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Beyond Hot Flashes: The Hidden Mental Health Toll of Menopausal Transition – A Prospective Observational Study

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Abstract

BACKGROUND: The menopause is a huge physiological change that millions of women experience in their lives. Although some physical changes are well known, such as hot flashes, the psychological effects of the menopausal transition have not been widely diagnosed or treated. The aim for this study was to understand the prevalence rate of depression and anxiety among perimenopausal, menopausal and postmenopausal women and the effect that depression and anxiety had on quality of life.

OBJECTIVES: To establish the prevalence of depression and anxiety in women in the menopausal transition and to assess the psychological symptom profile and quality of life through the use of standardized assessment scales.

METHODS: This was a prospective observational study done over a period of three months in Gynaecology Out-Patient Department of SVS Medical College and Hospital, Mahabubnagar. Overall 350 women aged 40-60 years were enrolled. The questionnaires used for assessment were the Menopausal Quality of Life Questionnaire (MENQOL), Patient Health Questionnaire-9 (PHQ-9) for depression and the Generalized Anxiety Disorder-7 (GAD-7) for anxiety.

RESULTS: Mental health problems were found to be prevalent with 34% of the women having depression symptoms and 42% having anxiety symptoms. There were twenty-five women (7%) who presented with both conditions (comorbid). Psychological symptoms associated with the illness were poor memory (61%), irritability (58%), fatigue (55%), social withdrawal (44%) and decreased productivity (48%). The overall quality of life was poor for 67% of participants, 73% of whom had hot flashes and 67% reported sleep disturbances.

CONCLUSIONS: Depression and anxiety are extremely common mental health symptoms of the menopausal transition and are associated with decreased quality of life and functioning. The timely detection by routine mental health screening and evidence-based treatment, including medication management, counseling, and lifestyle adjustments, is critical. Mental health evaluation should be considered a necessary part of menopausal treatment.

Keywords: *menopause, depression, anxiety, mental health, quality of life, PHQ-9, GAD-7, MENQOL.*

INTRODUCTION

Menopause is one of the most important physiological events in a woman's life, and is defined by the final 12 months without menstruation. This period of transition, called the perimenopausal, menopausal, and postmenopausal phase, is a time of women's bodies experiencing extensive hormonal, physiological, and psychological changes (1, 2).

Menopause occurs in about 51% of all women aged 50-60 years globally, and it is estimated that 1.5 million women

undergo menopause annually in developed countries alone. It is a very important public health problem with more than one billion women in the postmenopausal years. Menopause in India is experienced at earlier age as compared to Western women, which is an average of 46-52 years (3, 4).

Although the menopausal vasomotor symptoms (most commonly hot flashes/night sweats) are well described and commonly recognized, psychological symptoms of menopausal transition are underdiagnosed and underreported in clinical care. One condition that is important though frequently underestimated in menopause is the psychiatric side of menopause – depression, anxiety, mood swings, and cognitive impairment.

Multifactorial factors are involved in the etiology of psychiatric symptoms during menopause, including interactions among hormonal fluctuations, psychosocial stressors, the preexisting psychiatric vulnerability, and the effects of menopause on neurotransmitter systems. Estrogen has an important regulatory role in serotonergic, noradrenergic, and dopaminergic neurotransmission, and the precipitous drop in estrogen at the time of menopausal transition causes substantial changes in these neurochemical systems, which puts women at increased risk for affective disorders (5).

Menopause depression is associated with markedly poorer quality of life, lower work productivity and poorer social functioning and higher risk of suicidality. In the same way, anxiety disorders can present as chronic worry, symptoms of panic and worsen vasomotor symptoms, leading to a vicious cycle of symptom escalation and functional decline. The association of the presence of comorbid depression and anxiety further increases the burden of disease and requires overall, holistic therapeutic interventions.

