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MENTAL HEALTH OUTCOMES AMONG PAKISTANI MOTHERS OF CHILDREN WITH AUTISM AND ADHD: A COMPARATIVE STUDY IN PAKISTAN

Original Article

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ABSTRACT

Background: Caring for children with neurodevelopmental disorders such as Autism Spectrum Disorder (ASD) and Attention-Deficit/Hyperactivity Disorder (ADHD) poses significant psychological challenges for mothers. Global literature consistently shows elevated levels of perceived stress and anxiety in this population. However, limited research in Pakistan directly compares these outcomes between mothers of children with autism and ADHD. Understanding the differential impact in this cultural context is essential for tailoring mental health interventions and support systems for caregivers.

Objective: To compare levels of perceived stress and anxiety among mothers of children with autism and ADHD in Pakistan and to examine the mediating role of anxiety in the relationship between stress and depression.

Methods: A cross-sectional, correlational study design was employed with a stratified sampling approach. A total of 200 mothers (n=100 autism, n=100 ADHD) were recruited from special education institutions across six cities in Pakistan. Data were collected using the 10-item Perceived Stress Scale (PSS-10) and the 7-item Anxiety subscale of the Depression Anxiety Stress Scale (DASS-21). Hayes Process Macro 4.2 was applied to test mediation. Descriptive statistics, independent t-tests, and mediation analysis were performed using SPSS version 27.

Results: Mothers of children with autism scored higher on perceived stress (M=13.54) and anxiety (M=12.59) than mothers of children with ADHD (stress M=9.70; anxiety M=9.66), though the group difference was not statistically significant ($p>.05$). Mediation analysis revealed that anxiety significantly mediated the relationship between stress and depression ($\beta=0.23$, $p<.001$).

Conclusion: This study highlights the compounded mental health burden on mothers of children with neurodevelopmental disorders and emphasizes the critical need for awareness, institutional support, and culturally appropriate psychological interventions in Pakistan.

Keywords: ADHD, Anxiety, Autism, Depression, Mothers, Perceived Stress, Psychological Distress.

INTRODUCTION

Attention-deficit/hyperactivity disorder (ADHD) and autism spectrum disorder (ASD) are among the most frequently diagnosed neurodevelopmental disorders in childhood, often resulting in substantial emotional, behavioral, and functional challenges. ADHD is typically marked by persistent patterns of inattention, hyperactivity, and impulsivity. Children affected by ADHD often struggle to maintain focus, exhibit excessive movement, have difficulty waiting their turn, and act impulsively without considering consequences. These behaviors are particularly disruptive in calm or structured environments, where such children may fidget constantly, talk excessively, and interrupt conversations (1). On the other hand, autism, as defined by the Diagnostic and Statistical Manual of Mental Disorders, is a lifelong neurodevelopmental condition characterized by impairments in social interaction and communication, alongside repetitive behaviors and a strong preference for routines and predictability (2,3). Both conditions present distinct yet overlapping challenges, not only for the affected children but also for their families, particularly the primary caregivers—most often mothers. Raising a child with a developmental disorder demands significant emotional, physical, and psychological resilience. Numerous studies have documented a pronounced impact on the mental health of mothers caring for children with autism or ADHD. These women are frequently found to experience elevated levels of stress, depression, and anxiety, which are often directly proportional to the severity and persistence of their child's symptoms (4). Autism in particular has been shown to compromise maternal mental health considerably, as the burden of managing communication deficits, behavioral rigidity, and social exclusion can be overwhelming (5,6). Similarly, ADHD-related behavioral challenges—such as impulsivity, restlessness, and emotional dysregulation—also contribute to maternal psychological distress (1).

