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A Preliminary Study on Recollected Number of Friends and Bully-Victimization Experience in People with Autism Spectrum Disorder and Attention-Deficit/ Hyperactivity Disorder

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Abstract

The present study examined developmental trajectories of friendship formation and bullying victimization among children with autism spectrum disorder (ASD) and attention-deficit/hyperactivity disorder (ADHD) compared to typically developing peers. Data were collected from 29 ASD, 17 ADHD and 27 typically developed participants via self-administered questionnaires assessing participants' background characteristics and retrospective accounts of friendship experiences and bullying victimization across elementary, junior high, and high school periods. The factors associated with the number of friends, and the experience of bullying victimization were explored by a set of statistical analyses. Individuals with ASD and ADHD consistently reported having fewer friends than their typically developing peers from elementary through high school. Additionally, individuals with ASD and ADHD were more likely to experience bullying victimization during junior high school compared to those with typical development. These findings indicate that early adolescence, particularly during junior high school years, constitutes a critical developmental period for social relationship formation in the neurodivergent population, which underscores the importance of targeted interventions for neurodivergent children during this developmental stage.

Introduction

Autism spectrum disorder (ASD) and attention-deficit /hyperactivity disorder (ADHD) are among the most prevalent neurodevelopmental conditions, with estimated prevalence rates of approximately 1.9% for ASD and 5% for ADHD in the population (Maenner et al., 2023; Salari et al., 2023). For individuals with these conditions, forming friendships can be particularly challenging due to core symptoms, which often include difficulties in social communication (Orsmond et al., 2004; Wehmeier et al., 2010). Indeed, Mazurek reported that 84.8% of children and adolescents with ASD had no reciprocal friendships (Mazurek & Kanne, 2010). Similarly, children with ADHD tend to have fewer friends than their typically developing (TD) peers (Rokeach & Wiener, 2020).Two additional major challenges faced by individuals with ASD and ADHD, both closely related to peer relationships, are social isolation and increased vulnerability to bullying victimization. Research indicates that individuals with these conditions are more likely to be socially isolated (Orsmond et al., 2004; Stickley et

al., 2017) and that poor-quality friendships can have detrimental effects on psychological development and mental health (Whitehouse et al., 2008). For example, poor relationships have been reported to be associated with increased levels of depressive symptoms (Whitehouse et al., 2008) and delays in the development of social cognition (Karna & Stefaniuk, 2023) in children with ASD. Likewise, difficulties in peer relationships increase the risk of bullying victimization and declines in academic performance in children with ADHD (Gardner & Gerdes, 2015). Regarding bullying vulnerability, children with ASD are especially susceptible due to underdeveloped social communication skills and weak peer relationships (Rodriguez et al., 2020). Likewise, bullying experiences are reported to be more common among children with ADHD than among their TD counterparts (Simmons & Antshel, 2021). A large -scale study of parent reports on bullying experiences among children with ASD indicated that frequent exposure to bullying exacerbates internalizing problems in these children (Zablotsky et al., 2012). This finding was further supported by a study demonstrating that experiences of being bullied led to increases in internalized mental health problems in children with ASD (Rodriguez et al, 2020). Similarly, Simmons and Antshel (2021), in a review of the literature on bullying experiences among children with ADHD, reported that involvement in bullying, either as a perpetrator or a victim, increases the risk of depression. Given that childhood bullying is now considered to be a public health problem (Armitage, 2021), it is imperative to further investigate bullying experiences among children with neurodevelopmental conditions during their school years. Given these issues, investigating the patterns of friendship formation and bullying victimization is important from both educational and clinical perspectives. However, most existing studies have examined these experiences in ASD and ADHD by focusing on a single developmental stage. As a result, little is known about how these patterns change across developmental stages. Furthermore, most studies compare ASD versus TD or ADHD versus TD separately. Thus, it remains unclear whether there are inter-diagnostic differences in the developmental trajectories of friendship formation and bullying victimization.

Objectives

The present study explored developmental changes in friendship and bullying victimization experiences among individuals with ASD, ADHD, and TD. For this purpose, we analyzed retrospective survey data from individuals in each group, focusing on their recollections of friendship and bullying experiences during elementary school, junior high school, and high school.

