risk of moderate-to-severe depression relative to the reference group. Among victim youth with HPP, being bullied increased the risk of depression even in the presence of having the resource of HPP. Victim youth with the lowest positive parenting scores had the highest risk of moderate-to-severe depression. The influence of positive parenting among victim youth was evident given that youth with the highest positive parenting, regardless of being bullied, tended to have the lowest risk for depression. Likewise, youth with the lowest positive parenting, regardless of being bullied, were most at risk for depression. Among youth with more severe depression, the presence of being bullied appears to moderate depression more than that of positive parenting, evidenced by significant adjusted Wald tests between bullied and non-victim youth of similar parenting. For example, an adjusted Wald test between not victim and bullied among youth with MHPP and moderate to severe depression indicated a significant difference between these two groups, (p =0.007).

Overall, positive parenting was protective for all youth *and* regardless of positive parenting, being victimized still increased risk of mild and moderate-to-severe depression. These results suggest the vulnerability of victim youth and the possibility that having positive parents is not enough to buffer against depression potentially driven by bullying. While findings of this analysis supported our hypothesis in that negative associations between bullying (bullied) involvement x positive parenting and depression severity were revealed, we also hypothesized that positive parenting would be protective against depression for victim youth, which was not entirely supported by our results. Research on parent-child relationships has long found that parenting factors, such as communication, involvement, warmth, and support can mitigate the risk of youth psychopathology and challenges with social functioning (Besser & Priel, 2003; Ebrahimi et al., 2017; Lereya et al., 2013). However, with regard to bullying and victimization, findings have been more mixed. One study found that while high levels of social support from family were important in fostering good mental health in adolescents, support from family and friends was not sufficient to protect adolescents from depression among other mental health challenges (Rothon, Head, Klineberg, & Stanfeld, 2011). In the current study, we did find positive parenting to be protective for youth; however, findings did not suggest that positive parenting was especially protective for victim youth over and beyond non-victim youth. Findings also suggest that being bullied might be too negatively impactful to be buffered by positive parenting. Given the importance of social acceptance during adolescence, it is possible that unless parents have very strong relationships with their children and maintain good communication, engage in problem solving together, manage parenting stress well, and feel confident about one's parenting skills (i.e., high positive parenting as defined in the current

study), victim youth might require additional resources (e.g., therapy, treatment) to help manage the risk of depression.

***Bully-Victim and Positive Parenting*.** Results from the bully-victim x positive parenting and depression severity analyses were partially supportive of our hypothesis. As was the case in the bullied x positive parenting and depression analysis, there was an overall negative association between bully-victim involvement x positive parenting and depression severity. The trend was not perfectly linear, but bully-victim youth with HPP had the lowest risk of mild depression (RRR = 3.01) and bully-victim youth with LPP had the highest risk of mild depression (RRR = 24.92). Bully-victim youth with HPP did not have the lowest risk of moderate-to-severe depression (RRR = 44.29), while bully-victim youth with the LPP had the highest risk of moderate-to-severe depression (RRR = 304.84).

Positive parenting was generally protective for all bully-victim and non-bully-victim youth, however positive parenting was particularly protective for bully-victim youth with MHPP and mild depression, bully-victim youth with MLPP and mild depression, bully-victim youth with MHPP and moderate-to-severe depression, and bully-victim youth with MLPP and moderate-to-severe depression. In each of these groups, bully-victim youth had less risk for depression than non-bully-victim youth with similar positive parenting. Interestingly, HPP had a very small effect on mild depression relative to the reference group, suggesting that HPP is minimally protective for bully-victim youth relative to non-bully-victim youth. In other words, despite being exposed high positive parenting, being a bully-victim will increase youths' risk for mild and moderate-to-severe depression. Youth with LPP were at the most risk, relative to non-bully-victim youth with HPP.

In sum, MHPP and MLPP appeared to be most protective at mitigating the risk of depression for bully-victims. For youth with HPP and LPP, the experience of both bullying others and being victims appeared to be most impactful on risk for depression, consistent with the literature.

Hypothesis 3.2 (Bully Involvement, Positive Parenting, and Depression Severity). The aim of Aim 3, Hypothesis 2 was to investigate if ADHD moderates the association between bullying involvement x positive parenting and depression severity.

Bully perpetration, ADHD, and Positive Parenting. As in Aim 3, hypothesis 1, the bully perpetration data was difficult to interpret given small cell sizes and little to no variability across bully perpetration x positive parenting x ADHD and depression groups (see Tables 10 and A4). No youth ($n = 0$) whose parents identified as bully perpetrators, with or without ADHD, and with HPP were reported to have depression. Therefore, while notable and may be an interesting direction for future research, conclusions about ADHD and non-ADHD bully perpetrating youth with HPP were unable to be made. Across all other positive parenting groups, youth with ADHD had a higher risk of depression than youth without ADHD. This was most evident among youth with MHPP, as having ADHD significantly increased the risk of depression for bully perpetrating youth with MHPP and ADHD.

Positive parenting was generally protective against depression for bully perpetrating youth with and without ADHD. In the analysis, the addition of ADHD did not greatly increase the beta coefficients. An exception to this was with bully perpetrating youth with ADHD and LPP. The presence of having ADHD significantly increased the risk for depression, which was consistent our hypothesis.

Bullied, ADHD, and Positive Parenting. Results from the bullied x ADHD x positive parenting and depression analyses were generally consistent with the bullied analyses from Aim 3, hypothesis 1. As shown in Table 10, across all parenting groups, youth with ADHD were consistently at a significantly increased risk of having depression relative to the reference group and to non-ADHD victim youth with similar positive parenting. This finding supported our hypothesis, emphasizing the risk of depression for victim youth.

Also consistent among victim youth in this analysis was an overall protective effect of positive parenting for all youth in this analysis, regardless of youth having ADHD. This is evident from the negative association between positive parenting and depression (see Table 10). Interestingly, post hoc adjusted Wald tests provided evidence that having ADHD appeared to moderate associations between victim youth with and without ADHD and risk of depression across all four positive parenting groups. Given the consistency of significant adjusted Wald test across all parenting groups, it is likely that positive parenting had less of an effect on the risk depression than ADHD.

Bully-Victim. ADHD, and Positive Parenting. The bully-victim x ADHD x positive parenting and depression analysis revealed similar trends as the bullied x ADHD x positive parenting and depression analysis. First, there was an overall negative association between positive parenting and depression for all bully-victim youth, regardless of whether youth also had ADHD. Second, adjusted Wald tests revealed the moderating effect of ADHD on risk of depression among bully-victim youth with MHPP without ADHD and bully-victim youth with ADHD. A similar finding was revealed among bully-victim youth with MLPP with no ADHD and bully-victim youth with MLPP and ADHD.

Implications

The current findings may be used to inform clinicians of the increased risk of depression youth with ADHD experience, especially those who are engaged in any form of bullying behaviors. The current findings should encourage clinicians to consider the implications of comorbid diagnoses ADHD and depression, with a particular focus on social functioning and the development of social skills. For example, the current study found that youth with ADHD were at significantly higher risk of being both a bully and victim (i.e., bully-victim) than youth without ADHD, increasing their vulnerability to depression (Georgiou & Stavrinides, 2008; Toblin et al., 2005), and difficulty forming healthy relationships (O'Brennan et al., 2009). While longitudinal replication of this study is needed to better understand temporal sequencing of bullying engagement and depression, early intervention to address social and functional impairments associated with ADHD may mitigate the need to later address bullying involvement and depression. As shown in the current study, youth with ADHD were at greater risk for depression than their non-ADHD peers. This was especially true of youth with ADHD involved in more frequent (weekly or daily) bullying behavior compared to those involved less frequently. Clinicians should encourage parents to keep an open dialogue with their children about their relationships with peers and help them problem-solve any potential social struggles. Doing so may buffer against the development of depression. The current findings regarding the potential for positive parenting to be protective should also be used to consider clinical interventions for parents and children with ADHD. Findings of this study should also inform clinicians of the protective effects of positive parenting and under what circumstances positive parenting may not be protective enough to mitigate the risk of depression.

Limitations and Future Directions

There are several limitations to the current study. First, due to the cross-sectional nature of the present study, is not possible to infer causal relationships among study variables.

