



Original Article

Prevalence of Anxiety and Depression Among Perimenopausal Women Healthcare Workers at A Tertiary Health Care Centre In Kerala

Dr Safoorabi AK¹ and Dr Radhakrishnan MP²

¹Psychiatry Resident, Department of Psychiatry, Travancore medical college, Kollam, Kerala, India

²Professor & Head of department, Department of Psychiatry, Travancore medical college, Kollam, Kerala, India

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Corresponding Author:

Dr Safoorabi AK

Psychiatry Resident, Department of Psychiatry, Travancore medical college, Kollam, Kerala, India

Email: safloorabi_6@yahoo.co.in

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ABSTRACT

This cross-sectional study examines the prevalence of anxiety and depression among 133 perimenopausal women healthcare workers (HCWs) aged 40–52 years at Travancore Medical College Hospital, Kerala, India, assessing associated sociodemographic and occupational factors. Perimenopause, characterized by hormonal fluctuations, predisposes women to psychological disturbances, compounded in HCWs by occupational stressors. Participants were predominantly married (85.7%) and from the lower middle socioeconomic class (45.9%). Occupationally, head nurses/supervisors (30.8%) and staff nurses (22.6%) formed the largest groups, with 94% engaged in night shifts. Family was the primary social support for most (59.4%), and 44.4% reported comorbid physical illnesses. Menopausal symptoms were highly prevalent (88.7%) with moderate severity in 45.1%. Anxiety, measured by the Hamilton Anxiety Rating Scale, was widespread: 81.2% had mild anxiety, and 18.8% experienced moderate to very severe anxiety. Depression, assessed via the Hamilton Depression Rating Scale, was less common but clinically relevant, with 21.1% showing mild to severe symptoms. Statistical analysis revealed significant associations between anxiety and educational status ($p=0.017$), occupation ($p=0.028$), social support ($p=0.026$), presence of menopausal symptoms ($p=0.004$), and severity of menopausal symptoms ($p<0.001$). Staff nurses exhibited higher moderate anxiety, while family support correlated with lower anxiety prevalence. No significant links were observed between anxiety and age, socioeconomic status, marital status, years of service, night shift work, family type, or comorbidities. Depression correlated significantly with age ($p<0.001$), physical comorbidities ($p=0.005$), and menopausal symptom severity ($p<0.001$), with older participants and those with comorbidities showing higher depression rates. Other demographic and occupational variables were not significantly associated. Findings indicate an elevated anxiety burden and moderate depression prevalence among perimenopausal HCWs, exceeding general population rates, likely due to compounded occupational and menopausal factors. The study highlights menopausal symptom severity and social support as critical influences on mental health outcomes and identifies frontline nursing roles as anxiety risk factors. This research addresses a significant gap in the Indian context by focusing on perimenopausal HCWs, advocating for routine mental health screening, workplace interventions, and culturally sensitive policies to improve psychological well-being, workforce resilience, and quality of patient care.

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INTRODUCTION

Perimenopause represents a significant transitional phase in a woman's reproductive life, typically occurring between the ages of 40 and 52 years. It is characterized by hormonal fluctuations, particularly involving estrogen and progesterone, which lead to a variety of physiological and psychological changes preceding menopause [1]. This period involves the gradual cessation of ovarian function and reproductive senescence, with irregular menstrual cycles and variable hormone

levels contributing to a complex symptom profile [2]. The hormonal milieu during perimenopause is not marked solely by declining estrogen but also by erratic and sometimes elevated estradiol levels, decreased progesterone, and disrupted feedback within the ovarian-pituitary-hypothalamic axis, causing symptoms such as vasomotor disturbances, sleep problems, cognitive difficulties, and mood fluctuations [3]. These biological changes underpin a “window of vulnerability” for mental health, increasing susceptibility to anxiety, depression, and cognitive impairments [4,5].

Globally, perimenopausal women experience a high prevalence of psychological symptoms. Depression rates during this period range between 25% and 33%, with some studies indicating up to a threefold increased risk compared to premenopausal women [6,7]. Anxiety disorders are also common and have shown a rising global burden, with projections estimating a 40% increase in anxiety-related disability-adjusted life years by 2035 [5]. These mental health challenges often coexist with vasomotor symptoms, sleep disturbances, and cognitive complaints, creating a multifaceted clinical picture that adversely impacts quality of life [8]. Cognitive symptoms such as impaired verbal memory, attention deficits, and working memory problems are frequently reported and may persist into postmenopause, further affecting well-being [8].

