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Original Research

Attachment, Maternal Childhood Trauma, and Risk of Autism in Offspring

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ABSTRACT

Objective: Maternal childhood trauma and insecure attachment styles have each been implicated in autism spectrum disorder (ASD) in children, yet their combined influence is not well understood. This study examined associations between these maternal factors and ASD status in children.

Methods: Thirty-two ASD dyads and thirty typically developing control dyads, children aged 0–5 years (91% male; M = 3.02 years, SD = 1.31), were enrolled. Mothers completed the Childhood Trauma Questionnaire (CTQ) and Relationship Scales Questionnaire (RSQ); children were assessed with the Childhood Autism Rating Scale (CARS). Between-group differences were investigated, and a binary logistic regression adjusting for CTQ total score, socioeconomic status, child age, and birth weight was performed to assess the association of maternal factors with ASD status.

Results: Although the ASD group mothers reported slightly higher trauma scores, particularly in emotional abuse, these differences were not statistically significant. However, they showed significantly elevated preoccupied and dismissing attachment styles and lower secure attachment compared to the control group. In a binary logistic regression model, preoccupied attachment emerged as a robust predictor of ASD status (B = 1.87, p = 0.023; OR = 6.48), even when controlling for maternal childhood trauma, socioeconomic status, child age, and birth weight. Other attachment styles and the total maternal childhood trauma score did not reach significance.

Conclusion: These findings suggest that mothers of children with ASD are likely to display preoccupied attachment styles, underscoring the importance of addressing maternal attachment issues in early interventions.

Keywords: maternal childhood trauma, attachment styles, autism spectrum disorders

INTRODUCTION

Autism Spectrum Disorder (ASD) is a neurodevelopmental condition marked by difficulties in social interaction and communication, alongside patterns of repetitive behavior and highly focused interests [1]. Globally, roughly one in every 100 children is diagnosed with ASD, underscoring its widespread impact [2]. While the exact etiology of ASD is still being investigated, both genetic and environmental factors are understood to play a role [3]. In recent years, researchers have started looking more closely at how maternal experiences especially her early-life adversities may play a role in their child's development.

Adverse childhood experiences (ACEs) including various types of abuse, neglect, and family dysfunction can profoundly affect a person's long-term health and quality of life [4]. They also have the potential to affect subsequent generations, meaning that a mother's ACEs can have implications for her child's health and developmental outcomes [5]. Several studies link maternal ACEs to an increased risk of developmental issues, including ASD [6, 7, 8, 9]. Although there are indications of a possible link, research on how maternal ACEs might specifically relate to ASD remains limited [10, 11].

A mother's attachment style often influenced by her early experiences can influence how she relates to and supports her child [6, 12]. Early adversities can disrupt the formation of secure internal working models, potentially leading to heightened insecurity or avoidance in adult attachment [13]. Over time, these attachment disruptions often influence how individuals approach and respond to close bonds, including those with their own children [14]. When primary caregivers do not provide consistent care and protection, it can have negative consequences for the child's emotional, social, and cognitive development [4]. On the other hand, mothers with secure attachment styles often show greater sensitivity, emotional awareness, and responsiveness, which can support healthier child development [15]. Research also suggests that children of insecure-preoccupied mothers face substantial interaction difficulties, which may derail optimal development [16, 17].

Two meta-analyses point to markedly higher rates of insecure attachment in clinical populations compared to nonclinical ones, signaling the importance of attachment issues in developmental outcomes [14, 18]. When mothers struggle with insecure attachment and also have a child with ASD, these difficulties may weaken the effectiveness of early interventions and reduce the support needed to address the child's challenges. Over time, such strains may alter a child's developmental path. Although studies point to a possible link between a mother's early adversities, attachment style, and her child's risk of developing neurodevelopmental disorders [6, 11, 19], the specifics are still unclear. This study explores how maternal background and attachment patterns may connect with ASD in children, aiming to inform more effective support and interventions.