Methods

3.1. Participants

A total of 81 individuals participated in the study after providing written informed consent. The study protocol was approved by the institutional ethics committee at Showa University, Japan, in accordance with the Declaration of Helsinki (Approval No: B-2017-007). The inclusion criteria were as follows: a Full-Scale IQ of 70 or higher as measured by the Wechsler Adult Intelligence Scale–Fourth Edition (WAIS-IV); no current use of antipsychotic medications; and a formal diagnosis of ASD and/or ADHD based on the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (American Psychiatric Association, 2022). Diagnoses were made by a psychiatrist in accordance with DSM-5 criteria for ASD and ADHD, following a two-month clinical observation period. For participants suspected of having ASD, the Autism Diagnostic Observation Schedule, Module 4 (Lord et al., 2000) was administered by a licensed clinical psychologist (CK) during the diagnostic interview. All participants met the ADOS criteria (Total score: M = 7.06, SD = 4.66). For the assessment of ADHD, participants completed the Japanese version of the Conners' Adult ADHD Rating Scale-Self-Report (Someki et al., 2020), with an average total score of M = 56.87 (SD = 14.20). The intelligence quotient (IQ) of TD participants was assessed using the Japanese Adult Reading Test (Matsuoka, 2002).

3.2. Self-Administered Questionnaires

We collected data on participants' background information and their recollections of experiences related to friendship and bullying victimization using a self-administered questionnaire. This questionnaire was specifically developed for the purposes of the

present study. Participants were asked to recall and respond to questions regarding the number of friends they had during elementary school, junior high school, and high school. In this study, the number of friends with whom participants engaged in personal activities outside of school was used as a proxy measure of friendship. Participants also reported their experiences of bullying victimization.It is conceivable that participants' current psychological state may influence their recollections of past events. To address this potential bias, we administered the 14-item self-report Japanese version of the Hospital Anxiety and Depression Scale (HADS-J), which has demonstrated good internal consistency and reliability (Cronbach's alpha coefficients: anxiety = 0.82 for men and 0.87 for women; depression = 0.75 for men and 0.76 for women), as well as concurrent validity in a previous study (Higashi et al., 1996).

3.3. Data Analysis

The primary variables of interest were friendship (i.e., number of friends) and experiences of bullying victimization. A substantial proportion of participants had not attended university or college. Therefore, to maintain statistical power, analyses were limited to data from elementary, junior high, and high school years. Participants over the age of 50 (n = 3) were excluded from the analysis. After removing cases with missing data, the final sample consisted of 73 participants. Because the number of female participants in the ASD and ADHD groups was low, all the statistical analyses reported below were repeated using the dataset including only male participants as auxiliary analysis. The main findings remained essentially unchanged after removing the data of female participants. Thus, only the results based on the full dataset, including both males and females, are reported.

3.3.1. Number of Friends

Variables associated with the number of friends were explored using multiple linear regression analyses with the number of friends as the dependent variable. The predictors included diagnoses of ASD and ADHD, gender, IQ, age, and HADS-J scores. Gender and diagnosis were coded as dummy variables. Separate models were constructed to estimate the number of friends during elementary school, junior high school, and high school. The models were estimated using the statsmodels library in Python (version 3.8). The linear models included categorical variables as predictors. Therefore, multicollinearity was checked using the adjusted generalized variance inflation factor (Fox & Monette, 1992).Data Analysis

3.3.2. Developmental Change in Friendships

To examine group differences in developmental patterns of friendship, we conducted a two-way analysis of variance (ANOVA) with diagnosis (ASD, ADHD, and TD) as a between-participant factor and school level (elementary school, junior high school, and high school) as a within-participant factor. Only data from participants who attended high school were included in the analysis. To check whether the assumptions of ANOVA were met, the homogeneity of variance and the deviation from normality were tested by Levene's test (Levene, 1960) and the normality test (D'Agostino & Pearson, 1973), respectively.

3.3.3. Bullying Victimization Experience

Bullying victimization experience was coded as a binary variable. Participants who reported any experience of bullying were coded as '1', and those with no such experience were coded as '0'. Group differences in the distribution of bullying victimization were examined using chi-squared tests. Furthermore, to investigate the associations of diagnosis and friendship with bullying victimization, logistic regression analyses were conducted with bullying victimization experience as the dependent variable. The predictors included ASD and ADHD diagnoses, gender, number of friends, age, IQ, and HADS-J scores. Separate models were estimated for elementary school, junior high school, and high school. The possibility of multicollinearity was checked using the adjusted GVIF.