Despite a large sample size, the cell counts of variables examined in this study were often considerably small, increasing the risk for overestimation effects. The number of bully perpetrators, youth with depression, and lower positive parenting scores were particularly small, leading to most associations being statistically significant and with considerably large effects. This should be considered when interpreting the findings of the current study.

All data collected by the NSCH was parent-report, potentially failing to capture the full extent of youth's history of depression, involvement in bullying, and frequency of bullying involvement. The use of multiple informants has been recommended in child and adolescent mental health assessment to gather the most accurate view of presenting problems (Kim, Chan, McCauley, & Stoep, 2016), as levels of agreement between parent and youth reports of emotional and behavioral problems is generally low (Achenbach et al., 1987; Sourander et al., 1999). Regarding depression specifically, research has found that parents tend to underreport symptoms of their child's depression compared to child's self-report (De Los Reyes & Kazdin, 2005; Humphreys et al., 2007). Regarding bullying behaviors, support for parent-report of youth's bullying involvement is mixed (Shakoor et al., 2011) and factors such as child age and parent-child relationship should be considered. Future research should consider using a multi-informant approach to assess for parenting behaviors as well to avoid potential biased reporting.

While the NSCH asked parents to report on their children's bullying involvement, the NSCH did not define what behaviors constitute as "bullying behavior." Failure to operationalize "bullying" on measures has been an ongoing problem highlighted in the bullying literature for several years. Specifically, researchers have questioned whether youth and adults have a similar

idea of the behaviors that meet the standards of "bullying" (Vaillancourt, McDougall, Hymel, et al. 2008; Volk, Veenstra, & Espelage 2017). In future NSCH surveys, it is recommended that bullying behavior be operationalized for survey respondents as a repetitive and intentional aggressive behavior that occurs in an unequal power dynamic between a perpetrator and a victim (Olweus, 1993).

As indicated previously, bullying behavior presents differently across development and academic grades (Currie, 2012; Espelage & Swearer, 2003; Vaillancourt et al., 2010). A limitation of the current study was that most analyses grouped together youth between the ages of 6 and 17 years and did not account for developmental differences. Had we grouped youth by developmental stages, while overall prevalence of bullying involvement would have remained consistent, findings may have provided more insight into specific clinical implications for youth of particular ages and cross-sectionally examined positive parenting patterns for youth over time (across age groups).

Despite efforts of the NSCH to reflect a nationally represented sample, the sample of the current study was mostly White, majority of youth came from a two-parent household, most parents were highly educated, and parents generally reported themselves to have very good mental and physical health. Given these factors, it is possible that the findings of the current study do not generalize to families with increased stressors and adversities.

Similarly, while child's race was controlled for in the analyses, the current study did not explore racial differences. Parenting practices vary across races (Pinquart & Kauser, 2018; Spriggs et al., 2007), as do ADHD diagnosis and treatment seeking (Coker et al., 2016; Morgan et al., 2013), bullying involvement (Goldweber et al., 2013; Spriggs et al., 2007), and rates of depression diagnoses (Richardson et al., 2003) in children and adolescents. Assessing racial

differences within the ADHD/bullying/depression literature would increase generalizability of findings.

While child sex and age were controlled for in the analyses, examining differences in the findings across these demographic variables was outside the scope of the current study. Differences in the prevalence rates of depression in males versus females (McGuinness et al., 2012), sex differences within ADHD (Arnett et al., 2015), rates of depression increasing with age (Cyranowski et al., 2000), and developmental differences related to bullying involvement and depressive symptoms should be further examined within the ADHD/bullying/depression literature.

Conclusion

Youth with ADHD are at increased independent risk for bullying involvement (McQuade et al., 2018) and depression (Biederman et al., 2006) yet the topic of bullying involvement and depression *together* within an ADHD population has historically been far less well studied (Zych et al., 2019). Due to its high prevalence rate as well as the independent associations ADHD has with bullying involvement and depression, efforts to understand bullying involvement and depression in ADHD is clinically and empirically relevant. Research on the relation between ADHD and bullying is still in its early stages and less is known about the risk and protective factors that may contribute to the development or buffering of depression in these youth.

The current study was novel given 1) the association between the frequency of bullying involvement and depression severity for youth with and without ADHD had not been examined before, 2) the association between bullying involvement x positive parenting and depression/depression severity was investigated to better understand ADHD and depression comorbidity and contribute to the growing literature in this area, and 3) ADHD was considered

as a moderator in bullying involvement x positive parenting and depression to help inform interventions for youth with ADHD.

Findings revealed the positive association between bullying engagement and depression severity, regardless of bullying role. Youth with ADHD had higher rates of depression severity than non-ADHD youth, particularly when engaged in frequent bullying behaviors as opposed to less frequent bullying behaviors. Youth with ADHD who were bullied by peers and youth with ADHD who both bullied others and were bullied themselves (i.e., bully-victims) were most at risk for mild and moderate-to-severe depression. While positive parenting behaviors were generally protective for youth with and without ADHD, the presence of bullying involvement and ADHD often outweighed the potential protective factor of positive parenting. Bully-victims youth with ADHD were most resistant to positive parenting as a protective factor. These results highlight the need for continued research to understand the risk for depression and positive parenting as a protective factor among youth with ADHD.

Table 1

Participant characteristics

Child/Adolescent	*N*	%	*M* age
Total	38, 221	100	
Sex			
Male	19,011	49.7	
Female	19,210	50.3	
Child Age Range			8.6 years
6	2,984	7.8	
7	3,008	7.9	
8	3,271	8.6	
9	3,221	8.4	
10	3,290	8.6	
11	3,263	8.5	
Adolescent Age Range			14.7 years
12	3,310	8.7	
13	3,177	8.3	
14	3,183	8.3	
15	3,138	8.2	
16	3,210	8.4	
17	3,160	8.3	
Race			
White	25,848	67.6	
Black or African American	5,182	13.6	
American Indian or Alaska Native	484	1.3	
Asian	1,901	5.0	
Native Hawaiian	653	1.2	
Other	1,219	3.2	
Two or more races	3,136	8.2	
Bully Involvement Role			
No involvement	19,626	51.4	
Only bully perpetrator	791	2.1	
Only victim	11,076	30.0	
Bully perp + victim (Bully-victim)	6,726	17.6	
ADHD			
No	34,471	90.2	
Yes	3,750	9.8	
Current Depression Severity			
None	36,642	95.9	
Mild	752	1.9	
Moderate	694	1.8	

Severe	130	0.3
Parents		
Sex		
Male	11,619	30.4
Female	26,448	69.2
Current Age		
18-29	1,375	3.6
30-39	11,657	30.5
40-49	16,664	43.6
50-59	6,421	16.8
60-69	1,381	3.6
70+	498	1.3
Highest Grade Level		
8th grade or less	1,681	4.4
9-12th grade, no diploma	3,592	9.4
High School graduate or GED complete	6,038	15.8
Completed vocational trade or business	2,369	6.2
Some college, no degree	5,083	13.3
Associate's degree	3,172	8.3
Bachelor's degree	9,020	23.6
Master's degree	5,503	14.4
Doctorate or Professional Degree	1,758	4.6
Marital Status		
Married	27,557	72.1
Not married, but living with partner	2,140	5.6
Never married	2,790	7.3
Divorced	3,860	10.1
Separated	1,223	3.2
Widowed	657	1.8
Physical Health		
Excellent	9,746	25.5
Very good	15,364	40.2
Good	10,090	26.4
Fair	2,484	6.5
Poor	687	1.5
Mental Health		
Excellent	14,409	37.7
Very good	14,638	38.3
Good	7,491	19.6

Fair	1,442	3.8
Poor	256	0.7
Poverty Level of Household		
0-99% FPL	6,841	17.9
100-199% FPL	8,102	21.2
200-399% FPL	10,969	28.7
400% FPL or greater	12,345	32.3
Family Structure		
Two biological/adoptive parents, currently	22,473	58.8
Two biological/adoptive parents, not currently	2,178	5.7
Two parents (at least one biological)	2,255	5.9
Two parents (at least one not biological)	802	2.1
Single mother	6,879	18.0
Single father	1,681	4.4
Grandparent household	1,414	3.7
Other relation	573	1.5
Positive Parenting Groups		
High positive parenting (HPP)	11,313	29.6
Moderately high positive parenting (MHPP)	20,180	52.8
Moderately low positive parenting (MLPP)	6,459	16.9
Low positive parenting (MLPP)	305	0.8

Table 2

Parenting Constructs

Parenting Construct	Survey Item(s)	Survey Item Response Choices
Communication	How well can you and this child share ideas of talk about things that really matter?	1. Very well 2. Somewhat 3. Not very well 4. Not well at all
Parenting Self Efficacy	How well do you think you are handling the day-to-day demands of raising children?	1. Very well 2. Somewhat 3. Not very well 4. Not well at all
Problem Solving	When your family faces problems, how often are you likely to work together to solve your problems?	1. All of the time 2. Most of the time 3. Some of the time 4. None of the time
Parenting Stress	During the past month, how often have you felt this child is much harder to care for than most children his/her age?	1. Never 2. Rarely 3. Sometimes 4. Usually/ Always

Note. Cronbach's coefficient (communication, parenting self-efficacy, problem solving and parenting stress): .863 (good to excellent range).

