

Original Article



The relationship between maternal self-differentiation and behavioral disorders in children with autism: The mediating role of maternal mental health

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Abstract

Background and aims: Autism spectrum disorder (ASD) is a multifaceted condition that significantly impacts social interactions, communication, and behavior. Given the profound effects of ASD on families, it is essential to understand the factors influencing the well-being of caregivers, particularly mothers. This study aimed to investigate the relationship between maternal self-differentiation and behavioral disorders in children with ASD, emphasizing the mediating role of maternal mental health.

Methods: This study utilized a descriptive-correlational design employing structural equation modeling (SEM). The population comprised all children diagnosed with ASD and their mothers registered with the Autism Association in Ahvaz in 2023. A convenience sample of 262 participants was selected from the Autism Association of Ahvaz. The data were collected using the Child Behavior Checklist (CBCL), the Differentiation of Self Inventory, and the Symptom Checklist-90-Revised (SCL-90-R). Following data collection, Pearson correlation analysis and SEM were performed using SPSS-27 and AMOS-24.

Results: The findings indicated a significant negative correlation between maternal self-differentiation and child behavioral disorders ($\beta = -0.13$, $P = 0.029$). Additionally, a significant positive correlation was identified between maternal self-differentiation and maternal mental health ($\beta = 0.37$, $P = 0.001$). However, there was a significant negative correlation between maternal mental health and child behavioral disorders ($\beta = -0.58$, $P = 0.001$). An indirect relationship was also found between maternal self-differentiation and child behavioral disorders, mediated by maternal mental health ($\beta = -0.32$, $P = 0.010$). All goodness-of-fit indices for the model fell within acceptable ranges.

Conclusion: Overall, it was revealed that the emotional well-being of mothers and their capacity to maintain a distinct sense of identity are significantly associated with their children's behavior, particularly in the context of ASD. Enhancing maternal mental health and fostering self-differentiation may yield positive outcomes for children with ASD.

Keywords: Behavioral disorders, Mental health, Self-differentiation, Autism, Mothers

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Introduction

Autism spectrum disorder (ASD) is a neurodevelopmental condition characterized by impairments in social interaction, communication, and behavior (1). These deficits can result in significant challenges in daily functioning and social engagement (2,3). Children with ASD may develop behavioral disorders as a consequence of unmet needs and limited control over their environments (4-6). The quality of the child-caregiver relationship, particularly maternal interactions, is crucial for a child's cognitive and emotional development (7,8). Mothers of children with ASD encounter unique stressors, including the demands of intensive caregiving and societal expectations, which can contribute to heightened maternal stress and psychological distress (9).

Maternal self-differentiation, a fundamental concept in Bowenian family systems theory, refers to an individual's capacity to maintain autonomy and emotional equilibrium (10-12). Research indicates that

higher levels of self-differentiation are linked to greater psychological resilience and more adaptive interpersonal functioning (10,12). In the context of parenting, maternal self-differentiation significantly influences parenting behaviors and, consequently, child outcomes (10).

The family unit plays a critical role in child health, with maternal health and self-differentiation identified as essential components. Maternal mental well-being is closely associated with the ability to create supportive environments for children (13). Given the established link between maternal mental health, anxiety, and childhood behavioral problems (14,15), prioritizing maternal mental health is vital for the well-being of children, families, and society at large.

Mental health, as defined by the World Health Organization (WHO), encompasses well-being, stress management, productivity, and social contribution (16). Mental health disorders are prevalent, with life transitions and stressors identified as significant risk factors (17,18).

Mothers of children with ASD experience elevated stress levels and poorer mental health compared to mothers of typically developing children (19). Furthermore, maternal mental health is significantly associated with childhood behavioral problems (20).

Understanding factors contributing to behavioral disorders in children with ASD is essential for developing effective interventions and support strategies. Maternal characteristics—specifically personality traits, psychological conditions, and parenting skills—can significantly influence early mother-child interactions and subsequent child development (21,22). Disruptions in these interactions, along with communication deficits, can contribute to the emergence of behavioral problems in children.

Given the pivotal role of mothers within both family and societal contexts, along with the unique challenges faced by mothers of children with ASD, there is a critical need for interventions that address their specific needs. Building upon existing research, this study seeks to examine the correlation between maternal self-differentiation and behavioral disorders in children with ASD while investigating the mediating role of maternal mental health.