Results

The final sample included data from 73 participants whose backgrounds are summarized in Table 1. Group differences in age and IQ were analyzed using two -way ANOVA with the between-participant factors of diagnosis (ASD, ADHD, and TD) and gender (male and female). According to Levene's test, there was no sign of a violation of the homogeneity of variance for

either age or IQ (statistic = 0.82, p = 0.54, for age; statistic = 1.84, p = 0.12, for IQ). Likewise, there was no statistically significant deviation from normality for either variable (ps > 0.18).

Regarding age, neither the main effect of diagnosis nor that of gender reached significance (F (2, 67) = 0.64, p = .53, η2 = .019 for age; F (1, 67) = 0.10, p = .74, η2 = .002 for gender). There was no significant interaction between diagnosis and gender (F (2, 67) = 1.44, p = .24, η2 = .041). Similarly, for IQ, there was no significant main effect of diagnosis (F (2, 67) = 1.69, p = .19, η2 = .048), nor of gender (F (1, 67) = 2.11, p = .15, η2 = .035). The interaction between diagnosis and gender was not significant, either (F (2, 67) = 1.25, p = .29, η2 = .036).

Table 1: Distribution of age, gender and IQ in the final sample. In the parentheses are standard deviations.

Diagnosis	Gender	N	Age		IQ	
ASD	Male	24	31.3	(7.1)	102.3	(11.7)
	Female	5	29.4	(6.0)	97.2	(17.3)
ADHD	Male	13	31.2	(6.3)	107.5	(13.0)
	Female	4	30	(6.8)	98	(3.9)
TD	Male	14	30.1	(9.0)	105.1	(8.1)
	Female	13	35.3	(8.0)	106.6	(5.3)

4.1. Friendships at Elementary, Junior High, and High School The means and standard deviations of the recollected number of friends in elementary, junior high, and high schools are summarized in Table 2. The results of the multiple regression analyses are summarized in Table 3. No evidence of multicollinearity was observed (adjusted GVIFs < 2.0).

Table 2: Recollected number of friends in each group. In the parentheses are standard deviations.

	ASD		ADHD		TD	
Elementary School	3.03	(3.76)	4.24	(2.66)	8.04	(5.23)
Junior High School	2.17	(2.82)	4.41	(3.48)	11.37	(6.66)
High School	2.1	(3.83)	4.35	(2.52)	8.85	(6.07)

Table 3: Results of multiple regression analyses. **p<.01, *p<.05

		Coefficient	2.5% CI	97.5%CI	SE	Z	p value
Elementary School	Intercept	5.498	-5.73	16.727	5.624	0.978	0.332
	Diagnosis (ASD vs TD)	-7.736	-11.407	-4.065	1.839	-4.208	<.001**
	Diagnosis (ADHD vs TD)	-6.467	-10.402	-2.531	1.971	-3.281	0.002**
	Gender (Male vs Female)	1.581	-0.667	3.83	1.126	1.404	0.165
	Age	0.017	-0.117	0.151	0.067	0.256	0.798
	IQ	-0.003	-0.098	0.093	0.048	-0.056	0.956
	HADS-J	0.111	-0.03	0.251	0.07	1.571	0.121

Table 3: Results of multiple regression analyses. **p<.01, *p<.05 (Cont.)

		Coefficient	2.5% CI	97.5%CI	SE	Z	p value
Junior High School	Intercept	18.783	7.111	30.456	5.846	3.213	0.002**
	Diagnosis (ASD vs TD)	-13.032	-16.848	-9.216	1.911	-6.818	<.001**
	Diagnosis (ADHD vs TD)	-10.523	-14.614	-6.431	2.049	-5.135	<.001**
	Gender (Male vs Female)	2.873	0.536	5.211	1.171	2.454	0.017*
	Age	-0.201	-0.341	-0.062	0.07	-2.886	0.005**
	IQ	-0.037	-0.136	0.062	0.05	-0.741	0.461
	HADS-J	0.12	-0.026	0.266	0.073	1.638	0.106
High School	Intercept	18.446	6.189	30.704	6.139	3.005	0.004**
	Diagnosis (ASD vs TD)	-8.869	-12.876	-4.861	2.007	-4.419	<.001**
	Diagnosis (ADHD vs TD)	-6.272	-10.568	-1.975	2.152	-2.915	0.005**
	Gender (Male vs Female)	1.289	-1.166	3.744	1.23	1.049	0.298
	Age	-0.089	-0.236	0.057	0.073	-1.219	0.227
	IQ	-0.077	-0.181	0.027	0.052	-1.478	0.144
	HADS-J	0.061	-0.093	0.214	0.077	0.788	0.434