It is important to note that menopausal psychiatric symptoms have significant effects on women's health status and quality of life, but that mental health screening and intervention is subpar in most healthcare systems. Early recognition and intervention for depression and anxiety during the menopausal transition can significantly impact health, quality of life and the likelihood of developing more serious mental health conditions.

Thus, the present study was designed to systematically measure the overall prevalence and burden of depression and anxiety in women going through menopausal transition, as well as record the psychological symptoms of women with depression and anxiety and their associated effects on women's quality of life, thereby providing evidence-based data for the inclusion of mental health screening in routine menopausal care.

AIMS AND OBJECTIVES

Primary Aim: To determine the prevalence of depression among perimenopausal, menopausal, and postmenopausal women attending the Gynaecology Out-Patient Department.

Specific Objectives:

- To assess the level of anxiety in perimenopausal, menopausal and post menopausal women.
- To assess the psychological symptomology of menopausal transition, mood disturbances, cognitive symptoms and behavioural changes
- To examine quality of life and functional impairment by standardised tools: MENQOL, PHQ-9, GAD-7
- To determine the association between menopausal symptoms and psychological symptoms.
- To determine the prevalence and characteristics of comorbid depression and anxiety
- To record any symptoms they have and how they affect their daily life and relationships with others.

MATERIALS AND METHODS

Study Design and Setting

This study was a prospective observational study done in the gynaecology out-patient department (OPD) of SVS Medical College and Hospital, Mahabubnagar, Telangana, India. This study was conducted for three months. The Gynaecology OPD provides a variety of women who are on the lookout for reproductive and gynecological health services, including women undergoing menopausal transition.

Study Population

Three hundred and fifty female patients aged between 40 to 60 years attending the Gynaecology OPD were included in the study. This age span includes the perimenopausal (40-55 years), menopausal (around 50-51 years) and early postmenopausal (55-60 years) periods. Any women at any menopausal stage were included.

Inclusion Criteria:

- Women aged 40-60 years
- Women in perimenopausal, menopausal, or postmenopausal phase
- Ability to provide informed written consent

- Willingness to complete the assessment questionnaires

Exclusion Criteria:

- Surgical menopause (hysterectomy or bilateral oophorectomy)
- Ongoing psychiatric treatment with psychotropic medications
- History of major psychiatric disorders (bipolar disorder, schizophrenia, severe depression requiring hospitalization)
- Active substance abuse or dependence
- Medical conditions affecting mental status (CNS pathology, severe systemic illness)
- Current involvement in other research studies

Assessment Instruments and Data Collection

1. The Menopausal Quality of Life Questionnaire (MENQOL) is a lengthy 29 item questionnaire that measures quality of life in several areas: vasomotor, psychosocial, physical, sexual. Each item is rated from 0 to 6 on a scale of impact on QOL, with higher scores signifying more impact. The MENQOL provides a detailed assessment of the multidimensional nature of menopausal symptomatology and its impact on daily functioning.

2. Patient Health Questionnaire-9 (PHQ-9): is a validated and standard 9 item self-administered questionnaire used for screening and diagnosis of depression. Each item is rated 0-3 points for a maximum score of 27. Interpretation of scores: 0-4 (minimal depression), 5-9 (mild depression), 10-14 (moderate depression), 15-19 (moderately severe depression), 20-27 (severe depression). The PHQ-9 is a highly valid and reliable instrument, which is used for screening, and as a severity measure for depression.

3. Generalized Anxiety Disorder-7 (GAD-7): This is a seven-item tool that measures anxiety symptoms in the previous 14 days. Items are scored from 0 to 3 points; a total score of 0 to 21. Interpretation: 0-4 (minimal anxiety), 5-9 (mild), 10-14 (moderate), and 15-21 (severe anxiety). The GAD-7 is commonly used as anxiety screening and severity tool in clinical and research environments.

