Journal of Chemical Health Risks

www.jchr.org

JCHR (2026) 16(3), 262-267 | ISSN:2251-6727

Stress Burden and Adaptive Coping Patterns Among MS Obstetrics and Gynaecology Residents: A Cross-Sectional Study

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(Received: 16 March 2026 Revised: 14 April 2026 Accepted: 01 May 2026)

KEYWORDS

Coping Behavior; Obstetrics and Gynaecology; Physicians; Postgraduates; Psychological Stress; Residency

ABSTRACT: Introduction: Residency training in Obstetrics and Gynaecology (OBG) is widely recognised as one of the most demanding phases of medical education. Long working hours, high clinical workload, exposure to obstetric emergencies, and responsibility for maternal–fetal outcomes can significantly contribute to psychological stress among residents. Understanding the stress burden and coping mechanisms used by residents is essential for developing effective support systems and improving well-being.

Methodology: A cross-sectional study was conducted among 100 MS Obstetrics and Gynaecology residents from five randomly selected medical colleges in Chennai & Chengalpattu District, Tamil Nadu. Perceived stress levels were assessed using the Perceived Stress Scale-10 (PSS-10), while coping strategies were evaluated using the Brief COPE inventory. Coping strategies were categorised into adaptive, mixed, and maladaptive patterns. Data were analysed using appropriate statistical tests to determine associations between stress levels and coping strategies.

Results: Moderate perceived stress was observed among 56% of residents, while 26% experienced high stress levels and 18% reported low stress. The mean PSS-10 score was 22.4 ± 6.1. Adaptive coping strategies were predominant among 62% of residents, whereas 28% demonstrated mixed coping patterns and 10% relied mainly on maladaptive coping mechanisms. A statistically significant association was found between perceived stress levels and coping patterns ($\chi^2 = 7.89$, $p = 0.019$).

Conclusion: A substantial proportion of OBG residents experience moderate to high stress during residency. Although most residents adopt adaptive coping strategies, a minority rely on maladaptive approaches that may predispose them to burnout. Strengthening institutional wellness programmes, counselling support, and mentorship systems may help improve psychological resilience among residents.

1. Introduction

Residency training represents one of the most demanding phases of medical education, during which young physicians are required to develop clinical competence while simultaneously fulfilling academic and service responsibilities. Residents frequently work long hours, manage heavy patient loads, and participate in night duties and emergency care, often with limited opportunities for rest and recovery. Such demanding training environments expose residents to substantial psychological stress. Persistent stress among medical trainees has been associated with impaired wellbeing, reduced professional satisfaction, and potential adverse effects on patient care.[1]

Psychological stress among healthcare professionals has increasingly been recognised as an important occupational health concern. Cohen and colleagues described stress as a state in which individuals perceive environmental demands as exceeding their adaptive capacity, potentially resulting in physiological and psychological disturbances.[2] In clinical settings, physicians must often make rapid decisions under conditions of uncertainty, which may further intensify perceived stress levels. Studies conducted among physicians have demonstrated that high occupational stress may contribute to burnout, reduced work–life balance, and decreased professional fulfilment.[3]

Among various medical specialties, Obstetrics and Gynaecology (OBG) is widely regarded as particularly

Journal of Chemical Health Risks
www.jchr.org
JCHR (2026) 16(3), 262-267 | ISSN:2251-6727

demanding because of its unpredictable clinical environment and the responsibility of managing both maternal and fetal wellbeing. Obstetric practice frequently involves emergency situations such as complicated labour, postpartum haemorrhage, fetal distress, and other life-threatening conditions. Exposure to such high-risk clinical scenarios can place considerable emotional and professional pressure on trainees. Previous research has shown that physicians working in obstetrics may experience secondary traumatic stress following exposure to adverse maternal or neonatal outcomes.[4]

