ORIGINAL RESEARCH ARTICLE

Psychological Risk Assessment with Hamilton Scales Among Menopausal Women in Chennai, South India

Logeswari[1], Minthami Sharon[2], Balaji[3], Angeline Grace[4], Sujitha Pandian[5*]

[1-5]Sree Balaji Medical College & Hospital (SBMCH), Chennai, India

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ABSTRACT

Introduction: Menopausal women must undergo routine mental health screenings to ensure their best mental health. This study was designed to evaluate the mental health of women going through menopause, and to associate sociodemographic and clinical factors with mental health impairment.

Methodology: In this cross - sectional study, 200 menopausal women were included after getting informed consent. Data was collected using self-administered questionnaire, Hamilton Scales for Anxiety and Depression and analysis was done using SPS software.

Results: The mean age of the postmenopausal women in the study was 49.5 years. Nearly 28% of women had complete high school education and 11% were graduates. About 13% of the participants were engaged in semi-professional work, 13% in unskilled work and 8.5% in clerical jobs. The factors which were found to have a statistically significant association with mental health ($p<0.05$) were age at menopause, education, occupation and duration of menopause.

Conclusion: Numerous initiatives including regular yoga sessions, creation of self-help groups, and the provision of calcium, iron and vitamins can aid in lowering postmenopausal women's psychological stress. This can enhance their ability to cope with menopause and its effects. With the use of information, education, and communication (IEC) efforts, the community must be made aware of menopause.

Keywords: mental health, Post menopause, females

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***Correspondence:** Dr. P. Sujitha (Email: sujithapandian92@gmail.com)

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INTRODUCTION

As a female grows old, she undergoes different phases of life, from childhood through adolescence to adulthood. During these phases, the body undergoes anatomical, physiological and hormonal changes. Like puberty, Menopause is a phase where there is permanent cessation of menstruation. This is due to the loss of development of ovarian follicles.[1] Menopause is a Latin word where "Meno" means month and "pause" means to stop. Menopause is mostly defined retrospectively as the time of last menstrual period, which is followed by 12 months of amenorrhea. Post menopause period describes the phase following the final menstrual cycle.[2] The age at menopause seems to be genetically determined and is not affected by age at menarche, race, socioeconomic status, or the number of prior ovulations.[3] Factors that affect the functions of ovary often result in premature menopause. For example, women who smoke experience an earlier menopause.[4] Women who have had a hysterectomy or any surgery on the ovaries may experience menopause at an early age.[5]

Menopause is not a disease, a pathological state, or a state of illness but just a normal physiological aging process among females. This serves as a transition of reproductive life to no more ability to reproduce. But it has no impact on sexuality of a woman.[6] This transition occurs with changes in hormones of female endocrine system especially estrogen, leading to menopausal symptoms.[7] This is due to the continuous endogenous oestrogen production or exogenous administration of oestrogen in menopausal women.[8]

Anxiety and depression are also associated with menopause. The chances of their mental wellbeing affected is more if they experience loneliness due to lack of strong family relationships. With increasing life expectancy, women are likely to face geriatric health disorders including the physical and psychological effects of menopause.[9]

In India, limited attention is given to psychological symptoms and they are taken as part of normal menopause, which leads to poor quality of life.[9] Hence, for optimal mental health of menopausal women, it is important that they are screened regularly for mental health issues.[10] The present study was planned to analyse the prevalence of anxiety and depression in postmenopausal women and to identify risk factors for these disorders.

In view of this background, this study was planned to assess the mental health in women with natural menopause and in women with induced menopause after hysterectomy and to correlate the socio demographic with impairment in mental health.

METHODOLOGY

Study design and study population: This Analytical Cross-sectional study was conducted in Department of Obstetrics and Gynaecology, at Sree Balaji Medical College and Hospital a tertiary care hospital over a period of one and a half years. The Hospital covers neighbouring areas of Anakaputhur, Chrompet, Pammal and Padappai in Kancheepuram district through its main hospital, urban and rural health training centres. The population covered in this study comprises of women who have attained menopause either naturally or after medical intervention attending Gynaecology OPD. The study was conducted from October 2018 to September 2020.

Sample size: Using the formula Z^2p^2/l^2, taking the prevalence of depression as 32% from a study done by Singh and Pradhan,[11] the sample size calculated was 194 with absolute precision of 7% and non-response rate of 10%. So, we included 200 menopausal women between the age of 40 to 52 years who have attained menopause either naturally or post-surgical intervention attending the OPD.

