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AN INVESTIGATION OF STRESS IN BANGLADESHI CAREGIVERS OF CHILDREN WITH SPECIAL NEEDS

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Abstract

This research examines the stress levels experienced by caregivers of children with neurodevelopmental disorders (NDD) in Dhaka, Bangladesh, with a particular emphasis on the impact of demographic factors. A cross-sectional survey methodology was utilized, involving a purposive sample of 564 caregivers. The stress levels were assessed using the stress subscale of the Bangla DASS-21. The findings from one-way ANOVA tests indicated no significant variations in stress scores based on the caregiver's age or gender. Nevertheless, notable differences in stress levels were identified in relation to educational background ($F\ 18, 419 = 1.62$; $p = .05$), marital status ($F\ 3, 564 = 3.86$; $p < .05$), and religion ($F\ 3, 564 = 10.83$; $p < .01$). Correlation analysis revealed a positive association between age and stress levels ($r = .135$, $p < .01$), suggesting that older caregivers reported higher levels of stress. Furthermore, regression analysis demonstrated that caregiver age, educational attainment, and marital status were modest yet significant predictors, accounting for 1.8% ($R^2 = .018$, $p = .001$), 1.6% ($R^2 = .016$, $p = .002$), and 1.0% ($R^2 = .010$, $p = .016$) of the variance in stress scores, respectively. These results underscore the considerable stress burden faced by caregivers, particularly among older individuals, those with lower educational qualifications, and unmarried caregivers, highlighting the necessity for demographic-sensitive support initiatives.

Keyword: *Stress, & Special needs children's caregiver*

1. INTRODUCTION

Compared to caring for a child with usual development, caring for a child with special needs demands a higher level of psychological and physical resilience from

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the caregiver (Lach et al., 2009). According to the DSM-5, neurodevelopmental illnesses appear during the developmental stage. These anomalies usually appear before the age of three, usually early in development. Developmental abnormalities that affect social, intellectual, professional, or personal functioning are hallmarks of the aforementioned illnesses. Although the impacts of neurodevelopmental illnesses vary, they frequently have an impact on the individual, family, and society on a mental, emotional, physical, and financial level.

Behavior issues, speech or language impairments, seizures, mobility disabilities, and a decreased capacity to live independently and attain economic self-sufficiency are all possible outcomes of these conditions. Down syndrome, cerebral palsy, autism spectrum disorder, and intellectual disability are examples of neurodevelopmental abnormalities that are frequently observed. The burden of raising a child with a neurodevelopmental handicap influences the development of psychological issues in those who provide care. Compared to the general population, caregivers of children with special needs are more likely to experience stress, anxiety, depression, and social isolation (Fatima et al., 2021). Beginning with the child's first diagnosis and continuing through long-term future planning, caregivers of children with neurodevelopmental disorders face many obstacles.

A study in Bangladesh revealed that caregivers experienced the greatest anguish during the first diagnosis of a neurodevelopmental issue, contemplating the disorder's causes, and organizing jobs and long-term housing for the kid. Substantially heightened parental stress was noted among females, the unemployed, and caregivers with lower educational attainment. The caregiver's stress levels escalated with the early diagnosis of their children. Parental stress escalates with the child's age (Haque et al., 2022). According to Haque et al. (2022), parents of children with neurodevelopmental disorders experience many significant stressors, such as the initial diagnosis, beliefs about the disorder's etiology, making plans for the child's future housing and employment, and dealing with sexuality-related concerns. The gender-specific stress experiences, particularly in mothers, may be affected by the intricate behaviors of children with ASD (Schnabel et al., 2020). Compared to parents of usually developing children, parents of children with autism spectrum disorder (ASD) reported higher levels of anxiety, depression, and stress-related disorders.

These disorders can significantly impair the functioning of families and marriages (Tracey Ward, 2019). Caregivers of children with autism spectrum disorder (ASD) have reported elevated levels of stress, social isolation, and compromised mental health. The mothers of patients exhibited low quality of life and life satisfaction levels (Öz et al., 2020). Schnabel et al. (2020) indicate that parents of children with autism spectrum disorder may develop post-traumatic stress disorder as a result of their children's demanding behaviors. Naheed et al. (2020) suggest that integrating mental health services into the treatment of moms

with children diagnosed with ASD may mitigate the depressive burden frequently encountered by these mothers and improve their overall quality of life. A study in India indicated that 64.3% of caregivers encountered severe stress, 21.7% faced moderate stress, and 13.8% dealt with mild stress (Ramachandran et al., 2020). This study seeks to elucidate the complexities of stress experienced by Bangladeshi caregivers of children with special needs. This study aims to further understand the specific constraints caregivers encounter in this context by analyzing the prevalence, contributing factors, and consequences of stress.

