

Factors Associated with Parental Stress and Depression in Caring for Children with Mild Cerebral Palsy

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Received: 07-Nov-2024

Revised: 08-Oct-2025

Accepted: 08-Nov-2025

Published: 01-June-2026

DOI: 10.54646/BeMJ.2026.03

Access: Open Access | CC BY 4.0

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ABSTRACT

Background: Parents of Children with cerebral palsy (CP) with a potential for independence in self-care and have access to a range of multidisciplinary rehabilitation therapies continue to experience significant stress and depression. This study seeks to assess the extent and identify the factors contributing to parental stress and depression in this group.

Materials and Methods: A cross-sectional study was conducted at a rehabilitation center on parents respectively of children with CP. Data was collected using a structured questionnaire comprising socioeconomic details, the Parental Stress Scale (18 items), and the Beck Depression Inventory (21 items). Stress and Depression levels were categorized and analyzed for associations with socio-demographic variables using chi-square tests, odds ratios, and logistic regression in SAS® software.

Results: Moderate to severe stress and depression was experienced by 73.3% and 61.7% parents. The child's age (5-15 years) was significantly associated with higher parental stress (Adjusted OR 3.2, 95% CI 1.0–10.6, $p=0.04$). For depression, shorter sleep duration (<6 hours) was the only independent risk factor, with parents having over six times the risk of moderate or severe depression compared to those with longer sleep duration (Adjusted OR 6.3, 95% CI 1.3–31.5, $p=0.01$). Higher paternal education and income showed associations in univariate analysis but were not independent predictors.

Conclusion: Parents of children with CP who are on the path to self-sufficiency also endure considerable stress and depression, particularly when the child is of school-going age and when parental sleep is inadequate. Despite access to rehabilitation and educational services, the psychological burden remains significant.

KEYWORDS: *Cerebral palsy, Parental stress, Depression, Rehabilitation therapies, Sleep duration, Psychological burden*

INTRODUCTION

Cerebral palsy (CP) is a neurological disorder resulting from damage to the developing brain that affects movement, posture, muscle tone, and coordination. Therefore, being self-sufficient and productive members of the society has been an impossible dream for them. However, with the advancement of therapies and availability of more rehabilitation centers, this scenario has changed considerably to give more hope both to the child and to his care giver.

Today, Rehabilitation centers offer therapeutic services such as speech therapy, physiotherapy, and occupational therapy. These services are often accessible not only to children with CP but also to the broader community, providing inclusive support that facilitates functional improvement and social integration. Despite the availability of such multidisciplinary interventions, parents may endure significant emotional stress and depressive symptoms that can affect their ability to effectively care for their children.

Several studies have examined parental stress and depression across children with varying degrees of CP severity, and concluded that severity of the illness is associated with stress and depression in the care giver.¹ However, it is not clear whether the introduction of therapies for children experiencing mild forms of the condition who have the potential to become

self-sufficient, with respect to activities of daily living, has reduced the level of stress and depression in the care-giver as this subgroup may face unique psychological and caregiving demands, balancing hopeful expectations for self-sufficiency with the realities of ongoing support needs.

This study aims to assess the magnitude and the factors associated with stress and depression among parents of children with mild cerebral palsy who are on the path to self-sufficiency. By concentrating on this specific group, the research seeks to uncover the psychological impact on caregivers who, despite having access to supportive services, may continue to face considerable emotional challenges. Understanding these dynamics is essential for developing tailored strategies to support parental well-being and optimize outcomes for children with mild CP.

MATERIALS AND METHODS

This cross-sectional study was carried out at a rehabilitation center where several therapies are available, free of cost, using a census sampling method to include all eligible parents of children with cerebral palsy.

Data was collected with a structured questionnaire that had three parts. The first part consists of socioeconomic characteristics and personal data such as, duration of sleeping and working hours. The second part consists of the Parental Stress Scale² which is a self-report scale

that contains 18 items representing pleasure or positive themes of parenthood (emotional benefits, self-achievement, personal development) and negative components (demands on resources, opportunity costs & restrictions). The respondents are asked to agree or disagree with items in terms of their typical relationship with their child or children and to rate each item on a five-point scale. All scores are added up, eight items are reversed scored (Items 1,2,5,6,7,8,17 & 18). The scores range from 18-90. Higher scores on the scale indicate greater stress. The third part is a validated questionnaire on depression using the Beck Depression Inventory (BDI).³ It consists of 21 items rated on a 4-point scale. Total score ranges from 0 to sixty three.