Data Collection Procedure

Face to face interview was done by trained research assistants in Gynaecology OPD and data were collected. Demographic data (age, marital status, occupational status, and education level) and menopausal history (menstrual status, duration of the menopausal symptoms) were obtained with informed written consent. All participants were treated with confidentiality and no response bias by completing the three questionnaires (MENQOL, PHQ-9, GAD-7) in a quiet and private room. All questionnaires were in local languages for easy understanding and accurate response. Time to completion for all instruments was around 20-30 minutes per participant on average.

Statistical Analysis

Data was analyzed using descriptive statistics. Frequencies and percentages are used to show categorical variables and means and standard deviations are used to show continuous variables. Participants who scored above the diagnostic threshold for PHQ-9 (score ≥10) and GAD-7 (score ≥10) were classified as having depression and anxiety, respectively, and prevalence rates were calculated as the percentage of participants with a score above the diagnostic threshold. Data analysis was done in Microsoft Excel 2016. To investigate the relationship between the demographic variables and mental health outcomes, cross-tabulations were created.

RESULTS

Demographic Characteristics

A total of 350 women were enrolled in the study. The average age of the subjects was 50.8 years (range: 40-60 years). Most women (78%) had secondary or tertiary education and were married (92%). About 62% of the respondents were working or homemaking.

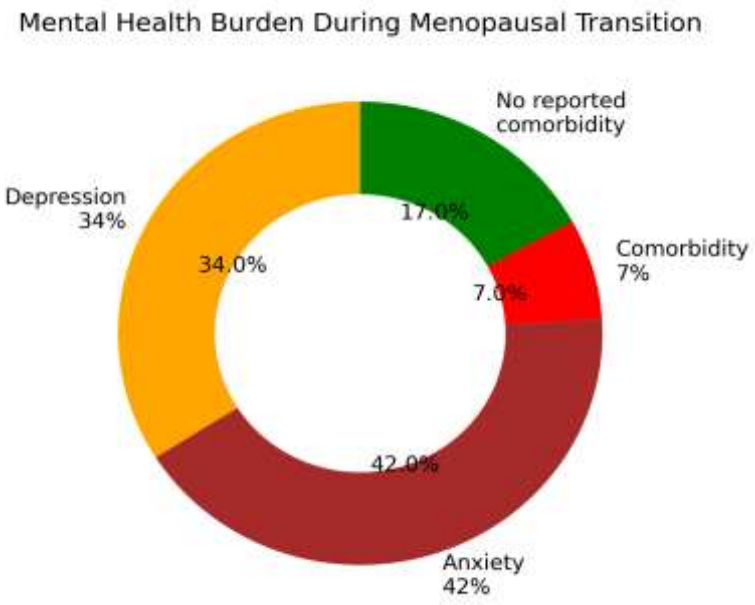

Figure 1: Overall mental health burden among women undergoing menopausal transition

Prevalence of Depression

On the PHQ-9 assessment, 119 women (34%) had depressive symptoms that were consistent with the diagnostic criteria (PHQ-9 score ≥ 10). Of these, the severity of the depression was classified as follows: mild depression in 67 women (19.1% of the total sample), moderate depression in 38 women (10.9%) and moderately severe to severe depression in 14 women (4%). This means that 1/3 of women during the menopausal transition will suffer clinically significant depression. Prevalence is significantly higher than the reported rates of depression in age-matched, non-menopausal females (8-12%) indicating the significant psychological impact of menopause.