Inclusion and exclusion Criteria: Participants included in the study are as follows - Women between age group 40 to 52 years**,** Women who attained menopause either naturally or induced and Women who were willing to participate in the study after giving informed consent. Menstruating women, women below the age of 40 and above the age 52**,** women with past history of major medical disorders on treatment and those bed ridden and chronically ill were excluded from the study.

Study tool: A pre tested structured questionnaire was used for collecting information. The questionnaire was prepared in English and was translated to Tamil. The questionnaire was validated by back translation to English by an independent translator. The back translated version was compared with the original questionnaire. The interview was conducted by the investigators and the responses were recorded in the questionnaire. Part 1 of the questionnaire comprised of patient age, religion, monthly income, number of members in the family, type of family, educational qualification, marital history and socioeconomic status. The next section included information regarding patients' age of attaining menopause, duration of menopause and method of attaining menopause either natural or included were included. In part 3, Hamilton anxiety and depression scales were used. Even though there are several scales available to assess post-menopausal anxiety and depression, we chose Hamilton scales as it is a validated scale and widely used across the world in both research and clinical settings. Hamilton anxiety scale was used to measure the severity of anxiety symptoms. Scale consists of 14 items, each defined in series of symptoms to measure anxiety. Each item is scored on a scale of 0 (not present) to 4 (severe), with a total score range of 0–56.[12] The total score if <17 indicates mild anxiety, 18-24 indicates moderate anxiety and 25-30 indicates severe anxiety.

Hamilton Depression scale contains 17 items pertaining to symptoms of depression experienced over

past one week. A score of <13 indicates mild depression, 14-17 indicates moderate depression and >17 indicates severe depression.[13]

Informed Consent and ethics approval: Informed Consent was prepared based on ICMR guidelines in English and also in local language (Tamil). Written informed consent was obtained from every respondent before taking part in the study. In case of illiterate participants, the consent was obtained in the presence of an impartial witness. The study proposal was presented in Institutional Ethics Committee, Sree Balaji Medical College and approval was obtained before commencing the study. (IEC Ref no: 003/SBMC/HEC/2018/1042, dated 21.03.2018)

Sampling technique and Data Collection Method: Using convenient sampling technique data was collected from the patients attending OPD after getting an informed consent. From the patients attending the OPD, eligible participants were identified and approached by the study investigators. The objectives of the study were clearly explained to the participant and if willing to participate, she is included in the study. If not willing, the next eligible patient was approached. The same procedure was followed till the desired sample size was reached. Each respondent was interviewed for 10 to 15 minutes. Data collection was done using standardized, pretested, structured questionnaire. Information regarding patient details, detailed history on reproductive status, family history and psychological symptoms were collected. Hamilton Anxiety Rating Scale and Hamilton depression rating scale were used to assess anxiety and depression respectively.[12,13] The socio-economic status was assessed using Modified BG Prasad classification.[14] The overall mental health status was categorized depending on the scores of HAM-A and HAM-D. Those who had normal score or mild impairment were classified as mental health – normal/mild impairment. Those who had moderate or severe impairment on the scores were classified as mental health – moderate/severe impairment.

Statistical Analysis: Collected data was entered in Microsoft excel and data analysis was done using SPSS software, version 22. Descriptive and analytical statistics were used for analysis and presented as tables and figures. Descriptive statistics were presented as frequency and percentage and analytical statistics as Chi - square, Odds ratio (OR), 95% Confidence Interval (CI). The association of socio demographic determinants and other factors with mental health status of menopausal women was assessed using univariate analysis and multivariate logistic regression with p value < 0.05 being considered as statistically significant association.

RESULTS

A total of 200 women were included in this Cross-sectional study. Their socio demographic characteristics and mental health status were analysed. The results are presented below. The association of various factors with mental health was also determined.

Nearly 95.5% of women were aged above 45 years (Table 1).

