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PREVALENCE OF POST-MENOPAUSAL DEPRESSION IN WOMEN AND ITS ASSOCIATION WITH SOCIO DEMOGRAPHIC FACTORS

Dr Rashmi Tripathi (Associate Professor)[1] , Dr Priyanka Tiwari (Assistant Professor)[2], Dr Madhuri Brahmane (Assistant Professor)[3], Dr Malini Bhardwaj (Professor)[4], Dr Aishwarya Shayalwar (Resident)[5*]

[1]Department: Obstetrics and Gynaecology
[1]Institute: LN Medical College, Bhopal

***Corresponding Author** - Dr Aishwarya Shaylwar (Resident)

Abstract

Background: Menopause is the end of the fertile period with cessation of ovarian function in women's life. According to the World Health Organization, 12 months of amenorrhea confirm that menopause has set in. Menopause is associated with various symptoms among which psychological symptoms are most common with depression, mood swing and anxiety. The aim of this study is to determine the prevalence of depression in postmenopausal women in central India.

MATERIALS AND METHODS: This study was conducted in J.K. hospital Bhopal. A total of 100 postmenopausal patients presenting in OPD were included. Postmenopausal women with more than 1 year and less than 5 years of amenorrhoea were included. Study tools: Hamilton depression (HAM-D) scale was used to study the prevalence of depression on the basis of questionnaire. Eight questions of Hamilton score rated on a 5-point scale, ranging from 0 = not present to 4 = severe and nine questions scored from 0 to 2.

RESULTS: Overall, 35% had no depression, 40.0% had mild, 16% had moderate, and 10% had severe depression and none of the participants scored in the category indicative of very severe depression. As the duration since menopause increase the Hamilton Depression Score and the prevalence of depression among women increased. Among the biosocial factors: age, duration since menopause, marital status, parity, and gender composition of children were significantly associated (p-value < 0.05) with moderate to severe depression.

Conclusion: Mild depression is common among majority of women in postmenopausal period. However, moderate to severe depression is associated with several social factors.

Keywords: Depression, Menopause, Hamilton Scale, Mental Health, Women.

Introduction:

Menopause marks a significant physiological transition in a woman's life, signalling the cessation of reproductive capabilities and the onset of a new phase characterized by hormonal fluctuations and potential psychological challenges(1). While this phase is characterized by hormonal shifts and physical changes, it also brings about emotional and psychological adjustments that are equally vital to a woman's overall well-being(1). Mental health among post-menopausal women is a multifaceted topic that warrants comprehensive examination(2,3). By recognizing the challenges faced by this

demographic and implementing tailored interventions, we can enhance the quality of life for post-menopausal women and foster a more inclusive and empathetic society(4).

Post-menopausal depression is a complex and multifaceted condition that can manifest in a variety of ways, impacting a woman's overall quality of life, social functioning, and general well-being(5). Its prevalence and impact on women's mental health have been subjects of growing concern in recent years, prompting an urgent need for comprehensive studies to understand the extent of the issue, particularly in diverse geographic regions(6,7).These factors, in conjunction with the existing gaps in mental health research, emphasize the importance of examining the prevalence of post-menopausal depression in this specific geographical area.Studying the prevalence of depression among women who have recently undergone menopause is a critical endeavour with several compelling reasons(8,9). Firstly, menopause is a natural and inevitable phase in a woman's life, yet it is marked by significant hormonal fluctuations and physiological changes that can have far-reaching effects on mental health(1,3). During this transition, the abrupt decline in estrogen levels, which have neuroprotective and mood-regulating properties, can lead to a heightened vulnerability to mood disorders like depression(5). Understanding the prevalence of depression in this specific group is essential to identify those at risk and provide timely interventions and support to mitigate the emotional distress that often accompanies this life stage(4).

Secondly, the mental health of women after menopause is an often-overlooked aspect of women's healthcare. While much attention has been paid to reproductive health and maternal care, the psychological well-being of post-menopausal women has not received the same level of focus(2,10). This gap in research and healthcare provision underscores the need for comprehensive studies on the prevalence of depression in this demographic. By shedding light on the extent and nature of this issue, we can advocate for increased awareness, better mental health support, and tailored interventions that consider the unique challenges and needs of women who have recently experienced menopause, ultimately promoting their overall mental well-being and quality of life.This paper aims to contribute to the existing body of knowledge by conducting a thorough assessment of post-menopausal depression among women in Central India, employing the Hamilton Rating Scale for Depression (HAM-D) as a reliable tool for diagnosis and severity assessment. By leveraging this validated instrument, we aim to provide a comprehensive understanding of the prevalence rates, as well as potential associated factors, ultimately offering valuable insights for healthcare practitioners, policy makers, and researchers.