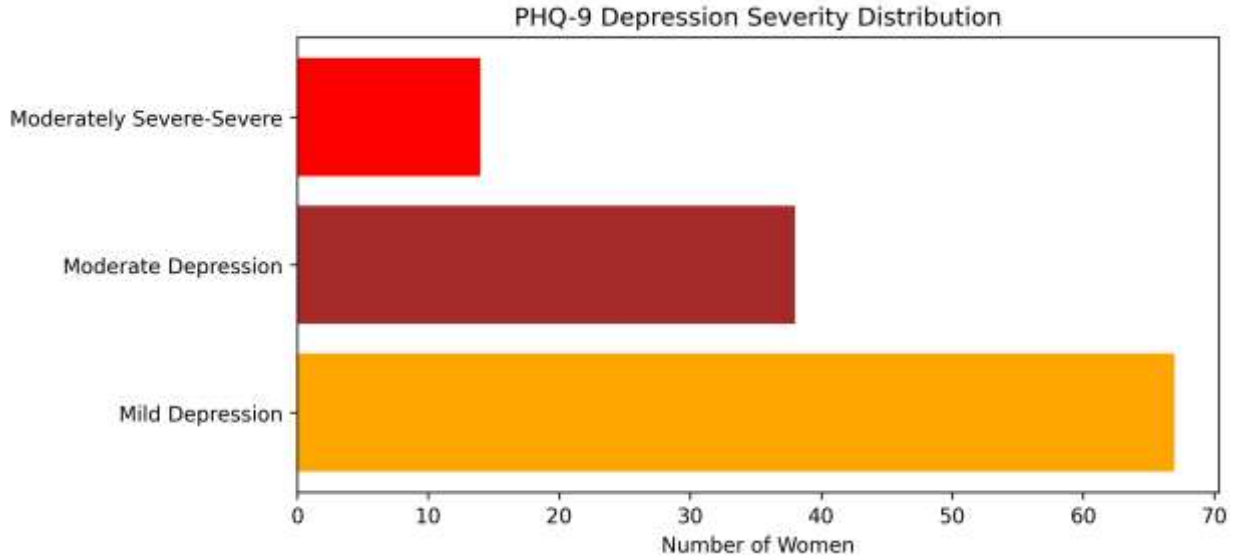

Figure 2: PHQ-9 depression severity distribution among study participant

Common depressive symptoms were:

- Persevering sadness and depressed mood (71% of depressed women reported this symptom)
- A change in interest or pleasure (anhedonia) – 68%
- Issues with concentration and decision making – 64%
- Feelings of worthlessness or guilt – 52%
- Fatigue and loss of energy – 79% (highest prevalence)
- Disturbances of sleep (insomnia or hypersomnia) – 73%
- Psychomotor retardation or agitation – 41%

Prevalence of Anxiety

Of the 147 women (42%) who had clinically significant anxiety symptoms (GAD-7 score ≥10), 56 (38%) were also experiencing depression (PHQ-2 score ≥ 2). More people experienced anxiety than depression, suggesting that anxiety may be more prevalent than depression as a psychological symptom of menopausal transition in this cohort. The results of anxiety severity distribution were as follows: 82 women (23.4%) had mild anxiety, 48 women (13.7%) had moderate anxiety and 17 women (4.9%) mild severe anxiety. In particular, 20% of women reported anxiety symptoms, indicating the significant psychologic stress of the menopausal transition.

