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Gender Differences in Experiences of Peer Victimization among Adolescents with Autism Spectrum Disorder

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Abstract

Peer victimization (PV) is a common problem for many adolescents with autism spectrum disorder (ASD) and can negatively impact the mental health and well-being of these youth. Results of the current study of 105 adolescents with ASD (n = 50 girls, 55 boys) indicated that girls and boys experience similar types of PV at similar frequencies. However, relational victimization accounted for a significant portion of variance in anxiety symptoms, above and beyond social communication deficits and restricted and repetitive behaviors, in girls but not in boys. Findings provide preliminary evidence suggesting that the impact of PV on mental health symptoms may be different for girls and boys with ASD, highlighting the need for more research focused on understanding potentially unique social processes for adolescent girls with ASD.

Keywords

Peer victimization; adolescence; autism spectrum disorder; girls; mental health

Peer interactions and relationships have long been viewed as a key feature of adolescence, and developmental science highlights both the positive and negative influences peers can have on adolescent mental health and well-being (Brown, 2004). For adolescents with autism spectrum disorder (ASD), a heterogeneous neurodevelopmental disorder characterized by impairments in social communication, and persistent patterns of restricted, repetitive behaviors [5th ed.; *DSM-5*; American Psychiatric Association (APA), 2013], this socially complex and demanding period may be especially challenging. A growing body of literature suggests that peer victimization (PV), or the experience of being the target of another's aggressive or bullying behavior and social exclusion (Juvonen & Graham, 2001), is a problem for youth with ASD. Adolescents with ASD are victimized at exceptionally high rates (46–94%), much more frequently than neurotypical (NT) youth (10–15%) and other disability groups (14–24%; Sreckovic, Brunsting, & Able, 2014; Troop-Gordon, 2017; Twyman et al., 2010). However, empirical research has focused mainly on boys and has yet to determine whether adolescent girls with ASD have similar experiences as boys with ASD

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and how those experiences impact their well-being. Therefore, the purpose of the current study is to examine gender differences in PV experiences in a sample of adolescents with ASD and to explore whether such experiences are associated with ASD and mental health symptoms similarly for girls and boys.

Past research suggest several factors associated with PV in youth with ASD, including key characteristics of ASD (i.e., deficits in social communication, and restricted and repetitive behaviors [RRBs]). Some studies have found a positive association between social deficits and PV (higher level of impairment, more PV), while others have found a negative association or no association at all (see Sreckovic et al., 2014). In addition, more severe restricted and repetitive behaviors (RRBs), a core feature of ASD and one that can make youth with ASD stand out from their peers, has also been associated with PV (Adams et al., 2014). Thus, although social communication deficits and RRBs appear to be important to the social lives of youth with ASD, the precise association between ASD symptomatology and victimization remains unclear.

Adding to the lack of clarity is the scarcity of research that includes adolescent girls with ASD. Research in youth with ASD has focused primarily on boys' experiences, either using all male (e.g., Adams, Taylor, Duncan, & Bishop, 2016), or mostly male samples (e.g., 85% male in Cappadocia, Weiss, & Pepler, 2012; 90% in van Roekel, Scholte, & Didden, 2010; 84.5% in Sterzing et al., 2012). However, mounting evidence suggests that the social behaviors and challenges of girls with ASD are unique compared to boys (Dean, Harwood, & Kasari, 2017) and that the phenotypic presentation for girls is different from the classic presentation of ASD, including less rigidity and fewer repetitive behaviors, more acceptable narrow special interests, greater likelihood of having a close friend, and less likelihood of presenting as socially aloof (Happé, 2019). This alternative phenotypic presentation may have important implications for girls' social functioning, how they relate to peers, and potentially their experiences of PV. While research establishing PV as a critical issue impacting the health and well-being of children and youth with ASD has been essential, there is a need for research aimed at understanding the potentially distinct peer experiences of girls' with ASD.