In India, although large-scale epidemiological data on perimenopausal mental health are limited, existing research indicates significant burdens of depression and anxiety among adult populations, with prevalence estimates for depressive symptoms around 18–25% and anxiety symptoms approximately 24–30% [9]. Sociocultural factors, including stigma, limited awareness, and healthcare access barriers, exacerbate these challenges [12]. Kerala, with its relatively advanced healthcare infrastructure, presents a unique context where mood disorders during perimenopause are expected to be significant, though precise data remain sparse [10]. Indian women’s experiences of perimenopause are shaped by cultural beliefs, social norms, and family dynamics, which influence symptom expression, coping mechanisms, and healthcare-seeking behavior [11]. Taboos surrounding reproductive aging and mental health stigma often delay diagnosis and treatment, underscoring the need for culturally sensitive interventions [11,12].

Healthcare workers (HCWs) face distinct challenges during perimenopause due to the demanding nature of their roles. Occupational stressors such as long shifts, high patient loads, workplace violence, and pandemic-related pressures compound the physiological and psychological vulnerabilities inherent to perimenopause. Symptoms like hot flashes, sleep disruption, mood swings, and cognitive difficulties can impair concentration, decision-making, and overall work performance, potentially compromising patient care and safety [8]. The lack of workplace policies accommodating menopausal needs, combined with stigma and insufficient managerial support, further exacerbates mental health risks and contributes to burnout and turnover intentions among perimenopausal HCWs .

Despite the recognized mental health burden among HCWs, research focusing specifically on perimenopausal women in healthcare settings remains scarce, particularly in India [12]. The intersection of hormonal transitions with occupational stressors creates a unique biopsychosocial vulnerability that is inadequately addressed in current studies and workplace interventions. Understanding these complexities is essential for developing targeted screening, support systems, and culturally appropriate policies to promote mental well-being and workforce resilience among perimenopausal HCWs [12]. In summary, perimenopause is a critical neurological and psychosocial transition marked by hormonal fluctuations that significantly impact women’s mental health globally and in India. The compounded effects of occupational stressors in healthcare workers intensify risks for anxiety, depression, and cognitive impairment during this period. Sociocultural influences and systemic gaps in awareness and support further challenge effective management. Addressing these multifactorial factors through enhanced research, mental health literacy, workplace accommodations, and destigmatization efforts is vital to improving quality of life and sustaining healthcare workforce capacity during perimenopause [1,3,12].

OBJECTIVES

PRIMARY OBJECTIVE:

To assess the prevalence of anxiety and depression among perimenopausal health care workers in Travancore Medical College Hospital, Kollam.

SECONDARY OBJECTIVES:

To assess the sociodemographic factors (age, education, marital status, social support) related to anxiety and depression levels during the perimenopausal period.

METHODOLOGY

a. Study Design and Setting

The present study employed a cross-sectional observational design to assess the prevalence of anxiety and depression among perimenopausal women healthcare workers. The study was conducted at Travancore Medical College Hospital, Kollam, Kerala, India, over a period of 18 months following approval from the institutional ethics committee. Ethical considerations were strictly adhered to, including obtaining written informed consent from all participants and ensuring confidentiality of the collected data.

b. Study Population

The study population comprised perimenopausal women healthcare workers aged 40 to 52 years employed at Travancore Medical College Hospital. Inclusion criteria included willingness to participate, age within the specified range, and a Menopause Rating Scale (MRS) score greater than 4, indicating the presence of menopausal symptoms. Exclusion criteria were a history of diagnosed mental illness and premature menopause (menopause before age 40).

The sample size was calculated based on an estimated anxiety disorder prevalence of 14%, with 6% precision and 95% confidence interval, resulting in a required sample size of 133 participants. Consecutive sampling was employed, recruiting all eligible healthcare workers who consented until the target sample size was achieved.

c. Data Collection

Data were collected through structured interviews conducted by the investigator. After obtaining informed consent, participants provided sociodemographic and occupational information, including age, marital status, educational level, social support, years of service, and night shift involvement.

Menopausal symptom severity was assessed using the Menopause Rating Scale (MRS), which evaluates somatic, psychological, and urogenital symptoms on a 0–4 scale per item, with total scores categorized into minimal, mild, moderate, and severe symptom severity.

Anxiety levels were measured using the Hamilton Anxiety Rating Scale (HAM-A), a 14-item clinician-administered scale assessing psychic and somatic anxiety symptoms, with scores categorized as no anxiety (≤ 7), mild (8–14), moderate (15–23), and severe (> 24).