Table 3

Planned Analyses

Aims/ Hypotheses	Statistical Measure	Independent Variable(s)	Dependent Variable(s)
1a	Chi-square test of independence	ADHD (yes/no)	Bullying involvement (each role; yes/no)
1b	Chi-square test of independence	ADHD (yes/no)	Depression (yes/no)
1c	Chi-square test of independence	Age group (Child vs. Adolescent)	1. Bullying involvement (each role; yes/no) 2. Depression (yes/no)
2a	Multinomial logistic regression	Bullying frequency (each role)	Depression severity (none, mild, moderate/severe)
2b	Multinomial logistic regression	1. Bullying frequency (bully and victim) 2. ADHD (yes/no) 3. ADHD*Bullying	Depression severity (none, mild, moderate/severe)
3a	Multinomial logistic regression	1. Bullying involvement (each role) 2. Positive parenting score 3. Bullying*Positive parenting	Depression severity (none, mild, moderate/severe)
3b	Binary regression	1. ADHD (yes/no) 2. Positive parenting score 3. Bullying involvement (each role) 4. ADHD*Bullying 5. ADHD*Positive parenting 6. Bullying*Positive parenting 7. ADHD*Bullying*Positive parenting	Depression (yes/no)

Table 4

Aim 1, Hypothesis 1, ADHD and Bully Involvement

	No Involvement	Bully Perpetrator	Victim	Bully-Victim	Total	
	N (%)	N (%)	N (%)	N (%)	N (%)	χ^2
ADHD						
No	18,445 (53.51)	651 (1.89)	9,788 (28.4)	5,587 (16.21)	34,471 (100)	
Yes	1,181 (31.5)	140 (3.74)	1,288 (34.35)	1,141 (30.41)	3,750 (100)	
						866.68***

*Note: *** indicates statistical significance that is ≤ .000.*

Table 5

Aim 1, Hypothesis 2, ADHD and Depression

	Depression No	**Depression Yes**	**Total**	
	N (%)	**N (%)**	**N (%)**	χ^2
ADHD				
No	18,703 (92.6)	1,499 (7.4)	20,202 (100)	
Yes	2,289 (73.88)	814 (26.2)	3,103 (100)	
Total	20,992 (90.1)	2,313 (9.9)	23,305 (100)	
				1,009.35***

*Note: *** indicates statistical significance that is ≤. .000.*

Table 6

Aim 1, Hypothesis 3, Depression and Bully Involvement in Children and Adolescents

	Depression				Bullying Involvement					
	No	**Yes**	**Total**		**No Involvement**	**Bully Perpetrator**	**Victim**	**Bully-Victim**	**Total**	
	N (%)	**N (%)**	**N (%)**	χ^2	**N (%)**	**N (%)**	**N (%)**	**N (%)**	**N (%)**	χ^2
Subgroup										
Child	17,104 (97.69)	404 (2.31)	17,508 (100)		6,640 (38.17)	302 (1.74)	6,080 (34.95)	4,375 (25.15)	17,397 (100)	
Adolescent	21,200 (90.07)	2,336 (9.93)	23,536 (100)		12,931 (55.47)	483 (2.07)	6,561 (28.14)	3,337 (14.31)	23,312 (100)	
				882.09***						1171.56***

*Note: *** indicates statistical significance that is ≤. .000.*

Table 7

Aim 2, Hypothesis 1, Bully Involvement Frequency and Depression Severity

	Mild Depression *(vs. No depression)*				Moderate to Severe Depression *(vs. No depression)*			
Variable *(Reference Category)*	***b***	***p***	**95% CI**	**RRR**	***b***	***p***	**95% CI**	**RRR**
PANEL 1: Bully Perpetration *(Never)*								
Infrequent bully perpetration	.83	***[a]	[.56, 1.11]	2.30	1.03	***[b]	[.72, 1.34]	2.79
Frequent bully perpetration	2.68	***[a]	[1.72, 3.65]	14.64	2.53	***[b]	[1.86, 3.21]	12.59
PANEL 2: Victim *(No)*								
Infrequent victim	1.53	***[c]	[1.19, 1.87]	4.60	1.44	***[d]	[1.06, 1.82]	4.21
Frequent victim	2.74	***[c]	[2.31, 3.17]	15.47	3.25	***[d]	[2.82, 3.69]	25.88
Panel 3: Bully-victim *(Never)*								
Yes	2.01	***	[1.57, 2.44]	4.99	2.17	***	[1.77, 2.58]	7.45

*Note: * indicates statistical significance of ≤.05, ** indicates statistical significance that is ≤. .01, and *** indicates statistical significance that is ≤. .000.*
RRR = relative risk ratio.
Subscript [a] reflects a significant Adjusted Wald coefficient (AWC) between infrequent and frequent bully perpetrators with mild depression, (p =.000).
[b] reflects a significant AWC between infrequent and frequent bully perpetrators with moderate to severe depression, (p < .001).
[c] reflects a significant AWC between those infrequently and frequent victim with mild depression, (p =.000).
[d] reflects a significant AWC between those infrequently and frequent victim with moderate to severe depression, (p =.000).

Table 8

Aim 2, Hypothesis 2, Bully Involvement Frequency, ADHD, and Depression Severity

	Mild Depression *(vs. No depression)*				Moderate to Severe Depression *(vs. No depression)*			
Variable *(Reference Category)*	**b**	**p**	**95% CI**	**RRR**	**b**	**p**	**95% CI**	**RRR**
PANEL 1: Bully Perpetration *(None)* **& ADHD** *(None)*								
No bully perpetration & ADHD	.70	***	[.32, 1.07]	2.01	.80	***	[.41, 1.18]	2.22
Infrequent bully perpetration & No ADHD	3.26	***[a]	[2.14, 4.39]	26.16	2.72	***	[1.71, 3.73]	15.18
Infrequent bully perpetration & ADHD	1.90	***[a]	[1.58, 2.22]	6.68	2.12	***	[1.75, 2.48]	8.30
Frequent bully perpetration & No ADHD	2.48	***	[2.02, 2.88]	11.98	2.93	***	[2.51, 3.36]	18.81
Frequent bully perpetration & ADHD	2.24	***	[1.52, 2.98]	9.38	3.25	***	[2.42, 4.09]	25.92
PANEL 2: Victim *(Never)* **& ADHD** *(None)*								
Never victim & ADHD	1.33	***	[.90, 1.76]	3.78	1.46	***	[1.02, 1.90]	4.30
Infrequent victim& No ADHD	2.63	***[b]	[2.05, 3.20]	13.85	3.37	***[d]	[2.82, 3.91]	29.17
Infrequent victim & ADHD	1.49	***[b]	[.93, 2.05]	4.44	2.46	***[d]	[1.78, 3.16]	11.85
Frequent victim & No ADHD	2.99	***[c]	[2.57, 3.42]	19.97	3.33	***[e]	[2.85, 3.81]	27.96
Frequent victim & ADHD	3.55	***[c]	[3.00, 4.09]	9.64	3.64	***[e]	[3.92, 5.02]	87.59
Panel 3: Bully-victim *(None)* **& ADHD** *(None)*								
Yes Bully-victim & ADHD	3.21	***	[2.72, 3.69]	24.73	3.88	***	[3.38, 4.38]	48.28

*Note: * indicates statistical significance of ≤.05, ** indicates statistical significance that is ≤. .01, and *** indicates statistical significance that is ≤. .000.*
Subscript [a] reflects a significant Adjusted Wald coefficient (AWC) between infrequent bully perpetrators with and without ADHD, with mild depression, (p =.02).
[b] reflects a significant AWC between infrequent victim with and without ADHD, with mild depression, (p =.001).
[c] reflects a significant AWC between frequent victim with and without ADHD, with mild depression, (p =.03).
[d] reflects a significant AWC between infrequent victim with and without ADHD, with moderate to severe depression, (p =.014).
[e] reflects a significant AWC between frequent victim with and without ADHD, with moderate to severe depression, (p =.000).