Sex differences in experiences of PV have been found in NT youth, with most reports suggesting that boys are involved in more overt, or physical forms of victimization (i.e., pushing, hitting, kicking, etc.) whereas girls are more likely to experience subtle, indirect forms of "relational victimization" such as spreading rumors, gossiping, exclusion, ignoring, etc. (e.g., Card, Stucky, Sawalani, & Little, 2008; Carbone-Lopez, Esbensen, & Brick, 2010). Preliminary evidence suggests sex differences in PV may also be true for adolescents with ASD but it is unclear how difference may manifest. For instance, one study of school-aged children with ASD found boys to be blatantly socially excluded while girls were more covertly overlooked by their peers (Dean et al., 2014). Girls with ASD have also reported via semi-structured interviews that they experienced high levels of relational aggression within friendships (Sedgewick et al., 2016). Qualitative research further highlights the unique peer social experiences of girls with ASD, describing both the importance of and challenges associated with friendships. For example, girls and women with ASD describe being bullied, picked on, and facing difficulties as they navigate social relationships (Bargiela, Steward, &

Mandy, 2016; Cresswell, Hinch, & Cage, 2019; Cridland, Jones, Caputi, & Magee, 2014; Sedgewick, Hill, & Pellicano, 2019; Sproston, Segewick, & Crane, 2017). Thus, preliminary evidence suggests that the peer context, and PV in particular, may look unique for girls with ASD.

In addition to factors associated with PV in youth with ASD, research has also focused on the potential negative impact of such experiences. Peer victimization has been linked to anxiety, depression, loneliness, and increased risk for suicidal ideation in youth with ASD, using both parent (Cappadocia et al., 2012; Shtayermman, 2007; Sterzing et al., 2012; Storch et al., 2012; Ung et al., 2016; van Schalwky, Smith, Silverman, & Volkmar, 2018; Zablotsky, Bradshaw, Anderson, & Law, 2013) and adolescent (Adams et al., 2014) report of PV. However, these associations between PV and youth outcomes relied on male dominated samples (e.g., see Ung et al., 2016), leaving questions as to whether and how PV is associated with mental health outcomes for girls with ASD.

Given the preliminary evidence suggesting that adolescent girls and boys with ASD may have different experiences of PV, combined with gaps in the literature surrounding the effects of PV on girls with ASD, the current exploratory study had three primary aims: (1) to describe both the overt and relational peer victimization experiences of adolescent girls and boys with ASD; (2) to explore how ASD symptoms (social awareness, cognition, communication, motivation, and RRBs) are associated with PV experiences similarly or uniquely for adolescent girls and boys; and (3) to examine how ASD symptoms and PV are related to mental health co-morbidities in youth with ASD, focusing on whether patterns of associations may be different for girls and boys.

Method

Setting.

This study used data collected as part of the Teens and Parents (TAP) Study, which examined the impact of peer and family factors as they relate to mental health comorbidities for youth with ASD. Eligible families were recruited through the Interactive Autism Network (IAN), an online network linking the autism community with research opportunities (Daniels et al., 2012), as well as through online advertisement on social media and local autism advocacy and support groups, and flyers placed in local schools and community centers.

Participants.

Participants included adolescents (ages 13–17) with an existing diagnosis of ASD (DSM-IV-TR or DSM-V criteria) and their primary caregivers (PCs)/legal guardians. The PC and the adolescent needed to live together, speak English fluently, and have sufficient reading skills (as self- and PC-reported) to complete the study procedures independently. Individuals were excluded if they had a comorbid intellectual disability (or were considered to be non-verbal) or a genetic disorder such as Fragile X Syndrome or Downs Syndrome. A total of 167 adolescent-caregiver dyads participated in the TAP study, 50 of whom identified as female adolescents. To account for the unequal sample sizes between males and females, 40% (n =

55) of the participants who identified as male were randomly selected as the comparison group for the current study, composing a final sample of 105 participants. Independent samples *t*-tests and chi-square tests revealed that girls and boys did not differ significantly on any demographic variable except adolescent age [$t(103) = 3.28$, $p < .001$, $M_{difference} = 0.78$]; see Table 1 for a description of the study sample.

Procedure.

The TAP study was approved by the Institutional Review Board of a University in the southeastern US. All data were collected online via REDCap (a secure web-based database system; Harris et al, 2009). In order to determine eligibility, PCs completed an online pre-screening survey. If deemed eligible, participants were prompted to continue to the study consent page. Electronic consent (e-consent) processes were specifically designed for consenting and assenting participants remotely using computer-based documentation via REDCap. Once all PC measures were completed and submitted, the adolescent portion of the study launched. Prior to completing the study, adolescents were asked to read an electronic assent document and indicate via a check box that they agreed to participate in the study. The PC and adolescent each received a $10 e-gift card for their time.