This study explores how a mother's childhood trauma history, together with her adult attachment style, may be related to whether her child between infancy and age five having an ASD diagnosis. By comparing children with ASD to a control group, the research aims to identify potential links between maternal experiences, attachment styles, and the development of ASD. In doing so, it may shed light on how these maternal factors are associated with child development and guide more tailored strategies for early ASD intervention.

Main Points

- ASD group mothers reported more insecure and less secure attachment than controls.
- Preoccupied maternal attachment was linked to higher odds of child ASD, after adjusting for maternal-childhood trauma, SES, child age, and birth-weight.
- Maternal childhood-trauma scores showed no significant association with ASD once attachment was considered.
- Assessing maternal attachment patterns could be an important addition to early ASD interventions.

METHODS

Participants

The sample comprised 62 children aged 0 to 5 years (3.01 ± 1.22), recruited by or referred to the Child and Adolescent Psychiatry outpatient clinic of the Bezmialem University Faculty of Medicine, Istanbul, Turkiye via community resources (e.g., pediatricians, community mental health clinics, school system personnel, self-referral). The Child and Adolescent Psychiatry outpatient clinic provides diagnostic and therapeutic services, serving children with developmental, behavioral, and emotional challenges and typically developing children participating in research studies. All parents and children provided informed consent/assent to participate in the study, and the Bezmialem Vakif University Faculty of Medicine's Institutional Review Board approved the study (E-54022451-050.05.04-104347).

Group Assignment

All children and their parents underwent a comprehensive clinical interview to determine eligibility for the study. Thirty-two children met the following criteria and were included in the ASD group: (1) an independent diagnosis by the PI, who is a child psychiatrist, using DSM-5 criteria for ASD based on the clinical interview, which assessed symptom presence and severity across various settings; and (2) assessment using the

Childhood Autism Rating Scale (CARS) [20, 21]. Children with comorbid diagnoses of psychosis, manic-phase bipolar disorder, neurological disorders, or metabolic disorders were excluded from the ASD group.

Thirty children met the following criteria and were included in the typically developing (control) group: (1) no evidence of any clinical disorder based on the clinical interview with the mother and child; (2) typical developmental history by maternal report; (3) scores within the non-autistic range (15-29) on the CARS. Control participants were primarily recruited through fliers, advertisements, and the snowball method, where existing participants referred others interested in the study. Children who presented with (a) gross neurological, sensory, or motor impairment, (b) a history of a seizure disorder, or (c) psychosis. None of the children in the ASD or control groups were receiving medication during the study. Demographic information for the two groups is provided in Table 1.

Measures

Childhood Autism Rating Scale (CARS)

The Childhood Autism Rating Scale (CARS) [20] is an observational tool designed to assess autism. It consists of 15 items, each scored on a scale from 1 to 4, evaluating areas such as interpersonal relationships, imitation, emotional reactions, body movements, adaptability to change, sensory responses (visual and auditory), taste, smell, touch, fear or anxiety, verbal and non-verbal communication, and cognitive abilities. The total score ranges from 15 to 60, with scores of 15-29.5 indicating no autism, 30-36.5 suggesting mild autism, and 37-60 reflecting moderate to severe autism. The reliability and validity of the CARS have been validated in Turkish samples [21].

Childhood Trauma Questionnaire (CTQ)

Childhood trauma was assessed using the Childhood Trauma Questionnaire (CTQ) [22], a 28-item self-report screening tool designed to evaluate experiences of childhood trauma within the home. The CTQ includes five subscales: emotional abuse, physical abuse, sexual abuse, emotional neglect, and physical neglect. Participants respond on a 5-point Likert scale ranging from 1 (never true) to 5 (very often true). Each subscale consists of five items, with scores ranging from 5 to 25. The Turkish adaptation of the CTQ has demonstrated strong psychometric properties [23].