Materials and Methods

This study utilized a descriptive-correlational design to evaluate the relationships among variables through structural equation modeling (SEM). The target population consisted of all children diagnosed with ASD and their respective mothers residing in Ahvaz during 2023. A total of 262 participants were selected as the sample from the Autism Association of Ahvaz. An initial sample size of 280 was established, considering the number of variables and the potential for incomplete questionnaires. After excluding incomplete questionnaires and outliers, a total of 262 fully completed questionnaires underwent analysis. The inclusion criteria for the study required participants to be children aged 7–13 years with a confirmed diagnosis of ASD based on both diagnostic records and psychological evaluations. Additionally, participants needed to reside with their biological mothers, have no comorbid psychiatric disorders, and have no history of receiving psychological services or using psychotropic medications (e.g., anxiolytics or antidepressants) within the past three months. All participants were required to complete the Child Behavior Checklist (CBCL) as part of the study. On the other hand, the exclusion criteria included withdrawal from completing the questionnaires and failure to respond fully to the questionnaires.

Procedure

Prior to the commencement of the study, ethical approval was obtained from the Institutional Review Board of the Islamic Azad University, Ahvaz Branch. This board conducted a comprehensive review of the study design,

participant consent procedures, and data confidentiality measures to ensure compliance with ethical standards. Data collection took place between February and May 2023 at the Autism Association of Ahvaz, Iran. Informed consent was secured from all participants prior to their involvement in the study. The questionnaires were administered in a face-to-face setting by trained research assistants, and participants completed the questionnaires in a private environment to protect their confidentiality. To minimize response bias, researchers provided clear instructions and were readily available to address any questions or concerns from participants.

Instruments

Child Behavior Checklist

The CBCL is a 30-item self-report measure developed by Rutter in 1967 (23). Respondents rate each item on a three-point Likert-type scale (0–2), resulting in a total score that ranges from 0 to 60. The Persian adaptation of the CBCL has demonstrated adequate inter-rater reliability and acceptable internal consistency, with a Cronbach's alpha of 0.87 (24). Mohammadipour et al (24) validated the Persian version of the CBCL, confirming its reliability and validity. In addition, its content validity was found to be high, with a content validity index (CVI) of 0.93 and a content validity ratio (CVR) of 0.91.

Differentiation of Self-Inventory

The Differentiation of Self-Inventory (DSI) is a 45-item self-report measure developed by Skowron and Friedlander (25) to assess individual levels of self-differentiation. Participants rate items on a 6-point Likert-type scale (1–6) across four subscales, namely, affective congruence, self-evaluation, emotional avoidance, and emotional reactivity. A total score is calculated from all items. Previous research supports the reliability of the DSI, with a reported test-retest coefficient of 0.84 (26). Ghavibazou et al (26) established the reliability and validity of the Persian version of the DSI. The content validity of this translated version was robust, with a CVI of 0.89 and a CVR of 0.87. In this study, the DSI demonstrated acceptable internal consistency, with a Cronbach's alpha of 0.83.

Symptom Checklist-90-Revised

Maternal mental health was assessed using the SCL-90-R, a self-report instrument developed by Derogatis (27). The SCL-90-R measures nine primary symptom dimensions along with three global indices of psychopathology. Respondents rate items on a 5-point Likert-type scale. The psychometric properties of the Persian version of the SCL-90-R have been well-documented, demonstrating acceptable reliability with a reported Cronbach's alpha of 0.88 (28). Akhavan Abiri and Shairi (28) validated the Persian version of the SCL-90-R, confirming its reliability and validity. The content validity of the translated version was found to be robust, with a CVI of 0.98 and a CVR of 0.95.

Data analysis

Both descriptive and inferential statistical analyses were conducted. Descriptive statistics, including means and standard deviations (SDs), were used to summarize the data. A Pearson correlation matrix and SEM were employed for inferential data analysis. Statistical analyses were performed using SPSS-27 and Amos-24 software. The conceptual model of the research is illustrated in Figure 1.

Results

The demographic characteristics of the sample indicated a mean (SD) maternal age of 35.42 (4.19) years. Employment status revealed that 40.07% of mothers were employed, while 59.92% were housewives. In terms of educational attainment, 41.60% of participants had a high school diploma, 32.06% held a bachelor's degree, 17.94% possessed a master's degree, and 8.40% had obtained a doctoral degree. Descriptive statistics, including means, SDs, skewness, and kurtosis for all study variables, are presented in Table 1. Given that the absolute values of skewness and kurtosis were less than 1 for all variables, the data were assumed to be normally distributed.

Table 2 provides the Pearson correlation matrix for the study variables. A significant inverse correlation was found between child behavioral disorders and both maternal self-differentiation ($r = -0.16$, $P < 0.05$) and

maternal mental health ($r = -0.35$, $P < 0.01$). Conversely, a significant positive correlation emerged between maternal self-differentiation and maternal mental health ($r = 0.32$, $P < 0.01$). The proposed theoretical model illustrating the relationships among child behavioral disorders, maternal self-differentiation, and maternal mental health is depicted in Figure 2.

Table 3 lists the goodness-of-fit indices for the structural equation model. The root mean square error of approximation was 0.001, indicating excellent model fit. Additionally, the Tucker-Lewis index, comparative fit index, normed fit index, and relative fit index all fell within the acceptable range, further supporting the model's adequacy.

