

Stress, Depression and Anxiety Levels Among Parents of Children with Neurodevelopmental Disorders

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Abstract

In Pakistan, parents of children with neurodevelopmental disorders (NDDs) often face substantial psychological strain due to limited mental health resources, social stigma, and culturally embedded caregiving responsibilities. The present study examined levels of stress, depression, and anxiety among parents of children with NDDs and explored the relationships among these variables within the Pakistani context. Using a cross-sectional correlational design, data were collected through purposive sampling from 200 parents (100 mothers and 100 fathers) recruited from special needs institutions across Pakistan. Participants completed a demographic information sheet and the Depression Anxiety Stress Scale–21 (DASS-21). Data were analyzed using SPSS version 27. The findings revealed elevated levels of stress, depression, and anxiety among parents. Correlational analyses demonstrated significant positive relationships among stress, depression, and anxiety, with depression showing strong associations with both stress and anxiety. Independent samples t-tests further indicated significant gender differences, with mothers reporting significantly higher levels of depression, anxiety, and stress than fathers. These findings underscore the heightened psychological burden experienced by parents—particularly mothers—caring for children with neurodevelopmental disorders in Pakistan. The results highlight the urgent need for routine psychological screening, gender-sensitive psychosocial interventions, and culturally appropriate caregiver support services to address parental mental health within Pakistan’s resource-constrained healthcare system.

Keywords: Neurodevelopmental Disorders, Parents, Stress, Depression, Anxiety.

Introduction

Neurodevelopmental disorders (NDDs) are a group of conditions that arise during early development and are characterized by impairments in cognitive, emotional, behavioural, and motor functioning. These disorders often persist across the lifespan and require continuous parental involvement in caregiving and supervision. Common neurodevelopmental disorders include

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autism spectrum disorder, attention-deficit/hyperactivity disorder, intellectual disability, and cerebral palsy (Bishop & Rutter, 2008; Church, 2020; Ogundele & Morton, 2022; Patel et al., 2010). The long-term and intensive nature of caregiving associated with these conditions places parents at increased risk of psychological distress.

Parents of children with neurodevelopmental disorders frequently report elevated levels of stress, depression, and anxiety. Stress reflects ongoing emotional strain arising from persistent caregiving demands, depression involves prolonged feelings of sadness, hopelessness, and reduced interest in daily activities, while anxiety is characterized by excessive worry, tension, and fear. These mental health challenges are often intensified by behavioural difficulties in children, financial burden, social stigma, and limited access to professional support services. Such challenges are particularly pronounced in low- and middle-income countries, where caregiver support systems and mental health resources are often insufficient (D'Souza & Karmiloff-Smith, 2017; Scattolin et al., 2022; Thapar et al., 2017).

Empirical evidence from South Asian contexts highlights the vulnerability of parents caring for children with neurodevelopmental disorders. A study conducted in rural Nepal reported extremely high levels of psychological distress among caregivers, with a large proportion exceeding clinical thresholds for common mental disorders. Parental distress was significantly associated with the severity of the child's condition, caregiver burden, and lack of social support (Maridal et al., 2021). Similarly, research from India has documented high prevalence rates of depression and anxiety among parents, particularly mothers, of children with neurodevelopmental disorders. Many parents experience co-occurring psychological symptoms, emphasizing the need for routine mental health screening and psychosocial interventions (Fatima et al., 2021).

In Pakistan, emerging research also indicates that parents of children with neurodevelopmental disorders experience considerable psychological difficulties. Studies involving parents of children with autism and attention-deficit/hyperactivity disorder have demonstrated significant associations among stress, anxiety, and depression. Mothers consistently report higher levels of psychological distress than fathers, reflecting culturally embedded caregiving roles and gender-based expectations. Moreover, anxiety has been identified as a key factor linking stress and depressive symptoms among parents (Fatima et al., 2025; Tareen et al., 2025; Zahid et al., 2025).

Despite the growing body of literature, there remains a need for focused research examining the levels and interrelationships of stress, depression, and anxiety among parents of children with neurodevelopmental disorders within the Pakistani cultural context. Understanding these psychological outcomes is essential for informing culturally sensitive intervention strategies, caregiver support programs, and the development of mental health policy. Therefore, the present study aims to assess stress, depression, and anxiety levels among parents of children with neurodevelopmental disorders and to examine the relationships among these variables.

Research Objectives

1. To assess the levels of stress, depression, and anxiety among parents of children with neurodevelopmental disorders.
2. To examine the relationships among stress, depression, and anxiety in parents of children with neurodevelopmental disorders.
3. To provide empirical evidence that may inform mental health interventions and support services for parents of children with neurodevelopmental disorders in Pakistan.

Research Questions

1. What are the levels of stress, depression, and anxiety among parents of children with neurodevelopmental disorders?
2. Is there a significant relationship among stress, depression, and anxiety in parents of children with neurodevelopmental disorders?
3. How do stress and anxiety relate to depressive symptoms among parents of children with neurodevelopmental disorders?