Table 9

Aim 3, Hypothesis 1, Bully Involvement, Positive Parenting, and Depression Severity

	Mild Depression *(vs. No depression)*				Moderate/Severe Depression *(vs. No depression)*			
Variable *(Reference Category)*	**b**	**p**	**95% CI**	**RRR**	**b**	**p**	**95% CI**	**RRR**
PANEL 1: Bully Perpetration *(None)* **& Parenting** *(High Positive)*								
Bully perpetration & HPP	.66	*	[.14, 1.18]	1.93	1.65	***	[.18, 2.11]	5.21
No bully perpetration & MHPP	1.76	***[a]	[1.28, 2.24]	5.81	3.34	***[c]	[2.89, 3.80]	28.32
Bully perpetration & MHPP	2.60	***[a]	[1.67, 3.53]	13.45	4.42	***[c]	[3.69, 5.15]	82.85
No bully perpetration & MLPP	-20.53	***[b]	[-21.18, -19.89]	0.00	-19.39	***[d]	[-20.04, -18.73]	0.00
Bully perpetration & MLPP	-.13	ns[b]	[-1.25, .99]	0.88	2.65	***[d]	[.85, 4.54]	14.17
No bully perpetration & LPP	1.91	***	[.76, 3.06]	6.76	2.49	***	[1.59, 3.39]	12.06
Bully perpetration & LPP	1.46	ns	[-.42, 3.34]	4.30	3.90	***	[1.57, 6.22]	49.21
PANEL 2: Victim *(None)* **& Parenting** *(Positive)*								
Victim & HPP	.76	ns	[-.04, 1.55]	2.13	2.26	***	[1.44, 3.07]	9.56
Not victim & MHPP	1.93	***	[1.22, 2.63]	6.86	4.05	***[e]	[3.27, 4.83]	57.36
Victim & MHPP	2.80	***	[1.61, 4.02]	16.50	4.97	***[e]	[4.00, 5.95]	144.73
Not victim & MLPP	1.11	*	[.22, 2.00]	3.04	2.06	***[f]	[1.16, 2.95]	7.81
Victim & MLPP	1.56	***	[.85, 2.27]	4.76	3.25	***[f]	[2.44, 4.05]	25.69
Not victim & LPP	2.61	***	[1.89, 3.34]	13.66	4.67	***[g]	[3.85, 5.48]	106.30
Victim & LPP	3.23	***	[1.76, 4.71]	25.33	5.89	***[g]	[4.57, 7.20]	360.41

Panel 3: Bully-victim *(None)* **& Parenting** *(High Positive)*

Bully-victim & HPP	1.10	*	[.21, 1.99]	3.01	3.79	***	[2.92, 4.66]	44.29
No bully-victim & MHPP	2.31	**	[.96, 3.66]	10.07	4.79	***	[3.28, 6.31]	120.65
Bully-victim & MHPP	1.64	***	[.82, 2.47]	5.18	3.73	***	[2.91, 4.55]	41.74
No bully-victim & MLPP	2.71	***[h]	[1.87, 3.54]	15.04	5.02	***[i]	[4.21, 5.83]	151.96
Bully-victim & MLPP	1.04	ns[h]	[-.09, 2.17]	23.27	2.32	**[i]	[.63, 4.02]	10.21
No bully-victim & LPP	2.07	***	[1.02, 3.12]	7.94	3.70	***[j]	[3.70, .44]	40.58
Bully-victim & LPP	3.22	***	[1.72, 4.71]	24.92	5.72	***[j]	[4.71, 6.73]	304.84

*Note: * indicates statistical significance of ≤.05, ** indicates statistical significance that is ≤. .01, and *** indicates statistical significance that is ≤. .000.*

Ns indicates non-significance

Subscript [a] reflects a significant Adjusted Wald coefficient (AWC) between no bully perpetration and bully perpetrations among youth with MHPP and mild depression, (p =.05).

[b] reflects a significant AWC between no bully perpetration and bully perpetration among youth with MLPP and mild depression, (p =.000).

[c] reflects a significant AWC between no bully perpetration and bully perpetration among youth with MHPP and moderate to severe depression, (p =.001).

[d] reflects a significant AWC between no bully perpetration and bully perpetration among youth with MLPP and moderate to severe depression, (p =.000).

[e] reflects a significant AWC between not victim and bullied among youth with MHPP and moderate to severe depression, (p =.007).

[f] reflects a significant AWC between not victim and bullied among youth with MLPP and moderate to severe depression, (p =.000).

[g] reflects a significant AWC between not victim and bullied among youth with LPP and moderate to severe depression, (p =.035).

[h] *reflects a significant AWC between not a bully-victim and bully-victim among youth with MLPP and mild depression, (p =.000).*

[i] *reflects a significant AWC between not a bully-victim and bully-victim among youth with MLPP and moderate to severe depression, (p =.001).*

[j] *reflects a significant AWC between not a bully-victim and bully-victim among youth with LPP and moderate to severe depression, (p =.000).*

Table 10

Aim 3, Hypothesis 2, Bully Involvement, Positive Parenting, ADHD, and Depression (Yes/No)

	Depression *(vs. no depression)*			
Variable *(Reference Category)*	***b***	***p***	**95% CI**	**OR**
PANEL 1: Bully Perpetration *(None)***, Parenting** *(High Positive),* **ADHD** *(None)*				
Bully perpetration, HPP, & No ADHD	0 [a]	--	--	--
Bully perpetration, HPP, & ADHD	0 [b]	--	--	--
Bully perpetration, MHPP, & No ADHD	.18	.ns[c]	[-.87, 1.24]	1.20
Bully perpetration, MHPP, & ADHD	4.18	***[c]	[2.25, 6.10]	65.37
Bully perpetration, MLPP, & No ADHD	2.28	***	[1.27, 3.29]	9.78
Bully perpetration, MLPP, & ADHD	2.54	***	[1.40, 3.67]	12.68
Bully perpetration, LPP, & No ADHD	-1.07	ns[d]	[-2.91, .76]	.34
Bully perpetration, LPP, & ADHD	7.21	***[d]	[5.11, 9.29]	1,352.89
PANEL 2: Victim *(None)***, Parenting** *(High Positive),* **ADHD** *(None)*				
Victim, HPP, & No ADHD	1.21	** [e]	[.43, 1.99]	3.35
Victim, HPP, & ADHD	2.91	***[e]	[1.68, 4.15]	18.36
Victim, MHPP, & No ADHD	1.92	***[f]	[1.24, 2.60]	6.82
Victim, MHPP, & ADHD	3.36	***[f]	[2.63, 4.10]	28.79
Victim & MLPP, & No ADHD	3.05	***[g]	[2.33, 3.76]	21.11
Victim & MLPP, & ADHD	4.36	***[g]	[3.61, 5.11]	78.26

Victim & LPP, & No ADHD	3.40	***[h]	[2.22, 4.59]	29.96
Victim & LPP, & ADHD	5.39	***[h]	[4.05, 6.72]	219.20
Panel 3: Bully-victim *(None)***, Parenting** *(High Positive),* **ADHD** *(None)*				
Bully-victim, HPP & No ADHD	1.51	**	[.40, 2.62]	4.53
Bully-victim, HPP, & ADHD	1.12	ns	[-.61, 2.85]	3.06
Bully-victim, MHPP, & No ADHD	2.48	***[i]	[1.47, 3.49]	11.94
Bully-victim, MHPP, & ADHD	3.35	***[i]	[2.45, 4.26]	28.50
Bully-victim, MLPP, & No ADHD	3.01	***[j]	[2.13, 3.90]	20.29
Bully-victim, MLPP, & ADHD	4.77	***[j]	[3.89, 5.64]	117.92
Bully-victim, LPP, & No ADHD	3.76	***	[2.17, 5.35]	42.95
Bully-victim, LPP, & ADHD	4.78	***	[3.63, 5.94]	119.10

*Note: * indicates statistical significance of ≤.05, ** indicates statistical significance that is ≤. .01, and *** indicates statistical significance that is ≤ .000.*
Ns indicates non-significance
Subscript [a] N=78 cases were dropped because of lack of variation. N=78 predicted no depression perfectly.
[b] N = 8 cases were dropped because of lack of variation. N=8 predicted no depression perfectly.
[c] reflects a significant Adjusted Wald coefficient (AWC) between bully perpetration with and without ADHD among youth with MHPP and depression, (p =.000).
[d] reflects a significant AWC between bully perpetration with and without ADHD among youth with LPP and depression, (p =.000).
[e] reflects a significant AWC between victim youth with and without ADHD among youth with HPP and depression, (p =.004).
[f] reflects a significant AWC between victim youth with and without ADHD among youth with MHPP and depression, (p =.000).
[g] reflects a significant AWC between victim youth with and without ADHD among youth with MLPP and depression, (p =.000).
[h] reflects a significant AWC between victim youth with and without ADHD among youth with LPP and depression, (p =.012).
[i] reflects a significant AWC between bully-victim youth with and without ADHD among youth with MHPP and depression, (p =.023).
[j] reflects a significant AWC between bully-victim youth with and without ADHD among youth with MLPP and depression, (p =.000).