Statistical Methods: Descriptive statistics of all baseline characteristics were assessed. Distribution graphs were drawn for stress and depression separately. The association of risk factors with stress and depression were assessed using chi square test and odds ratio with 95 % confidence interval, at the univariate level. Multivariate logistic regression was done to assess independent risk factors. A p value < 0.05 was considered as significant. All data were entered into Microsoft Excel and analyzed using SAS® software Version 9.4. Copyright © 2024. SAS Institute Inc.⁴

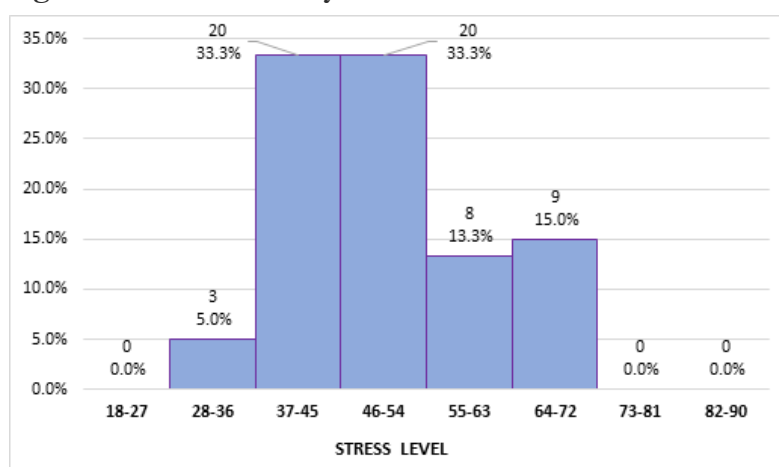
RESULTS

Out of 157 students in the school only 65 had CP, of which only 60 parents were interviewed. Of the responders, 34(56.6%) were mothers and 47(78.3%) belonged to the age group of 30-50.

As shown in Table 1, A majority, 39(65.0%), came from rural areas and almost all, 53(88.3%), belonged to nuclear families and 52(88.7%) owned a house. A little more than half of the children with CP, 32(53.3%), were female and belonged to the age group of 5-15 years, 35(58.3%), and of 2nd or higher birth order, 34(56.7%).

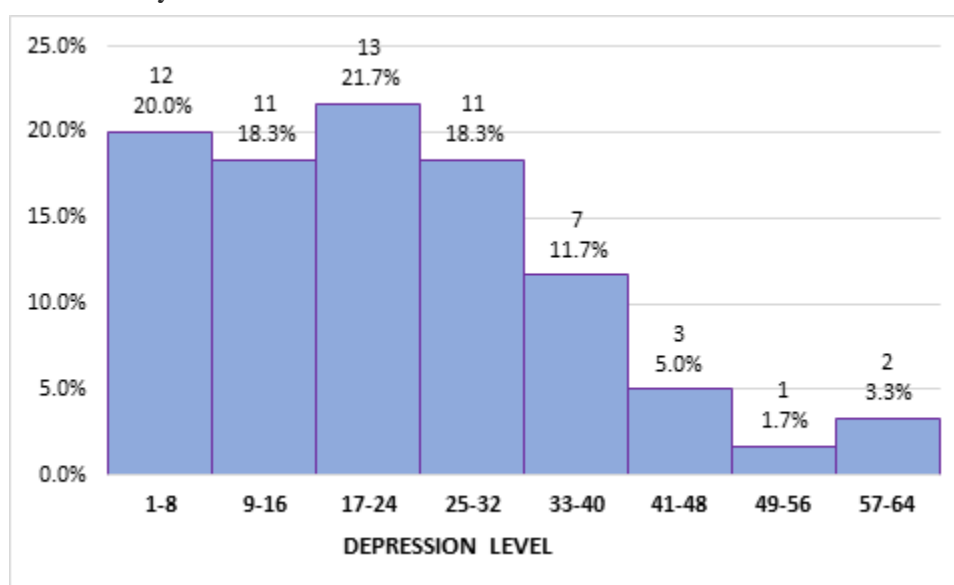
The distribution of stress levels among the respondents were 16 (26.7%) mild, 27 (45.0%) moderate, and 17 (28.3%) severe. Similarly, the distribution of depression level among the respondents were 23 (38.3%) mild, 31 (51.7%) moderate, and 6 (10.0%) severe. As shown in Figure 1, very mild and very severe stress was not seen in the study population. However, as shown in Figure 2, very mild and very severe depression was seen in 20% and 5% of the study population. The respondents were categorized based on their level of stress (moderate/severe vs. mild) and depression (moderate/severe vs. mild). Their association with each of the above socio-economic and demographic characteristics are shown in Table 1 and Table 2. Independent Risk factors of Stress and Depression are shown in Table 3