Study Hypotheses

H1: Stress, depression, and anxiety will be positively and significantly associated among parents of children with neurodevelopmental disorders.

H2: Higher levels of stress will be significantly associated with higher levels of depression among parents of children with neurodevelopmental disorders.

H3: Higher levels of anxiety will be significantly associated with higher levels of depression among parents of children with neurodevelopmental disorders.

Methodology

The present study adopted a cross-sectional correlational research design and employed a purposive sampling technique to collect data from 200 parents of children with neurodevelopmental disorders. Participants were recruited from various special needs children's institutes.

Participants and Inclusion Criteria

Participants were required to meet the following inclusion criteria:

- The caregiver must be a parent caring for a child diagnosed with a neurodevelopmental disorder.
- The child must be under 18 years of age.
- The parent must have been providing care for at least one year.
- The caregiver must possess a minimum qualification of intermediate level.
- Both male and female parents were included in the study.

Questionnaire

The Depression Anxiety Stress Scale–21 (DASS-21) was used to assess levels of depression, anxiety, and stress. The scale consists of 21 items rated on a four-point Likert scale, ranging from 0 (Did not apply to me at all) to 3 (applied to me most of the time). The DASS-21 was developed by Lovibond and Lovibond (1995) and has demonstrated strong psychometric properties. The reported Cronbach's alpha coefficients are 0.88 for depression, 0.82 for anxiety, and 0.90 for stress, with higher scores indicating greater severity of symptoms.

Ethical Considerations and Procedure

Ethical considerations were strictly followed in accordance with the APA (7th edition) ethical code of conduct. Formal permission for data collection was obtained from the relevant department, and authorization to use the questionnaire was secured from the original authors. The DASS-21 was administered along with a demographic information sheet and a written informed consent form. Participants were approached through purposive sampling at selected special needs institutions. Confidentiality and anonymity were ensured throughout the research process. Participants were

informed about the voluntary nature of participation and their right to withdraw at any stage without penalty. Each participant provided written consent prior to participation. Completion of the questionnaires took approximately 20 minutes, after which participants were thanked for their cooperation. Data were analysed using Statistical Package for the Social Sciences (SPSS), version 27.

Result

Table 1: Demographic Characteristics of the Participants (N=200)

Characteristics	<i>F</i>	%	<i>M</i>	<i>SD</i>
Age			37.52	9.45
Parents of Children with NDD				
Mothers	100	50		
Father	100	50		
Qualification				
Intermediate	78	39		
Bachelor	66	33		
Master	28	14		
Ph.D.	28	14		
Residency				
Urban	79	39.5		
Rural	121	61.5		

Note: *f*= Frequency, %= Percentage, *M*= Mean, *SD*= Standard Deviation, NDD= Neurodevelopmental Disorders

The demographic data indicate that the sample consisted of 200 caregivers of children with Neurodevelopmental Disorders (NDD), with an equal distribution of mothers ($n = 100$, 50%) and fathers ($n = 100$, 50%). The mean age of participants was 37.52 years ($SD = 9.45$). Regarding educational qualification, the majority had intermediate (39%) or bachelor's (33%) degrees, while 14% had master's and 14% held a Ph.D. Most participants resided in rural areas (60.5%) compared to urban areas (39.5%). These demographics provide a representative overview of caregivers in the study.

Table 2: Correlations Between Depression, Anxiety, and Stress Among Parents of Children with Neurodevelopmental Disorders (N = 200)

Variables	1	2	3
1. Depression	-	.30**	.98**
2. Anxiety		-	.30**
3. Stress			-

Note: ** $p < .01$

The correlational analysis indicates significant positive relationships among depression, anxiety, and stress in caregivers of children with neurodevelopmental disorders. Specifically, depression was positively correlated with anxiety ($r = .30$, $p < .01$) and stress ($r = .98$, $p < .01$), while anxiety was also positively correlated with stress ($r = .30$, $p < .01$).

Table 3: Mean Differences Between Fathers and Mothers of Children with Autism Spectrum Disorder on Depression, Anxiety, and Stress (N = 200)

	Fathers (n = 100)		Mothers (n=100)		t (198)	p	Cohen's d
	M	SD	M	SD			
Depression	5.28	4.41	7.11	5.36**	-2.36	.009	4.91
Anxiety	5.44	4.49	7.04	5.54*	-2.24	.02	5.04
Stress	5.24	4.41	7.06	5.39**	-2.61	.01	5.39

Note: ** $p < .05$, * $p < .01$, M= Mean, SD= Standard Deviation

The results indicate that mothers of children with Autism Spectrum Disorder (ASD) reported significantly higher levels of depression, $t(198) = -2.36$, $p = .009$, anxiety, $t(198) = -2.24$, $p = .02$, and stress, $t(198) = -2.61$, $p = .01$, compared to fathers. Findings highlight that mothers experience a greater psychological burden than fathers in caregiving for children with ASD.