Measures.

PCs and adolescents were asked to independently complete a series of questionnaires lasting approximately 20–30 minutes each. PCs answered demographic questions about themselves (e.g., relationship to the adolescent, age, employment, education, race), their adolescents (e.g., diagnosis information, age, grade, special education status, etc.), and their families (e.g., income, number of people in the household). Adolescents reported their recent experiences of PV using the 12-item Peer Experience Questionnaire – Revised (PEQ-R; Prinstein, Boergers, & Vernberg, 2001). The relational and overt victimization subscales (sum scores) of the PEQ-R were used in the present study ($\alpha = .87$ and .86, respectively). Adolescents completed the 25-item short version of the Revised Children's Anxiety and Depression Scale (RCADS; Ebesutani et al., 2011; Sterling et al., 2014) to assess general mental health difficulties. Subscale anxiety and depression scores were used in the current study ($\alpha = .91$ and .85, respectively). Finally, PCs completed the Social Responsiveness Scale-2 (SRS-2; Constantino & Gruber, 2012), a 65-item measure that yields several subscales: social cognition ($\alpha = .75$), social communication ($\alpha = .88$), social awareness ($\alpha = .66$), social motivation ($\alpha = .85$), and restricted and repetitive behaviors ($\alpha = .84$). Because different components of social communication may be associated with peer relationships in uniquely ways, and those associations may be different for girls and boys, we examined the components separately.

Results

Aim 1. Boys' and Girls' Experiences of Peer Victimization.

Overall, 88.0% of girls and 70.9% of boys [$t(103) = 0.81$, $p = 0.42$] reported experiencing at least one instance of PV. As shown in Table 2, girls and boys generally reported similar types of victimization experiences with a few notable exceptions; girls reported fewer instances in which another teen 'hit, kicked, or punched in a mean way', 'chased like he or

she was really trying to hurt me, 'said mean things to me when I tried to be their friend', and 'made fun or teased me when I talked to them' compared to boys. Girls endorsed more experiences of relational aggression than boys did, whereas boys reported more instances of overt victimization than girls, albeit not statistically significant (Table 2).

Aim 2. Associations of peer victimization with ASD symptoms.

Descriptive statistics for all study variables can be found in Table 3. A series of univariate analysis of variance (ANOVA) tests revealed that girls and boys in the current sample did not differ in PC-reported social communication skills or RRBs. Partial correlations amongst study variables controlling for adolescent age revealed different patterns of associations with PV by adolescent sex (Table 3). In particular, relational victimization was correlated with all aspects of social-communication as well as RRBs for girls such that higher levels of impairments were associated with more relational victimization. Compared to girls who did not report experiencing relational victimization, relationally victimized girls had higher mean impairment in social cognition [$t(48) = 2.82$, $p = .007$, $M_{difference} = 4.50$], social communication [$t(48) = 2.87$, $p = .006$, $M_{difference} = 7.91$], social motivation [$t(48) = 3.30$, $p = .002$, $M_{difference} = 6.41$], and RRBs [$t(48) = 2.70$, $p = .01$, $M_{difference} = 4.76$] but not social awareness [$t(48) = 1.48$, $p = .15$, $M_{difference} = 1.73$]. Only social communication was associated with relational victimization for boys and there were no differences in ASD symptoms between boys who reported relational victimization experiences and those who did not. Experiences of overt victimization were not associated with ASD symptoms in girls or boys.

Aim 3. ASD symptoms, peer victimization, and mental health.

Girls and boys differed in mental health symptoms, with girls ($M_{depression} = 13.19$, $SD = 6.80$; $M_{anxiety} = 18.94$, $SD = 12.13$) reporting more depression [$t(102) = 2.19$, $p = .03$] and anxiety symptoms [$t(90.02) = 2.18$, $p = .03$] compared to boys ($M_{depression} = 10.60$, $SD = 5.25$; $M_{anxiety} = 14.36$, $SD = 8.99$). Mental health symptoms were not associated with adolescent age. To explore whether ASD symptoms and experiences of PV predicted mental health symptoms, a series of hierarchical linear regressions were conducted separately for boys' depression and anxiety symptoms and girls' depression and anxiety symptoms (4 models total). ASD symptoms were entered in the first step of each model and experiences of PV were entered in the second step (Table 4).