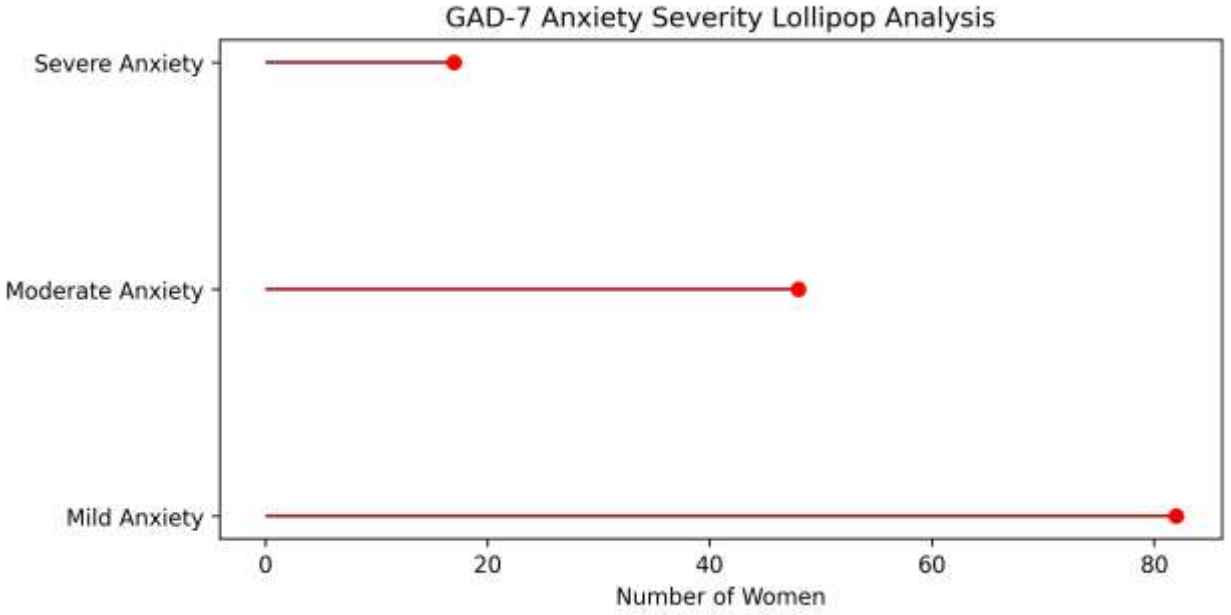

Figure 3: GAD-7 anxiety severity distribution among study participant

The main symptoms of anxiety were:

- Too much worry/ongoing feelings of nervousness – 76% of anxious women
- Experiences anxiety or is on edge – 74%
- Unable to manage worry – 68%
- Trouble relaxing – 69%
- Restlessness and irritability – 65%
- 59% were worried about 'something bad happening'59% were worried about ‘something bad happening'
- Difficulty breathing – 47%
- Some physical tension and muscle aches – 62%

Comorbidity of Depression and Anxiety

Twenty-five women (7%) had both depression and anxiety (comorbidity) of significant clinical importance. This is 21% of the depressed and 17% of the anxious people. Women with depression and anxiety had more severe symptoms, more functional impairments, and significantly lower QOL than women with both depression and anxiety. Comorbidity requires more intensive and integrated therapeutic approaches and closer clinical monitoring.

Associated Psychological Symptoms and Quality of Life

Symptom/Manifestation	Prevalence (%)
Poor Memory and Cognitive Difficulties	61%
Irritability and Mood Lability	58%
Persistent Fatigue	55%
Functional Impairment (Reduced Productivity)	48%
Concentration and Attention Difficulties	43%
Social Withdrawal	44%
Dissatisfaction with Personal/Relationship Life	52%
Sleep Disturbance	67%
Vasomotor Symptoms (Hot Flashes)	73%