Table 1: Socio demographic characteristics of study participants

Characteristics	Respondents (%)
Age	
Up to 45 years	9 (4.5)
Above 45 years	191 (95.5)
Education	
Professional	7 (3.5)
Graduate / post graduate	22 (11)
Post high school/Diploma	27 (13.5)
High school	56 (28)
Middle school	35 (17.5)
Primary	13 (6.5)
Illiterate	40 (20)
Occupation	
Professional	11 (5.5)
Semi professional	26 (13)
Clerical	17 (8.5)
Skilled	9 (4.5)
Semi-skilled	55 (27.5)
Unskilled	26 (13)
Unemployed	56 (28)
Socio economic status	
Class I	41 (20.5)
Class II	72 (36)
Class III	60 (30)
Class IV	25 (12.5)
Class V	2 (1)
Marital status	
Single	7 (3.5)
Married	183 (91.5)
Widowed	7 (3.5)
Separated/divorced	3 (1.5)

Table 2: Method and duration of menopause among study respondents

Variables	Respondents (%)
Method of menopause	
Natural	170 (85)
Induced	30 (15)
Duration of menopause	
5 years and less	161 (80.5)
>5 years	39 (19.5)

Table 3: HAM- A and HAM- D Scoring

Hamilton Scales	Respondents (%)
HAM- A	
Mild	138 (69)
Moderate	42 (21)
Severe	20 (10)
HAM-D	
Mild	126 (63)
Moderate	59 (29.5)
Severe	15 (7.5)
Mental health	
Normal/mild impairment	88 (44)
Moderate/severe impairment	112 (56)

The mean age of the postmenopausal women in the study was 49.5 years. 28% of women had complete high school education and 11% were graduates. Around 28% of women were unemployed and 27.5% were employed in semiskilled work. Nearly 91.5% of women were married and 3.5% of women were widowed.

Among the study participants, 85% have attained menopause naturally (Table 2) and the menopause were surgically induced among the rest of them. Table 2 also shows the duration of menopause among the study participants. Around 19.5% of women were in the menopausal period for more than five years.

HAM-A and HAM-D scoring

Table 3 shows the categories of HAM-A scoring and HAM-D scoring of study respondents. 69% of women reported mild form of anxiety, 21% had moderate anxiety and 10% had severe anxiety. Nearly 63% had a score of mild categories, 29.5% had symptoms of moderate depression and 7.5% had symptoms of severe depression.

The overall status of mental health of the participants were analysed. About 56% of women had moderate or severe impairment of mental health.

Association between Mental health of the study participants with socio demographic and clinical characteristics

The socio demographic characteristics and clinical characteristics were assessed for the association with mental health impairment among postmenopausal women. The results of the statistical analysis are presented in Table 4. Women who were aged <45 years were 4.8 times more likely to have moderate/severe mental impairment compared to women who were >45 years of age. Similarly, the chances of mental health impairment are 5.3 times higher among women who were more educated. Higher occupation levels also showed a statistically significant association with mental health impairment. Women who belonged to higher socioeconomic classes were nearly 2 times more likely to have disturbances in mental health. Women who had an induced menopause and women who were in the initial years of menopause were more likely to present with depression and anxiety. The factors which were found to have a statistically significant association with mental health ($p<0.05$) were age at menopause, education, occupation, socio economic class, type of menopause, duration of menopause

Table 4: Analytical statistics on association between various risk factors and mental health

Characteristic	Mental Health		OR (95% CI)	p value	aOR (95% CI)	p value
	Moderate -severe impairment (%)	Normal or mild impairment (%)				
Age at menopause						
up to 45 years	25 (22.3)	5 (5.7)	4.8 (1.7-13.0)	0.001*	0.95 (0.75-1.2)	0.79
> 45 years	87 (77.6)	83 (94.3)	Ref			
Marital status						
Married	103 (91.9)	80 (90.9)	1.1 (0.4-3.1)	0.79	0.95 (0.41-2.2)	0.9
Others	9 (8.1)	8 (9.1)	Ref			
Education						
High school & above	82 (73.2)	30 (34.1)	5.3 (2.9-9.7)	<0.001*	1.2 (0.9-1.6)	0.15
Up to middle school	30 (26.8)	58 (65.9)	Ref			
Occupation						
Skilled worker & above	89 (79.5)	48 (54.5)	3.2 (1.7-6)	0.0002*	0.97 (0.78-1.22)	0.84
Semi-skilled work & below	23 (20.5)	40 (45.5)	Ref			
Socio economic class						
Class 1 & 2	71 (63.4)	42 (47.7)	1.9 (1.1-3.4)	0.03*	1.2 (0.8-1.7)	0.25
Class 3 – 5	41 (36.6)	46 (52.3)	Ref			
Menopause						
Induced	26 (23.2)	4 (4.5)	6.3 (2.1-18.9)	0.002*	3.07 (1.1-5.32)	0.03*
Natural	86 (76.8)	84 (95.5)	Ref			
Duration of Menopause						
5 years and less	98 (87.5)	63 (71.6)	2.8 (1.3-5.7)	0.005*	0.5 (0.04-3.8)	0.79
>5 years	14 (12.5)	25 (28.4)	Ref			