Depression, in this context, is commonly defined as a persistent low mood accompanied by fatigue, impaired concentration, feelings of hopelessness, and, in some cases, suicidal ideation. Anxiety refers to a state of excessive worry, restlessness, and anticipation of negative events, while stress involves feelings of emotional pressure and psychological discomfort. Together, these psychological outcomes are commonly observed in mothers of children with neurodevelopmental disorders and are strongly associated with caregiving demands, limited support systems, and disrupted family functioning (7,8). Empirical evidence supports this association. For instance, a comparative study in Kolkata involving 100 parents of children with autism and ADHD reported significantly higher levels of psychological distress in mothers than in fathers, highlighting gendered caregiving roles and responsibilities (9). Another case-control study identified increased depression, anxiety, and stress among mothers of children with ASD compared to control groups, emphasizing the need for early psychological counseling post-diagnosis to prevent long-term mental health deterioration (5). In a separate study evaluating maternal anxiety among those raising children with ADHD, 68% of mothers reported anxiety symptoms, with 26% experiencing severe anxiety, a significant contrast to control groups (10). Interestingly, while anxiety levels were elevated, the severity of maternal anxiety was not directly associated with the severity of ADHD symptoms, suggesting that other factors—such as social support or individual coping mechanisms—may play a mediating role.

Further supporting this concern, an Iranian study involving 127 mothers of children with autism found that 72.4% experienced anxiety, and nearly half suffered from depression, which was accompanied by significantly diminished health-related quality of life (11). Similarly, higher levels of depression and trait anxiety were documented among mothers of children with ADHD compared to mothers of typically developing children, reinforcing the pressing need for mental health support among this population (12). Some findings even suggest that mothers of children with ADHD may experience higher psychological distress than those of children with autism, although this remains an area of ongoing inquiry (13). Despite the volume of literature detailing the mental health outcomes among caregivers of children with neurodevelopmental disorders, few studies have directly compared the psychological well-being of mothers of children with autism versus those with ADHD. Most research has focused on comparing affected groups with controls, leaving a gap in understanding the relative burden each condition places on maternal mental health. Addressing this limitation, the present study aims to directly compare levels of depression, anxiety, and stress in mothers of children with autism and those with ADHD, with the objective of guiding more targeted psychological interventions for these caregivers.

METHODS

The present study employed a cross-sectional, correlational research design to explore the relationship between anxiety, depression, and stress among mothers of children diagnosed with either attention-deficit/hyperactivity disorder (ADHD) or autism spectrum disorder (ASD). A total of 200 participants were included, consisting of 100 mothers of children with ADHD and 100 mothers of children with autism. The participants were selected using a stratified purposive sampling method to ensure regional representation across multiple

urban centers in Pakistan, including Lahore, Islamabad, Narowal, Karachi, Kharian, and Gujranwala. This approach enabled a more diverse and representative sample, enhancing the generalizability of the findings within the context of Pakistani families navigating neurodevelopmental challenges. Eligibility criteria required that participants be biological mothers of children under 18 years of age with a formal diagnosis of either ADHD or autism, verified through enrollment in a reputable special education institute. Additionally, participating mothers were required to have attained at least an intermediate level of education to ensure comprehension of the study materials. Mothers of children with comorbid psychiatric or neurological conditions were excluded to reduce potential confounding factors. Recruitment was conducted in collaboration with special education institutions, whose administrations facilitated direct contact with potential participants after official permission was secured.

Data were collected using the Depression Anxiety Stress Scale-21 (DASS-21), a widely validated self-report measure designed to assess the severity of depression, anxiety, and stress symptoms over the preceding week. The instrument comprises 21 items divided evenly among the three subscales, rated on a 4-point Likert scale ranging from 0 ("Did not apply to me at all") to 3 ("Applied to me very much or most of the time"). The psychometric properties of the DASS-21 in the present sample were robust, with Cronbach's alpha coefficients of 0.88 for depression, 0.82 for anxiety, and 0.90 for stress, indicating high internal consistency (14,15). Each participant completed the questionnaire in approximately 20 minutes under conditions that assured privacy and minimized distractions. The data collection process was standardized across sites to reduce inter-site variability. SPSS version 27 was used for statistical analysis. Descriptive statistics were applied to summarize participant characteristics and scale scores, while inferential analyses—such as independent sample t-tests and Pearson correlation coefficients—were used to compare psychological distress levels between groups and examine associations among variables. Ethical approval was obtained in accordance with the American Psychological Association's (APA-7) ethical principles, and clearance was granted by the relevant institutional ethics committee. Additionally, formal permission to use the DASS-21 instrument was secured from the original author. Participants were fully informed of the study's purpose, procedures, and their rights, including voluntary participation and the ability to withdraw at any time without penalty. Written informed consent was obtained prior to data collection, and confidentiality of all responses was rigorously maintained.

