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Rates of Peer Victimization in Young Adolescents with ADHD and Associations with Internalizing Symptoms and Self-Esteem

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Abstract

The purposes of the present study were to (1) describe rates of peer victimization in young adolescents with attention-deficit/hyperactivity disorder (ADHD), (2) evaluate the association between types of peer victimization (i.e., physical, relational, reputational) and internalizing problems (i.e., anxiety, depression, self-esteem), and (3) examine whether associations between victimization and internalizing problems differ for males or females. Participants were 131 middle school students (ages 11–15 years, 73% male, 76% White) diagnosed with ADHD who completed ratings of victimization, anxiety, depression, and self-esteem. Over half of participants (57%) reported experiencing at least one victimization behavior at a rate of once per week or more, with higher rates of relational victimization (51%) than reputational victimization (17%) or physical victimization (14%). Males reported experiencing more physical victimization than females but males and females did not differ in rates of relational or reputational victimization. Whereas relational and physical victimization were both uniquely associated with greater anxiety for both males and females, relational victimization was associated with greater depressive symptoms and lower self-esteem for males but not females. These findings indicate that young adolescents with ADHD frequently experience peer victimization, and that the association between victimization and internalizing problems among young adolescents with ADHD differs as a result of victimization type, internalizing domain, and sex.

Keywords

ADHD; adolescence; anxiety; attention-deficit/hyperactivity disorder; depression; peers; prevalence; sex differences; victimisation

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Introduction

Problems in peer functioning have been well-documented in children with attention-deficit/hyperactivity disorder (ADHD) [1]. However, most of the research examining the peer functioning of youth with ADHD has focused on school-aged children, with notably fewer studies examining the impact of peer problems on the adjustment of adolescents with ADHD [2]. Since peer relationships become increasingly important to youth during adolescence [3], it is important to evaluate peer functioning in adolescents with ADHD. Although far fewer in number, extant studies examining the peer functioning of adolescents with ADHD align with studies of children with ADHD in demonstrating poorer peer functioning in adolescents with ADHD as compared to typically developing peers [4–6]. However, peer functioning is a heterogeneous construct [7], and most studies examining the peer functioning of adolescents with ADHD have focused on social skills, friendship, or general social competence, typically measured with parent- and teacher-report rating scales. Increasing attention has focused on the relation between ADHD and peer victimization, a domain of peer functioning that is often best measured by youth self-report [8]. The current study examined rates of self-reported peer victimization in a sample of young adolescents diagnosed with ADHD, evaluated whether a specific form of peer victimization (i.e., physical, relational, or reputational victimization) is most strongly associated with internalizing symptoms and self-esteem, and explored whether associations between victimization and adjustment is moderated by sex for young adolescents with ADHD.

Peer Victimization in Adolescents with ADHD

In line with research linking ADHD to higher rates of peer rejection [1], studies have found that youth with ADHD experience higher rates of victimization than their peers [9,10]. For instance, Twyman et al. [11] found that 29% of youth with ADHD (ages 8–17 years) reported experiencing elevated rates of peer victimization, in contrast to 9% of youth without a psychiatric diagnosis. Another study found even higher rates in a sample of adolescents (ages 13–18 years), with almost half (43%) experiencing elevated rates of victimization, in contrast to one-fifth of adolescents without ADHD [12]. Although it appears clear that adolescents with ADHD experience more peer victimization than their peers, there are several limitations of the current research, including a reliance on unidimensional measures of peer victimization, evaluation of peer victimization in relation to internalizing symptoms broadly as opposed to distinct anxiety and depression domains, and a lack of consideration of whether the association between victimization is similar or different between male or female adolescents with ADHD. Each of these limitations is discussed in turn, with findings from normative samples also reviewed given the relative absence of studies conducted with adolescents with ADHD specifically.

Peer Victimization is Multidimensional

Most studies examining the peer victimization patterns of adolescents with ADHD have relied on unidimensional measures of peer victimization even though important distinctions have been made between various forms of peer victimization [8,13]. There are multiple ways of classifying types of victimization, and the measure utilized in this study includes dimensions assessing physical, relational, and reputational victimization. *Physical*

victimization includes being the target (by threats or in actuality) of physically aggressive behaviors such as hitting, kicking, pushing, or chasing. *Relational victimization* includes attempts to harm a peer by excluding them from social events, activities, or conversations. *Reputational victimization* includes attempts to damage a peer's social standing by behaviors such as rumor-spreading and gossiping [8,13]. Of note, whereas relational and reputational victimization are related and often collapsed together into a single scale [14], they are increasingly conceptualized as both theoretically [15,16] and empirically [17] distinct types of indirect victimization. In particular, Xie et al. [15] noted that reputational victimization is focused on a person's reputation in the broader social ecology, whereas relational aggression is focused on harming an individual through an existing relationship.

Extant studies using community-based samples indicate that adolescents experience higher rates of relational and reputational victimization than physical victimization [17–20]. Although studies generally find that male adolescents experience higher rates of physical victimization than females, it remains unclear if female adolescents experience higher rates of relational or reputational victimization than males or if they experience similar rates of relational or reputational victimization [17,19,21–26]. In line with these studies, a meta-analysis found boys to engage in more direct aggression than girls, whereas sex differences in rates of indirect aggression are negligible [27; see also 28]. However, these findings from normative samples of youth cannot be assumed to extend to adolescents with ADHD, particularly as both male and female adolescents with ADHD experience higher rates of peer problems than their typically developing peers [1].

We are aware of only two studies to date that have specifically examined rates of distinct forms of victimization in adolescents with ADHD. In a sample of 287 Taiwanese adolescents diagnosed with ADHD, 19% reported experiencing relational victimization whereas 6% reported experiencing physical and verbal victimization [9]. Similarly, Sciberras et al. [29] reported higher relational victimization scores than physical victimization scores across both self- and parent-report in a sample of female adolescents with ADHD. Neither of these studies considered reputational victimization or examined possible sex differences in rates of victimization. The present study adds to the limited research in this area by examining rates of physical, relational, and reputational victimization in male and female adolescents carefully diagnosed with ADHD.

Peer Victimization in Relation to Internalizing Symptoms

In addition to documenting the prevalence of peer victimization in adolescents with ADHD, it is important to examine the mental health correlates of victimization. Peer victimization has been consistently linked to increased internalizing problems and lowered self-esteem in community- and school-based samples of adolescents [30–32]. Relational victimization may be more strongly related than physical or reputational victimization to internalizing problems [19,20,23]. Remarkably few studies have examined the relation between peer victimization and internalizing problems in adolescents with ADHD. Similar to findings from studies of normative youth, in a sample of 88 youth (ages 8–17 years) with ADHD, adolescents who reported higher rates of victimization had higher self- and parent-reported depressive symptoms than non-victimized participants, but these groups did not differ on

parent-reported anxiety (a self-report report measure of anxiety was not collected) [33]. Similarly, parent-reported peer victimization was positively associated with self-reported depressive symptoms but not self-reported anxiety symptoms in a study of 116 youth (ages 4–18 years) with ADHD [34].

However, these studies are limited in several important ways. First, both of these studies included samples with a very wide age range, leaving it unclear whether victimization relates to anxiety and depression in adolescents with ADHD specifically. This is especially important since rates of depression increase in adolescence [35] and both physical and verbal victimization peak in middle school [26]. Second, both studies were limited in their assessment of victimization, as they used global measures of victimization, which cannot determine differential effects of forms of victimization. Finally, self-report is considered optimal for assessing both victimization and internalizing experiences among adolescents [8,78–79]. However, Humphrey et al. [34] relied on parent-reported victimization, and Taylor et al. [33] did not include a youth self-report measure of anxiety. The current study builds on these previous studies by using self-report measures to examine the relations between forms of victimization (i.e., physical, relational, reputational victimization) and adjustment (i.e., anxiety, depression, self-esteem) in a sample of young adolescents with ADHD.