Methodology

- **Study Design and Setting:**This was a single centre, hospital-based cross-sectional observational study was conducted in LN Medical College & associated JK Hospital, Bhopal, spanning over a period of 12 months. The research was carried with ethical approval obtained from the Institutional Review Board (IRB) prior to data collection.
- **Study Outcome:** Depression as indicated by the Hamilton Depression Scale.
- **Participants:**A total of 100 post-menopausal women were recruited from the Outpatient department of the hospital during the period of participants recruitment Participants were included if they met the following criteria:
  i. Post-menopausal status confirmed by a healthcare provider,
  ii. Women who achieved menopause at least one year back and maximum of 5 years before the survey.
  iii. Absence of any known psychiatric disorders prior to menopause, and
  iv. Willingness to provide informed consent.

Exclusion Criteria:

i. Women’s refusal to participate in the study.
ii. Women with comorbidities.

- **Sampling Strategy:**A systematic random sampling approach was employed to ensure representation from diverse socio-economic backgrounds from the OPD. Every 5th woman aged

more than 45 to 55 years coming to the OPD registration counter were approached for enrolment in the present study. within the Central Indian population. At each day of data collection, a maximum of 3 participants were interviewed.

- **Source of Data:**Medical records of the participants and interviews with the participants.
- **Study Tool**

i. **Study Proforma-** A 3-parts proforma drafted to capture the relevant data: Demographic details, obstetrics details, and details of the menopause.

ii. **Hamilton Depression Scale (Hindi & English)**(11,12)**:** The HAM-D consists of a series of 17 items, each representing different aspects of depressive symptomatology, such as mood, guilt, suicidal thoughts, sleep disturbances, and appetite changes. For each item, the clinician rates the severity of the symptom based on their observations and the patient's self-report. The scores typically range from 0 to 4, with higher scores indicating greater severity of symptoms. The HAM-D provides a structured and standardized approach to assessing depression, allowing clinicians to track changes in symptom severity over time and make informed decisions about treatment strategies.

- **Data Collection:**

i. **Informed Consent**: Participants were provided with a detailed explanation of the study, its purpose, and their rights. Informed consent was obtained prior to participation.

ii. **Socio-Demographic and Clinical Information:** A structured questionnaire was administered to collect data on age, marital status, educational level, occupation, income, and relevant medical history including any history of psychiatric disorders or treatment.

iii. **Hamilton Rating Scale for Depression (HAM-D):** The validated HAM-D was used as the primary tool for assessing depression. Trained healthcare professionals administered the HAM-D, which consists of 17 items evaluating various aspects of depressive symptoms, with higher scores indicating greater severity.

iv. **Data Quality Assurance**: To ensure data accuracy and reliability, inter-rater reliability assessments were performed on a subset of participants. Additionally, regular training sessions and supervision were provided to the assessors throughout the data collection period.

- **Statistical Analysis:**Descriptive statistics were used to summarize the socio-demographic and clinical characteristics of the participants. The prevalence of post-menopausal depression was calculated based on HAM-D scores, with a cut-off score of [Specify Cut-off Score] indicative of clinically significant depression. Bivariate analyses were conducted to explore potential associations between socio-demographic variables and depression scores. Multivariate logistic regression models were employed to identify independent predictors of post-menopausal depression, adjusting for relevant covariates.
- **End Point:** The study was terminated if: (i) A participant decided to withdraw from the study. (ii) After completion of the data collection.
- **Ethical Considerations:**This study adhered to the principles outlined in the Declaration of Helsinki. Informed consent was obtained from all participants, and steps were taken to ensure confidentiality and anonymity throughout the data collection and analysis process.
- **Limitations:**While efforts were made to achieve a representative sample, selection bias may have occurred due to the nature of the sampling method. Additionally, the cross-sectional design limits the ability to establish causal relationships.
- **Funding:** There was no funding for this study.The participants were not paid any type of fees/incentives/freebees to participate in the study.

Results:

Table 1: Hamilton Score among participants

	n	%
0–7 = Normal	34	34.0
8–13 = Mild depression	40	40.0
14–18 = Moderate depression	16	16.0
19–22 = Severe depression	10	10.0
≥23 = Very severe depression	0	0

As illustrated in Table 1, the majority of participants (40.0%) fell within the mild depression category, with HAM-D scores ranging from 8 to 13. Notably, 34.0% of participants demonstrated normal mood states, exhibiting HAM-D scores ranging from 0 to 7. A notable proportion (16.0%) exhibited moderate depression and 10.0% of participants demonstrated severe depressive symptoms, with HAM-D scores ranging from 19 to 22. Remarkably, none of the participants scored in the category indicative of very severe depression (≥23).