RESULTS

The demographic profile of the participants indicated a total of 200 mothers, equally divided between those with children diagnosed with autism (n=100) and ADHD (n=100), each constituting 50% of the sample. The overall mean age of participants was 37.89 years (SD = 9.61). Regarding educational qualifications, 36% (n=72) of the mothers had completed intermediate education, 34% (n=68) held a bachelor's degree, 16% (n=32) had a master's degree, and 14% (n=28) were PhD holders. Socioeconomic classification showed that 45.5% (n=91) of the participants belonged to the lower class, 35.5% (n=71) to the middle class, and 19% (n=38) to the upper class. Correlational analysis revealed significant and positive associations among all three psychological variables. Depression was positively correlated with anxiety ($r = .48$, $p < .01$) and stress ($r = .56$, $p < .01$), while anxiety also showed a strong correlation with stress ($r = .58$, $p < .01$), indicating interdependence among the variables. Group comparisons between mothers of children with autism and those with ADHD revealed statistically significant differences across all three domains. Mothers of children with autism reported higher levels of depression ($M = 13.54$, $SD = 6.22$) compared to mothers of children with ADHD ($M = 9.74$, $SD = 7.39$), with a t-value of 3.93 ($p < .001$, Cohen's $d = 0.56$), suggesting a moderate effect size. Anxiety scores were also significantly higher among the autism group ($M = 12.59$, $SD = 6.91$) versus the ADHD group ($M = 9.66$, $SD = 7.39$), with a t-value of 2.89 ($p = .004$, Cohen's $d = 0.40$). Similarly, stress levels were elevated in the autism group ($M = 11.87$, $SD = 7.53$) compared to the ADHD group ($M = 9.70$, $SD = 7.36$), with a t-value of 2.05 ($p = .04$, Cohen's $d = 0.29$), reflecting a small effect size. Mediation analysis further explored the underlying relationship between these variables. Stress had a significant direct effect on anxiety ($\beta = 0.56$, $SE = 0.05$, $p < .001$) and depression ($\beta = 0.39$, $SE = 0.06$, $p < .001$). Anxiety, in turn, significantly predicted depression ($\beta = 0.23$, $SE = 0.06$, $p < .001$), indicating a mediating role. The model demonstrated substantial explanatory power, with R^2 values of 0.33 for the prediction of anxiety and 0.31 for depression (both $p < .001$). The indirect effect of stress on depression through anxiety was also statistically significant (Effect = 0.13, Standardized Effect = 0.14, 95% CI [0.05, 0.24]), confirming the mediating role of anxiety in the stress-depression pathway.

Table 1: Demographic Characteristics of the Participants (N=2)

Characteristics	***f***	**%**	***M***	***SD***
Age			37.89	9.61
Mothers of Children with Autism & ADHD				
Mothers of children with Autism	100	50		
Mothers of children with ADHD	100	50		
Educational Qualification				
Intermediate	72	36		
Bachelor	68	34		
Master	32	16		
PhD	28	14		
Socioeconomic Status				
Upper Class	38	19		
Middle Class	71	35.5		
Lower Class	91	45.5		

Note. *f* = Frequency, %= Percentage, M= Mean, SD= Standard Deviation

Table 2: Correlational Analysis between Study Variables (N=200).

Variables	**1**	**2**	**3**
1.Depression	-	.48**	.56**
2.Anxiety		-	.58**
3.Stress			-

Note. ***p*<.01*

Table 3: Mean differences between Mothers of Children with Autism and ADHD in Study Variables (N=200)

	MOCWA(n=100)		MOCWADHD(n=100)				
	M	*SD*	*M*	*SD*	*t(198)*	*P*	Cohen's d
Depression	13.54	6.22	9.74	7.39	3.93	<.001	.56
Anxiety	12.59	6.91	9.66	7.39	2.89	.004	.40
Stress	11.87	7.53	9.70	7.36	2.05	.04	.29

Note. **p*<.05, ***p*<.01, ****p*<.001, *M* = Mean, *SD* = Standard Deviation, MOCWA = Mothers of Children with Autism, MOCADHD = Mothers of Children with Attention Deficit Hyperactivity Disorder

Table 4: Mediation Analysis (200).