Sex Differences in the Association between Victimization and Internalizing Symptoms

It is possible that peer victimization is related to internalizing symptoms differently for male or female adolescents with ADHD, yet we are unaware of any study that has evaluated this possibility. Findings from school- and community-based samples are mixed. Multiple studies report no sex differences in the link between victimization and internalizing symptoms [19,23,25,36–40]. In contrast, other studies have found peer victimization to be more strongly associated with internalizing problems for female compared to male adolescents [18,41,42], or reported the association between victimization and internalizing problems to be stronger for male than for female adolescents [19,43,44]. Given these mixed findings, it is clear that additional studies are needed, and it is important to note that most of these studies used a composite measure of victimization and did not differentiate between forms of victimization.

Indeed, the failure of most studies to distinguish between forms of victimization may explain some of the mixed findings reported to date. There is some evidence that the association between victimization and internalizing may vary for males and females based on victimization type. A study of young adolescents (ages 9–13 years) found that indirect victimization was associated with depression for both boys and girls whereas direct victimization was also associated with depression for girls but not boys [45]. Interestingly, using data from a universal classroom-based intervention trial, Vuijk and colleagues [46] found that longitudinal decreases in internalizing symptoms were mediated by reduced rates of relational victimization for young adolescent girls whereas decreases in internalizing symptoms were mediated by reduced rates of physical victimization for boys. Thus, is seems especially critical to consider different victimization types when examining possible sex differences in the relation between victimization and internalizing symptoms, and no study

has examined possible sex differences of this association in adolescents with ADHD specifically. Although some may assume that physical victimization is more closely linked to adjustment for boys whereas relational and reputational victimization is more closely linked to adjustment for girls, our review of the literature did not find convincing support for this differential hypothesis, and none of these studies examined possible sex differences in adolescents with ADHD specifically. As such, we did not make specific hypotheses regarding sex differences of the relation between victimization types and internalizing symptoms in adolescents with ADHD but explored this possibility in the present study.

The Current Study

In sum, the purposes of the present study were to (1) describe the rates of peer victimization in young adolescents with ADHD and possible differences in victimization rates between males and females, (2) evaluate the association between types of peer victimization and internalizing problems, and (3) explore whether associations between victimization and internalizing problems differ for males or females. Few studies have examined the peer victimization of adolescents with ADHD, and our study adds to the extant literature by examining different types of peer victimization (i.e., physical, relational, reputational) as well as separate domains of adjustment (i.e., depression, anxiety, self-esteem). In addition, well-validated self-report measures of victimization and internalizing problems were used since others may not be fully aware of a child's victimization experiences [8]. In addition, we examined the association between victimization and internalizing problems in a sample of middle school students with ADHD since it is during middle school that both direct and indirect forms of victimization peak [26]. We hypothesized that both male and female adolescents with ADHD would report experiencing relational or reputational victimization more frequently than physical victimization, and that males would report experiencing more physical victimization than females but similar rates of relational and reputational victimization [9,29]. Based on findings in normative samples [19,20,23], we also hypothesized that relational victimization would be more strongly associated than physical or reputational victimization with internalizing problems. We also explored whether associations between victimization and internalizing problems differed between male and female adolescents with ADHD but did not have specific hypotheses regarding possible sex differences given the mixed evidence reported in the literature to date.

Methods

Participants

Participants were 131 young adolescents (96 males, 35 females) with ADHD between the ages of 11 and 15 ($M = 12.56$, $SD = 0.98$). All participants were middle school students in grades 6–8. According to parent-report on a demographics questionnaire, approximately three-quarters of the participants were non-Hispanic White ($n = 99$), with the remaining participants Black ($n = 16$), multiracial ($n = 13$), Asian ($n = 1$), or Hispanic/Latino ($n = 2$). Per criteria described below, 69 participants were diagnosed with ADHD Predominantly Inattentive (ADHD-I) Type and 62 participants were diagnosed with ADHD (ADHD-C) Combined Type.

Procedures

This study was reviewed and approved by the Institutional Review Board (IRB) and was conducted in accordance with the ethical standards of the 1964 Declaration of Helsinki and its later amendments. The data analyzed in this study were collected in the context of a two-site randomized controlled trial (RCT) examining school-based psychosocial interventions for young adolescents with ADHD [47,48]. The victimization measure was only collected at the post-treatment time-point (at the end of the school year), and we chose to use data from the post-treatment time-point (for all measures in this study) for addressing the current research questions for two reasons. First, the interventions being evaluated primarily targeted aspects of academic functioning, such as materials organization and homework completion, and did not target bullying and victimization. Second, in the intent-to-treatment outcome analyses, no treatment effects were found for participants' social functioning [47]. Moreover, to examine whether being randomized to one of the three RCT treatment conditions (i.e., community care and two treatment conditions) had an effect on variables examined in this study, analyses of variance (ANOVAs) were conducted to compare participants across the three groups on the primary measures of victimization, anxiety, depression, and self-esteem. ANOVA results indicated that the groups did not significantly differ on any of these variables (all ps > .05), indicating that treatment group randomization did not significantly influence variables examined in the current study.

Recruitment was conducted through three primary methods: (1) study announcement letters were mailed to the parents of all students attending identified middle schools at both of the study sites, (2) staff at these schools directly informed parents of some students about the opportunity to participate in this study, and (3) fliers were posted in each participating school. Primary caregivers (hereafter "parents") who contacted the research staff in response to these recruitment activities were given additional information and were administered a phone screen to assess initial eligibility. At the inclusion/exclusion evaluation, all parents signed informed consent and youth provided assent. The inclusionary criteria were: (a) meeting full diagnostic criteria for ADHD-I or ADHD-C; (b) an IQ ≥80 as estimated using the *Wechsler Intelligence Scale for Children, Fourth Edition* (WISC-IV); and (c) not meeting criteria for a primary diagnosis of a pervasive developmental disorder or meeting diagnostic criteria for any of the following: bipolar disorder, psychosis, substance dependence other than tobacco, or obsessive-compulsive disorder. Youth with ADHD Predominantly Hyperactive-Impulsive (ADHD-HI) Type were excluded since the prevalence of ADHD-HI decreases significantly after preschool [49] and the validity of this subtype has been challenged, particularly after early childhood [50].

ADHD diagnosis—ADHD diagnoses were determined using procedures similar to those used in the Multimodal Treatment of ADHD (MTA) [51]. The presence of ADHD was established using the *Children's Interview for Psychiatric Syndromes – Parent Version* (P-ChIPS) [52], a well-validated structured diagnostic interview that was administered to parents by advanced doctoral students and doctoral-level psychologists. The P-ChIPS was used to diagnose ADHD per full *DSM-IV* criteria, including symptom presence and pervasiveness, age of onset, and impairment. The P-ChIPS was also used to assess comorbid disorders, and an ADHD diagnosis was given only if it was clear that the ADHD symptoms

emerged prior to or were not attributable to co-occurring psychiatric symptoms. In a few instances, if a parent reported at least four symptoms in either ADHD symptom domain on the P-ChIPS, these symptoms could be supplemented with nonoverlapping symptoms (items rated as occurring "pretty much" or "very much") on the teacher-reported *Disruptive Behavior Disorder Rating Scale* (DBD) [53]. However, supplementation could only occur if the teacher endorsed at least four symptoms in a domain as occurring "pretty much" or "very much" on the DBD. The same supplementation rules were used to make ADHD subtype determinations. All cases were reviewed by two doctoral level psychologists to determine eligibility and diagnosis.

Measures

Psychiatric diagnoses—As noted above, the P-ChIPS [52] was used to assess ADHD and other psychiatric disorders. The P-ChIPS is a structured diagnostic interview with established reliability and validity [54]. In the current study, ADHD subtype was evaluated as a possible covariate in the primary analyses.

ADHD, ODD, and conduct disorder (CD) symptoms—Parents completed the DBD [53], a well-validated measure of *DSM-IV* ADHD (18 items), ODD (8 items), and CD (15 items) symptoms, with items rated on a 4-point scale from 0 (*not at all*) to 3 (*very much)*. The DBD has demonstrated good reliability and validity in studies of youth with ADHD [53,55,56]. Sum scale scores on the parent-report DBD were used in the present study as continuous measures of ADHD inattentive (α = .91), ADHD hyperactive-impulsive (α = .88), ODD (α = .89), and CD (α = .86) symptoms. ADHD, ODD, and CD symptom severity were evaluated as possible covariates in the primary analyses.