In elementary school, people with ASD and those with ADHD had fewer friends than those with TD ($Z = -4.208$, $p = .001$ for ASD; $Z = -3.281$, $p = .01$ for ADHD). In junior high school, those with ASD and those with ADHD had fewer friends than those with TD ($Z = -6.818$, $p < .001$ for ASD; $Z = -5.135$, $p < .001$ for ADHD). The number of friends was associated with gender ($Z = 2.454$, $p = .01$) and age ($Z = -2.886$, $p = .005$) as well in junior high school. In high school, compared to those with TD, the number of friends was significantly smaller among those with ASD ($Z = -4.419$, $p < .001$) and ADHD ($Z = -2.915$, $p = .005$).

4.2. Developmental Changes in Friendships

Levene's test indicated a violation of the assumption of homogeneity of variance (statistic = 3.34, p = 0.01). Therefore, a logarithmic transformation (Bland & Altman, 1996) was applied after adding one to the raw number of friends. After the transformation, neither the assumption of homogeneity of variance (statistic = 1.53, p = 0.15) nor normality (ps > 0.17) was significantly violated. However, the assumption of sphericity (Harris, 1984) remained unmet even after the transformation. Thus, the degrees of freedom were adjusted using the Huynh-Feldt procedure (Huynh & Feldt, 1976). The ANOVA revealed a significant main effect of diagnosis ($F (2, 70) = 41.8$, $p < .001$, $\eta 2 = .544$). The main effect of school level was not significant ($F (1.89, 132.59) = 0.70$, $p = 0.49$, $\eta 2 = .010$). The main effect of diagnosis was qualified by a significant interaction between diagnosis and school level ($F (3.79, 132.59) = 2.63$, $p = .040$, $\eta 2 = .07$). Simple main effect analysis revealed a significant simple main effect of school level in the TD group ($F (1.73, 44.92) = 4.23$, $p = .026$, $\eta 2 = 0.139$), but not in the ASD group ($F (1.44, 40.21) = 2.37$, $p = 0.12$, $\eta 2 = 0.078$), or in the ADHD groups ($F (1.92, 30.8) = 0.2426$, $p = 0.78$, $\eta 2 = 0.0149$). The number of friends was numerically larger in junior high school than in elementary school and high school in TD group. Multiple comparisons revealed a marginally significant difference in the number of friends between elementary school and junior high school ($t (26) = 2.381$, adjusted $p = 0.075$) in TD group, but this effect failed to reach significance at the significance level of $p < .05$. No other pairwise comparisons reached or approached significance ($ts < 2.0$, adjusted $ps > 0.10$).

4.3. Bullying Victimization Experience at Elementary, Junior High, and High School

Mosaic plots of bullying victimization experiences are shown in Figure 1. The chi-squared test revealed significantly different distributions of bullying

victimization experience across the three diagnosis groups in elementary school ($\chi2(2) = 10.25$, $p = .006$), and junior high school ($\chi2\ (2) = 14.06$, $p < .001$), but not in high school ($\chi2\ (2) = 2.79$, $p = .25$). In elementary and junior high schools, bullying victimization experience was most prevalent among those with ASD, followed by those with ADHD and TD.

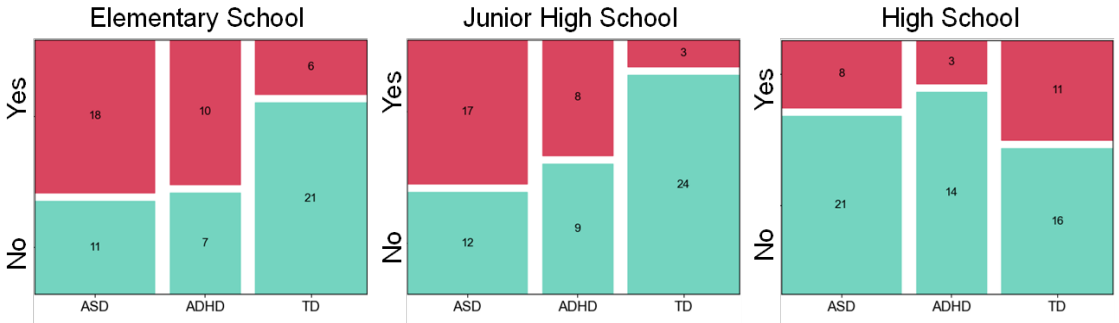

Figure 1. Mosaic Plot of Bullying Victimization Experience in each group. The number in each panel represents the number of participants who gave the corresponding answer.

