

Title: Friendship and Anxiety/Depression Symptoms in Boys with and without Autism Spectrum Disorder

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Introduction: Social interaction difficulties in individuals with autism spectrum disorder (ASD) can be very challenging, especially amidst the transition to adolescence. Early adolescence marks a time of increased risk for onset and worsening of internalizing symptoms, including anxiety and depression (McLaughlin & King, 2015). For individuals with ASD, the presence of co-occurring internalizing symptoms may intensify withdrawn behavior, leading to subsequent peer rejection, social isolation, and decreased and/or poorer friendship experiences. Previous research has revealed a strong relationship between quantity and quality of friendships and internalizing symptoms across children, adolescents, and adults with ASD (Acker, Knight, & Knott, 2018; Mazurek & Kanne, 2010; Mazurek, 2014). However, less research has focused on friendship experiences as the outcome and explored how internalizing symptoms and the social challenges characteristic of ASD are associated with these experiences amidst the transition from childhood to adolescence. This investigation sought to examine the relations among autism symptom severity, anxiety and depression symptoms, and friendship experiences in boys with and without ASD.

Method: The sample included 80 boys ($n = 40$ with ASD and $n = 40$ TD peers) participating in a larger study. All participants had an IQ >75 and were between the ages of 10 and 16 years ($M = 13.81$, $SD = 1.91$); the ASD and TD groups were matched on age. Parents of participants completed a demographic questionnaire and answered a series of questions developed for this study that specifically focused on their child's friendships. Autism symptoms were assessed using the Social Responsiveness Scale-Second Edition (SRS-2; Constantino & Gruber, 2012), and internalizing symptoms were assessed using the Child Behavior Checklist, School-Age version (CBCL; Achenbach & Rescorla, 2001) Anxious/Withdrawn subscale raw scores. Statistically significant differences in friendship characteristics were examined with Fisher's exact test, chi-square test, or t-test depending on type of variable and cell size. Friendship variables of interest included whether the child had a best friend, whether the child had a group of close friends, number of close friends, and amount of time spent with friends. Four multiple group regressions were run to examine the association between the aforementioned friendship characteristics and SRS total T-score and CBCL Anxious/Depressed raw score in ASD and TD samples; coefficients were compared across groups. Family household income and child age were included as covariates in all models.

Results: Results indicated that the frequency of having a best friend and having a group of close friends was significantly higher in the TD group ($p < .001$). Boys in the TD group ($M = 3.80$, $SD = 1.53$) had a significantly higher mean number of friends as compared to boys in the ASD group ($M = 1.47$, $SD = 1.91$), $t(73) = -5.84$, $p < .001$. Similarly, a chi-square test indicated that the frequency of spending time with friends at least once per week (vs. less than once per week) was significantly higher in the TD group, $\chi^2(1) = 10.75$, $p = .005$, $p = .001$. As expected, the ASD ($M = 76.33$, $SD = 9.67$) and TD ($M = 43.26$, $SD = 3.7$) groups differed significantly on the SRS-2, $t(75) = 19.72$, $p < .001$. In addition, the ASD ($M = 6.92$, $SD = 4.85$) and TD ($M = 1.95$, $SD = 2.28$) groups differed significantly Anxious/Depressed subscale of the CBCL, $t(76) = 5.79$, $p < .001$. The multiple group analysis revealed that the SRS T-score and CBCL Anxious/Depressed raw score were not significantly associated with whether a child had weekly face-to-face contact with friends or had a best friend in either group. In the ASD group, CBCL Anxious/Depressed raw score was significantly associated with having a group of close friends ($B = .26$, $p = .03$) and both CBCL Anxious/Depressed score ($B = .19$, $p = .007$) and SRS T-score ($B = -.08$, $p = .02$) were significantly associated with number of close friends.

Discussion: This study found that autism symptom severity was not consistently associated with friendship experiences among the sample of boys with ASD. The only friendship variable significantly associated with ASD symptom severity was number of friends, indicating that the presence of more severe symptoms is associated with having fewer close friends. This might suggest that ASD symptoms differentially impact social processes involved in friendship. Maintaining multiple close relationships may require greater executive functioning skills to juggle the social task demands associated with each friendship. By contrast, ASD symptom severity did not predict other friendship outcomes in the present study, including having a best friend or having contact with friends. Thus, it is possible that greater symptoms are not necessarily associated with poorer friendship experiences in boys with ASD and solid cognitive functioning. This finding is in line with results from a previous study by Mazurek (2014) that revealed quantity of friendships was associated with increased anxiety and depression symptoms in adults with ASD. It is likely that cognitively higher-functioning individuals with more social skills are able to navigate and maintain more reciprocal friendships. These individuals may in turn possess greater self-awareness of their social difficulties, which may contribute to additional symptoms of anxiety and depression. It is also possible that with increased quantity of friendships comes decreased quality of friendships; having more friends may not necessarily protect against negative emotional symptoms. Further

exploration of the relationship between friendship and emotional functioning is needed among larger, and more diverse samples. Qualitative research may play an essential role in further examining the relationship between friendship quantity and internalizing symptoms in individuals with ASD across the lifespan.

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