Peer victimization—Youth completed the peer victimization items of the Revised Peer Experiences Questionnaire (RPEQ) which was specifically designed to assess developmentally-appropriate forms of victimization in adolescence [19]. Specifically, the RPEQ includes items assessing physical victimization (3 items; e.g., "a teen threatened to hurt or beat me up"), relational victimization (3 items; e.g., "Some teens left me out of an activity or conversation that I really wanted to be included in"), and reputational victimization (3 items; e.g., "Another teen said mean things about me so that people would think I was a loser"). Each item is rated on a five-point scale (1 = *never*, 2 = *once or twice*, 3 = *a few times*, 4 = *about once a week*, 5 = *a few times a week*) in reference to how often each event occurred in the past year. Previous studies using the RPEQ support the factor structure differentiating between forms of victimization, as well as the internal consistency of each subscale [17,19]. Internal consistencies for the physical, relational, and reputational victimization scales were .80, .69, and .80, respectively. Mean scale scores were used in analyses.

Anxiety symptoms—Youth completed the *Multidimensional Anxiety Scale for Children* (MASC) [57,58] as a measure of their anxiety. The MASC is a 39-item self-report measure of anxiety symptoms in youth (including physical symptoms, harm avoidance, social anxiety, and separation/panic). Item responses range from 0 (*never true about me*) to 3 (*often true about me*). Internal consistency for the subscales is adequate (>.70), and concurrent,

convergent, and divergent validity has been established [57–59]. The participant's total *T*-score (based on age and sex norms from a norming sample of over 2,500 youth) was used in analyses.

Depression symptoms—Youth completed the *Reynolds Adolescent Depression Scale, Second Edition* (RADS-2), a well-validated measure of depressive symptoms [60]. The RADS-2 includes 30 items that measure youths' depressive symptoms (including dysphoric mood, anhedonia/negative affect, negative self-evaluation, and somatic complaints). Each item is rated on a four-point scale (1 = *almost never*, 4 = *most of the time*), with some items reverse-coded before summing the items to create subscale. Higher scores indicate greater levels of depressive symptoms. Internal consistency and test-retest reliability across both school-based and clinical samples demonstrated alphas ranging from .80 to .93 for the subscale and total scores [60]. The participant's total *T*-score (based on age and sex norms from a norming sample of over 9,000 adolescents) was used in analyses.

Self-esteem—Youth completed the global self-worth subscale of the *Self-Perception Profile for Children* (SPPC) [61] as a measure of their self-esteem. This scale is comprised of six items using a "Some Kids"/"Other Kids" format (e.g., "some kids are usually happy with themselves as a person but other kids are often not happy with themselves"; "some kids are very happy being the way they are but other kids wish they were different"). Youth select one of four boxes to indicate their response (the participant first decides whether the "some kids" or "other kids" statement fits them best, and then chooses whether that is "sort of true" or "really true"), which are then scored on a four-point scale with higher scores indicating greater self-esteem. The SPPC has demonstrated acceptable reliability and validity [61,62]. In the present study, mean scale scores were used in the analyses (α = .80).

Analytic Approach

First, we describe rates (categorical) and mean scores (dimensional) of victimization in the sample. We report the extent to which participants in this study reported experiencing each of the peer victimization items assessed on the RPEQ. Specifically, the percentage of participants who endorsed each event as occurring never, occasionally (i.e., "once or twice" or "a few times" response options), or weekly (i.e., "about once a week" or "a few times a week" response options) were calculated, for the full sample as well as separately for males and females. We also examined the percentage of participants who reported experiencing at least one physical, relational, or reputational victimization behavior at a frequency of once per week or more, again for the full sample as well as separately for males and females. Paired samples *t*-tests were used to evaluate whether mean scores differed by victimization type. We also conducted independent samples *t*-tests to compare whether males and females differed in their mean scores in victimization types and total victimization.

Second, zero-order correlation analyses were conducted to examine the intercorrelations among the study variables. In addition to examining the correlations between peer victimization and internalizing/self-esteem domains, associations of demographic characteristics (i.e., sex, race, age), ADHD subtype, and ADHD/ODD/CD symptom severity with internalizing symptoms and self-esteem were evaluated. If ADHD subtype or

ADHD/ODD/CD symptom severity were significantly correlated with an outcome variable, it was retained for inclusion as covariate in subsequent analyses.

Finally, hierarchical multiple regression analyses were conducted to examine whether the relations between peer victimization and internalizing/self-esteem domains were moderated by sex. Sex (dichotomous) and peer victimization (each form of peer victimization mean-centered as a continuous variable) were entered at Step 1, and then the interactions of sex with each form of peer victimization (mean-centered) were entered at Step 2. Significant interactions were plotted using procedures outlined by Holmbeck [63]. Specifically, regression equations were calculated separately for males and females, and substituted values of one standard deviation below and above the mean (±1 SD) for peer victimization were used in each equation in order to produce graphs of the moderated effect. For all analyses, statistical significance was set at $p < .05$.

Results

Rates of Peer Victimization in Adolescents with ADHD

The percentage of participants endorsing each of the physical, relational, and reputational victimization items is displayed in Table 1. The most frequently reported event for each form of victimization was being threatened to be hurt or beat up (10% reported this event occurring once a week or more), being left out of an activity or conversation (13% reported this event occurring once a week or more), and having a peer spread rumors in order to damage their reputation (12% reported this event occurring once a week or more). It is noteworthy that 9% of males reported being hit, kicked, or pushed in a mean way and 9% also reported not being invited to a party or social event that a peer knew they wanted to attend on at least a weekly basis, in comparison to 3% and 0% of females, respectively. In contrast, 20% of females reported experiencing having a peer spread rumors in order to damage their social reputation on at least a weekly basis, in comparison to 9% of males.

We also examined overall rates of victimization when items were collapsed within each victimization type. The percentage of participants experiencing at least one of the physical, reputational, or relational victimization behaviors at a rate of once per week or more is shown in Table 2. As shown, 14% of participants reported experiencing physical victimization, 17% reported experiencing reputational victimization, and 51% reported experiencing relational victimization at least once per week. Across victimization forms, 57% of participants reported experiencing at least one victimization behavior at least once per week (see Table 2). In line with these descriptive prevalence rates, paired samples *t*-tests using dimensional victimization scores indicated that young adolescents with ADHD reported experiencing significantly more relational victimization and reputational victimization than physical victimization ($t = -3.41$, $df = 130$, $p = .001$ and $t = -2.05$, $df = 130$, $p = .04$, respectively) but no difference was found between relational victimization and reputational victimization ($t = 1.79$, $df = 130$, $p = .08$)[1].

[1]This pattern differed somewhat for males and females. When paired samples *t*-tests were conducted separately by sex, females reported experiencing more relational victimization and reputational victimization than overt victimization scores ($t = 3.14$, $df = 34$, $p = .003$ and $t = 3.49$, $df = 34$, $p = .001$, respectively), whereas there was no difference between females' relational and reputational victimization scores ($t = -0.25$, $df = 34$, $p = .81$) (i.e., the same pattern as the full sample analyses). Similar to females, males reported

In considering sex differences, rates of reputational and relational victimization, as well as overall victimization (across victimization forms), were very similar between males and females. However, males were almost twice as likely as females to experience physical victimization (16% and 9%, respectively) (see Table 2). Consistent with these descriptive prevalence rates, independent samples *t*-tests indicated that males had higher physical victimization scores than females ($p = .005$; Cohen's $d = 0.52$), whereas males and females did not differ in mean scores of relational victimization, reputational victimization, or total victimization (see Table 3).

Correlation Analyses

For all study variables, absolute values of skewness and kurtosis were below 1.5. Table 4 provides the descriptive statistics and intercorrelations of the study variables. Race, age, ADHD subtype, hyperactive-impulsive, and ODD symptoms were not significantly bivariately associated with peer victimization, anxiety, depression, or self-esteem (all ps > .05). ADHD inattention and CD symptoms were not significantly associated with anxiety, depression, or self-esteem (ps > .05) and was thus not retained for inclusion as a covariate in the subsequent regression analyses.

Males reported having a higher self-esteem than girls ($r = .21$, $p = .02$). The three forms of peer victimization were each significantly positively associated with anxiety and depression and negatively associated with self-esteem, with correlations of a moderate-to-large effect size (see Table 4).