Figure 1: Distribution by Level of Stress in Parents of Children with Mild Cerebral Palsy



*18-42 = mild, 43-54 = moderate and 55-90 = severe

Figure 2: Distribution by Level of Depression among Parents of Children with Mild Cerebral Palsy



*1-16 = mild, 17-40 = moderate and 41-64 = severe

Table 1: Distribution of Socioeconomic Characteristics with Levels of Stress among Parents of Children with Mild Cerebral Palsy

Variables	Total (N=60)	Moderate & Severe (n=44)	Mild (n=16)	p value
Characteristics of Respondent				
Gender of Respondent- Male	26 (65.0%)	18 (40.9%)	8 (50.0%)	0.5
Age of Respondent (30-50)	47 (78.3%)	33 (75.0%)	14 (87.5%)	0.3
Type of Family-Joint	7 (11.7%)	6 (13.6%)	1 (6.2%)	0.4
Type of House - Own	52 (86.7%)	37 (84.1%)	15 (93.7%)	0.3
Location of House- Rural	39 (65.0%)	29 (65.9%)	10 (62.5%)	0.8
Annual Income (Above 50,000)	26 (43.3%)	19 (43.2%)	7 (43.7%)	0.9
Below Poverty Line	25 (41.7%)	18 (40.9%)	7 (43.7%)	0.8
No. of Family members (2-4)	51 (85.0%)	37 (84.1%)	14 (87.5%)	0.7
Education of Mother- College	23 (38.3%)	17 (38.6%)	6 (37.5%)	0.9
Education of Father- College	26 (43.3%)	21 (47.7%)	5 (31.2%)	0.2
Occupation of Mother-Employed	15 (25.0%)	13 (29.5%)	2 (12.5%)	0.2
Occupation of Father-Employed	48 (80.0%)	37 (84.1%)	11 (68.7%)	0.2
Working Hours (6-12 hr)	28 (46.7%)	20 (45.4%)	8 (50.0%)	0.7
Sleeping Hours (< 6 hrs)	16 (26.7%)	12 (27.3%)	4 (25.0%)	0.9
Characteristics of Child				
Age of Child (5-15)	35 (58.3%)	29 (65.9%)	6 (37.5%)	0.04
Gender of Child-Male	28 (46.7%)	21 (47.7%)	7 (43.7%)	0.8
Sibling	34 (56.7%)	27 (61.6%)	7 (43.7%)	0.2

Table 2: Distribution of Socioeconomic Characteristics with Levels of Depression among Parents of Children with Mild Cerebral Palsy

Variables	Total (N=60)	Moderate & Severe (n=37)	Mild (n=23)	p value
Characteristics of Respondent				
Gender of Respondent- Male	26 (65.0%)	18 (48.6%)	8 (34.8%)	0.3
Age of Respondent (30-50)	47 (78.3%)	29 (78.4%)	18 (78.3%)	0.9
Type of Family-Joint	7 (11.7%)	4 (10.8%)	3 (13.0%)	0.8
Type of House - Own	52 (86.7%)	31 (83.8%)	21 (91.3%)	0.4
Location of House- Rural	39 (65.0%)	22 (59.5%)	17 (73.9%)	0.2
Annual Income (Above 50,000)	26 (43.3%)	20 (54.0%)	6 (26.1%)	0.03
Below Poverty Line	25 (41.7%)	14 (37.8%)	11 (47.8%)	0.4
No. of family members (2-4)	51 (85.0%)	31 (83.8%)	20 (86.9%)	0.7
Education of Mother- College	23 (38.3%)	15 (40.5%)	8 (34.8%)	0.6
Education of Father- College	26 (43.3%)	20 (54.0%)	6 (26.1%)	0.03