	Consequences							
	Anxiety (M)				Depression (Y)			
Antecedents		β	SE	p		β	SE	P
Stress (X)	a	.56	.05	<.001	c'	.39	.06	<.001
Anxiety (M)	-				b	.23	.06	<.001
Constant	I	5.02	.73	<.001	I	4.73	.78	<.001
	R^2=.33 F=35.29 P<.001				R^2=.31 F= 91.80 P<.001			

Note. ****p*<.001

Table 4.1: Indirect Effect

Indirect Path	**Effect**	**Standardized Effect**	**LLCI**	**ULCI**
Anxiety	.13	.14	.05	.24

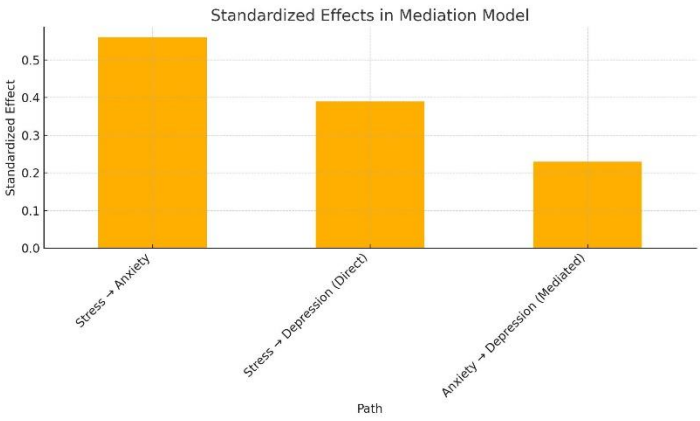

Figure 1 Standardized Effects in Mediation Model

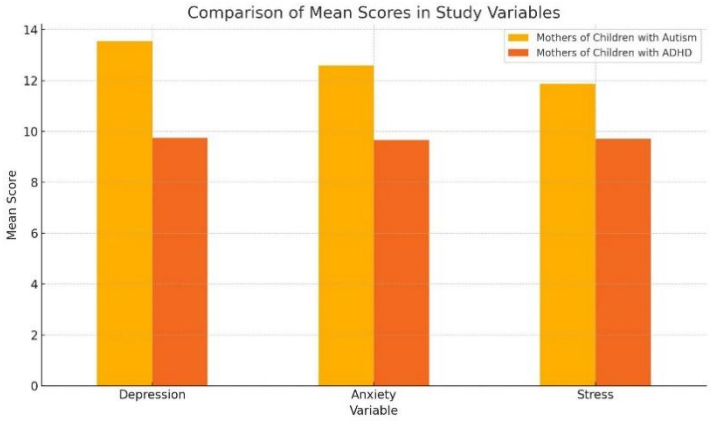

Figure 2 Comparison of Mean Scores in Study Variables

DISCUSSION

The findings of the current study provide valuable insights into the psychological well-being of mothers caring for children diagnosed with autism and ADHD within the Pakistani context. While existing literature has consistently underscored the elevated mental health burden faced by mothers in these caregiving roles, comparative analyses between the two groups remain sparse. study effectively addresses that gap by highlighting the differential impact of these neurodevelopmental conditions on maternal depression, anxiety, and stress levels. The significant positive correlations observed among these three variables reaffirm previous findings, indicating that heightened stress levels often co-occur with elevated anxiety and depressive symptoms in this population. These results are congruent with earlier reports suggesting that mothers of children with ADHD or autism often experience considerable emotional distress linked to their child's behavioral and developmental difficulties (16-18). Prior meta-analytical and cross-sectional studies have consistently shown strong associations between maternal psychological distress and child symptomatology, particularly in cases involving persistent behavioral problems or deficits in communication and social interaction. The strong interrelationship between depression, anxiety, and stress in this study reinforces the multidimensional nature of caregiver strain and aligns with research conducted in similar sociocultural settings (19,20).