Regression Analyses

Hierarchical regression analyses were conducted to examine whether sex moderated the associations of peer victimization with anxiety, depression, and self-esteem. Regression coefficients, standard errors, and *t*-values are displayed in Table 5. In first considering peer victimization in relation to anxiety symptoms, both physical victimization and relational victimization uniquely predicted higher anxiety symptoms at Step 1 ($\beta = 0.28$, $p = .03$; $\beta = 0.22$, $p = .04$, respectively). No significant sex × victimization interaction was found. Thus, physical and relational victimization were both associated with higher rates of anxiety, but neither of these associations differed for male compared to female adolescents.

A similar model was tested in relation to youth depressive symptoms (see Table 5). As with anxiety, there was a significant main effect of relational victimization in relation to depression ($\beta = 0.28$, $p = .009$), whereas neither physical nor reputational victimization was significantly associated with depression when sex and relational victimization were in the model. In addition, a significant sex × relational victimization interaction emerged in predicting youth depression. This significant interaction was plotted and is shown in Figure 1 (top figure). As displayed, although relational victimization was not significantly associated with female adolescents' depression ($\beta = -0.08$, $p = .71$), relational victimization

experiencing more relational victimization than overt victimization ($t = 2.14$, $df = 95$, $p = .04$). However, in contrast to females, males also reported experiencing more relational victimization than reputational victimization ($t = 2.08$, $df = 95$, $p = .04$) and similar levels of physical and reputational victimization ($t = -0.41$, $df = 95$, $p = .68$).

was significantly positively associated with depression for male adolescents ($\beta = 0.38$, $p = .001$).

The final model examined sex, peer victimization, and their interaction in relation to self-esteem. As summarized in Table 5, none of the three forms of peer victimization were uniquely significantly associated with self-esteem when entered together at Step 1. However, as with the model predicting depressive symptoms, a significant sex × relational victimization interaction emerged in predicting self-esteem. As displayed in Figure 1 (top figure), relational victimization was not significantly associated with female adolescents' self-esteem ($\beta = 0.02$, $p = .83$) but was significantly associated with lower self-esteem for males ($\beta = -0.21$, $p = .02$).

Discussion

The current study contributes to the literature on the peer functioning of youth with ADHD by providing descriptive prevalence rates of self-reported victimization in young adolescents with ADHD, examining distinct types of peer victimization in relation to internalizing problems, and evaluating possible sex differences in rates of peer victimization and associations with internalizing problems. Few studies have examined peer victimization in adolescents with ADHD, and findings from the present study indicate that peer victimization is prevalent in this population and associated with increased anxiety and depressive symptoms as well as lowered self-esteem. Moreover, this study demonstrates that relational victimization is especially related to internalizing problems, and that relational victimization is more strongly related to depression and self-esteem for male adolescents with ADHD as compared to female adolescents with ADHD.

Previous studies of peer victimization in youth with ADHD have reported prevalence rates ranging from 19% to 43% [9,11,12]. In the current study, 57% of participants reported experiencing at least one victimization behavior at a rate of at least once per week. The higher rates of victimization among youth in the present study may be due to different measures used across studies in addition to our focus on young adolescents with ADHD, as rates of both physical and relational victimization are highest in middle school [26]. Thus, the inclusion of younger children and older adolescents in previous studies examining rates of peer victimization in youth with ADHD may have contributed to those studies finding lower rates than the current study. In considering victimization subtypes, similar to studies of normative adolescents [17–20] as well as studies of adolescents with ADHD [9,29], we found much higher rates of relational victimization (51%) than either reputational victimization (17%) or physical victimization (14%). In addition, in line with previous research conducted with younger school-aged children with ADHD [64], overall rates of peer victimization did not significantly differ between males and females and very similar rates were found between males and females for relational and reputational victimization. In contrast, males were almost twice as likely as females to experience physical victimization, and males had significantly higher physical victimization scores than females. Thus, findings from this study aligns with previous research documenting higher rates of physical victimization in males than females [17,21,24,25].

In contrast to findings from normative samples that have found a stronger association between victimization and depression than anxiety [30,38], the magnitude of victimization in relation to either anxiety or depression were very similar in our study (*r*s = .36–39 and .33–42 for anxiety and depression, respectively). Nevertheless, results from the regression analyses demonstrate the importance of distinguishing between depression and anxiety among adolescents with ADHD. Both physical and relational victimization were uniquely associated with anxiety symptoms when sex and all three victimization types were included simultaneously in the regression model, and no moderation by sex found. In contrast, only relational victimization was significantly associated with depressive symptoms in the regression model, and this association was moderated by sex, such that relational victimization was related to higher depressive symptoms for males but not females. A similar moderated effect was found for self-esteem whereby relational victimization was associated with lower self-esteem for males but not females. This is the first study to our knowledge to examine different forms of peer victimization and whether associations with internalizing domains differed between male and female adolescents with ADHD. The findings from this study suggest there is specificity in terms of victimization type as well as sex that are important to consider when examining the link between victimization and internalizing in this population.

Why might victimization, and relational victimization in particular, relate to increased depressive symptoms and lowered self-esteem for male adolescents but not female adolescents with ADHD? Cheng and colleagues (2008) noted that experiencing peer victimization may be more discordant with gender role expectations for males in comparison to females. That is, males may be more likely than females to view experiencing victimization as discordant with their gender role, and the presence of such victimization may contribute to increased emotional problems. Moreover, boys are more likely to experience chronic victimization and multiple forms of victimization than are girls, which likely causes greater harm [65]. It is likely that boys with ADHD are especially likely to experience chronic victimization, which may over time lead to increased risk for depression and low self-esteem.

In addition, boys place a stronger emphasis on popularity and social dominance goals, whereas girls place a stronger emphasis on intimacy [66]. This may be especially salient for young adolescents since gender role expectations tend to intensify during this developmental period [67,68]. It is possible that relational victimization, which includes attempts to harm through behaviors such as exclusion, may inhibit adolescents' popularity and social dominance goals, while leaving close friendships relatively intact. Furthermore, boys and girls have different peer networks that may contribute to victimization being more strongly related to depression and self-esteem in male adolescents with ADHD. Boys are more likely to have wider peer networks, with fewer intimate friendships, and girls are more likely to have small friendship networks with close friends [65]. Close friendships serve as a buffer for victimization [69], and friendship mitigates the association between ADHD and victimization specifically [70,71]. It is possible that girls have better supports in place to protect against the negative effects of victimization [65]. Girls may respond to victimization in more adaptive ways than boys, such as seeking support or using conflict resolution strategies that make the experience of victimization less detrimental for their overall mental

health [72–74]. In contrast, boys are more likely than girls to engage in "counteraggression" that can contribute to the persistence of victimization [75].

Despite the possible roles of social support, social goals, and coping styles in explaining the stronger relation between relational victimization and adjustment among boys in our sample, the general trend of empirical research suggests that girls are more strongly impacted by relational victimization than are boys [18]. It is possible that factors unique to the population of adolescents with ADHD contributed to the stronger relation between relational victimization and adjustment among boys as compared to girls in our study. Specifically, social support may play an even more important role in understanding the relation between victimization and internalizing problems among adolescents with ADHD. Adolescent females are more likely to be recipients of prosocial attention than males [76], and adolescents with ADHD who have experienced peer victimization report having less social support than other adolescents with ADHD [12]. Further, adolescent males with ADHD experience less social support than adolescent females with ADHD [12]. When adolescent males with ADHD experience victimization, they may be especially vulnerable to depression and lowered self-esteem since they do not have the social support in place to buffer these negative peer experiences. It may therefore be important for interventions aiming to improve the social functioning of adolescents with ADHD to include strategies for handling peer victimization as well as strategies for increasing social support. For example, friendship may be an important buffer against the effects of victimization. In a sample of girls diagnosed with ADHD, having at least one mutual friend reduced the risk of victimization experienced during a five-week summer camp setting [71]. Similarly, friendship quality has been shown to buffer the association between ADHD and later social problems among children attending an after-school care program [70]. The buffering role of friendship may be especially important as children with ADHD transition to adolescence, when friendships become increasingly important [77].