In addition to clinical responsibilities, OBG residents must cope with academic expectations, procedural training, and continuous evaluation during their residency period. Long duty hours, sleep deprivation, and limited personal time further contribute to stress and fatigue among residents. Burnout syndrome, characterised by emotional exhaustion, depersonalisation, and reduced personal accomplishment, has been widely reported among physicians exposed to chronic occupational stress.[5] A large meta-analysis involving resident physicians reported a substantial prevalence of depressive symptoms among trainees, highlighting the psychological vulnerability of residents during the training period.[6]

The way individuals respond to stress plays an important role in determining its psychological impact. Coping strategies refer to the cognitive and behavioural efforts used to manage stressful situations. Lazarus and Folkman described coping as the dynamic process through which individuals attempt to regulate emotional responses and adapt to challenging circumstances.[7] Coping mechanisms are generally categorised into adaptive and maladaptive strategies. Adaptive coping approaches—such as problem solving, seeking social support, and positive reframing—are associated with improved psychological resilience. In contrast, maladaptive coping strategies such as denial, avoidance, and behavioural disengagement may worsen psychological distress and contribute to burnout.[8]

The Brief Coping Orientation to Problems Experienced (Brief COPE) inventory is a widely used instrument for assessing coping behaviours in stressful situations. Developed by Carver, the Brief COPE evaluates multiple coping dimensions including problem-focused, emotion-focused, and avoidant coping strategies.[9] Several studies among healthcare professionals have demonstrated that individuals who predominantly use adaptive coping strategies tend to report lower stress levels and better psychological wellbeing compared with those who rely on maladaptive coping behaviours.[10]

Despite increasing recognition of stress and burnout among physicians, relatively limited evidence is available regarding stress burden and coping patterns among Obstetrics and Gynaecology residents in India. Considering the demanding nature of this specialty and the potential implications for physician wellbeing and patient care, it is important to understand how residents perceive stress and the coping mechanisms they employ during training.

Therefore, the present study was conducted to assess perceived stress levels among MS Obstetrics and Gynaecology residents and to evaluate their coping strategies using validated assessment tools. The study aimed to assess perceived stress levels using the Perceived Stress Scale-10 (PSS-10), to evaluate coping patterns using the Brief COPE inventory, and to examine their association with stress levels among residents.

2. Methodology

Study Design, Setting and Period

This prospective, cross-sectional study was conducted in the Department of Obstetrics and Gynaecology at five randomly selected medical colleges in Chennai and Chengalpattu District, Tamil Nadu. The study was conducted over a period of six months from August 2025 to January 2026.

Study Population (Inclusion and Exclusion Criteria)

The study included residents who had completed at least 6 months of postgraduate training. Residents who were not willing to participate and who were undergoing treatment for known psychiatric disorders were excluded from the study.

Sampling Technique and Sample Size

A multi-stage sampling technique was used in this study. Based on the study by Robson[11], the prevalence of depression and burnout among obstetrics and gynaecologists was 20%. Considering a 95% confidence interval and an allowable error of 8%, the sample size was calculated as:

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JCHR (2026) 16(3), 262-267 | ISSN:2251-6727

$n = (Z\alpha/2)^2 \times p \times q / d^2 = (1.96)^2 \times 20 \times 80 / (8)^2 = 96.04 \approx 100$ participants

Where: $Z\alpha/2 = 1.96$ (standard normal variate for 5% significance level); $p = 20\%$ (prevalence based on existing literature); $q = 100 - p = 80\%$; $d = 8\%$ (absolute precision). The final sample size was rounded to 100 participants.

Procedure

A complete list of all medical colleges in Chennai and Chengalpattu District was obtained, among which five colleges were selected using a computer-generated random number method. A complete list of all postgraduate students in the five selected medical colleges was obtained. A purposive sampling technique was then employed, where all eligible participants present on the days of data collection at each college were recruited until the desired sample size was achieved.

Participants were informed about the study procedure, and written informed consent was obtained. Data were collected using a pre-tested, structured, validated questionnaire comprising the Perceived Stress Scale (PSS-10) and Brief COPE Inventory (28-item scale) categorised into problem-focused, emotion-focused, avoidant, and maladaptive coping. Scores were analysed to identify predominant coping strategies and their association with stress levels.