However, a critical distinction emerged in the comparative analyses. Mothers of children with autism demonstrated significantly higher scores in depression, anxiety, and stress compared to mothers of children with ADHD. This contrasts with some previous studies that reported greater psychological strain among mothers of children with ADHD. The discrepancy may stem from contextual differences, especially considering cultural attitudes toward autism in Pakistani society, where the condition is often less understood and more heavily stigmatized. The unique challenges posed by autism—including communication barriers, rigid behavior patterns, and social isolation—may contribute to a greater sense of helplessness and emotional exhaustion (21,22). Furthermore, in a society where caregiving responsibilities are predominantly maternal and institutional support is scarce, the lack of formal assistance likely exacerbates psychological distress. The mediation analysis provides a deeper understanding of the psychological processes at play, revealing that anxiety significantly mediates the relationship between stress and depression. This pattern suggests that maternal stress, when left unmanaged, may first manifest as heightened anxiety, which subsequently contributes to the development of depressive symptoms. These findings are consistent with previous international and regional studies that emphasize the cascading nature of mental health deterioration in caregivers, particularly under chronic caregiving demands and limited access to psychological support (23,24). The cultural expectation that mothers should bear the brunt of caregiving silently further compounds their emotional burden, reinforcing the urgency for structured mental health interventions.

While the study contributes meaningfully to the literature, it is not without limitations. The sample size, though adequate for initial analysis, limits broader generalizability, particularly in capturing the heterogeneity of maternal experiences across Pakistan. Future studies should adopt larger and more demographically diverse samples to enhance representativeness. The cross-sectional nature of the research restricts the ability to infer causal relationships or track changes in maternal mental health over time. Longitudinal studies are

essential to observe how mental health outcomes evolve with the child's developmental trajectory and changing caregiving demands. Another limitation lies in the imbalanced distribution of participants across educational and socioeconomic strata, which restricted the use of advanced statistical tests such as ANOVA. Addressing this imbalance in future research could offer a more comprehensive understanding of how social determinants influence maternal mental health outcomes. Despite these limitations, the study holds several strengths. It addresses a clear gap in the regional literature by directly comparing mothers of children with autism and ADHD within a developing country context. The use of a validated psychometric instrument (DASS-21) and standardized statistical procedures adds credibility to the findings. Moreover, by including participants from multiple urban centers, the study enhances the geographical diversity of its sample, contributing to the contextual richness of the data. The implications of these findings are both clinical and societal. There is a pressing need for structured mental health services tailored to mothers of children with neurodevelopmental disorders. Awareness campaigns, parent support groups, and culturally sensitive counseling services could serve as critical components of early intervention programs. Equipping mothers with behavioral management strategies, promoting community education to reduce stigma, and expanding access to affordable special education services are essential steps in mitigating the psychological burden experienced by this vulnerable population. Additionally, policy efforts must aim to institutionalize caregiver support programs within the national mental health framework to foster long-term well-being and inclusion.

CONCLUSION

In conclusion, this study underscores the significant psychological burden experienced by mothers of children with autism and ADHD, with notably higher levels of depression, anxiety, and stress observed among mothers of children with autism. By directly comparing these two groups within the Pakistani context, the research highlights the urgent need for tailored mental health support and community-based interventions. The findings emphasize the importance of culturally informed, accessible, and sustainable support systems that not only address the emotional well-being of caregivers but also foster societal understanding and acceptance of neurodevelopmental conditions. This study contributes meaningfully to the growing body of evidence advocating for inclusive mental health policies and caregiver-centered approaches in developmental care.

AUTHOR CONTRIBUTION

Author	Contribution
Mashiat Zahra*	Substantial Contribution to study design, analysis, acquisition of Data Manuscript Writing Has given Final Approval of the version to be published
Mehwish Kanwal	Substantial Contribution to study design, acquisition and interpretation of Data Critical Review and Manuscript Writing Has given Final Approval of the version to be published
Muhammad Fahad Munir	Substantial Contribution to acquisition and interpretation of Data Has given Final Approval of the version to be published
Muhammad Imran	Contributed to Data Collection and Analysis Has given Final Approval of the version to be published
Awais Khalid	Contributed to Data Collection and Analysis Has given Final Approval of the version to be published
Asmat Raza Jaffri	Substantial Contribution to study design and Data Analysis Has given Final Approval of the version to be published
Unzila Haider Shirazi	Contributed to study concept and Data collection Has given Final Approval of the version to be published
Ahmed Javed	Writing - Review & Editing, Assistance with Data Curation
Samra Mesiya	Writing - Review & Editing, Assistance with Data Curation

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