The results of the logistic regression analyses are summarized in Table 4. No sign of multicollinearity was observed (adjusted GVIFs < 2.0). In junior high school, people with ASD and ADHD were more likely to experience bullying victimization than people with TD ($Z = 2.584$, $p = .010$ for ASD; $Z = 2.544$, $p = .011$ for ADHD), but no such trend was statistically confirmed in elementary school and high school.

Table 4: Results of logistic regression analyses. *p<.05, #p<.10

		Coefficient	2.5% CI	97.5%CI	SE	Z	p value
Junior High School	Intercept	-2.125	-8.058	3.808	3.027	-0.702	0.483
	Diagnosis (ASD vs TD)	1.197	-0.967	3.361	1.104	1.084	0.278
	Diagnosis (ADHD vs TD)	1.159	-1.048	3.366	1.126	1.029	0.304
	Gender (Male vs Female)	0.647	-0.585	1.879	0.629	1.029	0.304
	Number of Friends	-0.013	-0.146	0.12	0.068	-0.193	0.847
	Age	0.06	-0.015	0.135	0.038	1.557	0.119
	IQ	-0.016	-0.065	0.033	0.025	-0.633	0.527
	HADS-J	0.021	-0.052	0.095	0.038	0.564	0.573
High School	Intercept	-0.303	-7.507	6.901	3.676	-0.082	0.934
	Diagnosis (ASD vs TD)	4.441	1.072	7.81	1.719	2.584	0.01*
	Diagnosis (ADHD vs TD)	4.094	0.94	7.247	1.609	2.544	0.011*
	Gender (Male vs Female)	-0.187	-1.607	1.233	0.724	-0.258	0.796
	Number of Friends	-0.055	-0.222	0.111	0.085	-0.653	0.513
	Age	0.083	-0.014	0.179	0.049	1.682	0.093#
	IQ	-0.027	-0.08	0.026	0.027	-0.997	0.319
	HADS-J	-0.097	-0.194	0	0.05	-1.955	0.051#

Table 4: Results of logistic regression analyses. *p<.05, #p<.10 (Cont.)

		Coefficient	2.5% CI	97.5%CI	SE	Z	p value
Elementary School	Intercept	0.839	-5.544	7.221	3.256	0.258	0.797
	Diagnosis (ASD vs TD)	0.035	-2.055	2.125	1.066	0.033	0.974
	Diagnosis (ADHD vs TD)	-0.512	-2.722	1.698	1.128	-0.454	0.65
	Gender (Male vs Female)	0.142	-1.054	1.337	0.61	0.232	0.816
	Number of Friends	0.016	-0.095	0.127	0.057	0.286	0.775
	Age	0.001	-0.069	0.071	0.036	0.025	0.98
	IQ	-0.01	-0.063	0.043	0.027	-0.373	0.709
	HADS-J	-0.03	-0.103	0.043	0.037	-0.811	0.417