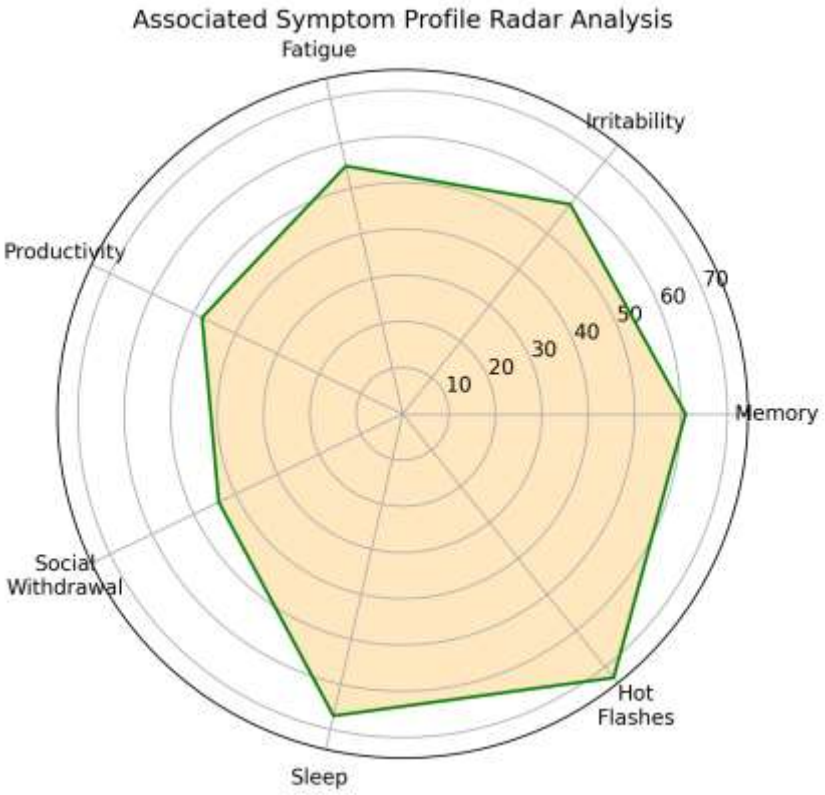

Figure 4: Associated psychological and menopausal symptom profile among study participants

Assessment of overall quality of life showed that 234 women (67%) reported a significantly impaired quality of life and rated this as 'not good'. MENQOL total scores (0-174) were on average 89.3 (SD: 28.4) and were considered to be poor quality of life. A total of 256 women (73%) experienced vasomotor symptoms (hot flushes and night sweats) and 235 women (67%) reported sleep disturbance. A relationship between physical and psychological symptoms was apparent: vasomotor symptoms often caused anxiety attacks and night sweats led to disrupted sleep and increased mood disturbance and cognitive symptoms.

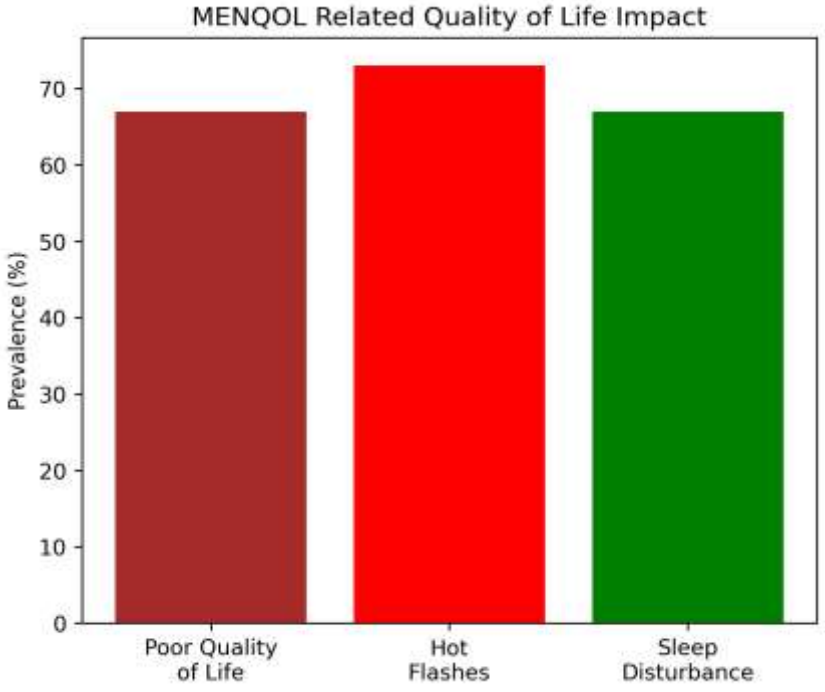

Figure 5: MENQOL-related quality-of-life impact among women undergoing menopausal transition

Functional Impact

Psychological and physical changes of menopausal transition significantly affected day-to-day functioning. In 168 women (48%) work productivity was affected, difficulty concentrating, fatigue and changes in mood hampered the ability to perform at work. The social relationships were adversely affected, as 154 women (44%) reported social withdrawal and a decrease in participation in social activities. Irritability, mood lability and decreased interest in family interaction occurred in 182 women (52%) affecting their family relationships. Overall, the menopausal transition resulted in substantial impairment in social, occupational, and personal functioning in a majority of the cohort.

