ORAL PRESANTATIONS

PSYCHIATRIC ASSOCIATION OF TÜRKİYE
ANNUAL MEETING AND 3RD INTERNATIONAL 27TH NATIONAL CLINICAL EDUCATION SYMPOSIUM
27-30 April 2025

FROM CHILDHOOD TO ADULTHOOD: REVISITING AUTISTIC BEHAVIORS, PSYCHIATRIC DIAGNOSES AND PSYCHOSOCIAL FUNCTIONING IN AUTISM SPECTRUM DISORDER

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BACKGROUND AND AIM: Autism Spectrum Disorder (ASD) is a lifelong neurodevelopmental condition with varying symptoms across time, where autistic individuals face greater challenges transitioning to adulthood (Howlin & Magiati, 2017) and maintaining social functioning compared to those with other psychiatric disorders (Barneveld et al., 2014). This study aims to examine how the long-term psychiatric and psychosocial outcomes of individuals with ASD initially evaluated in childhood for baseline autistic behaviors between 2004 and 2006 (T1) relate to current autistic behaviors (T2) and social functioning outcomes while considering the influence of age at diagnosis and psychiatric comorbidities.

METHODS: Participants diagnosed with ASD and assessed using the Autism Behavior Checklist (ABC) during 2004–2006 (T1) were recontacted and invited for reassessment (T2). A total of 28 individuals (85.7% male, mean age: 25.54 ± 2.66) agreed to participate. Sociodemographic data, psychiatric diagnoses according to DSM-5 criteria, and updated ABC scores were recorded. Social functioning was measured using the Social Functioning Scale (SFS), completed by participants' parents. Statistical analyses were conducted using Wilcoxon signed-rank tests to assess changes in ABC scores, Spearman's rank-order correlations to examine relationships between key variables. For mediation analysis, the R software environment (Version 2023.12.1) was utilized. Specifically, mediation models were constructed to examine whether current autistic behaviors (ABC T2) mediated the relationship between baseline autistic behaviors (ABC T1) and social functioning (SFS Total). Models accounted for covariates, including age at autism diagnosis and comorbid psychiatric conditions, which were categorized based on the literature into "mild" (e.g., anxiety disorders, OCD) and "severe" (e.g., schizophrenia, bipolar disorder). Indirect, direct, and total effects were estimated using bootstrapped confidence intervals to assess the mediation effect, with statistical significance determined at p <.05. This study received ethics committee approval (23-7.1T/30).

RESULTS: The mean duration between initial and current assessments was 18 years. Educational attainment varied, with 50% completing middle school and 32.1% completing high school. All participants resided in family-owned homes (100%), and while all were single, 42.9% had reported previous romantic relationships. Psychiatric comorbidities were present in 57.1% of participants, with anxiety disorders (28.6%) being the most common, followed by schizophrenia (10.7%), bipolar disorder (7.1%), and obsessive-compulsive disorder (3.6%). Family psychiatric histories were prevalent, with 89.3% reporting a diagnosed psychiatric condition in a family member. All participants (100%) had attended special education programs, with a majority (85.7%) currently holding an official disability report. Longitudinal analysis of ABC scores revealed a significant increase in the Sensory subscale rising from 9.54 (SD=4.87) at T1 to 15.25 (SD=6.01) at T2 (W = 36.5,p<.001). No significant changes were observed in other subscales or the total ABC score (W = 155.5,p =.428). Correlation analyses demonstrated that increased autistic behaviors at T1 negatively correlated with key social functioning domains, Social Engagement (r = -.484,p<.01), Independence- Competence (r = -.657,p<.001), and Independence-Performance (r = -.657,p<.001). Stronger negative correlations were observed at T2 across all SFS subscales, indicating that current autistic behaviors had a stronger impact on social outcomes than baseline behaviors. Age at starting special education showed a positive correlation with SFS Total (r=.429,p<.05), suggesting higher social functioning with later starts, while duration of special education was not correlated with SFS or ABC T1 or T2 scores. Age at autism diagnosis was positively correlated with SFS Total (r=.537, p<.01) and negatively with ABC Total (T2) (r=−.469, p<.05), showing better social functioning and fewer maladaptive behaviors with later diagnoses. Finally, age at first words correlated negatively with SFS Total (r=−.523, p<.01), indicating lower social functioning with delayed speech milestones, and positively with ABC Total (T2) (r=.409, p<.05), reflecting higher maladaptive behaviors associated with delayed first words. Correlation analyses are summarized in Table 1.

A mediation analysis examined the relationship between baseline autistic behaviors (ABC Total at T1) and social functioning (SFS Total) through current autistic behaviors (ABC Total at T2). Age at autism diagnosis was included due to its correlation with SFS Total, while comorbidities were categorized as mild (e.g., anxiety, OCD) or severe (e.g., schizophrenia, bipolar disorder) based on prior literature. Baseline autistic behaviors significantly predicted current autistic behaviors (B = 0.58, SE = 0.22, p =.015), indicating that an increase in autistic behaviors at T1 was associated with higher maladaptive autistic behaviors at T2. However, age at autism diagnosis was not a significant predictor of ABC T2. In the outcome model, maladaptive autistic behaviors at T2 strongly and negatively affected social functioning (B = -1.93,

SE = 0.38, p <.001). Neither mild (B= -30.7, SE = 28.26, p =.29) nor severe (B = -138.33, SE = 101.1, p =.186) comorbidities independently impacted SFS Total. The indirect effect of ABC T1 on SFS Total via ABC T2 was significant (B = -0.81, 95% CI [-1.65, -0.15], p =.014), while the direct (B = 0.17, 95% CI [-0.50, 0.85], p =.62) and total (B = -0.64, 95% CI [-1.52, 0.31], p =.174) effects were not. This suggests that current maladaptive autistic behaviors fully mediate the relationship between baseline autistic behaviors and social functioning. Mediation analyses are summarized in Table 2.

CONCLUSIONS: Transitioning from adolescence to adulthood is particularly challenging for autistic individuals and is often associated with insufficient planning and lack of appropriate support (Friedman & Parish, 2013). Anxiety, mood, and schizophrenia spectrum disorders are common co-occurring conditions that significantly affect adult outcomes (Lugo-Marín et al., 2019). Our sample also reported high rates of psychiatric comorbidities, including bipolar disorder, schizophrenia, anxiety, and OCD, although they were not significantly associated with social functioning in adult life in our study. While early social engagement and less severe autism symptoms in childhood are known to predict better adult outcomes (Woodman et al., 2015), our findings offer a different perspective. Specifically, childhood maladaptive autistic behaviors do not directly predict social functioning in adulthood; rather, their effects are mediated by the maladaptive autistic behaviors. This study underscores the persistent influence of maladaptive autistic behaviors on adult social functioning, emphasizing the necessity for sustained, individualized interventions beyond childhood.

Keywords: Autism spectrum disorder, autistic behaviors, developmental trajectory, mediation effect, psychiatric comorbidities, social functioning