Discussion

This study investigated friendships and bullying victimization experiences among individuals with ASD, ADHD, and TD peers. As expected, individuals with ASD and ADHD consistently reported having fewer friends than their TD counterparts from elementary through high school. Additionally, they reported being more prone to bullying victimization during junior high school compared to individuals with TD. ANOVA revealed a developmental change in the number of friends among TD participants. More specifically, there was a tendency for a larger number of friends to be recollected in junior high school than in elementary or high school in TD. However, no such developmental trend was observed in the ASD and ADHD groups. These findings align with previous studies indicating that individuals with ASD and ADHD tend to have fewer friendships than those with TD (Mazurek & Kanne, 2010; Rokeach & Wiener, 2020). The fewer number of friends in ASD and ADHD is probably attributable to the difficulties in forming social connections, often rooted in core symptoms such as impairments in social communication in these groups (Orsmond et al., 2004; Wehmeier et al., 2010). The present study was not specifically designed to elucidate the mechanisms underlying the smaller number of friendships and more frequent exposure to bullying victimization observed in children with ASD and ADHD. However, multifaceted factors, including relatively low levels of social cognition (Bölte, 2025) and executive control (Townes et al., 2023), may conspire to make it challenging for these populations to establish and maintain peer relationships. Indeed, Orsmond et al. (2004) reported that higher social skills predict greater involvement in peer relationships among children with ASD. Likewise, children with ADHD often experience peer rejection as the result of emotional dysregulation during peer conflict and inadequate social behavior (Wehmeier et al., 2010). Our study also found that participants with ASD and ADHD were more likely to experience bullying victimization during junior high school than their TD peers. This finding supports the previous reports suggesting that approximately 50% of adolescents with ASD or ADHD experience bullying (Bustinza et al., 2022; Maiano et al., 2016; Cappadocia et al., 2011). The present study extends these findings by highlighting junior high school years as a particularly vulnerable period for bullying victimization among children with ASD and ADHD; the increased prevalence of bullying victimization experience in ASD and ADHD was not statistically confirmed in elementary school and high school.

Overall, our findings suggest that junior high school represents a unique developmental period for peer relationships. First, TD participants reported a tendency-level increase in the number of friendships during this stage, whereas individuals with ASD and ADHD showed no such increase across school years. Second, bullying victimization was more frequently reported by the ASD and ADHD groups only during junior high school. This transitional period from the end of elementary school to the start of junior high

school roughly coincides with puberty and early adolescence, a time marked by psychological changes and increased vulnerability (Pfeifer et al., 2021; Lynne et al., 2020). There is substantial evidence that aggressive behaviors, including peer victimization, increase from early to middle adolescence (Fauzi et al, 2023). The combination of inherent social challenges in children with ASD and ADHD (Bölte, 2025; Townes et al., 2023) and the heightened social hostility of early adolescence (Fauzi et al., 2023) may exacerbate their vulnerability to bullying during this period.

The previous studies (Orsmond et al., 2004; Wehmeier et al., 2010) raised the possibility that problems in peer relationships among children with ASD and ADHD could be ameliorated through maternal intervention, the setting of integrated school environments (Orsmond et al., 2004), and the improvement of socio-emotional functioning by cognitive behavioral therapy and social skills training (Wehmeier et al., 2010). For adolescent children who have been identified as particularly vulnerable to bullying victimization, teachers may be able to help them learn strategies to protect themselves against bullying. For example, Fallon et al. (2025) reported the efficacy of teaching tactics to avoid bullying perpetrators in simulated situations. The development of methods for teaching children with neurodevelopmental conditions how to protect themselves from bullying remains in its nascent stage. However, together with attentive classroom surveillance, it has the potential to become a powerful tool for reducing bullying victimization among children with ASD and ADHD during the particularly vulnerable stage of junior high school years.

Limitations

The present study has several limitations. First, the proportion of female participants was significantly higher in the TD group than in the ASD and ADHD groups, raising concerns that some group differences may be attributable to gender distribution. However, the inclusion of gender as a covariate in regression models helped mitigate the influences of gender distribution. In addition, our auxiliary analysis (not reported) conducted exclusively on male participants largely replicated the main findings. Second, the reliance on retrospective self-reports raises the possibility of recall bias, potentially influenced by participants' current psychological state and age, though the influences of these variables were statistically controlled in the present study. A long-term prospective study is required to obtain more accurate insights into the developmental change of peer relationships in ASD and ADHD. Third, the questionnaire for collecting data on the number of friends and bullying victimization experience was specifically designed for the present study. Thus, we cannot deny that there is some concern regarding its validity and reliability. For the purpose of advancing research on friendship experiences in children with neurodevelopmental conditions, the development of a standardized assessment tool is warranted.

Conclusion

The present study examined developmental changes in friendship and bullying victimization experiences among individuals with ASD and ADHD using retrospective reports of school years. The findings revealed that individuals with ASD and ADHD were more likely to experience bullying victimization, particularly during junior high school, than those with TD. These results underscore the need for teachers and welfare professionals to pay close attention to the peer relationships of children with neurodevelopmental conditions, especially during early adolescence.

Reference

American Psychiatric Association. (2022). *Diagnostic and statistical manual of mental disorders* (5th ed., text rev.; DSM-5-TR). American Psychiatric Publishing.