The Relationship Scales Questionnaire (RSQ)

The Relationship Scales Questionnaire (RSQ) [24] is a self-report measure designed to evaluate attachment dimensions in close relationships. It categorizes individuals into one of four prototypical attachment styles: secure, fearful, preoccupied, or dismissing. The A-RSQ uses a 5-point Likert scale ranging from 1 (not at all) to 7 (very much), where participants indicate how well each statement describes their typical style in close relationships. Mean scores for each subscale are calculated by summing the item scores and dividing by the number of items, resulting in four mean scores per participant, one for each attachment style. The Turkish adaptation of the RSQ has demonstrated strong psychometric properties [25].

Demographic Information

Demographic information, including child age, gender, parental education level, employment status, and monthly family income, was collected through parent report.

Statistical Analysis

We used independent sample t-tests and Chi-square tests to compare sociodemographic characteristics between the case and control groups. Next, Pearson's correlation was applied to examine the bivariate correlations between maternal childhood trauma and adult attachment styles. Finally, our primary analysis employed binary logistic regression to assess the occurrence of autism spectrum disorder (ASD) in children. Two models were analyzed: the first controlled for maternal childhood trauma and evaluated the impact of various attachment styles (fearful, dismissive, secure, and preoccupied). The second model expanded the scope to include controls for socioeconomic status (SES), child age, and birth weight while focusing on the same attachment styles. For SES, a composite score was used, derived from the average z-scores of both parents' education and employment levels and household income.

RESULTS

Preliminary Analysis

Sociodemographic Characteristics

The case group was predominantly males (87.5%), a trend similar to that observed in the control group (96.7%). The control group mothers had a notably higher rate of university education (76%) than the case group (34%). Similarly, a higher proportion of fathers in the control group (73%) had a university education than the case group (25%). Regarding family income, the case group primarily fell within the 13,000-24,000 TL

Table 1. Child and family characteristics

Variable	Case Group (N=32)	Control Group (N=30)	p
Gender			
Male	28 (87.5%)	29 (96.7%)	0.391
Female	4 (12.5%)	1 (3.3%)	
Child Age	2.56 (1.01)	3.50 (1.43)	0.004
Type of Birth			
Vaginal	6 (18.8%)	12 (40.0%)	0.118
C-section	26 (81.3%)	18 (60.0%)	
History of Incubation			
Yes	9 (28.1%)	2 (6.7%)	0.060
No	23 (71.9%)	28 (93.3%)	
Birth Weight	2920 (735) [1230, 4220]	3280 (425) [2550, 4500]	0.024
Mother Age	35.0 (7.01) [21.0, 46.0]	35.1 (5.19) [24.0, 43.0]	0.966
Mother Education			
Illiterate	1 (3.1%)	0 (0%)	0.005
Primary/Middle School	8 (25.0%)	1 (3.3%)	
High School	12 (37.5%)	6 (20.0%)	
University	11 (34.4%)	23 (76.7%)	
Mother Employment			
Housewife	22 (68.8%)	12 (40.0%)	0.044
Government Employee	6 (18.8%)	7 (23.3%)	
Self-Employed	4 (12.5%)	11 (36.7%)	
Father Age	37.3 (7.07) [24.0, 54.0]	38.7 (5.72) [27.0, 51.0]	0.398
Father Education			
Primary/Middle School	11 (34.4%)	1 (3.3%)	<0.001
High School	13 (40.6%)	7 (23.3%)	
University	8 (25.0%)	22 (73.3%)	
Father Employment			
Laborer	8 (25.0%)	0 (0%)	0.016
Self-Employed	18 (56.3%)	21 (70.0%)	
Government Employee	6 (18.8%)	7 (23.3%)	
Retired	0 (0%)	2 (6.7%)	
Household Income			
Below 12.000 ₺	4 (12.5%)	0 (0%)	<0.001
13.000-24.000 ₺	19 (59.4%)	6 (20.0%)	
25.000- 40.000 ₺	6 (18.8%)	9 (30.0%)	
Above 41.000 ₺	3 (9.4%)	13 (43.3%)	
Missing	0 (0%)	2 (6.7%)	

Note. Continuous variables are presented as mean ± standard deviation and the observed range (M ± SD) [min, max]; categorical variables are presented as counts and percentages (N, %); p-values were calculated using independent two-sample t-tests for continuous variables and chi-squared tests of independence for categorical variables.