Occupation of Mother-Employed	15 (25.0%)	10(27.0%)	5 (21.7%)	0.6
Occupation of Father-Employed	48 (80.0%)	32 (86.5%)	16 (69.6%)	0.1
Working Hour (6-12 hr)	28 (46.7%)	17 (45.9%)	11 (47.8%)	0.9
Duration of Sleep (< 6 hrs)	16 (26.7%)	14 (37.8%)	2 (8.7%)	0.01
Characteristics of Child				
Age of Child (5-15)	35 (58.3%)	25 (67.6%)	10 (43.5%)	0.06
Gender of Child-Male	28 (46.7%)	18 (48.6%)	10 (43.5%)	0.7
Sibling	34 (56.7%)	23 (62.2%)	11 (47.8%)	0.3

Table 3: Factors Associated with Stress and Depression

Outcomes	Factors	Crude OR (95 % CI)	Adjusted OR (95 % CI)
Stress	Age of Child (5-15)	3.2(1.0-10.6)	3.2(1.0-10.6)
Depression	Annual Income (51000-1.5 lakh+)	3.3(1.1 – 10.3)	
	Education of Father- College	3.3(1.1 – 10.3)	
	Duration of sleep (< 6 hrs)	6.4(1.3- 31.5)	6.3(1.3 -31.5)

As shown in Table 3, parents with children of the 5-15-year age group had 3.2 (1.0-10.6) times higher risk of getting stress. Regarding depression, in the univariate analysis, fathers with high education and high income had 3.3(1.1–10.3) times higher risk of getting depression and respondents who had less than 6 hours of sleep per day had 6.4(1.3-31.5) times higher risk of getting depression, in the multivariate model, the only independent risk factor was duration of sleep which had 6.3(1.3 -31.5) times higher risk of causing depression.

DISCUSSION

This study assessed factors associated with parental stress and depression among caregivers of children with mild cerebral palsy who are on the path to self-sufficiency. Several studies, including those from high income countries,⁵ consistently demonstrate high levels of stress and depression among parents of children with cerebral palsy. However, severity of disability is the main cause of depression according to these studies. The findings of our study highlight a

considerable psychological burden despite the disability being mild and the availability of free educational and therapeutic services.

Parental Stress:

In this study, about 26.7% experienced mild stress, 45.0% moderate stress, and 28.3% severe stress as shown in Figure 1; this closely aligns with the findings in another study(6), which reported 18.0% mild (low), 52.0% moderate, and 32.0% high (severe) stress among caregivers.

Parental stress was found to be strongly influenced by the child's age as shown in table 1. Parents of children aged 5–15 years were more than three times as likely to experience moderate stress compared to those with younger or older children as shown in table 3. This age corresponds to the school-going stage, when academic and social progress increase in normally developing peers. The lack of such progress in their own children may cause stress. Similar findings were reported by another

study,¹ which noted that a child's age and the stage of social integration significantly affect parental stress, particularly among mothers.

The higher birth order in more than half of the households is an indicator of other siblings in the same family. This may also contribute to increased caregiving pressure, as parents must balance attention and resources between the child with special needs and other children. Other existing literature highlights sibling-related demands as an additional stressor for parents of children with disabilities.⁷ However, in this study, presence of other siblings was not explicitly studied. Using higher birth order as a surrogate did not prove to be statistically significant as being a first born child with disability need not imply the absence of a sibling.

Parental Depression:

Interestingly, as shown in Figure 2, every single parent had depression. Mild depression (38.3%) and moderate depression (51.7%) accounted for most and very few had severe depression (10.0%) in our study. However, other studies⁸ show that 17.2% had no depression at all, and the remaining were almost equally distributed with 31.0% being mild, 25.1% being moderate, and 26.6% being severe.

When examining depression among parents, the present study identified sleep duration as the only independent predictor, with parents sleeping less than 6 hours per night having over six times the risk of moderate to severe depression compared to those with longer sleep duration as shown in table 3. Supporting this, previous research has underscored how chronic sleep deprivation exacerbates emotional difficulties and impairs coping ability for caregivers.⁹

While higher paternal education and income also showed an association with depression in the univariate analysis, these were not independent risk factors in the multivariate model. This indicates that while socioeconomic status may contribute to psychological stress, lack of rest and chronic sleep deprivation are much stronger determinants of parental mental health. The higher education and income being risk factors may be an indicator of economic burden caused indirectly. That is, even with free therapy and good facilities, indirect costs like lost income, extra time spent on care are more substantial for those with higher socioeconomic status.