Depression was evaluated using the Hamilton Depression Rating Scale (HAM-D), a standardized 17-item scale measuring depressive symptom severity.

d. Statistical Analysis

Data were entered into Microsoft Excel and analyzed using SPSS version 20. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were computed to summarize sociodemographic characteristics and clinical variables.

Inferential statistical analyses included Chi-square tests to examine associations between anxiety and depression levels with sociodemographic and occupational variables. Statistical significance was set at $p < 0.05$.

e. Ethical Considerations

Ethics committee clearance was obtained prior to study initiation. Participant confidentiality was maintained throughout, with data anonymized and securely stored. Participation was voluntary, and informed consent was documented. No personal identifiers were disclosed, and data were used solely for research purposes.

RESULTS

This cross-sectional study evaluated the prevalence and correlates of anxiety and depression among 133 perimenopausal women healthcare workers (HCWs) aged 40–52 years at Travancore Medical College Hospital, Kerala. **Age Distribution** presents the age breakdown of participants, showing that 54.1% were aged 46–52 years and 45.9% were aged 40–45 years. (**Table 1**)

The cohort was predominantly married (85.7%), mainly from the lower middle socioeconomic class (45.9%), and largely composed of nursing professionals, including head nurses/supervisors (30.8%) and staff nurses (22.6%). Most participants (94%) engaged in night shifts, with family identified as the primary source of social support (59.4%). Nearly half (44.4%) reported comorbid physical illnesses.

Menopausal symptoms were highly prevalent (88.7%), with 45.1% experiencing moderate severity as measured by the Menopause Rating Scale (MRS). Anxiety, assessed via the Hamilton Anxiety Rating Scale (HAM-A), showed a notably high burden: 81.2% had mild anxiety, and 18.8% had moderate to very severe anxiety (**Table 2**) (**Figure 1**)

Depression, evaluated using the Hamilton Depression Rating Scale (HAM-D), was less frequent but clinically relevant, with 21.1% presenting mild to severe symptoms. Statistical analyses revealed significant associations between anxiety and educational status ($p=0.017$) (**Table 3**), occupation ($p=0.028$), social support ($p=0.026$), presence of menopausal symptoms ($p=0.004$), and menopausal symptom severity ($p<0.001$) (**Table 4**). Specifically, staff nurses exhibited higher moderate anxiety levels, while family support correlated with lower anxiety prevalence. No significant associations were found between anxiety and age, socioeconomic status, marital status, years of service, night shift work, family type, or comorbidities. Depression was significantly associated with age ($p<0.001$), physical comorbidities ($p=0.005$), and menopausal symptom severity ($p<0.001$), with older participants (46–52 years) and those with comorbidities showing higher depression rates. Other demographic and occupational variables did not significantly correlate with depression.

These findings underscore a high prevalence of anxiety and a moderate prevalence of depression among perimenopausal HCWs, exceeding rates reported in general perimenopausal populations, likely reflecting the compounded effects of

menopausal symptomatology and occupational stressors inherent to healthcare roles. The protective role of higher educational attainment and family support against anxiety highlights the importance of psychosocial resources, while frontline nursing roles represent occupational risk factors. The strong link between menopausal symptom severity and both anxiety and depression emphasizes the need for integrated symptom management.

The study addresses a critical gap in the Indian context by focusing on perimenopausal HCWs, a demographic often overlooked in mental health research. It highlights the necessity for routine mental health screening integrated into occupational health services, early detection, and tailored workplace interventions addressing psychosocial support, stigma reduction, and flexible scheduling. These measures are vital to enhance psychological well-being, sustain workforce productivity, and ensure quality patient care.

Table 1: Age distribution

Age group	Frequency	Percentage
40–45	61	45.9
46–52	72	54.1
Total	133	100.0

Age Distribution presents the age breakdown of participants, showing that 54.1% were aged 46–52 years and 45.9% were aged 40–45 years. This establishes the demographic context relevant to perimenopausal status.

Table 2: Prevalence of Depression

Depression	Frequency	Percentage
No depression	105	78.9
Mild	13	9.8
Moderate	10	7.5
Severe	5	3.8
Total	133	100.0

Prevalence of Depression shows depression severity distribution based on the Hamilton Depression Rating Scale, indicating that 21.1% of participants had mild to severe depression, while 78.9% reported no depression. This reflects a moderate prevalence of clinically relevant depressive symptoms.