Table 2. Correlations among maternal report of childhood trauma and attachment styles

Variable	1	2	3	4	5	6	7	8	9
1. Maternal Childhood Trauma									
2. Emotional Abuse	0.83**								
3. Physical Abuse	0.32*	0.36**							
4. Physical Neglect	0.71**	0.44**	-0.08						
5. Emotional Neglect	0.90**	0.60**	0.15	0.56**					
6. Sexual Abuse	0.24	-0.01	0.30*	0.15	0.23				
7. Fearful	0.13	0.08	0.16	0.04	0.15	-0.06			
8. Dismissing	0.29*	0.30*	0.26*	0.09	0.25*	0.05	0.37**		
9. Secure	-0.28*	-0.29*	-0.31*	-0.14	-0.21	0.03	0.05	-0.52**	
10. Preoccupied	0.39**	0.33**	-0.03	0.21	0.42**	0.17	0.12	0.19	-0.13

Note. * indicates $p < 0.05$ ** indicates $p < 0.01$

Table 3. Comparison of the mean values of childhood traumatic experiences

	Control Group (N=30)	**Case Group (N=32)**	**p**
CTQ Total Score	32.2 (7.87)	35.6 (9.77)	0.133
Emotional Abuse	6.13 (2.10)	7.72 (4.27)	0.067
Physical Abuse	5.27 (0.980)	5.25 (0.803)	0.942
Physical Neglect	5.93 (2.26)	6.72 (2.62)	0.210
Emotional Neglect	9.50 (4.65)	10.8 (3.97)	0.249
Sexual Abuse	5.20 (0.664)	5.13 (0.492)	0.617

Note. Continuous variables are presented as mean ± standard deviation (M ± SD); p-values were calculated using independent two-sample *t*-tests for continuous variables.

Table 4. Comparison of the mean values of attachment styles

	Control Group (N=30)	**Case Group (N=32)**	**p**
Fearful Attachment	3.54 (0.825)	3.80 (1.09)	0.301
Dismissive Attachment	4.19 (1.05)	4.86 (1.15)	**0.019**
Secure Attachment	4.08 (0.921)	3.45 (0.862)	**0.007**
Preoccupied Attachment	3.16 (0.774)	4.05 (0.946)	**<0.001**

Note. Continuous variables are presented as mean ± standard deviation (M ± SD); p-values were calculated using independent two-sample *t*-tests for continuous variables.

Table 5. Logistic regression analysis results

	Model 1			**Model 2**		
	B (SE)	**p**	**OR (2.5%, 97.5%)**	**B (SE)**	**p**	**OR (2.5%, 97.5%)**
CTQ Total	-0.038 (0.043)	0.384	0.96 (0.88, 1.05)	-0.024 (0.062)	0.702	0.98 (0.86, 1.11)
Fearful	0.270 (0.387)	0.485	1.31 (0.62, 2.90)	0.449 (0.576)	0.435	1.57 (0.52, 5.40)
Dismissive	0.314 (0.361)	0.384	1.37 (0.68, 2.85)	-0.107 (0.520)	0.837	0.90 (0.31, 2.52)
Secure	-0.779 (0.410)	0.058	0.46 (0.19, 0.99)	-0.447 (0.570)	0.433	0.64 (0.19, 1.94)
Preoccupied	1.408 (0.464)	**0.002**	4.09 (1.82, 11.63)	1.870 (0.820)	**0.023**	6.49 (1.67, 45.49)
Child Age	-	-		-0.965 (0.418)	0.021	0.38 (0.15, 0.81)
Birth Weight	-	-		-0.002 (0.001)	0.085	0.99 (0.99, 1.00)
SES Score	-	-		-3.315 (1.062)	0.002	0.03 (0.002, 0.20)

Note: B = Unstandardized Coefficient; SE = Standard Error; OR = Odds Ratio; p = p-value; (-) indicates the variable was not included in the model; CTQ = Childhood Trauma Questionnaire; RSQ = Relationship Scales Questionnaire; ASD = Autism Spectrum Disorder; SES = Socioeconomic Status.

income bracket (59%), while a larger portion of the control group earned above 41,000 TL (43%). These differences in education levels and income were statistically significant. Non-significant differences, including the presence of chronic or psychological illnesses among parents and children and gender distribution, did not show marked variations between the groups.