Research Question

What is the nature of stress on caregivers of children with special needs?

Rationale of the study

The incidence of neurodevelopmental disorders has emerged as a significant public health problem worldwide. A cross-sectional study in a rural area of Bangladesh revealed that the prevalence of autistic spectrum disorder and cerebral palsy was 0.75 and 5.6 per 1,000 children aged 18 to 36 months, respectively (Akhter et al., 2018). Researchers have underscored the significance of the caregiver's psychological well-being due to its secondary influence on the child's health, development, and functioning (Catalano et al., 2018). Nevertheless, the psychological well-being of caregivers for these children remains under examination. So, this study sought to address the vacuum by presenting a considerable number of research studies. The objective of the study is to ascertain the stress levels experienced by caregivers of children with neurodevelopmental problems. Furthermore, only a small number of studies have been carried out in poor countries; the bulk have been carried out in wealthy countries. This study would be important for the world community as well as for Bangladesh. Researchers, practitioners, psychologists, psychiatrists, and legislators would all benefit from this study. Additionally, it will add new insights to the existing study concerning the mental health state of caregivers.

2. OBJECTIVE

2.1. OBJECTIVE

Main Objective

To explore the stress on caregivers of special needs children. .

Specific objectives

i) To find out the stress level of caregivers of special needs children according to different age, gender, educational level, marital status, and religion.

ii) To explore the relationships among caregiver age, gender, marital status, religion, educational level, and stress levels.

iii) To see whether the caregiver's age, marital status, and educational level predict stress.

3. METHOD

The study's methodology is described in full in this section. It covers the following: area, target population, sample and sampling strategy, instrument selection and use, study design, data collection process, and data analysis plan:

3.1 Target Population

The target population for this study comprised caregivers of children with special needs in Bangladesh.

3.2 Sample and Sampling Technique

A sample of 564 participants from the Dhaka Division was selected using a purposive sampling method. The study included caregivers who were willing to participate and whose children were medically diagnosed with neurodevelopmental disorders.

3.3 Research Design

A cross-sectional survey design was employed for this study. Data were collected at a single point in time, allowing for a snapshot of the mental health condition of caregivers.

3.4 Measuring Instruments

A personal information form (PIF) was used to collect personal and demographic information about participants' age, gender, socio-economic status, etc. The "Stress subpart of DASS 21 Scale" was used to measure participants' stress levels.

3.5 DASS 21 Scale (Stress Subpart)

The DASS-21 was created by Lovibond and Lovibond in 1995. This iteration of the DASS comprises a legitimate set of three self-report scales of 21 items, specifically formulated to assess the adverse emotional states of depression, anxiety, and stress. Each item utilizes a 4-point Likert scale to assess the frequency

or severity of the participant's experiences during the past week, focusing on states rather than attributes. The scores range from 0, indicating that the client perceived the item as entirely inapplicable, to 3, signifying that the customer regarded the item as very applicable or relevant most of the time, with scores of 1 and 2 representing intermediate levels of applicability. The guidelines emphasize that there are no correct or incorrect answers. Each subscale comprises 7 questions. The aggregate scores for each of the 7 items answered by each participant across the 4 sub-scales are assessed according to the severity rating index.

The scale has been revalidated within Bangladeshi culture. The modified scale has strong face and content validity. Cronbach's alpha for the total score (α = 0.989) and for the subscales of depression (α = 0.987), anxiety (α = 0.957), and stress (α = 0.964) demonstrate the scale's strong reliability within Bangladesh (Alim et al., 2014).

This study concentrates on assessing the stress levels of caregivers of children, utilizing items 1, 6, 8, 11, 12, 14, and 18 from the Bangla DASS-21, which showed satisfactory reliability with a Cronbach's alpha of 0.833 (Morshed, Mirdha, Hossain, & Naz, 2024).

3.6 Analysis Plan

The collected data were analyzed using SPSS (V.26). Descriptive statistics, correlation, One-way ANOVA and regression were employed to explore the relationships between demographic variables and caregiver stress level.