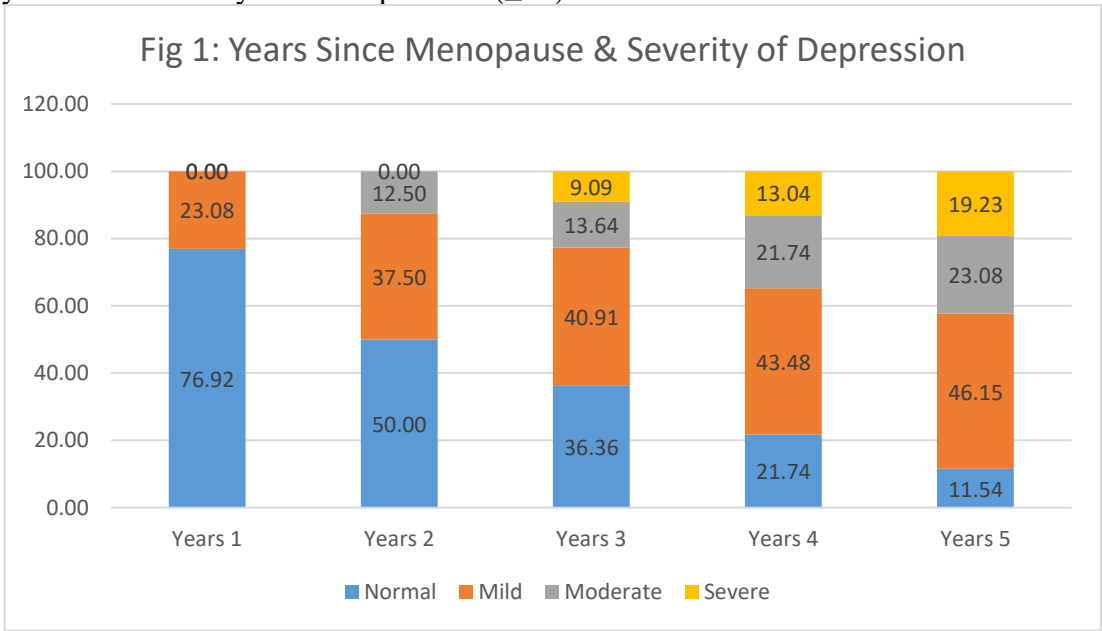

Figure 1 depicts the distribution of severity of depression with varied duration since the onset of menopause. As can be inferred from the figure, in the first year after menopause, the majority of individuals (76.92%) had Normal HDS scores, while a minority experienced Mild depression.By the second year, there's a notable decrease in the percentage of individuals with Normal HDS scores (50%), accompanied by an increase in those experiencing Mild and Moderate depression.As the years progress (Years 3 to 5), there's a consistent decrease in the percentage of individuals with Normal HDS scores and a corresponding increase in the percentages of individuals experiencing Moderate, and Severe depression.This could imply a potential association between time elapsed since menopause and an increased prevalence of depression.

The results presented in Table 2 provide valuable insights into the details of the participants, stratified by their levels of depression severity.The participants in the "Moderate to Severe" group had a significantly higher mean age (50.3 years) compared to those in the "Normal to Mild" group (45.6 years) (p=0.034).Additionally, the duration since menopause was notably longer in the "Moderate to Severe" group (3.6 years) compared to the "Normal to Mild" group (1.9 years) (p=0.013). This suggests that women with more severe depressive symptoms tended to be older and further along in their post-menopausal period.