Group Comparisons

For mothers' combined childhood trauma score, the mean was higher in the case group (M = 35.6, SD = 9.77) compared to the control group (M = 32.2, SD = 7.87), but this difference was not statistically significant (p = 0.13). Emotional abuse showed a trend towards higher scores in the case group (M = 7.72, SD = 4.27) compared to the control group (M = 6.13, SD = 2.10), but this did not reach statistical significance (p = 0.06). No significant differences were found between the two groups in physical neglect (p = 0.94), emotional neglect (p = 0.24), or physical abuse (p = 0.61).

Significant differences were observed in adult attachment styles. Mothers with a child diagnosed with autism reported higher scores for dismissing attachment (M = 4.86, SD = 1.15) compared to the control group (M = 4.19, SD = 1.05; p = 0.019). For secure attachment, the control group showed higher scores (M = 4.08, SD = 0.921) than the case group (M = 3.45, SD = 0.862; p = 0.007). Most notably, mothers with a child diagnosed with autism had significantly higher scores for preoccupied attachment (M = 4.05, SD = 0.946) than the control group (3.16, SD=0.774; p<0.001). Fearful attachment did not significantly differ between groups (p = 0.301).

Bivariate Correlations

Maternal combined childhood trauma positively correlated with dismissing (r = 0.29, p < 0.05) and preoccupied attachment (r = 0.39, p < 0.05) and negatively with secure attachment (r = -0.28, p < 0.05). This indicates that greater childhood trauma might link to less secure and more preoccupied and dismissive adult attachment styles. Emotional abuse and emotional neglect both positively correlated with preoccupied attachment (r = 0.33 and r = 0.42, respectively, both p < 0.01), suggesting a link between these traumas and preoccupied attachment in adults. Physical abuse was positively correlated with dismissing attachment (r = 0.26, p < 0.05) and negatively with secure attachment (r = -0.31, p < 0.05). Mothers' experience of childhood physical neglect and sexual abuse had no significant correlations with adult attachment styles.

Binary Logistic Regression

Binary Logistic Regression Analysis was used to investigate the factors associated with the occurrence of autism spectrum disorder (ASD) in children. In the first model, after adjusting for maternal childhood trauma, a significant association was observed between mothers exhibiting a preoccupied attachment style and an increased likelihood of having a child diagnosed with ASD (B = 1.41, p = 0.002). In the subsequent model (Model 2), even after accounting for key sociodemographic variables, the preoccupied attachment style was significantly associated with an increased likelihood of having a child diagnosed with ASD (B = 1.87, p = 0.023). Compared to the control group, mothers with a preoccupied attachment style were markedly more likely to have a child with ASD, as indicated by the odds ratio (OR = 6.48, 95% CI: 1.66–45.49). This finding suggests that with each unit increase in the level of preoccupied attachment, the odds of a child being diagnosed with ASD (as opposed to not receiving a diagnosis) are amplified by a factor of 6.48. In terms of the proportion of variance accounted for, approximately 13% of the variation in ASD diagnosis can be attributed to the mother's preoccupied attachment style. Other attachment styles, as well as the total maternal childhood trauma score, did not demonstrate a significant association with the incidence of ASD in either model.

DISCUSSION

This study investigated how mothers' experiences of childhood trauma and their adult attachment styles might be linked to autism spectrum disorder (ASD) in their children. We gathered a clinical sample of mothers whose children had ASD and compared them to a control group. Building on earlier findings that have connected insecure attachment [18] and maternal childhood trauma [11] with ASD, we looked more closely at specific attachment styles especially when taking childhood trauma into account to see whether some styles were more closely associated with ASD.