3.7 Procedure

First, consent was obtained to gather data and build relationships with participants to collect precise data from them. Once they had established a rapport, the researcher went over the investigation's objectives while assuring them that their responses would remain confidential. Subsequently, the participants were directed to carefully read the components and provide prompt answers on the Personal Information Form(PIF).At the beginning of the data collection, permission was taken, and a rapport was built with The caregivers of the children. Then the participants were informed about the study's purpose and the risks, benefits, and privacy issues. Next, participants were to complete a questionnaire containing a personal information form and a Bengla version of the Stress scale (from DASS-21scale) after reading the questionnaire instructions. They were asked to complete it as soon as possible without wasting time. Afterward, upon completion of the questionnaire, participants were thanked for their cooperation in the research.

4. RESULTS

Table 1. *Summary of One-Way ANOVA of Stress of Caregiver with NDD Child according to Different Age*

		SS	Df	MS	F	P
Stress	Between groups	6933.86	56	123.82	1.21	.147
	Within groups	51809.26	508	101.99		
	Total	58743.12	564			

Table 1 reveals that there are no significant differences in stress among the caregivers with NDD children of different ages ($F_{56, 564} = 1.21$; $p > .05$) which indicates that caregivers' stress levels do not vary according to different ages.

Table 2. *Summary of One-Way ANOVA of Stress of Caregiver with NDD Child according to Gender*

		SS	df	MS	F	P
Stress Score	Between groups	10.25	1	10.25	.098	.75
	Within groups	58732.87	563	104.32		
	Total	58743.12	564			

Table 2 reveals that there are no significant differences in stress among the caregivers with NDD children of different genders (male or female) ($F_{1, 564} = .098$; $p > .05$) which indicates that caregivers' stress levels do not vary according to gender.

Table 3. *Summary of One-Way ANOVA of Stress of Caregiver with NDD Child according to educational qualification*

		SS	Df	MS	F	P
Stress score	Between groups	2928.801	6	488.133	4.880	.001
	Within groups	55814.321	558	100.026		
	Total	58743.122	564			

Table 3 reveals that there are significant differences in stress scores among the caregivers with NDD children according to their educational background ($F_{6, 564} = 4.880$; $p = .001$) which indicates that caregivers' stress level varies according to their educational background.

Table 4. *Summary of One-Way ANOVA of Stress Score of Caregiver with NDD Child According to Marital Status*

		SS	df	MS	F	P
Stress score	Between groups	1189.05	3	396.35	3.86	.01
	Within groups	57554.08	561	102.59		
	Total	58743.12	564			

Table 4 reveals that there are significant differences in stress among the caregivers with NDD children according to their marital status (married or unmarried) ($F_{3, 564} = 3.86$; $p < .05$) which indicates that caregivers' depression level varies according to their marital status.

Table 5. *Summary of One-Way ANOVA of Stress of Caregiver with NDD Child According to Religion*

		SS	df	MS	F	P
Stress score	Between groups	2180.55	2	1090.28	10.83	.000
	Within groups	56562.568	562	100.65		
	Total	58743.12	564			

Table 5 reveals that there are highly significant differences in stress among the caregivers with NDD children according to their religion ($F_{3, 564} = 10.83$; $p < .01$) which indicates that caregivers' stress level significantly varies according to their religion.

Table 6. *Pearson Product Moment Correlation among Caregiver's Age, Gender, Marital Status, Religion, Educational level and Total Stress*

	1	2	3	4	5	6
1. Caregiver Age	1					
2. Caregiver Gender	.065	1				
3. Marital Status	.408**	-.175**	1			
4. Religion	-.007	-.040	-.063	1		
5. Education	-.365**	.190**	-.325**	.077	1	
6. Stress	.135**	-.013	.102*	.009	-.128**	1

** Correlation is significant at the 0.01 level (2-tailed).

To assess the size and direction of the linear relationships among caregiver age, gender, marital status, religion, educational level, and stress level, a bivariate Pearson's product-moment correlation coefficient (r) was calculated. The correlations among these variables revealed several significant associations. To

assess the size and direction of the linear relationships among caregiver age, gender, marital status, religion, educational level, and stress level, a bivariate Pearson's product-moment correlation coefficient (r) was calculated. The correlations among these variables revealed several significant associations.Caregiver age was positively correlated with total stress score, r (564) =.135, $p < .01$, indicating that older caregivers reported higher stress levels. A significant positive correlation was also observed between marital status and total stress score, r (564) = .102, $p < .05$, suggesting that marital status may be associated with increased stress among caregivers. In contrast, caregiver education level was negatively correlated with stress, r (564) = -.128, $p < .01$, showing that caregivers with higher education levels tended to report lower stress. Additional correlations showed a positive association between caregiver age and marital status, r (564) = .408, $p < .01$, and a negative correlation between marital status and gender, r (564) = -.175, $p < .01$. Education level was also negatively correlated with age, r (564) = -.365, $p < .01$, and marital status, r (564) = -.325, $p < .01$. There was no significant correlation between religion and other variables, suggesting that caregiver stress and demographic factors were independent of religious background.