Table 4 summarizes the standardized path coefficients for the hypothesized model. The results confirmed a significant negative direct effect of maternal self-differentiation on child behavioral disorders ($\beta = -0.13$, $P = 0.029$). Conversely, a significant positive direct effect was observed between maternal self-differentiation and maternal mental health ($\beta = 0.37$, $P = 0.001$). Maternal mental health emerged as a significant predictor of child behavioral disorders ($\beta = -0.58$, $P < 0.001$). Furthermore,

Table 1. Descriptive statistics of study variables

Variables	Mean	SD	Kurtosis	Skewness
Child behavioral disorders	34.95	8.14	0.07	0.61
Maternal self-differentiation	159.68	21.47	-0.08	0.83
Maternal mental health	51.05	10.37	0.26	-0.79

Note. SD: Standard deviation.

Table 2. Correlation matrix of study variables

Variables	1	2	3
Child behavioral disorders	1		
Maternal self-differentiation	-0.16*	1	
Maternal mental health	-0.35**	0.32**	1

Note. ** $P < 0.01$, * $P < 0.05$.

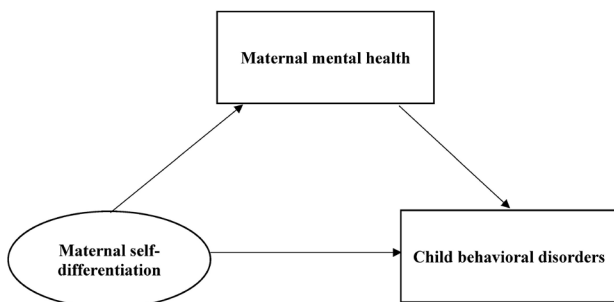


Figure 1. Conceptual Model of the Research

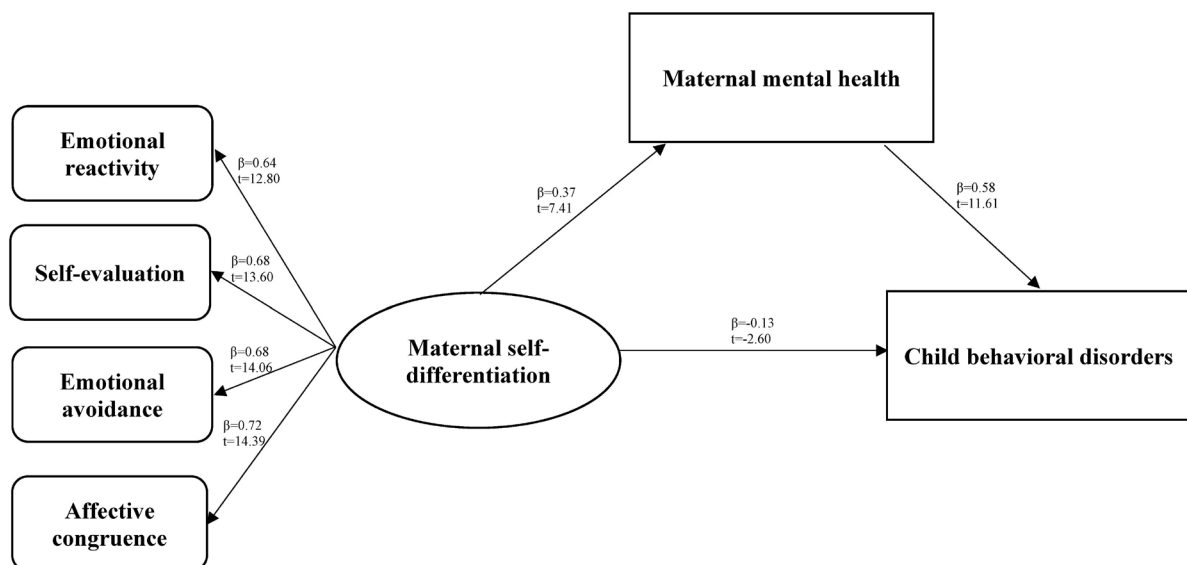


Figure 2. Proposed Model of the Research

Table 3. Fitting Indices of the Proposed Model

Fit indicators	χ^2	df	(χ^2 /df)	TLI	CFI	RFI	NFI	RMSEA
Values	6.17	8	0.77	0.99	0.99	0.97	0.99	0.001

Note. df: Degree of freedom; TLI: Tucker-Lewis index; CFI: Comparative fit index; RFI: Relative fit index; NFI: Normed fit index; RMSEA: Root mean square error of approximation.