OR – Odds Ratio; aOR – Adjusted Odds Ratio; CI – Confidence Interval; *p value significant at 95% CI

DISCUSSION

In our study, the mean age of the postmenopausal women in the study was 49.5 years. The mean menopausal age among the women in the study by Madhukumar et al in Bangalore was 49.3 years.[16] In the study done in Chandigarh, the mean age was relatively less (44.1 years).[17] Madan et al in their study found that the mean age of menopause among the study participants was 44.6 years.[18] A similar study done in an African community reported the mean age at menopause as 49.5 years.[19] In our study, menopause was surgically induced in 15% of women. In the study done in Nagpur, cases of natural meno-

pause were more in rural women. Surgical menopause was significantly found more in urban women.[20] Among the total 124 rural cases in the study, 117 cases have attained natural menopause and the rest have undergone surgical menopause. Among the 114 urban postmenopausal women, 88 were natural menopause, 15 had surgical menopause & 5 had a premature menopause.[20] In our study, we found a significant association between induced menopause and impairment in mental health.

We found that the duration of menopause was associated with impairment in mental health. The initial years of menopause was strongly linked with psychological disturbances. This could be due to the transition in levels of hormones which affect the overall mental health. As time progresses, the symptoms reduce and women's mental health improve. Studies have shown an increased risk of depression in the peri-menopausal stage and the risk decreases substantially in the following period. The Penn Ovarian aging study showed a substantial increase in symptoms of depression during the transition phase and this was followed by a decrease in the symptoms in the later stages of menopause.[21] In our study, 91.5% of women were married. In the study by Kaulagekar among urban women in Pune, around 90% of the subjects were married.[22] In the study by Krishnamoorthy et al, about 68.7% of women were separated/divorced/widowed.[23] Around 77.3% were married women and 21.3% were widowed in the study by Senthilvel et al.[24] Nearly 95% of the study participants were currently married in the study by Singh and Pradhan in Delhi.[11] Around 70% of the participants were married in the study by Ujjwal Madhan et al done in a resettlement colony in Delhi.[18]

Regarding the educational level of participants in our study, 11% of women were graduates and 28% have completed high school education. Statistical analysis showed a strong statistically significant association between higher educational levels and mental health impairment. In the study among urban women in Pune, nearly 67% of the subjects had studied up to graduation or more while the remaining had completed secondary education or college education.[22] In the study by Dasgupta and Ray, around 58.2% of the rural women and 8.6% of urban women were illiterates.[25] In the study by Krishnamoorthy et al, nearly 61.3% of women were not formally educated.[23] In the present study, 36% and 30% of women belonged to socio economic class II and III respectively. On statistical analysis, we found a statistically significant association between higher socio-economic class and mental health impairment. Nearly 42% of women belonged to lower middle class in the study done among women who attained menopause in a hospital-based study in Kochi. (Senthilvel et al) Similarly, Krishnamoorthy et el reported in their study that around 42% of the study participants belonged to lower socio-economic class.[23] Psychological symptoms were reported in around 70% of low-income women than high-income group (59%). This may be probably due to the social and cultural factors in their environment.[22] Singh and Pradhan in a similar study in rural part of Delhi reported that 54.4% of their study participants belonged to middle class and 28.1% to lower middle class.[11] In the study done by Ujjwal Madan et al in a resettlement colony, 65.7% belonged to upper lower class and 22.9% belonged to lower middle class.[18]

Aaron et al in their study in Tamilnadu noted that hot flushes were reported by 42% of postmenopausal women, night sweats by 38% and disturbed sleep pattern by 34%.[26] Menopausal symptoms were noted in 89.3% of women in a study by Singh and Pradhan done in rural Delhi.[11] In the same study, sleep disturbances were noted in 62.7% of postmenopausal women. Hot flushes were reported by 47.4% of women. Dasgupta and Ray reported in their study in Kolkata that 70% of their participants had sleep disturbances.[25] In the study by Madan et al, hot flushes were reported by 15.2% of participants, night sweats by 30% and sweating by 34.2%. Nearly 82% reported feeling tired and 78% reported muscle aches. About 39% of post-menopausal women had disturbances in sleep.[18]