Limitations and Future Directions

Strengths of this study include using a carefully diagnosed sample of young adolescents with ADHD, a developmental period when rates of victimization peak [26], as well as by increasing specificity by examining multiple victimization forms and multiple domains of adjustment. In addition, since self-report is often considered optimal for assessing both victimization [8] and internalizing symptoms [78,79], we used self-report measures of these constructs in the present study. By doing so, however, all of our measures were completed by adolescents themselves, which may contribute to mono-informant biases. It will be important for future research to use a multi-method and multi-informant approach to assessing the prevalence and impact of peer victimization among adolescents with ADHD [8,80], and it would be valuable to incorporate other types of victimization such as cyber victimization. In addition, the cross-sectional design of the current study does not allow for drawing causal inferences. Longitudinal research is needed to examine the interplay of victimization and internalizing problems over time in adolescents with ADHD. It is likely that peer victimization and internalizing adjustment problems are transactional in nature [31]. As noted by Card and Hodges [8], just as victimization is likely to lead to internalizing problems, "low self-concept and internalizing problems also predict increases in peer

victimization over time, presumably because children with these problems are viewed as ‘easy targets’ by aggressors in that they are less likely to defend themselves and more likely to reward aggressors through signs of suffering or relinquishing resources” (p. 454). However, there is some evidence showing victimization to more strongly predict internalizing than vice versa [31,40], which guided the analytic plan used in the present study. Finally, our sample included only middle school students with ADHD and did not include a comparison sample of typically developing youth, and as such we were unable to examine whether our rates of victimization were higher in middle school students with ADHD as compared to their peers or if the associations moderated by sex were specific to young adolescents with ADHD. The findings should also be considered in light of other limitations which may limit generalizability, including a relatively small sample size of girls in particular, the exclusion of youth with ADHD-HI Type, and the use of data collected at the completion of an RCT.

Conclusion

This study examined rates of peer victimization in young adolescents with ADHD and is the first study to consider multiple forms of victimization, differentiate between internalizing domains of anxiety and depression, and evaluate whether the association between victimization and internalizing differs for male and female adolescents with ADHD. This study contributes to the small but growing literature examining the peer functioning of adolescents with ADHD. Findings indicate that a sizeable percentage of adolescents with ADHD experience victimization on a weekly basis, with relational victimization especially common. These findings indicate that it is important to assess for specific types of victimization in both male and female adolescents with ADHD. In addition, the association between victimization and internalizing differs as a result of victimization type, internalizing domain, and sex. Whereas relational and physical victimization were both associated with greater anxiety for males and females, relational victimization was associated with greater depression and lower self-esteem for males but not females. Additional studies are needed that incorporate a multi-method design in prospectively examining the bidirectional associations between victimization and internalizing problems and whether developmental trajectories differ for boys and girls with ADHD.

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References

1. Gardner DM, Gerdes AC. A review of peer relationships and friendships in youth with ADHD. J Atten Disord. 2015; 19(10):844–855. DOI: 10.1177/1087054713501552 [PubMed: 24062277]
2. Becker SP, Luebbe AM, Langberg JM. Co-occurring mental health problems and peer functioning among youth with attention-deficit/hyperactivity disorder: a review and recommendations for future research. Clin Child Fam Psychol Rev. 2012; 15(4):279–302. DOI: 10.1007/s10567-012-0122-y [PubMed: 22965872]

3. La Greca AM, , Prinstein MJ. The peer group. In: Silverman WK, , Ollendick TH, editorsDevelopmental issues in the clinical treatment of children and adolescents Allyn and Bacon; Needham Heights, MA: 1999 171198
4. Hinshaw SP, Owens EB, Sami N, Fargeon S. Prospective follow-up of girls with attention-deficit/hyperactivity disorder into adolescence: Evidence for continuing cross-domain impairment. J Consult Clin Psychol. 2006; 74(3):489–499. DOI: 10.1037/0022-006X.74.3.489 [PubMed: 16822106]
5. Bagwell CL, Molina BS, Pelham WE Jr, Hoza B. Attention-deficit hyperactivity disorder and problems in peer relations: predictions from childhood to adolescence. J Am Acad Child Adolesc Psychiatry. 2001; 40:1285–1292. [PubMed: 11699802]
6. Molina BS, Hinshaw SP, Swanson JM, Arnold LE, Vitiello B, Jensen PS, Epstein JN, Hoza B, Hechtman L, Abikoff HB, Elliott GR, Greenhill LL, Newcorn JH, Wells KC, Wigal T, Gibbons RD, Hur K, Houck PR, Group MTAC. The MTA at 8 years: prospective follow-up of children treated for combined-type ADHD in a multisite study. J Am Acad Child Adolesc Psychiatry. 2009; 48(5):484–500. DOI: 10.1097/CHI.0b013e31819c23d0 [PubMed: 19318991]
7. Parker JG, , Rubin KH, , Erath SA, , Wojslawowicz JC, , Buskirk AA. Peer relationships, child development, and adjustment: A developmental psychopathology perspective. In: Cicchetti D, , Cohen DJ, editorsDevelopmental psychopathology, Vol. 1: Theory and method 2. Wiley; Hoboken, NJ: 2006 419493
8. Card NA, Hodges EVE. Peer victimization among schoolchildren: Correlations, causes, consequences, and considerations in assessment and intervention. School Psychology Quarterly. 2008; 23(4):451–461.
9. Chou WJ, Liu TL, Yang P, Yen CF, Hu HF. Bullying victimization and perpetration and their correlates in adolescents clinically diagnosed with ADHD. J Atten Disord. 2014; doi: 10.1177/1087054714558874
10. Wiener J, Mak M. Peer victimization in children with attention-deficit/hyperactivity disorder. Psychology in the Schools. 2009; 46(2):116–131. DOI: 10.1002/Pits.20358
11. Twyman KA, Saylor CF, Saia D, Macias MM, Taylor LA, Spratt E. Bullying and ostracism experiences in children with special health care needs. J Dev Behav Pediatr. 2010; 31(1):1–8. DOI: 10.1097/DBP.0b013e3181c828c8 [PubMed: 20081430]
12. Timmermanis V, Wiener J. Social correlates of bullying in adolescents with attention-deficit/hyperactivity disorder. Canadian Journal of School Psychology. 2011; 26(4):301–318.
13. Juvonen J, , Graham S. Peer harassment in school: The plight of the vulnerable and victimized Guilford Press; New York: 2001
14. Crick NR, Grotpeter JK. Children's treatment by peers: Victims of relational and overt aggression. Dev Psychopathol. 1996; 8(2):367–380.
15. Xie H, Swift DJ, Cairns BD, Cairns RB. Aggressive behaviors in social interaction and developmental adaptation: A narrative analysis of interpersonal conflicts during early adolescence. Soc Dev. 2002; 11(2):205–224.
16. Prinstein MJ, Cillessen AHN. Forms and functions of adolescent peer aggression associated with high levels of peer status. Merrill-Palmer Quarterly. 2003; 49(3):310–342. DOI: 10.1353/mpq.2003.0015
17. De Los Reyes A, Prinstein MJ. Applying depression-distortion hypotheses to the assessment of peer victimization in adolescents. J Clin Child Adolesc Psychol. 2004; 33(2):325–335. DOI: 10.1207/s15374424jccp3302_14 [PubMed: 15136197]
18. Carbone-Lopez K, Esbensen FA, Brick BT. Correlates and consequences of peer victimization: Gender differences in direct and indirect forms of bullying. Youth Violence and Juvenile Justice. 2010; 8(4):332–350.
19. Prinstein MJ, Boergers J, Vernberg EM. Overt and relational aggression in adolescents: social-psychological adjustment of aggressors and victims. J Clin Child Psychol. 2001; 30(4):479–491. [PubMed: 11708236]
20. Storch EA, Masia-Warner C, Crisp H, Klein RG. Peer victimization and social anxiety in adolescence: A prospective study. Aggress Behav. 2005; 31(5):437–452. DOI: 10.1002/Ab.20093