Outcome Measures

Primary Outcome: Perceived stress level among MS Obstetrics and Gynaecology residents.

Secondary Outcomes: Pattern of coping strategies among residents and association between perceived stress levels and coping patterns.

Statistical Analysis

The collected data were entered in a Microsoft Excel sheet and analysed using IBM-SPSS software version 27.0. Qualitative variables were expressed as frequency and percentage, and quantitative variables were expressed as mean and standard deviation. The chi-square test was used to find statistical significance between variables. A p-value less than 0.05 was considered statistically significant.

Ethical Considerations

Ethical Committee approval was obtained from the Institutional Human Ethics Committee (IHEC) of Chettinad Hospital and Research Institute before the commencement of the study (Ref No: IHEC-I/046/12/2025). Written informed consent was obtained from all participants regarding the procedure and the use of their data for research. The study adhered to ethical standards, maintaining confidentiality.

3. Results

A total of 100 MS Obstetrics and Gynaecology residents participated in the study.

Table 1: Socio-demographic Profile of Study Participants (N = 100)

Variable	Category	n (%)
Age (years)	24–26	28 (28.0)
	27–29	46 (46.0)
	≥30	26 (26.0)
Gender	Female	88 (88.0)
	Male	12 (12.0)
Year of residency	1st year	34 (34.0)
	2nd year	33 (33.0)
	3rd year	33 (33.0)

The majority of participants belonged to the age group of 27–29 years, accounting for 46 residents (46.0%), followed by 28 residents (28.0%) aged 24–26 years and 26 residents (26.0%) aged 30 years and above. Female residents constituted 88 participants (88.0%), while 12 participants (12.0%) were males. The distribution across years of residency was nearly equal, with 34 residents (34.0%) in the first year, 33 residents (33.0%) in the second year, and 33 residents (33.0%) in the third year (Table 1).

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JCHR (2026) 16(3), 262-267 | ISSN:2251-6727

Table 2: Distribution of Perceived Stress Levels among Study Participants (N = 100)

Stress Level	PSS-10 Score	n (%)
Low	0–13	18 (18.0)
Moderate	14–26	56 (56.0)
High	27–40	26 (26.0)
Mean PSS-10 score	—	**22.4 ± 6.1**

Based on the Perceived Stress Scale-10, moderate perceived stress was observed among 56 residents (56.0%), whereas high stress levels were reported by 26 residents (26.0%). Low perceived stress was noted in 18 residents (18.0%). The mean PSS-10 score of the study participants was 22.4 ± 6.1, indicating an overall moderate level of perceived stress (Table 2).

Table 3: Pattern of Coping Strategies among Study Participants (N = 100)

Coping Pattern	n (%)
Predominantly adaptive coping	62 (62.0)
Mixed coping strategies	28 (28.0)
Predominantly maladaptive coping	10 (10.0)

Evaluation of coping strategies using the Brief COPE inventory revealed that adaptive coping strategies were predominantly used by 62 residents (62.0%). Mixed coping strategies were reported by 28 residents (28.0%), while maladaptive coping strategies were observed in 10 residents (10.0%) (Table 3).

Table 4: Association between Stress Level and Coping Pattern among Study Participants (N = 100)

Stress Level	Adaptive Coping n (%)	Maladaptive Coping n (%)	Chi-square	p-value*
Low	15 (83.3)	3 (16.7)	7.89	**0.019**
Moderate	36 (64.3)	20 (35.7)		
High	11 (42.3)	15 (57.7)		

**p-value < 0.05 – Statistically significant*

A statistically significant association was found between perceived stress levels and coping patterns ($\chi^2 = 7.89$, df = 2, p = 0.019). Among residents with low stress levels, adaptive coping strategies were employed by 15 residents (83.3%), while maladaptive coping strategies were used by 3 residents (16.7%). In the moderate stress group, 36 residents (64.3%) demonstrated adaptive coping and 20 residents (35.7%) reported maladaptive coping. Conversely, among residents with high stress levels, maladaptive coping strategies were more common, reported by 15 residents (57.7%), compared to adaptive coping strategies reported by 11 residents (42.3%) (Table 4).

