Original Article

Experience and Perceptions Regarding Menopause among Rural Women: A Cross-Sectional Hospital-Based Study in South Karnataka

Deepika Nagaraj, Naveen Ramesh, Divya Devraj, Marciya Umman, Anila K. John, Avita Rose Johnson

Department of Community Medicine, St. John's Medical College, Bengaluru, Karnataka India

ABSTRACT

Background: There is a culture of silence around menopause in India, more so among rural women. This study was conducted to assess the prevalence of menopausal symptoms, factors associated with the severity of menopausal symptoms, and perceptions regarding menopause among rural perimenopausal women. **Methodology:** A cross-sectional study was conducted at a rural hospital, among women aged 40 years or more, having experienced at least one menstrual cycle in the past 1 year. Structured interview schedule was administered to capture perceptions of menopause. Symptoms of menopause and severity were assessed using the Menopause Rating Scale (MRS) and participants screened for depression using patient health questionnaire-9. **Results:** Among 200 women, the prevalence of symptoms of menopause was 70%. Commonly reported symptoms were somatic symptoms: Joint/muscular pain, hot flushes, and psychological symptoms: Physical/mental exhaustion, anxiety. Median overall MRS score was low (4 [interquartile range = 1, 7]), pointing out to lesser severity. Significant association was found between MRS score and higher body mass index ($P = 0.007$), tobacco-chewing ($P = 0.023$), and depression ($P < 0.001$). Perception of menopause was generally positive, but we also documented some myths and misconceptions regarding menopause that indicate a need for health awareness in this population. **Conclusion:** This study found high prevalence but low severity of menopausal symptoms. Our findings point to a need for mitigating symptoms of menopause through diet, physical activity, tobacco cessation, and counseling for depression. Targeted interventions using community women's groups and village-level health workers are recommended to provide not only awareness regarding menopause but also an opportunity to screen for comorbidities with appropriate referrals.

KEYWORDS: *Depression, perceptions, perimenopause, symptoms*

INTRODUCTION

Natural menopause is recognized to have occurred after 12 consecutive months of amenorrhea, for which there is no other obvious pathological or physiological cause.[1] The term perimenopause includes the period immediately before the menopause (when the endocrinological, biological, and clinical features of approaching menopause commence) to the 1st year after menopause.[1] In India, women typically experience menopause on an average at 45.6 ± 5.6 years with perimenopausal age being 44.7 ± 3.8 years.[2] Menopause is an important biomarker of not only loss of fertility but also a period of unique mid-life perimenopausal experiences such as hot flushes, disturbed sleep, crying spells, irritability, mood swings, forget-fullness, lethargy, joint and muscle pain, dysuria, decreased libido, dyspareunia, and vaginal dryness and itching. These symptoms are attributed to fluctuating or declining female reproductive hormone levels.[2-4] Menopause has

Address for correspondence: Dr. Avita Rose Johnson,
Department of Community Medicine, St. John's Medical College,
Bengaluru - 560 034, Karnataka, India.
E-mail: avita@johnson.in

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increased risk of depression during perimenopause with a decrease in risk during postmenopausal years.[5]

Perceptions of menopause are often influenced by misunderstandings and myths related to menopause.[3,6] Often, menopause is something to be feared or dreaded as women may equate menopause with old age.[7] Discussing menopause in a traditional patriarchal society may be considered a taboo, leaving women struggling to cope with perimenopausal symptoms on their own. At the workplace, unlike pregnancy, there is no consideration given to women suffering the symptoms of menopause, the lack of empathy, and understanding which could result in reduced work performance and an additional toll on the mental health and well-being of women going through menopause.

There is a paucity of literature regarding the experience of menopausal symptoms among Indian women due to a culture of silence around this topic, especially among rural women. Rural women may have a completely different perspective and understanding of what menopause is, as compared to their urban counterparts, so any programs to address awareness and how to deal with menopause should keep in mind these differences. Documenting rural women's experience of menopausal symptoms and perceptions of menopause would help to understand the gaps in their awareness and help to formulate targeted interventions to create awareness among perimenopausal women and dispel myths, and to help better prepare them for menopause. Therefore, this study was conducted to estimate the prevalence of menopausal symptoms, the factors associated with the severity of menopausal symptoms, and to assess perceptions regarding menopause among rural-residing women of perimenopausal age.

METHODOLOGY

A cross-sectional study was conducted in a hospital located in a village in Ramanagara district, in the south of Karnataka, from November to December 2019. This was a secondary level, 50-bedded hospital, receiving around 200–250 outpatients a day. Our study population was perimenopausal women attending the hospital (availing health services or accompanying or visiting patients). Based on a previous study, where the prevalence of symptoms of menopause among perimenopausal women was 71%,[8] with 10% relative precision, 95% confidence level, and 20% nonresponse rate, the sample size was estimated to be 189 and was rounded off to 200. Consecutive sampling technique was used. Women aged 40 years or more, who had experienced at least one menstrual cycle within the past 1 year, were included in the study. Those who were seriously ill or unable to

comprehend questions due to mental health issues were excluded from the study. Institutional Ethics approval was obtained (IEC#375/2019) before the commencement of the study and written informed consent was obtained from each of the study participants before recruitment into the study.