Table 7. *Selected Statistics from Regression of Stress on Caregiver's Age*

Variables	R	R^2	change	P
Age	.135	.018	.018	.001

Dependent variable: Stress

The results of Table 7 indicate that caregiver age was a modest but significant predictor of stress, explaining 1.8% of the variance in stress levels, $R^2 = .018$, $p = .001$. This suggests that caregiver age has a small yet statistically significant impact on stress, with older caregivers reporting slightly higher stress.

Table 8. *Simple Regression of Stress on Caregiver's Age*

Model	Unstandardized Coefficients		Standardized Coefficients	t	P
	B	Std. Error	Beta		
(Constant)	9.729	1.476		6.590	.000
Age	.119	.037	.135	3.224	.001

Dependent variable: Stress

Stress The Table 8 show that the unstandardized coefficient (B) for caregiver age is .119, indicating that as caregiver age increases by one unit, stress score increases by .119 units. This interpretation holds if the effects of other variables are held constant. The standardized beta ($\beta = .135$) reveals that as caregiver age increases by one standard deviation, stress score increases by .135 standard

deviations, underscoring a small but positive relationship between age and stress levels.

Table 9. *The Overall F-test for Regression of Stress on Caregiver's Age*

Sum of variations	SS	df	MS	F	P
Regression	1064.605	1	1064.605	10.392	.001
Residual	57678.517	563	102.449		
Total	58743.122	564			

The results presented in Table 9 indicate that caregiver age is a significant predictor in the regression model for stress, with the overall model fit showing $F_{(1, 564)} = 10.392$, $p = .001$. This result confirms that caregiver age significantly contributes to explaining variations in stress levels, indicating a meaningful, though modest, impact on stress.

Table 10. *Selected Statistics from Regression of Stress on Caregiver's Educational Level*

Variables	R	R^2	R^2 change	P
Educational level	.128	.016	.015	.002

Dependent variable: Stress

Table 10 shows that the caregiver's educational level was a statistically significant predictor of stress, accounting for 1.6% of the variance, $R^2 = .016$, $p = .002$. This result suggests that caregivers with lower educational levels experience higher levels of stress, highlighting education as a meaningful but modest factor in predicting stress among caregivers.

Table 11. Simple Regression of Stress on Caregiver's Educational Level

Model	Unstandardized Coefficients		Standardized Coefficients	t	P
	B	Std. Error	Beta		
(Constant)	16.796	.924		18.175	.000
Educational level	-.872	.285	-.128	-3.062	.002

Dependent variable: Stress

Table 11 reveals that the unstandardized coefficient (B) for caregiver educational level is -.872. This value suggests that as educational level increases by one unit, stress score decreases by .872 units, assuming other variables remain constant. The standardized beta ($\beta = -.128$) indicates that as educational level increases by one standard deviation, stress score decreases by .128 standard deviations, suggesting a modest negative relationship between educational level and stress.

Table 12. *The Overall F-test for Regression of Stress on Educational Level*

Sum of variations	SS	Df	MS	F	P
Regression	962.212	1	962.212	9.376	.002
Residual	57780.910	563	102.630		
Total	58743.122	564			

Table 12 demonstrates that caregiver's educational level is a significant predictor in the regression model for stress, as indicated by the overall F-test, $F_{(1, 564)} = 9.376$, $p = .002$. This result suggests that educational level plays a statistically significant role in predicting caregiver stress, with higher educational levels associated with lower stress scores, thus providing a good model fit.

Table 13. *Selected Statistics from Regression of Stress on Caregiver's Marital Status*

Variables	R	R^2	R^2 change	P
Marital status	.102	.010	.010	.016

Dependent variable: Stress

As shown in Table 13, marital status emerged as a significant predictor of stress, explaining 1.0% of the variance, $R^2 = .010$, $p = .016$. This finding indicates that caregivers' marital status has a slight but statistically significant association with their reported stress levels, suggesting that relationship status may play a role in caregiver stress.

Table 14. *Simple Regression of Stress on Caregiver's Marital Status*

Model	Unstandardized Coefficients		Standardized Coefficients	t	P
	B	Std. Error	Beta		
(Constant)	10.514	1.614		6.514	.000
Marital Status	1.817	.750	.102	2.423	.016

Dependent variable: Stress

The results in Table 14 show that the unstandardized coefficient (B) for marital status is 1.817, implying that a change in marital status by one unit leads to an increase of 1.817 units in stress, assuming the effects of other variables are constant. The standardized beta ($\beta = .102$) indicates that a one standard deviation increase in marital status corresponds to a .102 standard deviation increase in stress, suggesting a slight positive association between marital status and stress.