4. Discussion

This cross-sectional study assessed perceived stress and coping strategies among 100 MS OBG residents using PSS-10 and the Brief COPE inventory. The mean PSS-10 score of 22.4 ± 6.1 reflected overall moderate stress, with 56.0% of residents reporting moderate and 26.0% reporting high stress levels. These findings are consistent with those of Mangaiarkkarasi et al.[12], who reported a high frequency of stress, anxiety, and depression among medical postgraduates in Puducherry, identifying academic and clinical workload as primary contributors.

Govardhan et al.[13] similarly documented significant occupational stress among surgical residents attributable to long working hours and high patient acuity. The slightly higher mean PSS observed in our cohort compared to family medicine residents reported by Lebensohn et al.[14] (mean PSS = 19.8) likely reflects the emotionally intensive nature of obstetric practice,

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including exposure to adverse perinatal outcomes and maternal morbidity.

The predominance of female residents (88.0%) mirrors the known demographic profile of OBG residency programmes in India. Guille et al.[15] highlighted the disproportionate psychological burden borne by female trainees in high-stakes specialties, attributed to competing professional and personal responsibilities. Sreeramareddy et al.[16] similarly observed a preference for social support-seeking and problem-focused strategies among postgraduate trainees in South Asian settings, attributing this to strong collegial networks within residency programmes.

A statistically significant association was identified between stress levels and coping patterns ($\chi^2 = 7.89$, $p = 0.019$). Maladaptive coping predominated among high-stress residents (57.7%) compared to those with low stress (16.7%), suggesting a progressive erosion of coping reserves under sustained occupational stress. This bidirectional relationship is supported by findings from Muteshi et al.[17], who reported in a low-middle income country setting that residents under high burnout burden increasingly resorted to passive coping mechanisms including avoidance, behavioural dissociation, and substance use, while those with active coping and peer support demonstrated better resilience.

Iorga et al.[18] demonstrated a strong correlation between avoidant and maladaptive coping and higher PSS scores among medical residents, while Dyrbye et al.[19] reported significantly lower burnout rates among residents employing problem-focused and meaning-based coping across multiple specialties. These findings reinforce the bidirectional relationship between perceived stress and maladaptive coping, wherein unresolved stress perpetuates dysfunctional coping cycles. The 10.0% of residents relying predominantly on maladaptive strategies represents a clinically significant minority warranting targeted psychological intervention. As noted by Dyrbye et al.[20], structured wellness initiatives and accessible counselling services within residency programmes are essential to mitigate burnout and foster resilience among trainees in high-acuity specialties such as OBG.

The cross-sectional design, self-reported instruments, and single-region recruitment are acknowledged as limitations. Longitudinal studies incorporating objective stress biomarkers are recommended to better characterise stress-coping dynamics among OBG residents.

5. Conclusion

The present study demonstrated that a substantial proportion of MS Obstetrics and Gynaecology residents experience moderate to high levels of perceived stress during their residency training. Although the majority of residents reported using adaptive coping strategies such as seeking social support, positive reframing, and active coping, a smaller proportion relied on maladaptive coping patterns that were significantly associated with higher stress levels.

These findings highlight the importance of strengthening institutional support systems within residency programmes. Structured wellness initiatives, accessible psychological counselling, mentorship programmes, and workload management strategies may help residents develop healthier coping mechanisms and improve overall well-being. Future research should focus on multicentre longitudinal studies exploring stress trajectories and evaluating the effectiveness of structured mental health interventions among resident doctors.

6. Declarations

Financial support and sponsorship: Nil.

Conflicts of interest: There are no conflicts of interest.

Ethics approval: Approved by the Institutional Human Ethics Committee (IHEC) of Chettinad Hospital and Research Institute (Ref No: IHEC-I/046/12/2025).

Informed consent: Written informed consent was obtained from all participants.

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