Appendix

Population Descriptive Data and Frequencies

Frequencies and cell counts of all study variables for Aim 1 are presented in Tables 4-6 in the main body of this paper and frequencies and cell counts of all study variables for Aims 2 and 3 are presented in Tables A1-A4 in this appendix.

Aim 1

Hypothesis 1.1 Descriptive Data and Cell Counts. Table 4 presents all descriptive population data for variables in Aim 1, hypothesis 1. Overall, youth with ADHD were more likely to be engaged in bullying involvement than youth without ADHD. Specifically, 1.89% (*n* = 651) of youth without ADHD were identified as bullies, whereas 3.74% (*n* = 140) of youth with ADHD were identified as bullies. 28.4% (*n* = 9,788) of non-ADHD youth were identified as victims compared to 34.35% (*n* = 1,288) of youth with ADHD. Around 16.21% (*n* = 5,587) of youth without ADHD were identified as bully-victims while nearly 30.41% (*n*= 1,141) of youth with ADHD were identified as bully-victims.

Hypothesis 1.2 Descriptive Data and Cell Counts. Table 5 presents descriptive population data for variables in Aim 1, hypothesis 2. Adolescents with ADHD were more than three times more likely to have depression at the time of survey completion (26.23%, *n* = 814) than adolescents without ADHD (7.42%, *n* = 1,499).

Hypothesis 1.3 Descriptive Data and Cell Counts. Table 6 presents frequencies for Aim 1, hypothesis 3. Nearly 10% (*n* = 2,336) of adolescents in the full sample were reported to be depressed, whereas 2.31% (*n* = 404) of children were identified to be depressed. As for bullying involvement, more adolescents were rated as being less involved in bullying behavior (55.47%, *n* = 12,931) compared to children (38.17%, *n* =6,640). However, more adolescents

were identified as bully perpetrators (2.07%, *n* = 483) compared to children (1.74%, *n* = 302). Children in the sample had higher rates of victims (34.95%, *n* = 6,080) and bully-victims (25%, *n* = 4,375), compared to adolescents (28.14%, *n* = 6,561 and 1.314%, *n* = 3,337, respectively).

Aim 2

Hypothesis 2.1 Descriptive Data and Cell Counts. Table A1 presents all descriptive population data for variables in Aim 2, hypothesis 1, specifically cases of bully involvement frequency (never/none, infrequently, frequently) by role (bully perpetrator, victim, bully-victim) and depression severity (none, mild, moderate-severe) as the outcome variable.

Bully perpetrators. Among youth who did not bully others in the past year, nearly 96% (*n* = 30,806) did not have depression, whereas 2.23% (*n* = 718) were reported to have mild depression, and nearly 1.94% (*n* = 623) had moderate-to-severe depression. Among infrequent bully perpetrators, 92.04% (*n* = 7,392) of youth did not have depression, 3.81% (*n* = 306) had mild depression, and 4.15% (*n* = 333) had moderate-to-severe depression. For youth who bullied others more frequently, 79.32% (*n* = 349) were found to have no depression, 7.95% (*n* = 35) had mild depression, and 12.73% (*n* = 56) had moderate-to-severe depression.

Victims. Most youth who had not been bullied in the past year did not have depression (97.7%, *n* = 19,845), whereas 1.25% of victims (*n* = 254) had mild depression and 1.05% (*n* = 214) had moderate-to-severe depression. Among infrequent victim youth, 93.61% (*n* = 17,000) did not experience depression, 3.46% (*n* = 628) experienced mild depression, and almost 2.93% (*n* = 533) had moderate-to-severe depression. Most frequent victim youth were found to have no depression (79.31%, *n* = 1,690). However, 8.35% (*n* = 178) and 12.34% (*n* = 263) were identified has having mild and moderate-to-severe depression, respectively.

Bully-Victims. Majority of youth with no history of bullying did not have depression (97.84%, *n* = 19,079), whereas 1.10% (*n* = 233) had mild depression and 0.96% (*n* = 188) had moderate-to-severe depression. Of youth with some bullying behavior (i.e., engagement in either bully or victim, but not both bully and victim) nearly 92.79% (*n* = 12,339) did not have depression, whereas 3.78% (*n* = 505) had mild depression and 3.43% (*n* = 459) had moderate-to-severe depression. Regarding youth identified as bully-victims, 91.11% (*n* = 6,983) were identified has not having depression, 4.19% (*n* = 321) had mild depression, and 4.70% (*n* = 360) had moderate-to-severe depression.

Hypothesis 2.2 Descriptive Data and Cell Counts. Table A2 presents all descriptive population data for variables in Aim 2, hypothesis 2, specifically cases of youth with bully involvement frequency (never/none, infrequently, frequently) by role (bully perpetrator, victim, bully-victim) and ADHD (yes/no), and depression severity (none, mild, moderate-severe) as the outcome variable.

Bully perpetrators (frequency) and ADHD groups. Among youth with no bully perpetration and no ADHD, almost 97% (*n* = 28,041) did not have depression, whereas 1.67% (*n* = 483) had mild depression and 1.38% (*n* = 399) had moderate-to-severe depression. Among the group of youth with no bully perpetration and ADHD, 94.65% (*n* = 6,179) did not have depression, however 2.68% (*n* = 175) and 2.67% (*n* = 174) had mild and moderate-to-severe depression, respectively. Youth who infrequently bullied others and did not have ADHD, 90.96% did not have depression, whereas 3.83% (*n* = 22) had mild depression and 5.22% (*n* = 30) had moderate-to-severe depression. Youth who infrequently bullied and had ADHD had slightly higher rates of depression. Specifically, 85.76% (*n* = 2,765) did not have depression, 7.29% (*n* = 235) had mild depression and 6.95% (*n* = 224) had moderate-to-severe depression.

As for youth who frequently bullied but did not have ADHD, 80% (*n* = 1,150) did not have depression, 8.91% (*n* = 128) had mild depression and 11% (*n* = 159) had moderate-to-severe depression. Lastly, most youth who frequently bullied and had ADHD (67.80%, *n* = 120) did not have depression, compared to 11.86% (*n* = 21) who had mild depression and 20.34% (*n* = 36) who had moderate-to-severe depression.

Victim (frequency) and ADHD groups. Among non-victim youth without ADHD, 98.22% (n = 18,180) did not have depression, whereas 1% (*n* = 189) had mild depression and 0.76% (*n* = 140) had moderate-to-severe depression. Among the victim youth with ADHD, 95.45% (*n* = 14,719) did not have depression, however 2.52% (*n* = 388) and 2% (*n* = 313) had mild and moderate-to-severe depression, respectively. Among youth who were infrequent victims and did not have ADHD, almost 85% did not have depression, whereas 6% (*n* = 91) had mild depression and 9% (*n* = 134) had moderate-to-severe depression. Youth who were infrequent victims and had ADHD had lower rates of depression. Specifically, 91.56% (*n* = 1,475) did not have depression, however 3.91% (*n* = 63) had mild depression and 4.53% (*n* = 73) had moderate-to-severe depression. As for youth who were frequent victims and did not have ADHD, 82.57% (*n* = 2,136) did not have depression, nearly 9.08% (*n* = 235) had mild depression and 8.35% (*n* = 216) had moderate-to-severe depression. Lastly, most youth who were frequent victims and had ADHD did not have depression (66.09%, *n* = 419), compared to 13.56% (*n* = 86) who had mild depression and 20.35% (*n* = 129) who had moderate-to-severe depression.