Armitage, R. (2021). Bullying in children: impact on child health. *BMJ paediatrics open, 5*(1), e000939.

Bland, J. M., & Altman, D. G. (1996). Statistics Notes: Transforming data. *BMJ, 312*(7033), 770. https://doi.org/10.1136/bmj.312.7033.770

Bölte, S. (2025). Social cognition in autism and ADHD. *Neuroscience & Biobehavioral Reviews*, 106022.

Cappadocia, M. C., Weiss, J. A., & Pepler, D. (2011). Bullying Experiences Among Children and Youth with Autism Spectrum Disorders. *Journal of Autism and Developmental Disorders, 42*(2), 266–277.https://doi.org/10.1007/s10803-011-1241-x

Bustinza, C. C., Adams, R. E., Claussen, A. H., Vitucci, D., Danielson, M. L., Holbrook, J. R., Charania, S. N., Yamamoto, K., Nidey, N., & Froehlich, T. E. (2022). Factors associated with bullying victimization and bullying perpetration in children and adolescents with ADHD: 2016 to 2017 National Survey of Children's Health. *Journal of Attention Disorders, 26*(12), 1535–1548. https://doi.org/10.1177/10870547221085502

D'agostino, R., & Pearson, E. S. (1973). Tests for departure from normality. Empirical results for the distributions of b2 and b1. *Biometrika, 60*(3), 613–622. https://doi.org/10.1093/biomet/60.3.613

Fallon, M. J., Luczynski, K. C., Rodriguez, N. M., Felty, C., & Rahaman, J. A. (2025). A preliminary analysis of teaching children with autism spectrum disorder self-protection skills for bullying situations. *Journal of Applied Behavior Analysis*. https://doi.org/10.1002/jaba.2938

Fauzi, F. A., Zulkefli, N. a. M., & Baharom, A. (2023). Aggressive behavior in adolescent: The importance of biopsychosocial predictors among secondary school students. *Frontiers in Public Health, 11*. https://doi.org/10.3389/fpubh.2023.992159

Fox, J., & Monette, G. (1992). Generalized collinearity Diagnostics. *Journal of the American Statistical Association, 87*(417), 178–183. https://doi.org/10.1080/01621459.1992.10475190

Gardner, D. M., & Gerdes, A. C. (2015). A review of peer relationships and friendships in youth with ADHD. *Journal of attention disorders, 19*(10), 844-855.

Harris, P. (1984). An alternative test for multisample sphericity. *Psychometrika, 49*(2), 273–275. https://doi.org/10.1007/bf02294178

Higashi, A. Y., Kiyota, K., Inokuchi, H., Hatta, H., Fujita, K., Watanabe, Y., & Kawai, K. (1996). Validation of the hospital anxiety and depression scale in a gastrointestinal clinic. *Journal of the Japanese Society of Gastroenterology, 93*(12), 884–892.

Huynh, H., & Feldt, L. S. (1976). Estimation of the Box Correction for Degrees of Freedom from Sample Data in Randomized Block and Split-Plot Designs. *Journal of Educational Statistics, 1*(1), 69–82. https://doi.org/10.3102/10769986001001069

Karna, W., & Stefaniuk, I. (2023). The Influence of Peer Relationships on the Social Development of Children with Autism Spectrum Disorder. *The Iranian Journal of Neurodevelopmental Disorders, 2*(4), 10–18. https://doi.org/10.61838/kman.jndd.2.4.2

Levene, H. (1960). Robust tests for equality of variances. In Ingram Olkin, Harold Hotelling (Eds). *Contributions to Probability and Statistics: Essays in Honor of Harold Hotelling.* (pp. 278–292) Stanford University Press.

Lord, C., Risi, S., Lambrecht, L., Cook, E. H., Jr, Leventhal, B. L., DiLavore, P. C., Pickles, A., & Rutter, M. (2000). The autism diagnostic observation schedule-generic: a standard measure of social and communication deficits associated with the spectrum of autism. *Journal of Autism and Developmental Disorders, 30*(3), 205–223. https://doi.org/10.1023/a:1005592401947

Lynne, S. D., Metz, A. S., & Graber, J. A. (2020). Adolescence and puberty: Understanding the emergence of psychopathology. In A. G. C. Wright & M. N. Hallquist (Eds.), *The Cambridge Handbook of Research Methods in Clinical Psychology* (pp. 205–218). Cambridge University Press.