Table 3: Association between Educational Status and Anxiety

Educational status	Anxiety				χ^2 value	p value
	Mild n (%)	Moderate n (%)	Severe n (%)	Very Severe n (%)		
Diploma	44 (88)	2 (4)	4 (8)	0 (0)	15.465	0.017
Graduate	47 (72.3)	14 (21.5)	3 (4.6)	1 (1.5)		
Postgraduate	17 (94.4)	0 (0)	0 (0)	1 (5.6)		

Association Between Educational Status and Anxiety demonstrates a statistically significant relationship ($p=0.017$) between educational attainment and anxiety levels. Graduates showed higher moderate anxiety prevalence compared to diploma holders and postgraduates, suggesting education influences anxiety severity.

Table 4: Association between Menopause Rating Scale and Anxiety

Menopause Rating Scale	Anxiety				χ^2 value	p value
	Mild n (%)	Moderate n (%)	Severe n (%)	Very Severe n (%)		
Minimal	17 (73.9)	6 (26.1)	0 (0)	0 (0)	39.849	<0.001
Mild	24 (72.7)	7 (21.2)	2 (6.1)	0 (0)		
Moderate	56 (93.3)	3 (5)	1 (1.7)	0 (0)		
Severe	11 (64.7)	0 (0)	4 (23.5)	2 (11.8)		

Association Between Menopause Rating Scale (MRS) Severity and Anxiety illustrates a strong association ($p < 0.001$) between menopausal symptom severity and anxiety levels. Participants with severe menopausal symptoms had notably higher rates of severe and very severe anxiety, emphasizing symptom burden as a key factor.

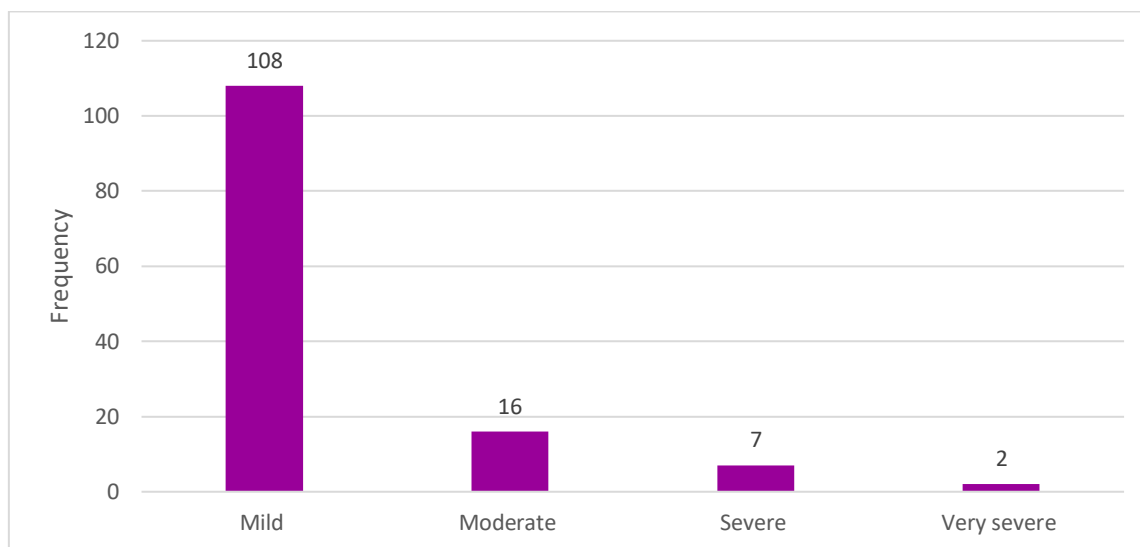


Figure 1: Prevalence of Anxiety

Prevalence of Anxiety visually represents the distribution of anxiety severity among participants, reinforcing the predominance of mild anxiety (81.2%) and the smaller proportion with moderate to very severe anxiety.

DISCUSSION

The present study's discussion highlights several key findings regarding anxiety and depression among perimenopausal women healthcare workers (HCWs) in Kerala, contextualized within existing literature. The demographic profile aligns with global and regional studies, with the majority aged 46–52 years, predominantly married, and belonging to the lower middle socioeconomic class [13,14]. Family emerged as the principal social support, consistent with Indian cultural norms emphasizing familial networks during menopausal transitions [15]. The occupational composition, mainly nursing staff engaged in night shifts with substantial years of service, reflects a cohort exposed to significant workplace stressors known to exacerbate menopausal symptoms and mental health issues [16].