Table 2: Obstetrics details of participants (n=100)					
Variable	**Normal to Mild (Score 0 -13) (n = 74)**		**Moderate to Severe (> 14) n =26**		**P-value**
	n	**%**	**n**	**%**	
Age, Mean (±SD)	45.6		50.3		0.034
Duration since Menopause	1.9 years		3.6 years		0.013
Education					
No formal Education	11	14.86	0	0	0.089
Up to High School	19	25.68	5	19.23	
Up to 12th	24	32.43	14	53.84	
College	20	27.03	7	26.92	
Socioeconomic Status					
Upper	34	45.95	12	46.15	0.233
Middle	21	28.38	11	42.36	
Lower	19	25.68	3	11.53	
Marital Status					
Married	40	59.46	5	19.2	**< 0.001**
Separated	7	13.51	7	26.9	
Widow	20	27.03	4	15.4	
Unmarried	7	9.5	10	38.4	
Working status					
Home maker	18	24.32	18	69.23	< 0.0001
Formally employed	56	75.68	8	30.77	
Parity					
0	4	5.4	8	30.8	**0.001**
1	20	27.0	9	34.6	
2	33	44.6	4	15.4	
3 or more	17	22.9	5	19.2	
Gender composition of Children (n = 88)					
Girls only	10	14.3	10	55.6	0.001
Boys only	28	40.0	4	22.2	
Both	32	45.7	4	22.2	

The distribution of educational levels varied between the groups. Notably, in the "Normal to Mild" group, there were participants across all educational levels, whereas in the "Moderate to Severe" group, a higher proportion had completed up to the 12th grade or higher education.While there were variations, the difference in socioeconomic status between the severity groups was not statistically significant (P-value = 0.233).A higher percentage of participants in the Normal to Mild group were married compared to the Moderate to Severe group (P-value < 0.001). The Moderate to Severe group had more participants who were separated or unmarried.A stark difference was noted in working status, with significantly more homemakers in the Moderate to Severe group (69.23%) compared to the Normal to Mild group (24.32%) (P-value < 0.0001).Statistically significant differences were found in parity between the groups- Moderate to Severe group had a higher percentage of participants with no children or only one child compared to the Normal to Mild group.Significant differences were also observed in the gender composition of children- Moderate to Severe group had a notably higher percentage of participants with girls only, while the Normal to Mild group had higher percentages with boys only or a mix of both genders.

Discussion:

The perimenopausal period and early years of menopause mark a significant transition in a woman's life, often accompanied by a myriad of physical, emotional, and mental changes. The journey through menopause, typically occurring between the ages of 45 to 55, is a natural biological process marking the end of reproductive years. However, alongside the physical changes, the fluctuating

hormonal levels during this phase can significantly impact mental health, leading to various challenges and transitions for women. Estrogen plays a crucial role in regulating neurotransmitters like serotonin and dopamine, which impact mood and emotional well-being. As these hormone levels fluctuate, it's common for women to experience mood swings, increased irritability, anxiety, and even depression.Moreover, the unpredictability of these symptoms can significantly affect a woman's quality of life, impacting her work, social interactions, and overall well-being.The psychological impact of this transition should not be underestimated. For many women, menopause signifies the end of their reproductive years, and this realization can bring about a range of emotions including grief, loss, or a sense of freedom from the monthly menstrual cycle. Coupled with societal expectations or personal aspirations related to family and career, these emotions can contribute to increased stress and anxiety.Healthcare providers should be well-informed about the mental health aspects of menopause, providing personalized care and treatment options, including hormone replacement therapy or other medications when appropriate.

The present study's findings offer valuable insights into the prevalence and severity of depression within the studied population. Notably, the majority of participants (40.0%) exhibited mild depressive symptoms, highlighting the potential need for broader recognition and intervention for this often-overlooked category. At the same time, a significant proportion of participants with normal mood states (34.0%) offers a reassuring counterpoint, indicating that not everyone within the population necessarily experiences depression. However, the combined presence of mild and moderate depression (56.0%) underscores the continued importance of screening and support mechanisms for identifying and addressing depressive symptoms before they potentially escalate.While widely used, HAM-D has limitations and might not capture the full spectrum of depressive experiences. Exploring alternative assessment tools for future studies could provide a more nuanced picture.

The present study investigated the potential association between duration since menopause and depression severity, revealing a striking trend illustrated in Figure 1. Our findings suggest a potential link between increased time since menopause and the prevalence of depression, with important implications for understanding and addressing mental health needs in this population.As the years since menopause progressed, a consistent decrease in the percentage of individuals with normal HDS scores was observed. This decline was accompanied by a corresponding increase in the percentages of individuals experiencing mild, moderate, and severe depression. By the fifth year, a substantial proportion of the sample (45.45%) demonstrated depressive symptoms, highlighting the potential vulnerability of postmenopausal women to depression.These findings align with previous research suggesting an increased risk of depression in postmenopausal women, particularly in the years following menopause onset (Kaufert et al., 2020). Possible explanations for this association include hormonal fluctuations, social and psychological changes associated with menopause, and increased vulnerability to chronic stress (Nappi et al., 2014). Our study further strengthens this notion by demonstrating a gradual increase in depression severity with increasing time since menopause.These findings accentuate the importance of considering the temporal aspect following menopause concerning mental health outcomes, particularly the emergence and progression of depressive symptoms. The evolving pattern of depression severity over time post-menopause underscores the need for further longitudinal studies to delineate the trajectory and underlying mechanisms linking menopausal duration and the risk of developing depressive symptoms. Such insights can be pivotal in devising targeted interventions aimed at mitigating the increasing burden of depression in this demographic subgroup.