21. Baldry AC, Farrington DP. Brief report: types of bullying among Italian school children. J Adolesc. 1999; 22(3):423–426. DOI: 10.1006/jado.1999.0234 [PubMed: 10462433]
22. Grills AE, Ollendick TH. Peer victimization, global self-worth, and anxiety in middle school children. J Clin Child Adolesc Psychol. 2002; 31(1):59–68. DOI: 10.1207/S15374424JCCP3101_08 [PubMed: 11845651]
23. Siegel RS, La Greca AM, Harrison HM. Peer victimization and social anxiety in adolescents: prospective and reciprocal relationships. J Youth Adolesc. 2009; 38(8):1096–1109. DOI: 10.1007/s10964-009-9392-1 [PubMed: 19636774]
24. Sullivan TN, Farrell AD, Kliewer W. Peer victimization in early adolescence: Association between physical and relational victimization and drug use, aggression, and delinquent behaviors among urban middle school students. Dev Psychopathol. 2006; 18(1):119–137. [PubMed: 16478555]
25. Turner MG, Exum ML, Brame R, Holt TJ. Bullying victimization and adolescent mental health: General and typological effects across sex. Journal of Criminal Justice. 2013; 41(1):53–59. DOI: 10.1016/j.jcrimjus.2012.12.005
26. Williams KR, Guerra NG. Prevalence and predictors of internet bullying. J Adolesc Health. 2007; 41:S14–21. [PubMed: 18047941]
27. Card NA, Stucky BD, Sawalani GM, Little TD. Direct and indirect aggression during childhood and adolescence: a meta-analytic review of gender differences, intercorrelations, and relations to maladjustment. Child Dev. 2008; 79(5):1185–1229. DOI: 10.1111/j.1467-8624.2008.01184.x [PubMed: 18826521]
28. Hong JS, Espelage DL. A review of research on bullying and peer victimization in school: An ecological system analysis. Aggression and Violent Behavior. 2012; 17(4):311–322. DOI: 10.1016/j.avb.2012.03.003
29. Sciberras E, Ohan J, Anderson V. Bullying and peer victimisation in adolescent girls with attention-deficit/hyperactivity disorder. Child Psychiatry Hum Dev. 2012; 43(2):254–270. DOI: 10.1007/s10578-011-0264-z [PubMed: 22038319]
30. Hawker DS, Boulton MJ. Twenty years' research on peer victimization and psychosocial maladjustment: a meta-analytic review of cross-sectional studies. J Child Psychol Psychiatry. 2000; 41(4):441–455. [PubMed: 10836674]
31. Reijntjes A, Kamphuis JH, Prinzie P, Telch MJ. Peer victimization and internalizing problems in children: a meta-analysis of longitudinal studies. Child Abuse Negl. 2010; 34(4):244–252. [PubMed: 20304490]
32. McDougall P, Vaillancourt T. Long-term adult outcomes of peer victimization in childhood and adolescence: Pathways to adjustment and maladjustment. Am Psychol. 2015; 70(4):300–310. DOI: 10.1037/a0039174 [PubMed: 25961311]
33. Taylor LA, Saylor C, Twyman K, Macias M. Adding insult to injury: Bullying experiences of youth with attention deficit hyperactivity disorder. Children's Health Care. 2010; 39(1):59–72. DOI: 10.1080/02739610903455152
34. Humphrey JL, Storch EA, Geffken GR. Peer victimization in children with attention-deficit hyperactivity disorder. J Child Health Care. 2007; 11(3):248–260. DOI: 10.1177/1367493507079571 [PubMed: 17709359]
35. Merikangas KR, He JP, Burstein M, Swanson SA, Avenevoli S, Cui L, Benjet C, Georgiades K, Swendsen J. Lifetime prevalence of mental disorders in U.S. adolescents: results from the National Comorbidity Survey Replication--Adolescent Supplement (NCS-A). J Am Acad Child Adolesc Psychiatry. 2010; 49(10):980–989. [PubMed: 20855043]
36. Storch EA, Brassard MR, Masia-Warner CL. The relationship of peer victimization to social anxiety and loneliness in adolescence. Child Study Journal. 2003; 33(1):1–18.
37. Storch EA, Zelman E, Sweeney M, Danner G, Dove S. Overt and relational victimization and psychosocial adjustment in minority preadolescents. Child Study Journal. 2002
38. Schwartz D, Lansford JE, Dodge KA, Pettit GS, Bates JE. Peer victimization during middle childhood as a lead indicator of internalizing problems and diagnostic outcomes in late adolescence. J Clin Child Adolesc Psychol. 2015; 44(3):393–404. DOI: 10.1080/15374416.2014.881293 [PubMed: 24660666]

39. Klomek AB, Marrocco F, Kleinman M, Schonfeld IS, Gould MS. Peer victimization, depression, and suicidiality in adolescents. Suicide Life Threat Behav. 2008; 38(2):166–180. DOI: 10.1521/suli.2008.38.2.166 [PubMed: 18444775]
40. Sweeting H, Young R, West P, Der G. Peer victimization and depression in early-mid adolescence: a longitudinal study. Br J Educ Psychol. 2006; 76(Pt 3):577–594. DOI: 10.1348/000709905X49890 [PubMed: 16953963]
41. Paquette JA, Underwood MK. Gender differences in young adolescents' experiences of peer victimization: Social and physical aggression. Merrill-Palmer Quarterly. 1999; 45(2):242–266.
42. Rigby K. Effects of peer victimization in schools and perceived social support on adolescent well-being. J Adolesc. 2000; 23(1):57–68. DOI: 10.1006/jado.1999.0289 [PubMed: 10700372]
43. Rothon C, Head J, Klineberg E, Stansfeld S. Can social support protect bullied adolescents from adverse outcomes? A prospective study on the effects of bullying on the educational achievement and mental health of adolescents at secondary schools in East London. J Adolesc. 2011; 34(3):579–588. [PubMed: 20637501]
44. Cheng ST, Cheung KC, Cheung CK. Peer victimization and depression among Hong Kong adolescents. J Clin Psychol. 2008; 64(6):766–776. DOI: 10.1002/jclp.20489 [PubMed: 18425810]
45. van der Wal MF, de Wit CA, Hirasing RA. Psychosocial health among young victims and offenders of direct and indirect bullying. Pediatrics. 2003; 111(6 Pt 1):1312–1317. [PubMed: 12777546]
46. Vuijk P, van Lier PA, Crijnen AA, Huizink AC. Testing sex-specific pathways from peer victimization to anxiety and depression in early adolescents through a randomized intervention trial. J Affect Disord. 2007; 100(1–3):221–226. DOI: 10.1016/j.jad.2006.11.003 [PubMed: 17157387]
47. Evans SW, Langberg JM, Schultz BK, Vaughn A, Altaye M, Marshall SA, Zoromski AK. Evaluation of a school-based treatment program for young adolescents with ADHD. J Consult Clin Psychol. 2016; 84(1):15–30. DOI: 10.1037/ccp0000057 [PubMed: 26501496]
48. Langberg JM, Evans SW, Schultz BK, Becker SP, Altaye M, Girio-Herrera E. Trajectories and predictors of response to the Challenging Horizons Program for adolescents with ADHD. Behav Ther. 2016; 47(3):339–354. DOI: 10.1016/j.beth.2016.01.001 [PubMed: 27157028]
49. Willcutt EG. The prevalence of DSM-IV attention-deficit/hyperactivity disorder: a meta-analytic review. Neurotherapeutics. 2012; 9(3):490–499. DOI: 10.1007/s13311-012-0135-8 [PubMed: 22976615]
50. Willcutt EG, Nigg JT, Pennington BF, … Lahey BB. Validity of DSM-IV attention deficit/hyperactivity disorder symptom dimensions and subtypes. J Abnorm Psychol. 2012; 121(4):991–1010. DOI: 10.1037/a0027347 [PubMed: 22612200]
51. MTA Cooperative Group. A 14-month randomized clinical trial of treatment strategies for attention-deficit/hyperactivity disorder. Arch Gen Psychiatry. 1999; 56(12):1073–1086. DOI: 10.1001/archpsyc.56.12.1073 [PubMed: 10591283]
52. Weller EB, , Weller R, , Rooney MT, , Fristad MA. Children's Interview for Psychiatric Syndromes (ChIPS) American Psychiatric Association; Washington, DC: 1999
53. Pelham WE Jr, Gnagy EM, Greenslade KE, Milich R. Teacher ratings of DSM-III-R symptoms for the disruptive behavior disorders. J Am Acad Child Adolesc Psychiatry. 1992; 31(2):210–218. [PubMed: 1564021]
54. Weller EB, Weller RA, Fristad MA, Rooney MT, Schecter J. Children's Interview for Psychiatric Syndromes (ChIPS). J Am Acad Child Adolesc Psychiatry. 2000; 39(1):76–84. DOI: 10.1097/00004583-200001000-00019 [PubMed: 10638070]
55. Wright KD, Waschbusch DA, Frankland BW. Combining data from parent ratings and parent interview when assessing ADHD. J Psychopathol Behav Assess. 2007; 29(3):141–148. DOI: 10.1007/s10862-006-9039-4
56. Owens J, Hoza B. Diagnostic utility of DSM-IV-TR symptoms in the prediction of DSM-IV-TR ADHD subtypes and ODD. J Atten Disord. 2003; 7(1):11–27. [PubMed: 14738178]
57. March JS. Multidimensional Anxiety Scale for Children Multi-Health Systems; North Tonawanda, NY: 1997