Bully-Victim and ADHD groups*.* Among youth with no history of a bully-victim status within the past year and no ADHD, 98.32% (*n* = 17,539) did not have depression, whereas 1.02% (*n* = 176) had mild depression and 0.76% (*n* = 124) had moderate-to-severe depression.

Among the group of youth with no bully-victim history and ADHD, 94.74% (*n* = 10,780) did not have depression, while 2.76% (*n* = 314) and 2.50% (*n* = 284) had mild and moderate-to-severe depression, respectively. Among youth who had some involvement in bullying behavior and no ADHD, nearly 94.22% (*n* = 5,772) did not have depression, whereas 2.89% (*n* = 177) had mild depression and 2.89% (*n* = 177) had moderate-to-severe depression. Most youth with some bullying behavior and ADHD (nearly 92%, *n* = 1,358) did not have depression, whereas 3.79% (*n* = 56) had mild depression and 4.27% (*n* = 63) had moderate-to-severe depression. As for youth who were bully-victims and did not have ADHD, almost 81% (*n* = 1,511) did not have depression, compared to nearly 10% (*n* = 186) with mild depression and 9.15% (*n* = 171) with moderate-to-severe depression. Lastly, among bully-victim youth with ADHD, 78% (*n* = 1,152) did not have depression, compared to 9.61% (*n* = 142) who had mild depression and 12.39% (*n* = 183) who had moderate-to-severe depression.

Aim 3

Hypothesis 3.1 Descriptive Data and Cell Counts. Table A3 presents all descriptive population data for variables in Aim 3, hypothesis 1, specifically cases of youth with bully involvement (bully perpetrator, victim, bully-victim), positive parenting groups (HPP, MHPP, MLPP, and LPP), and depression severity (none, mild, moderate/severe) as the outcome variable.

Bully Perpetration and Positive Parenting. Among youth who did not bully others and whose parents rated themselves as engaging in high positive parenting (HPP), 98.50% (*n* = 10,616) were found to have no depression, whereas around 1% (*n* = 109) had mild depression, and around 0.49% (*n* = 53) had moderate-to-severe depression. Bully perpetrators with HPP had higher slightly rates of depression, 96.35% (*n* = 20,268) of youth were found to have no depression, 2.13% (*n* = 449) had mild depression, and 1.51% (*n* = 318) had moderate-to-severe

depression. Among non-bully perpetrators with moderately high positive parenting (MHPP), 86.21% (*n* = 6,054) were found to have no depression, 6.11% (*n* = 429) had mild depression, and 7.68% (*n* = 539) had moderate-to-severe depression. In contrast, bully perpetrators with MHPP had higher rates of depression, however cell counts were significantly smaller. Among bully perpetrators with moderately high positive parenting (MHPP), 66.13% (*n* = 205) were found to have no depression, 11.94% (*n* = 37) had mild depression, and nearly 22% (*n* = 68) had moderate-to-severe depression. For non-bully perpetrators with moderately low positive parenting (MLPP), 100% of youth in this group (*n* = 88) were rated as having no depression. There were no youth rated by parents as non-bully perpetrators and having mild or moderate-to-severe depression. As for bully perpetrators with moderately low positive parenting (MLPP), nearly 97% of youth in this group (*n* = 412) were rated as having no depression, 1.65% (*n* =7) had mild depression and 1.41% (*n* = 6) had moderate-to-severe depression. Lastly, 89.27% of non-bully perpetrators with low positive parenting (LPP) did not have depression, whereas 4.72% (*n* = 11) and 6% (*n* = 14) were found to have mild and moderate-to-severe depression, respectively. Youth identified as bully perpetrators with LPP were found to have higher frequencies of depression than non-bully perpetrators with LPP, however as with youth with MHPP, cell counts were much smaller. Most bully perpetrators with LPP did not have depression (60%, *n* = 12), whereas 10% (*n* = 2) had mild depression and 30% (*n* = 6) had moderate-to-severe depression.

Bullied and Positive Parenting. Among non-victim youth whose parents rated themselves having HPP, 99% (*n* = 7,720) were identified as having no depression, 0.68% (*n* = 53) had mild depression, and 0.24% (*n* = 19) had moderate-to-severe depression. Victims with HPP had higher slightly rates of depression, 97.37% (*n* = 14,160) of youth were found to have no

depression, 1.52% (*n* = 221) had mild depression, and 1.11% (*n* = 162) had moderate-to-severe depression. Among non-victim youth with MHPP, 87.83% (*n* = 4,387) were found to have no depression, 5.23% (*n* = 261) had mild depression, and 6.95% (*n* = 347) had moderate-to-severe depression. In contrast, victims with MHPP had higher rates of depression, however cell counts were much smaller. 66.11% (*n* = 158) of victims with MHPP were found to have no depression, about 13% (*n* = 31) had mild depression, and nearly 21% (*n* = 50) had moderate-to-severe depression. Among non-victims with MLPP, 97% of youth in this group (*n* = 2,984) were rated as not having depression, 1.82% (*n* = 56) were reported to have mild depression and 1.11% (*n* = 34) with moderate-to-severe depression. Victims with MLPP had both higher cell counts and rates of depression than their non-bullied MLPP peers. Specifically, about 94.26% (*n* = 6,520) had no depression, 3.40% (*n* = 235) had mild depression and 2.34% (*n* = 162) had moderate-to-severe depression. Among youth with LPP, victims had higher rates of depression than non-victim, however far fewer youth were identified as being bullied and depressed in this positive parenting group. Nearly 83% (*n* = 1,875) of non-victims with LPP were found to not have depression, whereas 8.79% (*n* = 8) were found to have mild depression and 9.12% (*n* = 206) were found to have moderate-to-severe depression. In contrast, while most victims with LPP did not have depression (64.84%, *n* = 59), nearly 9% (*n* = 8) were rated a having mild depression and 26.37% (*n* = 24) with moderate-to-severe depression.

Bully-Victims and Positive Parenting. Among youth not identified as a bully or a victim and whose parents rated their parenting as HPP, most (99.18%, *n* = 6,615) were found to have no depression, while 0.60 (*n* = 40) and 2.29% (*n* = 168) were identified as having mild and moderate-to-severe depression, respectively. Youth with some bullying involvement were found to have higher rates of depression with 98.21% (*n* = 9,792) identified has having no depression,

1% (*n* = 106) were identified to have mild depression and 0.72% (*n* = 72) were rated as having moderate-to-severe depression. Bully-victims with HPP exhibited even higher frequencies of depression with 93% (*n* = 2,131) rated has not having depression, 3.19% (*n* = 73) having mild depression, and nearly 3.76% (*n* = 86) with moderate-to-severe depression. Among youth with MHPP, 75.71% (*n* = 53) of youth without bullying engagement did not have depression, while 8.57% (*n* = 6) had mild depression and 15.71% (*n* = 11) had moderate-to-severe depression. Of those with some bullying behavior and MHPP, 97% did not have depression, while 1.77% (*n* = 56) had mild depression and 1.08% (*n* = 34) had moderate-to-mild depression. Bully-victim youth with MHPP had higher frequencies of depression than other MHPP bullying groups with 94% (*n* = 6,932) without depression, 3.30% (*n* = 242) with mild depression, and 2.29% (*n* = 168) with moderate-to-severe depression. Among youth not engaged in bullying with MLPP, 83.55% (*n* = 2,083) did not have depression, 7.62% (*n* = 190) had mild depression, and 9% (*n* = 220) had moderate-to-severe depression. Most youth with MLPP and some bullying involvement were reported as having no depression (63.96%, *n* = 71), 9% (*n* = 10) were mildly depressed, and 27% (*n* = 30) were moderately-to-severely depressed. Bully-victim youth with MLPP were also mostly not depressed (98.34%, *n* = 948), with 1.24% (*n* = 12) mildly depressed and 0.41% (*n* = 4) moderately-to-severely depressed. Lastly, among youth with LPP, those uninvolved in bullying were mostly not depressed (95.35%, *n* = 3,815), 2.65% (*n* = 106) were mildly depressed, and 2% (*n* = 80) were moderately-to-severely depressed. Nearly 83% (*n* = 1,997) of youth with some involvement and LPP were not depressed, 7.26% (*n* = 175) were mildly depressed, and almost 10% (*n* = 240) were moderately-to-severely depressed. Among identified bully-victims whose parents had LPP, 63.19% (*n* = 91) were not depressed, nearly 16% (*n* = 23) were mildly depressed, and 20.83% were moderately-to-severely depressed (*n* = 30).