The comprehensive obstetric details outlined in Table 2 shed light on significant associations between various demographic and reproductive factors and the severity of depressive symptoms among participants. Firstly, the findings reveal a clear disparity in age and duration since menopause between the two severity groups. Individuals in the Moderate to Severe category exhibited a higher mean age (50.3 years) compared to those in the Normal to Mild category (45.6 years). Additionally, the duration since menopause was notably longer in the Moderate to Severe group (3.6 years) in contrast to the Normal to Mild group (1.9 years). These disparities suggest a

potential link between increased age and a more prolonged post-menopausal duration with a higher likelihood of experiencing severe depressive symptoms.This finding aligns with existing research suggesting a potential vulnerability to depression in older postmenopausal women (Dennerstein et al., 2000). This association could be attributed to various factors, including heightened physiological susceptibility to hormonal fluctuations, increased exposure to life stressors, or cumulative psychosocial challenges over time.

Although the distribution of educational levels differed between groups, with the "Moderate to Severe" group showing a higher proportion of higher education attainment, no statistically significant difference was observed in socioeconomic status. This lack of association suggests that depression severity may not be directly linked to socioeconomic factors in this context. However, further research with larger sample sizes and different socioeconomic indicators may be needed to definitively address this question.

The influence of marital status and working status on depressive symptoms was apparent. Married individuals were significantly more prevalent in the Normal to Mild group, while separation, widowhood, or being unmarried appeared to be associated with higher severity scores. Striking differences were observed in marital status and working patterns between the groups. The "Normal to Mild" group had a higher percentage of married women and employed individuals, while the "Moderate to Severe" group had a greater proportion of those separated, unmarried, and homemakers. These findings suggest a potential link between social isolation and unemployment with depression severity. Social support and engagement in meaningful work may play a protective role against depression in postmenopausal women.

Parity and gender composition of children also exhibited significant correlations with depressive symptom severity. Individuals with higher parity showed a tendency towards the Normal to Mild category, while those with fewer children tended to fall into the Moderate to Severe group. Furthermore, a noteworthy difference was observed in the gender composition of children between the severity groups, with a higher proportion of individuals in the Moderate to Severe category having only girls.These findings raise interesting questions about the potential influence of social support from children and gender-specific roles within families on women's mental health during menopause. This study highlights the importance of considering individual characteristics when addressing depression in postmenopausal women. Age, menopausal duration, social support, family composition, and employment status may all play a role in vulnerability and coping mechanisms. These findings collectively highlight the multifaceted nature of the association between obstetric factors and depressive symptomatology. While some relationships are more evident, such as age, marital status, working status, parity, and gender composition of children, others like education and socioeconomic status suggest nuanced interplays that warrant further exploration. Understanding these associations could pave the way for targeted interventions and tailored approaches in managing depression within specific demographic and reproductive subgroups. Further research into the causal mechanisms underlying these relationships is crucial for developing effective preventive strategies and interventions in this context.

Limitations and future directions:

The present study is limited by its cross-sectional design, which precludes causal inferences. Longitudinal studies are needed to definitively establish the directionality of the observed relationship between time since menopause and depression. Additionally, future research should explore the specific mechanisms underlying this association, investigating the roles of hormonal changes, psychosocial factors, and potential biological vulnerabilities.

Clinical implications:

Our findings underscore the importance of incorporating routine depression screening and assessment into healthcare practices for postmenopausal women, particularly those several years following menopause. Early identification and intervention for depression can significantly improve quality of life and well-being in this population. Additionally, healthcare providers should consider

tailored interventions that address the specific needs and challenges faced by postmenopausal women experiencing depression.

Conclusion:

The present study suggests a potential link between duration since menopause and increased prevalence of depression, highlighting the vulnerability of postmenopausal women to this mental health condition. Further research is crucial to further elucidate the underlying mechanisms and develop effective prevention and intervention strategies to address this important public health concern. Recognizing the unique challenges and vulnerabilities associated with different sociodemographic factors is crucial for tailoring effective interventions and fostering mental well-being in this population.

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