Maenner, M., Warren, Z., Williams, A., Amoakohene,

E., Bakian, A., Bilder, D., & Hughes, M. (2023). Prevalence and characteristics of autism spectrum disorder among children aged 8 years. *MMWR Surveillance Summaries, 72*(2), 1–14. https://doi.org/10.15585/mmwr.ss6503a1

Matsuoka, K. (2002). Development of Japanese Adult Reading Test (JART) for predicting premorbid IQ in mild dementia. *Clin Psychiatry, 44*(5), 503.

Maiano, C., Normand, C. L., Salvas, M. C., Moullec, G., & Aime, A. (2016). Prevalence of school bullying among youth with autism spectrum disorders: A systematic review and meta-analysis. *Autism research, 9*(6), 601-615.

Mazurek, M. O., & Kanne, S. M. (2010). Friendship and Internalizing Symptoms Among Children and Adolescents with ASD. *Journal of Autism and Developmental Disorders, 40*(12), 1512–1520. https://doi.org/10.1007/s10803-010-1014-y

Orsmond, G. I., Krauss, M. W., & Seltzer, M. M. (2004). Peer relationships and social and recreational activities among adolescents and adults with autism. *Journal of autism and developmental disorders, 34*(3), 245-256. https://doi.org/10.1023/b:jadd.0000029547.96610.df

Pfeifer, J. H., & Allen, N. B. (2021). Puberty initiates cascading relationships between neuro developmental, social, and internalizing processes across adolescence. *Biological psychiatry, 89*(2), 99-108..

Rodriguez, G., Drastal, K., & Hartley, S. L. (2020). Cross-lagged model of bullying victimization and mental health problems in children with autism in middle to older childhood. *Autism, 25*(1), 90–101. https://doi.org/10.1177/1362361320947513

Rokeach, A., & Wiener, J. (2020). Friendship quality in adolescents with ADHD. *Journal of attention disorders, 24*(8), 1156-1168.

Salari, N., Ghasemi, H., Abdoli, N., Rahmani, A., Shiri, M. H., Hashemian, A. H., ... & Mohammadi, M. (2023). The global prevalence of ADHD in children and adolescents: a systematic review and meta-analysis. *Italian journal of pediatrics, 49*(1), 48.

Simmons, J. A., & Antshel, K. M. (2021, June). Bullying and depression in youth with ADHD: A systematic review. *In Child & Youth Care Forum* (Vol. 50, No. 3, pp. 379-414). New York: Springer US.

Someki, F., Ohnishi, M., Vejdemo-Johansson, M., & Nakamura, K. (2020). Reliability and validity of the Japanese Conners' Adult ADHD Rating Scales (CAARS). J*ournal of Psychoeducational Assessment, 38*(3), 337–349. https://doi.org/10.1177/0734282919842030

Stickley, A., Koyanagi, A., Takahashi, H., Ruchkin, V., & Kamio, Y. (2017). Attention-deficit/hyperactivity disorder symptoms and loneliness among adults in the general population. *Research in Developmental Disabilities, 62,* 115–123. https://doi.org/10.1016/j.ridd.2017.01.007

Townes, P., Liu, C., Panesar, P., Devoe, D., Lee, S. Y., Taylor, G., ... & Schachar, R. (2023). Do ASD and ADHD have distinct executive function deficits? A systematic review and meta-analysis of direct comparison studies. *Journal of Attention Disorders, 27*(14), 1571-1582.

Wehmeier, P. M., Schacht, A., & Barkley, R. A. (2010). Social and emotional impairment in children and adolescents with ADHD and the impact on quality of life. *Journal of Adolescent health, 46*(3), 209-217.

Whitehouse, A. J., Durkin, K., Jaquet, E., & Ziatas, K. (2008). Friendship, loneliness and depression in adolescents with Asperger's Syndrome. *Journal of Adolescence, 32*(2), 309–322. https://doi.org/10.1016/j.adolescence.2008.03.004

Zablotsky, B., Bradshaw, C. P., Anderson, C., & Law, P. A. (2012). The Association Between Bullying and the Psychological Functioning of Children with Autism Spectrum Disorders. *Journal of Developmental & Behavioral Pediatrics, 34*(1), 1–8. https://doi.org/10.1097/dbp.0b013e31827a7c3a