Hypothesis 3.2 Descriptive Data and Cell Counts. Table A4 presents all descriptive population data for variables in Aim 3, hypothesis 2, specifically cases of youth with bully involvement (bully perpetrator, bullied, bully-victim), ADHD (yes/no), positive parenting groups (HPP, MHPP, MLPP, and LPP), and depression (yes/no).

Bully Perpetrators, ADHD, Positive Parenting and Depression. All non-bully perpetration frequency data is presented in Table A4, including individuals not identified as bully perpetrations, however only bully perpetrator (yes) data was used for subsequent analyses, therefore only bully perpetrators (yes) data will be presented in the text below. Among youth with bully perpetration, HPP, and no ADHD, 100% (n = 79) of youth in this group were identified as not having depression. Similarly, among bully perpetrators with HPP and ADHD, 100% (n = 8) of youth in this group were identified as not having depression. Given the lack of variability in depression as the outcome variable, Stata dropped these two groups from the subsequent multinomial logistic regression analyses. Among youth with reported bully perpetration, MHPP, and no ADHD, most youth were identified as not having depression (97%, n = 363) while 2.94% (n = 11) were found to have depression. Among youth with reported bully perpetration, MHPP, and ADHD, almost 96% (n = 45) of the subgroup did not have depression compared to 4.26% (n = 2) with depression. Of bully perpetration youth with MLPP and no ADHD, most were identified has non-depressed (90.96%, n = 151) whereas 9% (n = 15) were identified as having depression. Those with bully perpetration, MLPP, and ADHD were mostly non-depressed (85.94%, n = 55) compared to the remaining 14% (n = 9) with depression. Bully perpetrators with LPP and no ADHD were mostly non-depression (77.78%, n = 7) with only two youth identified as depression (22.22%). Very few youths were identified as bully perpetrators

with LPP and ADHD, specifically four youth in this group were identified as not being depressed (40%) and six youth were identified as depressed (60%).

Bullied, ADHD, Positive parenting and Depression. All non-victim frequency data is presented in Table A4. As in bully perpetration group, only victim data were used for subsequent analyses, therefore only victim data will be presented in the text below. Among bullied, HPP, and no ADHD, 97.55% (*n* = 2,750) of youth in this group were identified as not having depression whereas 2.45% (*n* = 69) were reported to have depression. Victims with HPP and ADHD were mostly found not to have depression (91.59%, *n* = 207) compared to 8.41% (*n* = 19) with depression. Among victims with MHPP and no ADHD, 95.64% (n = 5,738) were found to not have depression and 4.46% (*n* = 268) were identified has having depression. Most victims with MHPP and ADHD did not have depression (85.22% *n* = 738) compared to the remaining 14.78% (n = 128) with depression. Only 208 (12.55%) of victims with no ADHD and MLPP reported having depression compared to the 87.45% (*n* = 1,449) with depression. Of victims with ADHD and MLPP, 30.14% (*n* = 173) had depression and nearly 69.86% (*n* = 401) did not. Among victims with LPP and no ADHD, about 34% were rated has having depression in contrast to 66% not having depression. Victims with LPP and ADHD were mostly identified as not having depression (63.16%, *n* = 24) compared to nearly 36.84% (*n* = 14) with depression.

Bully-Victim, ADHD, Positive parenting and Depression. All non-bully-victim youth frequency data is presented in Table A4. As in bully perpetration and bullied group, only bully-victim (yes) data was used for subsequent analyses, therefore only bully-victim data will be presented in the text below. Bully-victim youth with HPP and no ADHD were mostly identified as non-depressed (98.43%, *n* = 877) and only 14 youth (1.57%) were identified as being depressed. 96.83% (*n* = 61) of bully-victim youth with HPP and ADHD were identified as being

depressed, compared to only two (3.17%) bully-victim youth HPP and ADHD having depression. Among bully-victim youth with MHPP and no ADHD, 96.66% (*n* = 3,303) were identified as not depression compared to 114 (3.34%) bully-victim youth with MHPP, no ADHD, and depression. Far fewer youth were identified as being a bully-victim with MHPP and ADHD, however 87.90% (*n* = 484) were identified as not being depressed compared to 12.79% (*n* = 71) with depression. Among bully-victim youth with MLPP and no ADHD, 87.9% were identified as not depression and 1210% (n = 199) as depressed. Most bully-victim youth with MLPP and ADHD did not have depression (71.45%, *n* = 538) compared to 28.55% (*n* = 215) who were identified as being depression. Few youths were identified as bully-victims with LPP overall. However, among those without ADHD, around 71.83% (*n* = 51) were identified as being not depressed compared to 28.55% (*n* = 20) with depression. Similarly, among bully-victims with LPP and ADHD, 54.17% (n = 39) were identified as not depressed and nearly 45.83% (*n* = 33) were identified as being depressed.

Table A1

Aim 2, Hypothesis 1, Frequencies of Bully Involvement Frequency and Depression Severity

	No Depression *N* **(%)**	**Mild Depression** *N* **(%)**	**Moderate to Severe Depression** *N* **(%)**	**Total** *N* **(%)**
Bully Perpetration				
Never	30,806 (95.83)	718 (2.23)	623 (1.94)	32,147 (100)
Infrequent bully perpetration	7,392 (92.04)	306 (3.81)	333 (4.15)	8,031 (100)
Frequent bully perpetration	349 (79.32)	35 (7.95)	56 (12.73)	440 (100)
Victim				
Never	19,845 (97.70)	254 (1.25)	214 (1.05)	20,313 (100)
Infrequent victim	17,000 (93.61)	628 (3.46)	533 (2.93)	18,161 (100)
Frequent victim	1,690 (79.31)	178 (8.35)	263 (12.34)	2,131 (100)
Bully-victim				
No bullying	19,079 (97.84)	233 (1.19)	188 (.96)	19,500 (100)
Some bullying	12,339 (92.79)	505 (3.78)	459 (3.43)	13,363 (100)
Bully-victim only	6,983 (91.11)	321 (4.19)	360 (4.70)	7,664 (100)

Table A2

Aim 2, Hypothesis 2, Frequencies of Bully Involvement, ADHD, and Depression Severity

	No Depression *N* (%)	Mild Depression *N* (%)	Moderate to Severe Depression *N* (%)	Total *N* (%)
Bully Perpetration & ADHD				
No bully perpetration & No ADHD	28,041 (96.95)	483 (1.67)	399 (1.38)	28,923 (100)
No bully perpetration & ADHD	6,179 (94.65)	175 (2.68)	174 (2.67)	6,528 (100)
Infrequent bully perpetration & No ADHD	523 (90.96)	22 (3.83)	30 (5.22)	575 (100)
Infrequent bully perpetration & ADHD	2,765 (85.76)	235 (7.29)	224 (6.95)	3,224 (100)
Frequent bully perpetration & No ADHD	1,150 (80.03)	128 (8.91)	159 (11.06)	1,437 (100)
Frequent bully perpetration & ADHD	120 (67.80)	21 (11.86)	36 (20.34)	177 (100)
Victim				
Not victim & No ADHD	18,180 (98.22)	189 (1.02)	140 (0.76)	18,509 (100)
Not victim & ADHD	14,719 (95.45)	388 (2.52)	313 (2.03)	15,420 (100)
Infrequent bullied & No ADHD	1,256 (84.81)	91 (6.14)	134 (9.05)	1,481 (100)
Infrequent victim & ADHD	1,475 (91.56)	63 (3.91)	73 (4.53)	1,611 (100)
Frequent victim & No ADHD	2,136 (82.57)	235 (9.08)	216 (8.35)	2,587 (100)
Frequent victim & ADHD	419 (66.09)	86 (13.56)	129 (20.35)	634 (100)
Bully-victim				
Not bully-victim & No ADHD	17,539 (98.32)	176 (.99)	124 (.70)	17,839 (100)