Girls.—Results indicated that the addition of PV (step 2) accounted for a significant increase in explained variance in girls' anxiety symptoms compared to ASD symptoms alone ($\Delta R^2 = 0.09$). While impairment in social-communication skills was a significant predictor of girls' anxiety in model 1, it was no longer significant once PV was entered into the model. For girls, more relational victimization was associated with more anxiety symptoms above and beyond the effects of social impairment and overt victimization. A different pattern of results emerged for girls' depression symptoms. The first model examining ASD symptoms as a predictor of depression symptoms was significant, primarily driven by RRBs (albeit not statistically significant as an individual predictor, $p = .05$). The addition of PV in model 2 did not account for more variance in depression symptoms (ΔR^2

= 0.09, p = .05), although relational victimization remained a significant independent predictor of depression symptoms.

Boys.—Results indicated that the addition of PV (step 2) did not account for a significant increase in explained variance in boys' anxiety symptoms compared to ASD symptoms alone ($\triangle R^2$ = 0.01). Impairment in social-communication was a significant predictor of boys' anxiety symptoms in model 1 and remained the only significant predictor after PV was entered into the model. A similar pattern of results was present for depression symptoms. The addition of PV (block 2) did not account for a significant increase in explained variance in boys' depression symptoms compared to ASD symptoms alone ($\triangle R^2$ = 0.03). Impairment in social-communication was a significant predictor of boys' depression symptoms in model 1 and remained the only significant predictor after PV was entered into the model.

Discussion

The purpose of the present study was to describe the PV experiences of adolescents with ASD and the associations between peer victimization and youth ASD symptoms and mental health outcomes. Specifically, this study aimed to address gaps in the literature pertaining to the experiences of adolescent girls with ASD by exploring the associations of ASD symptoms, depression, anxiety and PV separately for adolescent girls and boys with ASD. Results of this cross-sectional study align with previous research that has found the prevalence of PV to be high in samples of youth with ASD (e.g., Maïano et al., 2016; Schroeder et al., 2014), regardless of adolescent gender, and it adds to the growing literature suggesting that PV is a primary concern for the well-being of youth with ASD.

There were no statistically significant differences in experiences of overall overt or relational victimization between boys and girls in this sample; they reported similar frequencies of exclusion experiences (girls: 34–67%, boys: 34–58%). This is unlike previous reports in school-age children that found boys with ASD more likely to be rejected and excluded than girls with ASD (Dean et al., 2014). This may, in part, reflect the general increase in relational victimization often found across adolescence (Casper & Card, 2017; Troop-Gordon, 2017). It may also suggest gender-specific changes in PV experiences during the transition to adolescence. The changing social norms of all adolescent girls likely stem from multiple sources ranging from broader, societal expectations that define socially acceptable behavior to micro-level expectations of a friend group that become more narrow, less flexible, and less willing to accept non-conforming behavior. Ultimately this may reflect increases in relational victimization for NT girls and girls with ASD alike. We also know that adolescence is a developmental period that girls with ASD have emphasized as particularly challenging (Tierney et al., 2016). It may be that girls' social compensatory behaviors minimize peer rejection and exclusion during childhood, but that as the social context increases in complexity across adolescence, girls with ASD have difficulty meeting both broadly defined social norms and more specific inter-group expectations. If they lack the more sophisticated skills needed to navigate the increasingly subtle and nuanced social encounters characteristic of female social groups, the result may be an increase in exclusion through adolescence. Peer exclusion may, in turn, restrict access to and participation in peer

activities, thereby limiting opportunities to practice critical social skills, form same-age friendships, and learn peer-group norms while reinforcing the “benefits” of social withdrawal, ultimately increasing the risk for mental health symptoms. Longitudinal research aimed at understanding the specific impact of peer exclusion for both boys and girls with ASD will be important moving forward.