The study reveals an alarmingly high prevalence of anxiety (81.2% mild; 18.8% moderate to severe), exceeding rates reported in general perimenopausal populations globally, where anxiety prevalence ranges from 12% to 54% [6,7]. This elevation is likely attributable to the compounded occupational stressors unique to healthcare settings, including shift work, high patient loads, and pandemic-related pressures [17,18]. Depression prevalence (21.1%) falls within global estimates of 25–35% among perimenopausal women, suggesting that while depression remains clinically relevant, anxiety may be the more prominent mental health challenge in this occupational group [24,25,80]. The findings underscore the menopausal transition as a "window of vulnerability" for emotional disturbances, amplified by professional and social stressors.

Significant associations were found between anxiety and educational status, occupation, social support, and menopausal symptom severity. Lower moderate to severe anxiety among diploma and postgraduate participants compared to graduates may reflect differences in health literacy and coping strategies [6]. Staff nurses exhibited higher moderate anxiety, consistent with evidence that frontline nursing roles entail greater psychological burden due to workload and responsibility [5]. Family support demonstrated a protective effect against anxiety, reinforcing the buffering role of social networks during menopause [6]. The strong correlation between menopausal symptom severity and anxiety aligns with prior research linking physical symptom burden to psychological distress. Conversely, variables such as age, socioeconomic status, marital status, years of service, night shifts, family type, and comorbidities showed no significant association with anxiety, potentially reflecting the homogeneous occupational cohort where job-related factors predominate [5].

Depression was significantly associated with older age within the perimenopausal range, physical comorbidities, and menopausal symptom severity. These findings corroborate longitudinal studies indicating increased depression risk during menopause transition, particularly among older women and those with chronic illnesses. The association with symptom severity emphasizes the cumulative impact of vasomotor, psychological, and somatic symptoms on depressive mood [6]. Lack of significant links between depression and other sociodemographic or occupational variables may be due to sample characteristics or complex interacting factors influencing depression in midlife women.

This study fills a critical gap in Indian research by focusing on perimenopausal HCWs, a population often overlooked despite their unique biopsychosocial vulnerabilities combining hormonal changes and occupational stress [12]. The

integration of demographic, occupational, and psychosocial factors provides culturally contextualized evidence to inform targeted mental health policies and workplace interventions. Methodological strengths include the use of validated scales and focus on a specific occupational group, though limitations such as cross-sectional design and single-center sampling constrain causal inference and generalizability [6].

The study's limitations include its cross-sectional design, which restricts causal inferences between menopausal symptoms and mental health outcomes. The sample was drawn from a single tertiary healthcare center in Kerala, limiting generalizability to other regions or healthcare settings. Self-reported measures may introduce response and recall biases, especially concerning sensitive psychological symptoms. Potential confounding factors such as detailed hormonal status, lifestyle variables, and nuanced occupational stressors were not comprehensively controlled. Additionally, the lack of longitudinal follow-up precludes assessment of symptom progression or long-term mental health impacts in this population. Implement routine mental health screening for perimenopausal healthcare workers using validated tools to enable early detection of anxiety and depression. Develop workplace policies that accommodate menopausal symptom management, including flexible scheduling and psychosocial support. Strengthen family and social support networks and enhance mental health literacy to reduce stigma. Promote culturally sensitive interventions tailored to occupational stressors unique to healthcare settings. Integrate organizational strategies addressing workload, shift patterns, and workplace environment to mitigate stress and improve well-being. These measures will support psychological health, workforce retention, and quality patient care among perimenopausal healthcare professionals.

CONCLUSION

The present study assessed the prevalence of anxiety and depression among 133 perimenopausal women healthcare workers aged 40–52 years at a tertiary healthcare center in Kerala. Key findings revealed a high prevalence of anxiety, with 81.2% experiencing mild anxiety and 18.8% moderate to very severe anxiety, alongside a moderate prevalence of depression affecting 21.1% of participants. Significant associations were identified between anxiety and factors such as educational status, occupation, social support, presence, and severity of menopausal symptoms. Depression correlated significantly with age, physical comorbidities, and menopausal symptom severity. These results underscore the compounded impact of menopausal physiological changes and occupational stressors on mental health in this population. The study highlights the critical need for targeted mental health screening and supportive workplace interventions tailored to perimenopausal healthcare workers. By addressing these factors, the present study contributes valuable evidence to inform culturally sensitive policies aimed at improving psychological well-being and sustaining workforce productivity in healthcare settings.

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