DISCUSSION

In this prospective observational study, the data is certainly compelling that depression and anxiety are highly common and significantly under recognized symptoms of menopausal transition. The prevalence of depression (34%) and anxiety (42%) among the menopausal and perimenopausal women are significantly higher than the age-matched women in non-menopausal groups. These results are congruent with the recent international literature, which shows that the menopausal transition is psychologically challenging.

Biological Mechanisms

This is because of the complex interaction of neurobiological, hormonal and psychosocial factors that make the period of menopausal transition so unique with regard to psychiatric symptoms. During the menopausal transition, significant changes in the levels of circulating estrogen lead to substantial changes in various neurotransmitter systems, such as serotonin, norepinephrine, dopamine, and gamma-aminobutyric acid (GABA). Estrogen has a neuroprotective effect, can modulate the synthesis or sensitivity of neurotransmitters, and it plays a role in the hypothalamic-pituitary-adrenal (HPA) axis, which is an important component of the stress response. The disruptions of the HPA axis during menopause can make you feel more sensitive to stress, more prone to anxiety and more unstable in your mood. In addition, the surge and drop in estrogen levels (not a lack of estrogen) during the perimenopause cause instability in the neurobiology system and increase the susceptibility to mood and anxiety disorders.

Interplay Between Physical and Psychological Symptoms

This study showed that there was a bi-directional relationship between vasomotor symptoms and psychological manifestations. The self-cycling of vasomotor symptoms is triggered by abrupt episodes of anxiety, psychological distress, or both, due to the vasomotor symptoms.Vasomotor symptoms bring forth acute episodes of anxiety and/or psychological distress, which in turn worsens vasomotor symptoms, thereby creating a self-cycling phenomenon. Night sweats themselves lead to sleep fragmentation, which directly affects mood disturbance, cognitive function and chronic fatigue. Several concurrent symptoms (e.g., hot flush, sleep disturbance, cognitive difficulties, mood disturbance, and anxiety) combine to cause compound burden that significantly affects quality of life and functioning. The combination of these symptoms highlights the importance of a holistic and multi-dimensional approach to menopause care, taking into account the physical and psychological aspects.

Cognitive Symptoms and "Brain Fog"

Cognitive complaints, such as poor memory (61%), concentration difficulties (43%) and subjective cognitive impairment, were reported in the study. In fact, these “subjective” complaints have significant objective correlates such as changes in cerebral blood flow, gray matter volume in memory processing regions, and deficits on objective cognitive testing. The cognitive symptoms significantly affect work performance and job competency, resulting in disability at work and diminished career progression. The prevalence of cognitive complaints in this study population is a reminder of the importance of cognitive assessment and support as a part of routine menopausal care.

Clinical Implications and Treatment Considerations

This study's findings highlight the prevalence of depression and anxiety and its clinical significance. Firstly, the mental health screening should be built into the routine, essential part of menopausal care. The PHQ-9 and GAD-7 are quick, reliable questionnaires for integration into routine clinical practice without much extra time. Secondly, a holistic management of menopausal mental health should be a multimodal approach, including pharmacological, psychological and lifestyle treatments:

Hormone Replacement Therapy (HRT): This is well established as being effective for the reduction of vasomotor symptoms and is shown to have a beneficial effect for some women in mood and anxiety. In women who have moderate to severe menopausal symptoms and also depression and/or anxiety, HRT should be the first line of treatment.