58. March JS, Parker JD, Sullivan K, Stallings P, Conners CK. The Multidimensional Anxiety Scale for Children (MASC): factor structure, reliability, and validity. J Am Acad Child Adolesc Psychiatry. 1997; 36(4):554–565. [PubMed: 9100431]
59. Baldwin JS, Dadds MR. Reliability and validity of parent and child versions of the multidimensional anxiety scale for children in community samples. J Am Acad Child Adolesc Psychiatry. 2007; 46(2):252–260. [PubMed: 17242629]
60. Reynolds WM. Reynolds Adolescent Depression Scale: RADS-2: Professional Manual Psychological Assessment Resources; Odessa, FL: 2002
61. Harter S. Manual for the Self-Perception Profile for Children University of Denver; Denver, CO: 1985
62. Muris P, Meesters C, Fijen P. The Self-Perception Profile for Children: Further evidence for its factor structure, reliability, and validity. Personality and Individual Differences. 2003; 35(8):1791–1802.
63. Holmbeck GN. Post-hoc probing of significant moderational and mediational effects in studies of pediatric populations. J Pediatr Psychol. 2002; 27(1):87–96. DOI: 10.1093/jpepsy/27.1.87 [PubMed: 11726683]
64. Bacchini D, Affuso G, Trotta T. Temperament, ADHD and peer relations among schoolchildren: the mediating role of school bullying. Aggress Behav. 2008; 34(5):447–459. DOI: 10.1002/ab.20271 [PubMed: 18512705]
65. Hanish LD, Guerra NG. A longitudinal analysis of patterns of adjustment following peer victimization. Dev Psychopathol. 2002; 14(1):69–89. [PubMed: 11893095]
66. Kiefer SM, Ryan AM. Striving for social dominance over peers: The implications for academic adjustment during early adolescence. J Ed Psychol. 2008; 100(2):417.
67. Hill JP, , Lynch ME. The intensification of gender-related role expectations during early adolescence. In: Brooks-Gunn J, , Petersen AC, editorsGirls at Puberty Springer; New York: 1983 201228
68. Galambos NL, Almeida DM, Petersen AC. Masculinity, femininity, and sex role attitudes in early adolescence: exploring gender intensification. Child Dev. 1990; 61(6):1905–1914. [PubMed: 2083504]
69. Hodges EV, Boivin M, Vitaro F, Bukowski WM. The power of friendship: protection against an escalating cycle of peer victimization. Dev Psychol. 1999; 35(1):94–101. [PubMed: 9923467]
70. Becker SP, Fite PJ, Luebbe AM, Stoppelbein L, Greening L. Friendship intimacy exchange buffers the relation between ADHD symptoms and later social problems among children attending an after-school care program. J Psychopathol Behav Assess. 2013; 35(2):142–152. DOI: 10.1007/s10862-012-9334-1
71. Cardoos SL, Hinshaw SP. Friendship as protection from peer victimization for girls with and without ADHD. J Abnorm Child Psychol. 2011; 39(7):1035–1045. DOI: 10.1007/s10802-011-9517-3 [PubMed: 21547543]
72. Naylor P, Cowie H, del Rey R. Coping strategies of secondary school children in response to being bullied. Child Psychology and Psychiatry Review. 2001; 6(3):114–120.
73. Olafsen RN, Viemero V. Bully/victim problems and coping with stress in school among 10-to 12-year-old pupils in Aland, Finland. Aggress Behav. 2000; 26(1):57–65.
74. Österman K, , Björkqvist K, , Lagerspetz KMJ, , Landau SF, , Fraczek A, , Pastorelli C. Sex differences in styles of conflict resolution: A developmental and cross-cultural study with data from Finland, Israel, Italy, and Poland. In: Fry DP, , Björkqvist K, editorsCultural variation in conflict resolution: Alternatives to violence Erlbaum; Mahwah, NJ: 1997 185197
75. Salmivalli C, Karhunen J, Lagerspetz KMJ. How do the victims respond to bullying? Aggress Behav. 1996; 22(2):99–109.
76. Leadbeater BJ, Boone EM, Sangster NA, Mathieson LC. Sex differences in the personal costs and benefits of relational and physical aggression in high school. Aggress Behav. 2006; 32(4):409–419.
77. Bukowski WM, , Buhrmester D, , Underwood MK. Peer relations as a developmental context. In: Underwood MK, , Rosen LH, editorsSocial development: Relationships in infancy, childhood, and adolescence Guilford; New York: 2011 153179

78. Silverman WK, Ollendick TH. Evidence-based assessment of anxiety and its disorders in children and adolescents. J Clin Child Adolesc Psychol. 2005; 34(3):380–411. DOI: 10.1207/s15374424jccp3403_2 [PubMed: 16026211]

79. Klein DN, Dougherty LR, Olino TM. Toward guidelines for evidence-based assessment of depression in children and adolescents. J Clin Child Adolesc Psychol. 2005; 34(3):412–432. DOI: 10.1207/s15374424jccp3403_3 [PubMed: 16026212]

80. Salmivalli C, , Peets K. Bullies, victims, and bully-victim relationships in middle childhood and early adolescence. In: Rubin KH, Bukowski WM, , Laursen B, editorsHandbook of peer interactions, relationships, and groups Guildford; New York: 2009 322340

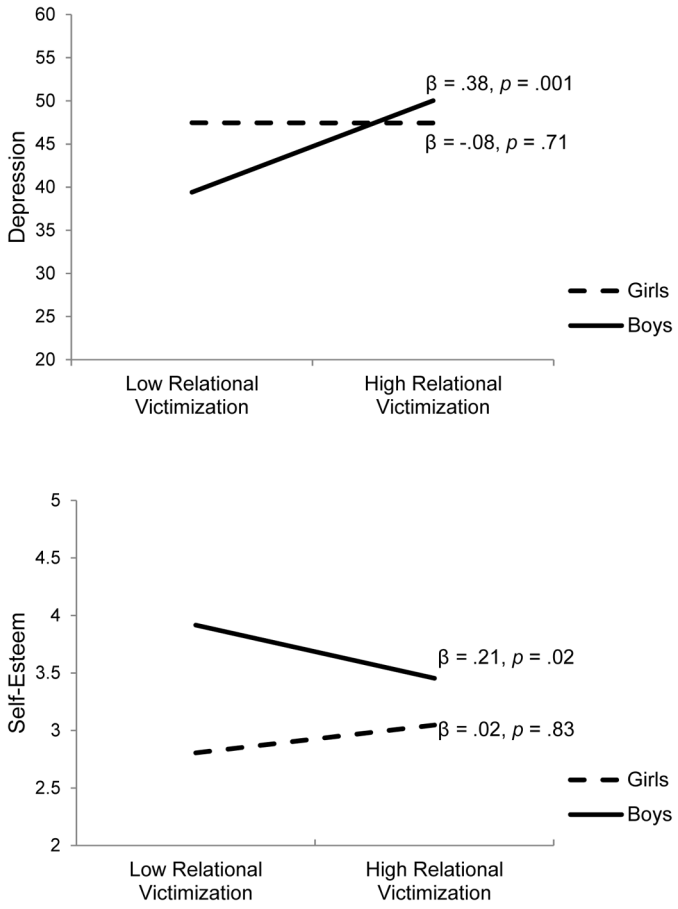

Figure 1.