Caregivers of children with cerebral palsy often face multiple hidden burdens that go beyond the cost of medical care. Many experience lost income or reduced employment, as caregiving responsibilities force parents to reduce working hours, leave their jobs, or forgo paid work altogether. Significant time is consumed in traveling, attending therapy appointments, supervising care, and supporting the child's participation in daily activities. The transport and travel required to reach clinics or hospitals, sometimes over long distances, add to this strain. Families also incur non-medical expenses such as meals away from home, lodging, fuel, or vehicle adaptations, while necessary equipment and home modifications are often not fully covered despite free therapy services. In addition, many parents choose to supplement public services with private or complementary therapies, which further increases costs. These demands collectively contribute to a heavy psychosocial and mental health burden in addition to financial burden, leaving caregivers vulnerable to time pressure, stress, depression, anxiety and social

isolation.¹⁰⁻¹² However, this study did not look into these hidden burdens.

Reducing stress and depression among caregivers of children with cerebral palsy requires a multifaceted approach that combines personal, social, and systemic support.¹³

On the personal level, psychological and emotional interventions such as counseling, psychotherapy, support groups, and mindfulness programs can provide parents with coping strategies and emotional resilience. Similarly, respite care, including short-term relief services and specialized day-care centers, offers much-needed breaks. Additionally, parent training workshops empower caregivers with skills to manage mobility, feeding, communication, and behavior issues, thereby reducing anxiety.¹⁴ Home-based therapy programs can further alleviate stress related to missed therapy sessions.¹⁵ Caregivers also benefit from prioritizing self-care practices such as exercise, healthy sleep, balanced nutrition, personal hobbies, and relaxation techniques like yoga, breathing exercises, and journaling.¹⁶

On the social level, community support through peer networks, NGOs, and online forums, along with family counseling that encourages shared caregiving among siblings and partners, helps reduce isolation and distribute responsibility more evenly.

Within healthcare systems, coordinated care and easily accessible services ease the burden of navigating fragmented support.¹⁷ Finally, broader policy measures including paid family leave, caregiver allowances, disability benefits, and workplace flexibility, address structural challenges that would help offset indirect costs, thereby promoting the mental well-being of caregivers.¹⁸⁻²⁰

Limitations of this study include the lack of details to assess others risk factors such as financial burden, specifically indirect cost, family dynamic and social support. A more detailed questionnaire or a qualitative study that includes the above would have added to the depth of this study.

Despite access to free rehabilitation and educational services, the emotional burden among parents remains substantial. Many parents may lack adequate awareness or self-care strategies to manage their stress and depression, as evidenced by the association between poor sleep and mental health difficulties. Promoting interventions that focus not only on child care but also on parental well-being could be crucial in mitigating psychological challenges.

Key Implications of this study :

The Mental Health Crisis: The intersection of relentless time demands and indirect financial strain creates a profound mental health vulnerability for caregivers. Navigating these constant pressures places parents at a dangerously high risk for chronic stress, pervasive anxiety, and deep social isolation. This psychological burden is further aggravated by poor sleep quality, creating a compounding cycle that directly accelerates burnout and deteriorates long-term emotional well-being.

A Multifaceted Support Framework: Mitigating this severe burnout requires a systematic, layered approach rather than a single solution. At the personal and social levels, caregivers need targeted psychological counseling, respite care, and peer networks alongside family counseling to encourage shared

domestic responsibilities. Ultimately, this must be backed by healthcare coordination to navigate fragmented services, as well as structural policy interventions like paid family leave, caregiver allowances, and flexible workplace arrangements.