Selective Serotonin Reuptake Inhibitors (SSRIs) and Serotonin-Norepinephrine Reuptake Inhibitors (SNRIs) are medications that work well for depression/anxiety and vasomotor symptoms and are especially beneficial in menopausal women who have psychiatric symptoms, such as sertraline, paroxetine, escitalopram, venlafaxine, and duloxetine.

Psychological Interventions: CBT, MBSR and psychoeducational counseling have been found to be effective in decreasing depression and anxiety and enhancing quality of life. Peer support groups offer good social support and help to normalize menopausal experiences.

Lifestyle Modifications: Regular physical activity (150 minutes per week), meditation, yoga, stress management, maintenance of good sleep habits, dietary changes (calcium and vitamin D), social engagement and engagement substantially improve psychological and physical well being.

Integrated Care Model: The model of gyne and psychiatric and GP physician collaboration provides comprehensive assessments and coordinated treatment plans.

Barriers to Mental Health Care and Public Health Importance

Although the significant psychological burden has been documented in this study, mental health problems during menopause are still much under diagnosed. Lack of mental health screening in gynecology clinics, stigma surrounding mental health, lack of awareness of patients and health providers about the mental health risks of menopause and lack of adequate healthcare resources are all barriers. Many women think their depression and anxiety are due to personal weakness and don't seek treatment, and therefore suffer for a longer time. This study underscores the critical need for education to be performed to healthcare providers and women about the mental health effects of menopausal transition. Mental health screening and evidence-based psychological interventions are important public health priorities for integration into routine menopausal care.

Study Strengths and Limitations

Strengths:

- Administration of reliable and valid assessment tools (MENQOL, PHQ-9, GAD-7)
- A study design that reduces recall bias in a prospective study.
- Systemic evaluation of various psychological parameters (depression scales, anxiety scales, quality of life scales, functional impairment scales)
- A large sample size (n=350) of diverse demographic make-up.
- Real-world clinical environment that represents real patients

Limitations:

- Single center study, results may not be applicable to other geographical areas or care settings
- Cross-sectional evaluation; not able to determine cause or follow the course of symptoms over time
- Completed questionnaires that may be subject to response bias and social desirability bias
- No detailed clinical evaluation of menopausal stage (FSH levels not measured)
- No evaluation of other psychiatric history, medication or specific psychosocial stressors
- No healthy comparison group of women who are not menopausal was identified.

CONCLUSIONS

This study offers strong support for the high prevalence, clinical significance, and impact of depression and anxiety as symptoms of menopausal transition, occurring in one-third to two-fifths of perimenopausal and menopausal women. Overall, much higher rates than in age-matched non-menopausal populations highlight the mental health vulnerability of the menopausal transition.

Such psychiatric symptoms interfere with the quality of life, work performance, social functioning, and general functioning. Comorbid depression and anxiety, along with the vasomotor symptoms, sleep disturbances and cognitive impairment, place a significant burden on disease that demands comprehensive and multidisciplinary treatment.

Relevant conclusions and recommendations are: (1) Mental health screening should be a routine, essential component, of gynecological care during menopausal transition; (2) Evidence-based pharmacological and psychological interventions along with lifestyle modifications should be offered to women with depression and anxiety during menopausal transition; (3) Healthcare providers should be educated about the psychiatric manifestations of menopausal transition and trained on evidence-based assessment and management; (4) Women should be provided psychoeducation about the psychological dimension of menopausal transition to reduce stigma, normalize experience and early help-seeking; (5) Healthcare systems should prioritize integration of mental health services into gynecological care settings; and (6) Further research to be conducted using longitudinal study design with more detailed assessment of hormonal, neurobiological and psychosocial factors associated with psychiatric manifestations during menopausal transition.

Overall, the overlooked burden of mental health that may be associated with the menopausal transition warrants immediate clinical and public health research and intervention. Healthcare practitioners can significantly enhance

physical and psychological health of women during this pivotal life phase by incorporating a holistic assessment of mental health and evidence-based treatment throughout menopause care.

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