In our study, 7.5% of women reported symptoms of severe depression and 29.5% of women reported symptoms of moderate depression. In the study done in Calcutta, depression was noted in 87.3% of rural women and 60% of urban women.[25] To the contrary, in the study by Sagdeo and Arora, depression was reported in 8% of rural women and 54.4% of urban women.[20] In the study by Krishnamoorthy et al, nearly 78% women reported some form of psychological fatigue out of which 44% had moderate to severe symptoms. Aaron et al in their study in South India reported that 29% of postmenopausal women had depression and it was significant when compared with premenopausal women. The authors also noted that family support had a strong effect on the level of depression in menopausal women.[26] Mouton et al in their study on psychosocial effects reported that depression was significantly associated with women who had a poor relationship with their family members. Severe depression was observed in menopausal women who experienced physical and psychological abuse in the family.[27] In the study by Singh and Pradhan, mild depression was noted in 31% and moderate depression in 1.1% of women. Severe depression was not seen among the study respondents.[11]

In a review of the studies published on depression in peri- and post-menopausal women, Clayton et al reported that there is a greater vulnerability to develop depression during menopause. The risk is shown to increase from early to late stages of menopause, following which there is a decrease in the postmenopausal period.[28] Similar findings were noted in a cohort study by Freeman et al. The association remained significant after adjusting for confounders like age, past history of depression, occupation and sleep disturbances.[29] In a prospective study by Ku-

mari et al on the health functioning of menopausal women, the authors found a significant correlation between perimenopausal depression and decline in the health functioning scales for women undergoing the transition. Transition was more symptomatic among women with comorbidities and social influences.[30] In a multi centric cohort study which included women from different ethnic groups, Bromberger et al noted that the risk of presentation with depression increased in the beginning of menopausal transition. Then it got stabilised in the early stages and the risk was independent of demographic, psychosocial, behavioural and health factors.[31] Two studies by Cohen et al and Freeman et al have reported that perimenopausal period is associated with an increased risk of development of depressive symptoms, even among those women with no previous history of depression.[32,33]

In this study, 10% of women reported symptoms of severe anxiety and 21% of women reported symptoms of moderate anxiety. In the study by Dasgupta and Ray, anxiety was noted in 92% of rural women and 87% of urban women.[25] Whereas, In the study done in Nagpur, anxiety was reported in 21% of urban women and 0.5% of rural women.[20] Senthilvel et al in the study among women in Kochi noted that nearly 81.3% reported feeling of anxiety or nervousness in the postmenopausal period.[24] Singh and Pradhan in their study in Delhi reported that 18.3% and 2.7% of women suffered from mild and moderate forms of anxiety. None of them had severe forms of anxiety.[11] About 51.4% had symptoms of anxiety or nervousness in the study by Ujjwal Madan et al. Nearly 38% also reported a feeling of impatience when dealing with other people.[18] In a longitudinal community based study in Australia by Stephanie Mulhall et al, during or after menopause, women are at greater risk of developing anxiety symptoms independent of the past history of generalised anxiety disorder.[34] Anderson and other authors in an interventional study demonstrated the effects of lifestyle modifications in reducing the severity of menopausal symptoms and improving the quality of life. The interventions included physical activity, healthy diet, regulating smoking and alcohol use, and customised health education.[35] In a multicentric cross sectional study in Latin America, about 62% had symptoms of anxiety and quality of life was severely impaired in around 14% of women. The authors also noted an independent association between anxiety and severe impairment of quality of life.[36]

Conclusion

This Cross-sectional study has analysed the mental health status of menopausal women and the factors associated with poor mental health such as depression and anxiety. Socio demographic factors such as higher education, higher occupation level, higher socio-economic class were found to be associated with poor mental health among menopausal women. Menopause which was surgically induced, age at menopause less than 45 years and duration of menopause showed a significant association with poor mental health. In view of this, counselling menopausal women and referring them to health centres may be useful whenever required. Health services need to be provided at the primary health care level through outpatient care and specialist consultation on call. Further studies are needed to understand the epidemiology of menopausal symptoms in India especially in Tamilnadu as the research on this area is limited. Various activities like daily yoga classes, formation of self-help groups and distribution of calcium, iron and vitamins can help in reducing the psychological stress among postmenopausal women. This can improve their coping skills during and after menopause.

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