REFERENCES

1. Ribeiro MFM, Sousa ALL, Vandenbergh L, Porto CC. Parental stress in mothers of children and adolescents with cerebral palsy. *Revista latino-americana de enfermagem*. 2014;22(03):440-7.
2. Parental Stress Scale (PSS). Available from: <https://www.corc.uk.net/media/2764/parent-stress-scale-fillable-pdf.pdf>
3. Beck Depression Inventory (BDI). Available from: <https://www.ismanet.org/doctoryourspirit/pdfs/Beck-Depression-Inventory-BDI.pdf>
4. SAS® software Version 9.4. Copyright © 2025 SAS Institute Inc. Available from: https://www.sas.com/en_in/software/on-demand-for-academics.html
5. Scherer N, Verhey I, Kuper H. Depression and anxiety in parents of children with intellectual and developmental disabilities: A systematic review and meta-analysis. *PloS one*. 2019;14(7):e0219888.
6. Siddiqi S, Haider SMA, Babar B, Malik NA, Javed S, Naheed A. Perceived stress among caregivers of children with cerebral palsy. *The Professional Medical Journal*. 2023;30(04):484-9.
7. Anyanwu J, Obiyo N, Ugwuanyi L, Adikwu V, Ubah J, Obata M, et al. Age and birth order as factors for parental stress of children with autism and coping strategies. *International Journal of Applied Engineering Research*. 2018;13(21):15299-309.
8. Sonune SP, Gaur AK, Shenoy A. Prevalence of depression and quality of life in primary caregiver of children with cerebral palsy. *Journal of family medicine and primary care*. 2021;10(11):4205-11.
9. Priya PF, Bhavanani AB, Ramanathan M, Subramaniam K, Sarkar S, Lokeshmaran A. Mental Health Status of Parental Caregivers of Special Needs Children in Puducherry. *Rambam Maimonides Medical Journal*. 2025;16(3):e0016.
10. Vadivelan K, Sekar P, Sruthi SS, Gopichandran V. Burden of caregivers of children with cerebral palsy: an intersectional analysis of gender, poverty, stigma, and public policy. *BMC public health*. 2020;20(1):645.
11. Park E-Y, Nam S-J. Time burden of caring and depression among parents of individuals with cerebral palsy. *Disability and rehabilitation*. 2019;41(13):1508-13.
12. Raina P, O'Donnell M, Rosenbaum P, Brehaut J, Walter SD, Russell D, et al. The health and well-being of caregivers of children with cerebral palsy. *Pediatrics*. 2005;115(6):e626-e36.
13. Bögels SM, Lehtonen A, Restifo K. Mindful parenting in mental health care. *Mindfulness*. 2010;1(2):107-20.
14. Cerebral Palsy Respite Care. Available from: <https://cerebralspasyguidance.com/cerebral-palsy/living/respice-care/>
15. Poojari DP, Umakanth S, Maiya GA, Rao BK, Khurana S, Attal R, et al. Effect of family-centered care interventions on well-being of caregivers of children with cerebral palsy: a systematic review. *F1000Research*. 2024;12:790.
16. Askeland S, Guise V, Aase K, Sogstad MKR. Families' Strategies for Navigating Care for Their Child With Cerebral Palsy: A Qualitative Study. *Health Expectations*. 2025;28(2):e70197.
17. Beckers LW, Geijen MM, Kleijnen J, Rameckers EA, Schnackers ML, Smeets RJ, et al. Feasibility and effectiveness of home-based therapy programmes for children with cerebral palsy: a systematic review. *BMJ open*. 2020;10(10):e035454.
18. Children and young people's care and support services. Available from: <https://www.nhs.uk/social-care-and-support/care>

ing-for-children-and-young-people/children-and-young-peoples-services/

19. Integrated care and support. Available from: <https://www.england.nhs.uk/ourwork/part-rel/transformation-fund/>

20. Scarzetti JF. The development of educational and rehabilitation services for people with cerebral palsy in India. *Journal of Rehabilitation*. 1995;61(2):68.

Conflict of Interest:

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest. The first author has submitted this as part of his thesis work in partial fulfillment of the requirements for the Master's Degree in Social Work.

Contributors Declaration :

1. Samuel Mathew Oommen (SMO) was responsible for the conception, design, field work and data collection.
2. Elizabeth Varkey Cherian (EVC) was responsible for the scholarly drafting of the manuscript.

3. Jyothika Jeevan (JJ) – was responsible for data management and statistical analysis. She also drafted the results section and interpretation of the results in the discussion section.

All authors read, and approved the final submitted version to Believers Medical Journal for publication.

Acknowledgements:

The children of Jyothis Special School and their families, whose openness to embracing something new, and dedication to supporting their children, are humbling.

How to cite this article: Oommen SM, Cherian EV, Thomas AC, Jeevan J. *Factors Associated with Parental Stress and Depression in Caring for Children with Mild Cerebral Palsy*. *Believers Med J* 2025;8(1):pp.1–10. doi: 10.54646/BeMJ.2026.03