Although rates of overt and relational PV did not differ between boys and girls in the current sample, there were different patterns of associations between PV and ASD symptoms. Relational victimization was associated with more impairment in all aspects of social functioning (i.e., social cognition, motivation, awareness, and communication) as well as RRBs in girls, while in boys relational victimization correlated only with impairment in social communication. These findings may suggest that for girls with ASD, more severe social impairments across the board (e.g., social cognition: turn-taking in conversation, non-verbal communication; motivation: low self-confidence when interacting with others and avoidance of social interaction; awareness: picking up on social cues; communication: taking things too literally and difficulty understanding tone of voice and facial expressions) as opposed to challenges in one specific area of social functioning may make participating in, or even mimicking the social behaviors of girls more challenging and thus, lead to relational PV. Given that girls are socialized to participate in small, intimate groups with heavy language demands that value conforming to group interests, girls with ASD may be more likely to encounter peer situations where more complex social skills are required (Dean et al. 2013). It may be that difficulty understanding the subtle rules of female-to-female relationships as well as gendered social expectations results in social rejection and exclusion for girls with ASD (Tierney et al. 2016).

In addition, relational victimization was a significant predictor of anxiety symptoms and – at a trend level – depression symptoms only in girls. Previous research suggests that verbally-fluent adolescents with ASD perceive social rejection as distressing and anxiety provoking as NT youth (Sebastian, 2015). Given evidence that girls with ASD are more likely to present as socially-appropriate compared to boys, adopt compensatory social behaviors, and may be as socially-motivated as NT girls (Dean et al., 2017; Happé, 2019; Sedgewick et al., 2016), adolescent girls with ASD may also be more likely to identify and internalize relational victimization and subsequently experience greater distress in the face of such events. Thus, the unique association between relational victimization and girls’ mental health symptoms likely results from a combination of complex, gendered social norms during adolescence and the potentially distinct phenotypic expression of ASD in women and girls. Girls with ASD who are aware of their social differences and attribute experiences of peer victimization to causes that are internal (i.e., themselves) rather than external (i.e., others) may be especially likely to develop feelings of sadness, loneliness, or social anxiety, and use more maladaptive coping strategies such as isolation, rumination, and opposition that contribute to internalizing symptoms (Mazurek & Kane, 2010; Zimmer-Gembeck, 2016).

The association between relational victimization and mental health symptoms may also be indicative of a cycle in which negative peer experiences and social isolation contribute to mental health problems, which may further intensify difficulties with peers (Sedgewick et

al., 2018). Internalizing symptoms have been concurrently linked to peer victimization in NT youth but also act as both a risk factor and consequence of PV across time, providing empirical support for a vicious cycle in which PV and internalizing symptoms contribute to each other (Reijintes et al., 2010). Understanding the processes through which this cycle develops and continues across adolescence for youth with ASD will be important for targeted intervention development. For instance, some research suggests that individual differences in adolescent's sensitivity to rejection may help explain the link between PV and mental health. Experiencing peer rejection and exclusion may result in a heightened sensitivity to future experiences of exclusion such that an adolescent learns to anticipate these types of peer experiences, and withdraws from the peer environment to prevent negative experiences; this increases feelings of loneliness, isolation, and risk for mental health symptoms, which leads to further peer rejection (Zimmer-Gembeck, 2016). A similar but alternative hypothesis is that the negative cycle between PV and internalizing problems is strongest for youth with ASD who have a high sensitivity to rejection. Answering questions like these will be an important step for research and intervention development moving forward.

The present study is exploratory in nature and findings should be interpreted in light of the sample size and other limitations. Causal interpretations of the results cannot be made given the cross-sectional nature of the study. Internet-based data collection methods precluded confirmation of the adolescent's ASD diagnosis, relying solely on parent-report of diagnostic information and ASD symptomatology such as social-communication deficits, and online-based studies may be influenced by sampling bias. In addition, there is recent research that questions whether some common PV questionnaires, including the PEQ-R used in the current study, provide the most accurate representation of experiences of adolescents with ASD. For instance, a recent qualitative study by Fisher and Taylor (2016) found that although a majority of their sample reported experiencing PV, the examples adolescents with ASD used to describe these experiences often differed from the examples commonly included in questionnaires.