Table 4. Direct and Indirect Paths in the Proposed Model

Paths	β	P value
Maternal self-differentiation → Child behavioral disorders	-0.13	0.029
Maternal self-differentiation → Maternal mental health	0.37	0.001
Maternal mental health → Child behavioral disorders	-0.58	0.001
Maternal self-differentiation → Child behavioral disorders through the mediating role of maternal mental health	-0.32	0.010

the indirect effect of maternal self-differentiation on child behavioral disorders, mediated by maternal mental health, was also significant ($\beta = -0.32$, $P = 0.010$).

Discussion

The study explored the relationship between maternal self-differentiation and child behavioral problems within the context of ASD, emphasizing the mediating role of maternal mental health. A significant negative correlation was identified between maternal self-differentiation and child behavioral disorders, which aligns with the findings of previous research (11,29).

Self-differentiation, defined as the ability to maintain autonomy and psychological boundaries, is crucial for mothers of children with ASD. It aids in managing caregiving challenges, reducing stress and anxiety, and enhancing effective problem-solving. Higher levels of self-differentiation are associated with improved mother-child interactions, which are characterized by an accurate identification of child needs and responsive caregiving (11). Mothers who exhibit strong self-differentiation demonstrate greater behavioral regulation, allowing them to respond calmly and strategically to their children's challenges (29). This adaptability fosters positive behavioral outcomes by accommodating the evolving needs of the child and the dynamics of the environment.

The study identified a significant negative correlation between maternal mental health and child behavioral disorders, which conforms to the findings of some studies (21,22). Maternal mental health is a critical factor influencing behavioral outcomes in children with autism. Mothers who maintain optimal mental health are more adept at managing stress, providing emotional support, and facilitating positive parent-child interactions, which in turn contributes to a reduction in behavioral challenges (22).

Conversely, difficulties in maternal mental health, such as anxiety, depression, and chronic stress, can adversely affect child behavior. These conditions may hinder a mother's capacity to manage her child's behavior, establish a supportive environment, and respond effectively to the child's needs (21). Elevated stress levels, reduced coping mechanisms, and emotional exhaustion can further

exacerbate behavioral issues in children. Therefore, prioritizing maternal mental health is essential for enhancing child outcomes and promoting optimal development.

Our results revealed a significant positive correlation between maternal self-differentiation and maternal mental health. Self-differentiation, defined as the ability to maintain autonomy and establish psychological boundaries, is likely to enhance maternal mental health by alleviating stress and anxiety while promoting resilience (11).

Mothers with higher levels of self-differentiation may be better equipped to manage the inherent stressors associated with caring for a child with autism, thereby mitigating the risk of psychological difficulties, such as depression and burnout (11,30). Self-differentiation also fosters positive family relationships by establishing clear boundaries and reducing conflict and stress (30). Conversely, lower levels of self-differentiation may increase vulnerability to mental health issues. Excessive emotional enmeshment with the child can lead to heightened stress, anxiety, and depression. In conclusion, self-differentiation emerges as a critical factor in safeguarding maternal mental health in the context of caring for a child with autism.

Based on our findings, there was a significant correlation between maternal self-differentiation and child behavioral disorders, with maternal mental health serving as a mediating factor. Higher levels of maternal self-differentiation were associated with lower levels of child behavioral problems. Self-differentiation, defined as the ability to maintain personal identity and establish psychological boundaries, plays a crucial role in this relationship (12). Mothers who exhibit higher levels of self-differentiation are better equipped to manage stress, promote positive mental health, and create supportive caregiving environments. Consequently, improved maternal mental health contributes to a reduction in child behavioral problems by enhancing coping mechanisms and emotional regulation.

The limitation of the sample to mothers of children with autism in Ahvaz necessitates caution when generalizing the results to mothers of children with autism and other disorders in different locations. Additionally, another

limitation of this study was the reliance on self-report measures, which may have influenced the accuracy of the data due to potential social desirability bias among the participants.

Conclusion

The findings of this study highlight the complex interplay among maternal self-differentiation, maternal mental health, and child behavioral disorders within the context of autism. The results revealed a significant positive association between lower levels of maternal self-differentiation and increased child behavioral problems, thereby supporting previous research that emphasizes the importance of maternal well-being in influencing child outcomes. Furthermore, the mediating role of maternal mental health in this relationship underscores the critical need to address maternal psychological well-being as a means to potentially mitigate child behavioral challenges. These findings underline the necessity of interventions aimed at enhancing both maternal self-differentiation and mental health to improve outcomes for mothers and children affected by autism. Thus, future research should delve into the underlying mechanisms of these relationships and evaluate the effectiveness of specific interventions designed to bolster maternal self-differentiation and mental health.

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Authors' Contribution

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Competing Interests

The authors declare that there is no conflict of interests.

Ethical Approval

Ethical approval for performing this study was obtained from the Ethics Review Board of the Islamic Azad University, Ahvaz Branch (approval No. IR.IAU.AHVZ.REC.1403.189).

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