Discussion

There has been substantial literature regarding the adverse mental health outcomes of caregivers of individuals with neurodevelopmental disorders and neurocognitive disorders across the globe. However, limited studies have compared caregivers of individuals with neurodevelopmental disorders and neurocognitive disorders with respect to mental health outcomes such as depression, anxiety, and stress. Therefore, this study was conducted to address this gap and encourage additional similar studies to support caregivers' well-being.

The first hypothesis of the study was supported, as there is a significant association between mental health outcomes—depression, anxiety, and stress—among caregivers of individuals with neurodevelopmental and neurocognitive disorders. The results of our study align with those of similar studies, which depict that mental health outcomes, such as depression, anxiety, and stress, are significantly and positively associated with one another among parents of children with autism (Fatima et al., 2025). Another study also aligns with our results, stating that mental health problems, including depression, anxiety, and stress, are significantly associated among parents of children with attention deficit hyperactivity disorder (Tareen et al., 2025). The reason caregivers report significant stress, anxiety, and depression is due to physical, emotional, and financial burdens, as well as a lack of support systems from the community. The study was conducted in Pakistan, where facilities are limited, awareness is very low, and the stigma associated with neurocognitive and neurodevelopmental disorders is high, leading caregivers to experience psychological distress.

The present study found that mothers of children with neurodevelopmental disorders reported significantly higher levels of stress, anxiety, and depression compared to fathers. This aligns with prior research demonstrating gender differences in psychological outcomes, where women tend to score higher on depression and related distress, while men often show higher behavioural or addiction-related outcomes (Shahid et al., 2024; Irfan et al., 2025; Fatima et al., 2025; Tareen et al., 2025; Zahid et al., 2025). These patterns indicate that gender differences in mental health are influenced by societal and cultural expectations. In the Pakistani context, mothers are typically the primary caregivers, which places them under greater emotional, social, and cultural pressures, intensifying stress, anxiety, and depressive symptoms. Additionally, research suggests that limited coping resources and differences in emotional regulation, such as cognitive reappraisal, may further exacerbate psychological distress among women (Shahid & Yaseen, 2025). Similar patterns have been observed in studies examining behavioural addictions and psychological well-being, highlighting the broader impact of cultural norms and caregiving roles on women's mental

health (Shahid et al., 2024; Irfan et al., 2025). These findings underscore the need for culturally sensitive, gender-focused interventions to support mothers caring for children with neurodevelopmental disorders.

Conclusion

The findings indicate that parents of children with neurodevelopmental disorders in Pakistan experience elevated levels of stress, depression, and anxiety. Significant positive relationships among these variables suggest a cumulative psychological burden associated with caregiving. Mothers reported higher psychological distress than fathers, reflecting culturally embedded caregiving roles. These results highlight the need for routine mental health screening and gender-sensitive psychosocial interventions for parents. Addressing parental psychological well-being is essential for improving family functioning and caregiving outcomes in Pakistan.

Limitations and Recommendations

Despite its contributions, the present study has certain limitations that should be acknowledged. First, the relatively small sample size may limit the generalizability of the findings to the broader population of parents of children with neurodevelopmental disorders in Pakistan. Future research is recommended to employ larger sample sizes, determined through power analysis methods such as G*Power, to enhance statistical power and representativeness. Second, the use of a cross-sectional correlational design restricts causal inferences. Longitudinal studies are recommended to examine changes in stress, depression, and anxiety among caregivers over time and to better understand temporal relationships among these variables. Third, although both mothers and fathers were included, broader demographic representation across caregiving roles and family structures was limited. Future studies should ensure more comprehensive demographic coverage and further explore gender-based differences in psychological outcomes. Finally, the study included only participants with at least an intermediate level of education, potentially excluding less educated caregivers. Future research should include participants with diverse educational backgrounds and utilize translated or interviewer-administered versions of assessment tools to improve accessibility and inclusivity.

Implications

The findings of the present study underscore the need for targeted psychosocial interventions for parents of children with neurodevelopmental disorders in Pakistan. Mental health professionals should lead awareness initiatives through seminars, workshops, and webinars to educate parents about stress, anxiety, and depression associated with long-term caregiving. These programs should also involve the general community to reduce stigma and strengthen social support systems for caregivers. Encouraging parents to seek professional psychological help and engage in counselling or therapy is essential for effective stress management and emotional well-being. Additionally, caregivers should be provided with practical guidelines and parenting skills training to better manage the behavioural and emotional needs of children with neurodevelopmental disorders. At the institutional level, there is a need to expand affordable special education centres and rehabilitation services tailored to children with neurodevelopmental disorders. Policymakers and government agencies should prioritize caregiver mental health by integrating psychological support services into existing child rehabilitation and special education programs.

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