Table 15. *The Overall F-test for Regression of Stress on Caregiver's Marital Status*

Sum of variations	SS	Df	MS	F	P
Regression	606.262	1	606.262	5.871	.016
Residual	58136.860	563	103.263		
Total	58743.122	564			

The findings in Table 15 show that marital status significantly predicts stress in the regression model, with the overall F-test yielding $F_{(1, 564)} = 5.871$, $p = .016$. This ANOVA result underscores that marital status has a significant effect on stress levels among caregivers, making it a noteworthy predictor in the model.

5. DISCUSSION

The first objective was to determine stress levels among caregivers of children with special needs across age, gender, educational level, marital status, and religion. ANOVA results indicated no significant differences in stress levels by age or gender, suggesting consistently high stress across these groups. This finding contrasts with prior studies, such as Jeevannavar et al. (2024), which reported increased stress as caregiving demands grow with a child's age. Our results may reflect the consistently high stress caused by limited awareness, social support, and financial constraints. Similarly, although prior studies (Shin & McDonaugh, 2008) found higher stress among mothers due to their children's impairments, shared support systems and economic challenges in Bangladesh may result in similar stress levels among male and female caregivers.

However, significant differences in stress scores were found based on educational level, marital status, and religion. Caregivers with lower educational levels, those who were unmarried, and those participating in religious activities reported higher stress. These findings align with prior research (Almogbel et al., 2017; Perzow et al., 2018), which links higher education to better coping strategies and a stronger understanding of children's conditions, reducing stress. Similarly, Gray (2006) highlighted the greater challenges single parents face in managing caregiving. Research by McWhirter et al. (2021) suggests that participation in religious activities may provide social support that buffers stress and improves caregiver satisfaction, which may vary across religious beliefs and values.

The second objective was to explore relationships among caregiver age, gender, marital status, religion, educational level, and stress. Findings indicated that older caregivers experienced higher stress, potentially due to the demands of prolonged caregiving. Married caregivers also tended to report higher stress, likely due to additional family responsibilities. Higher education, however, was associated with lower stress, suggesting that education improves access to resources and coping mechanisms. Demographic variables were interrelated, with

older caregivers more likely to be married and having higher education levels compared to younger, single caregivers. A slight negative relationship between gender and marital status warrants further investigation, although the lack of substantial correlation between religion and other demographics suggests that caregiving stress is influenced more by caregiving demands than religious background.

The third objective was to determine if caregiver age, marital status, and educational level predict stress levels. Findings indicated that each factor plays a distinct role in predicting stress. Higher education was a significant predictor, with more education associated with lower stress, suggesting that education equips caregivers with essential coping skills and resources. Marital status also predicted stress, highlighting that marital responsibilities may contribute to stress, although support from a partner could alleviate some of this. Age was positively linked to stress, indicating that older caregivers might experience slightly higher stress, likely due to long-term caregiving demands.

Overall, these findings suggest that caregiver support strategies should consider demographic factors, particularly age, marital status, and education, to provide targeted resources that address specific caregiving stress factors. Tailoring interventions to demographic needs may help mitigate stress and support caregivers more effectively.

Limitations and Challenges

The study has several limitations that should be acknowledged. The study faced constraints due to limited funding, which restricted the scope of data collection and analysis. Future studies would benefit from additional resources to support a more extensive data collection process and a thorough analysis, allowing for richer insights and broader generalizability.

Recommendation and Future Implications

The study's goal is to examine the stress levels of caregivers for children with special needs. Based on the findings, future studies should investigate the effects of various factors on caregiver stress and create appropriate therapeutic measures. Such research could provide useful insights into caregivers' mental health and inform focused stress reduction strategies. These recommendations are intended to enhance the overall quality of support provided to caregivers managing the problems associated with special needs children.

Conclusion

The mental health of caregivers is an essential concern, particularly for those supporting children with special needs. This study highlights the significance of age, educational level, and marital status as indicators of stress in caregivers. The results imply that stress levels could be successfully decreased by treatments targeted at improving caregivers' coping skills and support systems, particularly for

those with lower educational attainment and single parents. Furthermore, caregivers may benefit from the resources offered by religious and social support systems, which can lessen the psychological effects of providing care. Stakeholders can improve the mental health and general well-being of caregivers of children with NDD by addressing these concerns.

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