Nevertheless, findings underscore the need for additional research aimed at understanding the complex associations among these variables for both boys and girls with ASD. For instance, it could be that adolescents with ASD who have depression and/or anxiety symptoms are at increased risk for PV. A recent study that included adolescent girls with ASD, with intellectual disability, and NT youth found that internalizing symptoms at age 13 predicted PV experiences at 15 but not vice-versa (Tipton-Fisler et al., 2018). Longitudinal research aimed at understanding the direction of effects amongst these variables will be important for intervention development. Furthermore, additional research aimed at understanding the risk factors for PV specific to adolescent girls with ASD is warranted. Given that experiences of relational victimization contributed significantly to anxiety symptoms in girls after accounting for impairments in social-communication, it may be, for example, that the peer context (i.e., PV) acts as a mechanism through which ASD symptoms such as social-communication impairments are linked to internalizing symptoms in girls with ASD. Currently, our understanding of PV and its impact on mental is based in a narrative centered on the experiences of boys with ASD. This study provides preliminary

evidence for the potential unique peer experiences of adolescent girls with ASD and the negative affect of PV on their mental health.

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Table 1.

Caregiver and Adolescent Demographic Characteristics by adolescent sex

Demographic Items	Male (*n* = 55)	Female (*n* = 50)
Primary Caregiver & Family		
Age, *M years (SD, range)*	43.44(5.05, 33–54)	44.70(6.39, 33–62)
Marital Status, *n (%)*		
Single, never married	6(10.9)	3(6.0)
Married, living with spouse	43(78.2)	34(68.0)
Divorced	4(7.3)	11(22.0)
Widowed	2(3.6)	2(4.0)
Annual Household Income, *n* (%)		
$10,000 or less	1(1.9)	1(2.0)
$10,000 – 20,000	4(7.5)	4(8.0)
$20,001 – 40,000	10(18.5)	17(34.0)
$40,001 – 60,000	4(7.5)	11(22.0)
$60,001 – 80,000	13(24.1)	6(12.0)
$80,001 – 100,000	8(14.8)	4(8.0)
$100,001 and greater	14(25.9)	7(14.0)
Missing (*n*=1, 1.8%)		
Education, *n (%)*		
High school degree	6(10.9)	3(6.0)
Associates or technical school	4(7.3)	11(22.0)
Some college	8(14.5)	13(26.0)
College degree	24(43.6)	15(30.0)
Master's degree	8(14.5)	7(14.0)
Doctorate or Medical Doctor	5(9.1)	1(2.0)
Family Size *M (SD)*	4.05(1.06)	3.9(1.04)
Adolescent		
Age, *M years (SD)*	14.36(1.21)	15.14 (1.21)
Race, *n* (%)		
African American	2(3.6)	0(0.0)
White/Caucasian	43(78.2)	44(88.0)
American Indian or Alaskan Native	0(0.0)	1(2.0)
Native Hawaiian or other Pacific Islander	1(1.8)	0(0.0)
Mixed/Multiple endorsed	3(5.5)	3(6.0)
Other	6(10.9)	2(4.0)
Special Education status (Yes), *n* (%)	15(27.3)	8(16.0)
Grade in School, *n* (%)		
6th grade	2(3.6)	0(0.0)
7th grade	9(16.4)	4(8.0)
8th grade	14(25.5)	7(14.0)
9th grade	14(25.5)	10(20.0)

Demographic Items	**Male (*n* = 55)**	**Female (*n* = 50)**
10th grade	10(18.2)	10(20.0)
11th grade	3(5.5)	14(28.0)
12th grade	2(3.6)	3(6.0)
Missing	1(1.8)	2(4.0)
Diagnosis, *n* (%)		
Autism spectrum disorder	16(29.1)	20(40.0)
Autism	16(29.1)	10(20.0)
Asperger's Syndrome	10(18.2)	12(24.0)
High-functioning autism/ASD	5(9.1)	5(10.0)
PDD-NOS	8(14.5)	3(6.0)

Table 2.