Not bully-victim & ADHD	10,780 (94.74)	314 (2.76)	284 (2.50)	11,378 (100)
Some bulling & No ADHD	5,772 (94.22)	177 (2.89)	177 (2.89)	6,126 (100)
Some bullying & ADHD	1,358 (91.94)	56 (3.79)	63 (4.27)	1,477 (100)
Yes Bully-victim & No ADHD	1,511 (80.89)	186 (9.96)	171 (9.15)	1,868 (100)
Yes Bully-victim & ADHD	1,152 (78.00)	142 (9.61)	183 (12.39)	1,477 (100)

Table A3

Aim 3, Hypothesis 1, Frequencies of Bully Involvement, Positive Parenting, and Depression Severity

	No Depression *N* (%)	Mild Depression *N* (%)	Moderate to Severe Depression *N* (%)	Total *N* (%)
Bully Perpetration & Positive Parenting Groups				
No bully perpetration & HPP	10,616 (98.50)	109 (1.01)	53 (.49)	10,778 (100)
Bully perpetration & HPP	20,268 (96.35)	449 (2.13)	318 (1.51)	21,035 (100)
No bully perpetration & MHPP	6,054 (86.21)	429 (6.11)	539 (7.68)	7,022 (100)
Bully perpetration & MHPP	205 (66.13)	37 (11.94)	68 (21.94)	310 (100)
No bully perpetration & MLPP	88 (100)	0 (.0)	0 (.0)	88 (100)
Bully perpetration & MLPP	412 (96.94)	7 (1.65)	6 (1.41)	425 (100)
No bully perpetration & LPP	208 (89.27)	11 (4.72)	14 (6.01)	233 (100)
Bully perpetration & LPP	12 (60.00)	2 (10.00)	6 (30.00)	20 (100)
Victim & Positive Parenting Groups				
Not victim & HPP	7,720 (99.08)	53 (.68)	19 (.24)	7,792 (100)
Victim & HPP	14,160 (97.37)	221 (1.52)	162 (1.11)	14,543 (100)
Not victim & MHPP	4,387 (87.83)	261 (5.23)	347 (6.95)	4,995 (100)
Victim & MHPP	158 (66.11)	31 (12.97)	50 (20.92)	239 (100)
Not victim & MLPP	2,984 (97.07)	56 (1.82)	34 1.11)	3,074 (100)
Victim & MLPP	6,520 (94.26)	235 (3.40)	162 (2.34)	6,917 (100)
Not victim & LPP	1,875 (82.96)	179 (7.92)	206 (9.12)	2,260 100)
Victim & LPP	59 (64.84)	8 (8.79)	24 (26.37)	91 (100)
Bully-victim & Positive Parenting, Groups				
Not a bully-victim & HPP	6,615 (99.18)	40 (.60)	15 (.22)	6,670 (100)
Some bullying & HPP	9,792 (98.21)	106 (1.06)	72 (.72)	9,970 (100)

Bully-victim & HPP	2,131 (93.06)	73 (3.19)	86 (3.76)	2,290 (100)
Not a bully-victim & MHPP	53 (75.71)	6 (8.57)	11 (15.71)	70 (100)
Some bullying & MHPP	3,072 (97.15)	56 (1.77)	34 (1.08)	3,162 (100)
Bully-victim & MHPP	6,932 (94.42)	242 (3.30)	168 (2.29)	7,342 (100)
Not a bully-victim & MLPP	2,083 (83.55)	190 (7.62)	220 (8.82)	2,493 (100)
Some bullying & MLPP	71 (63.96)	10 (9.01)	30 (27.03)	111 (100)
Bully-victim & MLPP	948 (98.34)	12 (1.24)	4 (.41)	964 (100)
No bully-victim & LPP	3,815 (95.35)	106 (2.65)	80 (2.00)	4,001 (100)
Some bullying & LPP	1,997 (82.79)	175 (7.26)	240 (9.95)	2,414 (100)
Bully-victim & LPP	91 (63.19)	23 (15.97)	30 (20.83)	144 (100)

Table A4

Aim 3, Hypothesis 2, Frequencies of Bully Involvement, Positive Parenting, ADHD, and Depression (Yes/No)

	Depression		
	No	**Yes**	**Total**
	***N* (%)**	***N* (%)**	***N* (%)**
Bully Perpetration, Positive Parenting, & ADHD groups			
Bully perpetration, HPP, & No ADHD	79 (100)	0 (0)	79 (100)
Bully perpetration, HPP, & ADHD	8 (100)	0 (0)	8 (100)
Bully perpetration, MHPP, & No ADHD	363 (97.06)	11 (2.94)	374 (100)
Bully perpetration, MHPP, & ADHD	45 (95.74)	2 (4.26)	47 (100)
Bully perpetration & MLPP, & No ADHD	151 (90.96)	15 (9.04)	166 (100)
Bully perpetration & MLPP, & ADHD	55 (85.94)	9 (14.06)	64 (100)
Bully perpetration & LPP, & No ADHD	7 (77.78)	2 (22.22)	9 (100)
Bully perpetration & LPP, & ADHD	4 (40)	6 (60)	10 (100)
Victim, Positive Parenting, & ADHD groups			
Victim, HPP, & No ADHD	2,750 (97.55)	69 (2.45)	2,819 (100)
Victim, HPP, & ADHD	207 (91.59)	19 (8.41)	226 (100)
Victim, MHPP, & No ADHD	5,738 (95.64)	268 (4.46)	6,006 (100)
Victim, MHPP, & ADHD	738 (85.22)	128 (14.78)	866 (100)
Victim & MLPP, & No ADHD	1,449 (87.45)	208 (12.55)	1,657 (100)
Victim & MLPP, & ADHD	401 (69.86)	173 (30.14)	574 (100)
Victim & LPP, & No ADHD	35 (66.04)	18 (33.96)	53 (100)
Victim & LPP, & ADHD	24 (63.16)	14 (36.84)	38 (100)
Bully-victim, Positive Parenting, & ADHD groups			
No bully-victim, HPP, & No ADHD	6,212 (99.30)	44 (.70)	6,256 (100)
No bully-victim, HPP, & ADHD	330 (97.06)	10 (2.94)	340 (100)
No bully-victim, MHPP, & No ADHD	9,056 (98.58)	130 (1.42)	9,186 (100)

No bully-victim, MHPP, & ADHD	661 (93.36)	47 (6.64)	708 (100)
No bully-victim, MLPP, & No ADHD	1,795 (94.62)	102 (5.38)	1,897 (100)
No bully-victim, MLPP, & ADHD	313 (84.59)	57 (15.41)	370 (100)
No bully-victim, LPP & No ADHD	36 (72)	14 (28)	50 (100)
No bully-victim & LPP, & ADHD	16 (84.21)	3 (17.79)	19 (100)
Some bullying, HPP, & No ADHD	2,829 (97.62)	69 (2.38)	2,898 (100)
Some bullying, HPP, & ADHD	215 (91.88)	19 (8.12)	234 (100)
Some bullying, MHPP, & No ADHD	6,101 (95.63)	279 (4.37)	6,380 (100)
Some bullying, MHPP, & ADHD	783 (85.76)	130 (14.24)	913 (100)
Some bullying, MLPP, & No ADHD	1,600 (87.77)	223 (12.23)	1,823 (100)
Some bullying, MLPP, & ADHD	456 (71.47)	182 (28.53)	638 (100)
Some bullying, LPP & No ADHD	42 (67.74)	20 (32.26)	62 (100)
Some bullying, LPP, & ADHD	28 (58.33)	20 (41.67)	48 (100)
Bully-victim, HPP & No ADHD	877 (98.43)	14 (1.57)	891 (100)
Bully-victim, HPP, & ADHD	61 (96.83)	2 (3.17)	63 (100)
Bully-victim, MHPP, & No ADHD	3,303 (96.66)	114 (3.34)	3,417 (100)
Bully-victim, MHPP, & ADHD	484 (87.90)	71 (12.79)	555 (100)
Bully-victim, MLPP, & No ADHD	1,446 (87.90)	199 (12.10)	1,645 (100)
Bully-victim, MLPP, & ADHD	538 (71.45)	215 (28.55)	753 (100)
Bully-victim, LPP, & No ADHD	51 (71.83)	20 (28.17)	71 (100)
Bully-victim, LPP, & ADHD	39 (54.17)	33 (45.83)	72 (100)

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