Sex Moderates the Relations between Relational Victimization and Depression (top figure) and Self-Esteem (bottom figure) in Young Adolescents with Attention-Deficit/Hyperactivity Disorder (ADHD).

Table 1

Frequency of Physical, Relational, and Reputational Peer Victimization in Young Adolescents with ADHD

	Full Sample			Males			Females		
Variable	**Never**	**Occasionally**	**Weekly**	**Never**	**Occasionally**	**Weekly**	**Never**	**Occasionally**	**Weekly**
Physical Victimization									
1. A teen chased me like he/she was really going to hurt me.	70%	28%	2%	67%	31%	2%	77%	20%	3%
2. A teen threatened to hurt or beat me up.	50%	40%	10%	46%	42%	13%	63%	34%	3%
3. A teen hit, kicked, or pushed me in a mean way.	53%	38%	8%	46%	45%	9%	71%	26%	3%
Relational Victimization									
4. Some teens left me out of an activity or conversation that I really wanted to be included in.	39%	48%	13%	40%	47%	14%	37%	51%	11%
5. A teen did not invite me to a party or social event even though they knew I wanted to go.	57%	37%	7%	55%	35%	9%	60%	40%	0%
6. A teen left me out of what they were doing.	42%	50%	8%	41%	49%	10%	46%	51%	3%
Reputational Victimization									
7. A teen tried to damage my social reputation by spreading rumors about me.	52%	36%	12%	52%	39%	9%	51%	29%	20%
8. Another teen gossiped about me so others would not like me.	53%	39%	8%	53%	40%	7%	54%	37%	9%
9. Another teen said mean things about me so that people would think I was a loser.	54%	39%	7%	52%	40%	8%	6%	37%	3%

Note. N = 131 (96 males; 35 females). All items are rated in response to how frequently the event occurred in the past year.

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Table 2

Frequency of Experiencing Physical, Relational, or Reputational Peer Victimization At Least Once Per Week

Variable	Full Sample	Males	Females
Physical Victimization	14%	16%	9%
Relational Victimization	51%	51%	51%
Reputational Victimization	17%	16%	20%
Any Victimization	57%	56%	60%

Note. N = 131 (96 males; 35 females).All items are rated in response to how frequently the event occurred in the past year.

Table 3

Means and Standard Deviations of Victimization in Young Adolescent Males and Females with ADHD

	Full Sample		Males		Females		Sex Differences		
Variable	***M***	***SD***	***M***	***SD***	***M***	***SD***	***df***	***t***	***d***
Physical Victimization	1.73	0.86	1.84	0.91	1.44	0.60	91.50[a]	−2.89**	0.52
Relational Victimization	1.97	0.89	2.01	0.95	1.85	0.69	129	−0.95	0.19
Reputational Victimization	1.85	0.97	1.86	0.98	1.81	0.95	129	−0.29	0.05
Total Victimization	1.89	0.80	1.92	0.85	1.80	0.64	129	−0.80	0.16

Note. $N = 131$ (96 males; 35 females). ADHD = attention-deficit/hyperactivity disorder.

** $p < .01$.

[a] Equal variances not assumed (Levene's test $F = 10.82$, $p = .001$).

Table 4

Means, Standard Deviations, and Intercorrelations of Study Variables

Variable	1	2	3	4	5	6	7	8	8	9	10	11	12	13
1. Sex	--	−.10	.19*	.16	.14	−.01	.01	.09	.21*	.08	.03	−.02	−.11	.21*
2. Race		--	−.24**	.04	.05	.10	.05	−.02	.04	.16	.11	.09	.05	−.02
3. Age			--	−.12	−.06	−.10	−.06	.02	.10	.07	.06	−.16	.01	−.04
4. ADHD Subtype				--	.22*	.47***	.26**	.22*	−.01	−.01	.07	−.01	−.07	.09
5. Inattention Symptoms					--	.62***	.53***	.33***	.10	.18*	.11	.05	.15	−.11
6. Hyp-Impulsive Symptoms						--	.55***	.42***	.03	.16	.17	.04	.06	.02
7. ODD Symptoms							--	.56***	.06	.16	.13	−.03	.20*	−.10
8. CD Symptoms								--	.02	.18*	.06	−.01	.12	−.06
8. Physical Victimization									--	.58***	.74***	.39***	.33***	−.20*
9. Relational Victimization										--	.66***	.38***	.42***	−.24**
10. Reputational Victimization											--	.36***	.38***	−.23*
11. Anxiety												--	.51***	−.27**
12. Depression													--	−.67***
13. Self-Esteem														--
Mean	--	--	12.56	--	13.13	8.13	7.66	2.15	1.73	1.97	1.85	51.87	45.64	3.13
SD	--	--	0.98	--	6.16	5.61	5.11	3.59	0.86	0.89	0.97	11.74	10.29	0.64

Note. N = 131 with the exception of correlations with self-esteem (n = 125). ADHD = attention-deficit/hyperactivity disorder. ODD = oppositional defiant disorder. For sex, 0 = female, 1 = male. For race, 0 = non-White, 1 = White. For ADHD subtype, 0 = ADHD predominately inattentive type, 1 = ADHD combined type.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

Table 5

Regression Analyses Examining Sex as a Moderator of Peer Victimization in Relation to Internalizing Symptoms and Self-Esteem

	Step 1 Model Summary				Step 2 Model Summary			
	B	***SE***	***β***	***t***	***B***	***SE***	***β***	***t***
DV: Anxiety	$F(4,126) = 7.81^{***}$, $R^2 = .20$				$F(3,123) = 1.02$, $R^2 = .52$, $\Delta R^2 = .02$			
Sex	−2.50	2.20	−0.10	−1.14	−1.93	2.49	−0.07	−0.78
Physical	3.80	1.70	0.28	2.23*	3.33	4.63	0.24	0.72
Relational	2.92	1.43	0.22	2.04*	−1.42	2.91	−0.11	−0.49
Reputational	0.14	1.62	0.01	0.09	1.80	3.08	0.15	0.58
Sex × Physical	--	--	--	--	0.30	4.99	0.02	0.06
Sex × Relational	--	--	--	--	5.89	3.38	0.41	1.74
Sex × Reputational	--	--	--	--	−2.71	3.67	−0.19	−0.74
DV: Depression	$F(5,125) = 7.78^{***}$, $R^2 = .24$				$F(3,122) = 2.10$, $R^2 = .28$, $\Delta R^2 = .04$			
ODD Symptoms	0.27	0.16	0.14	1.71	0.22	0.16	0.11	1.39
Sex	−3.74	1.89	−0.16	−1.98*	−4.36	2.11	−0.19	−2.06*
Physical	1.59	1.47	0.13	1.08	6.01	3.94	0.50	1.53
Relational	3.30	1.24	0.28	2.67**	−1.16	2.46	−0.10	−0.47
Reputational	0.84	1.39	0.08	0.61	−0.84	2.61	−0.08	−0.32
Sex × Physical	--	--	--	--	−5.60	4.27	−0.43	−1.31
Sex × Relational	--	--	--	--	5.94	2.87	0.47	2.07*
Sex × Reputational	--	--	--	--	1.79	3.11	0.15	0.58
DV: Self-Esteem	$F(4,120) = 4.19^{**}$, $R^2 = .09$				$F(3,117) = 3.28^{*}$, $R^2 = .19$, $\Delta R^2 = .07$			
Sex	0.35	0.13	0.24	2.72**	0.41	0.14	0.29	2.95**
Physical	−0.10	0.10	−0.13	−1.03	−0.55	0.26	−0.73	−2.13*
Relational	−0.13	0.09	−0.17	−1.47	0.25	0.18	0.33	1.43
Reputational	−0.02	0.09	−0.02	−0.17	0.08	0.17	0.12	0.49
Sex × Physical	--	--	--	--	0.54	0.28	0.66	1.95
Sex × Relational	--	--	--	--	−0.51	0.20	−0.61	−2.53*
Sex × Reputational	--	--	--	--	−0.08	0.21	−0.10	−0.37

Note. Physical, relational, and reputational variables refer to forms of peer victimization. ODD = oppositional defiant disorder. For sex, 0 = female, 1 = male.

* $p < .05$.

** $p < .01$.