Prevalence of Peer Victimization Experiences in the Current Sample

Peer Victimization Item	Prevalence (%)	
	Girls (*n* = 50)	Boys (*n* = 55)
Hit, kicked, or pushed me in a mean way	4.0	23.6*
Threatened to hurt or beat me up	12.0	23.6†
Chased me like he or she was really trying to hurt me	6.0	20.0*
Grabbed, held, or touched me in a way I didn't like	20.0	21.8
Left me out of what he or she was doing	67.3	54.5
Left me out of an activity or conversation I really wanted to be included in	64.0	58.2
Did not invite me to a party or other social event even though he or she knew I wanted to go	34.0	29.6
Would not sit near me at lunch or in class	42.0	34.5
Did not talk to me on purpose	56.0	56.4
Teased or made fun of me when I tried to hang out with other teens	36.0	38.2
Said mean things to me when I tried to be their friend	22.4	38.2*
Made fun of me or teased me when I talked to them	24.0	41.8*
Relational Victimization	76.0	67.3
Overt Victimization	28.0	36.4†

Note. Prevalence indicates the percentage of subjects who indicated any experience with an item; Overall prevalence of endorsing any experience of peer victimization was 82.0%;

* = significant difference between boys and girls, $p < .05$;

† = $p = .06$

Table 3.

Descriptive statistics and partial Correlations between peer victimization, ASD symptoms, and adolescent mental health symptoms

	Males				Females			
Variable	**Overt Victimization**	**Relational Victimization**	**Mean (SD)**	**Range**	**Overt Victimization**	**Relational Victimization**	**Mean (SD)**	**Range**
Social Awareness	.10	.15	12.42 (4.14)	4–23	.16	.23	12.48 (3.57)	3–19
Social Cognition	.16	.18	19.64 (5.70)	2–32	−.01	.45***	18.84 (5.15)	6–27
Social Communication	.19	.31*	33.84 (11.42)	11–58	.12	.39**	32.68 (8.92)	11–48
Social Motivation	.16	.24	16.44 (5.77)	5–28	−.20	.37**	17.62 (6.43)	1–28
Restricted and Repetitive Behaviors	.03	.14	19.27 (7.52)	1–34	.01	.35*	20.12 (5.66)	10–30
Anxiety Symptoms	.22	.14	14.36 (9.00)	1–37	−.03	.48***	18.94 (12.13)	2–43
Depression Symptoms	.13	.10	10.60 (5.25)	1–23	.05	.46***	13.20 (6.80)	1–30
Mean (Standard deviation)	1.4 (2.68)	4.51 (4.86)	--	--	0.62 (1.56)	5.22 (4.61)	--	
Range	0–15	0–20	--	--	0–8	0–17	--	

Note.

* = $p < .05$;

** = $p < .01$;

*** = $p < .001$;

† = $p = .05$

Table 4.

Hierarchical linear regression for adolescent anxiety and depression symptoms

	Female						Male					
	Model 1			Model 2			Model 1			Model 2		
Variable	***B***	***SE B***	***β***	***B***	***SE B***	***β***	***B***	***SE B***	***β***	***B***	***SE(B)***	***β***
Anxiety Symptoms												
RRB	0.48	0.37	0.22	0.44	0.36	0.21	−0.44	0.27	−0.37	−0.38	0.28	−0.32
SCI	0.25	0.10	0.42*	0.18	0.10	0.30	0.26	0.08	0.73**	0.23	0.09	0.66**
Overt Victimization				−0.84	0.97	−0.10				0.32	0.48	0.10
Relational Victimization				0.90	0.33	0.34**				0.07	0.27	0.04
R^2		.37			.46			.22			.23	
F for change in R^2		13.80***			3.64*			7.10**			0.40	
Depression Symptoms												
RRB	0.43	0.22	0.36†	0.41	0.22	0.34†	−0.28	0.16	−0.40	−0.22	0.16	−0.32
SCI	0.07	0.06	0.21	0.03	0.06	0.10	0.15	0.05	0.72**	0.13	0.05	0.60*
Overt Victimization				0.12	0.59	0.03				0.18	0.28	0.09
Relational Victimization				0.46	0.20	0.31*				0.16	0.16	0.14
R^2		.28			.37			.20			.23	
F for change in R^2		9.25***			3.08†			6.24**			1.194	

Note. SE = standard error; RRB = repetitive and restricted behaviors; SCI = social-communication impairment;

* = $p < .05$;

** = $p < .01$;

*** = $p < .001$;

† = $p = .05$