Our results showed that mothers of children with ASD reported slightly higher levels of childhood trauma, notably a small yet non-significant rise in experiences of emotional abuse. In contrast, we did not observe substantial differences for physical or emotional neglect or abuse, a finding that diverges from some previous studies [10, 11]. Despite ACE scores not differing significantly across groups, we did find strong connections between maternal ACEs and insecure attachment styles, particularly preoccupied and dismissing. Emotional abuse was

linked to preoccupied attachment, and physical abuse was tied to dismissing attachment [6]. Overall, mothers of children with ASD were more prone to show insecure attachment styles, reflecting earlier research [14, 18].

Focusing on the mother's attachment style specifically, we saw that having a preoccupied attachment style is significantly associated with an increased likelihood of having a child with ASD. Preoccupied attachment is characterized by elevated anxiety and a persistent need for reassurance in relationships [26]. This link stayed significant even when we controlled for maternal childhood trauma and socioeconomic status, suggesting that preoccupied attachment might be independently related to ASD risk beyond any broader impact of trauma or other attachment styles.

These findings also point to the possibility that mothers with a preoccupied attachment style experience greater stress and anxiety [27] when faced with the demands of raising a child with ASD. Children with ASD often do better with consistent, structured environments [28, 29]. However, maintaining such structure can be difficult for mothers who experience heightened anxiety and emotional reactivity [30]. This added emotional intensity might unintentionally increase the child's distress or ASD-related behaviors, creating a cycle where the child's behavior amplifies maternal anxiety, which then makes it harder for the mother to provide the stability and support her child needs [31, 32].

Our findings showed that other attachment styles, as well as the combined effect of maternal childhood trauma, did not significantly relate to ASD in this sample. This underscores the unique role that preoccupied attachment may play in the mother-child dynamic when the child has ASD. Clinically, these findings underscore the importance of addressing maternal attachment patterns in ASD interventions. Early support may help mothers manage anxiety and develop healthier interactions can foster more supportive environments for children's growth.

One potential limitation of the observed association between preoccupied attachment and ASD arises from differences in how the clinical case group and the community-based control group were recruited [33]. Because the two groups were sourced differently, unmeasured factors—such as healthcare access, referral biases, or parental insight—may have influenced both ASD diagnoses and reported attachment styles [34], thereby introducing a potential confounding effect. The groups also differed markedly in socioeconomic and educational backgrounds. These discrepancies can affect caregiving practices, access to support services, and overall stress levels [35], which may, in turn, influence attachment outcomes [36]. However, our second model controlled for relevant variables, including SES (measured as a composite of parents' education, employment levels, and household income), child age, and birth weight. This approach helped isolate the role of preoccupied attachment by reducing some of the confounding influences tied to socioeconomic and developmental factors, thereby strengthening the validity of our findings.

Another limitation is that we used the Childhood Autism Rating Scale (CARS) for ASD diagnoses, rather than confirming them through a structured clinical interview. Although CARS is widely validated and practical, this choice may still limit the depth of diagnostic information. Our cross-sectional design also restricts any conclusions about causality, as it captures a single moment in time. Further, while we controlled for certain confounders, factors like genetic predisposition or the father's role were not examined and remain areas for future study. Finally, our data on maternal childhood trauma and attachment styles came from self-reports, which can introduce errors in recall or social desirability bias.

CONCLUSION

This study points to a possible association between maternal childhood trauma, preoccupied attachment, and ASD in children. By recognizing these maternal factors, professionals may offer interventions that encourage more supportive environments for both mothers and children.

Conflict of Interest: The authors declare that they have no competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Informed Consent: Written informed consent was obtained from all participants prior to their inclusion in the study.

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Ethical Approval: This study was approved by Ethics committee of Bezmialem Vakif University (E-54022451-050.05.04-104347).

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