Three study tools were used: (1) A pretested interview schedule which included sociodemographic details, obstetric and gynecological history, presence of comorbidities (diabetes and hypertension), and 14 questions on perceptions of menopause which was face-validated for content by two experts in the field of women's health.

(2) The menopause rating scale (MRS) to assess the symptoms of menopause.[9] MRS is a validated instrument that has been used in several clinical and epidemiological studies[9-11] and is composed of 11 items divided into three domains: (i) Somatic-hot flushes/sweating, palpitations, sleeping problems, muscle and joint problems (ii) Psychological-depressive mood, irritability, anxiety, physical and mental exhaustion (iii) Urogenital-sexual problems, urinary problems, and vaginal dryness. Each symptom is scored on a severity scale from "0" (no complaints) to "4" (very severe symptoms)[9] and total MRS score is noted. The intraclass correlation coefficient for the test-retest reliability ranges between 0.90 and 0.95 and the Cronbach alpha coefficients in the somatic, psychological, and urogenital domains are 0.92, 0.93, and 0.95, respectively.[12,13] (3) Patient health questionnaire-9 (PHQ-9) to screen for depression. PHQ-9 is a reliable and valid measure of the presence and severity of depression with scoring on a Likert scale. PHQ-9 has a sensitivity of 0.88, 95% confidence interval 0.83–0.92 and a specificity of 0.85, 95% confidence interval 0.82–0.88 when screening for major depression at a cutoff score of $\geq$10.[14]

The socioeconomic class was determined using Modified BG Prasad's socioeconomic classification which is categorized based on monthly per capita income, with correction for Indian consumer price index.[15] Anthropometric measurements of height and weight were recorded using standardized methods and tools and body mass index (BMI) was calculated (weight in kg/height in m^2).

Statistical analysis

Data were analyzed using the IBM Statistical Package for the Social Sciences version 21(IBM, Chicago, Delaware, United States). The study variables were described using frequencies, proportion, mean and standard deviation, median, and interquartile range (IQR). Total MRS score was tested for normality

using normality probability plot and Shapiro–Wilk test. The Mann–Whitney U test and Kruskal-Wallis test were used to determine the association between median MRS scores and various independent covariates. $P < 0.05$ was considered statistically significant for all analyses.

RESULTS

Sociodemographic details

Among 200 women, the prevalence of symptoms of menopause was 70%. Perception of menopause was generally positive, but we also documented some myths and misconceptions regarding menopause. The mean age of the study participants was $45.4 + 4.6$ years (range = 40–56 years), with 112 (56%) aged 40–45 years and 88 (44%) aged more than 45 years. Median number of years of formal education was 5 (IQR = 0.10). The majority of the participants 169 (84.5%) were Hindu by religion. The mean age at menarche was 13.4 ± 1.4 years and the mean age at marriage was 18.5 ± 3.2 years. The mean age at the first and last childbirth was 20.3 ± 3.3 years and 24.5 ± 4.3 years, respectively.

Symptoms of menopause

The prevalence of at least one symptom of menopause experienced by the perimenopausal women in our study was 70%. Most women experienced more than one symptom, the most common being somatic symptoms such as joint and muscular discomfort, hot flushes/sweating, as well as psychological symptoms such as anxiety, irritability, physical, and mental exhaustion [Figure 1]. The severity of these symptoms using MRS is depicted in Table 1. Median MRS Score was 4 (1, 7). Higher MRS score was significantly correlated with lower age at menarche ($r = -0.195$, $P = 0.007$) and higher BMI ($r = 0.189$, $P = 0.006$). There was no significant correlation between MRS score and age, years of education, age at marriage, first or last childbirth [Table 2]. MRS score was significantly higher among women who were currently chewing tobacco (0.023), the median years of tobacco
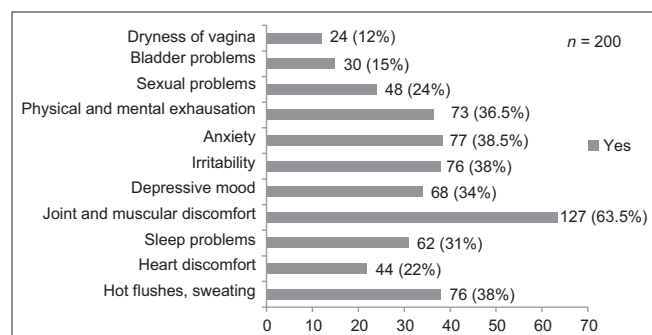
chewing being 13.5 (IQR = 5.19), and among those who experienced irregularity of their menstrual cycles in the past 1 year ($P = 0.004$) and those with depression (<0.001). There was no significant association with MRS scores and marital status, employment, parity, comorbidities (diabetes and/or hypertension), or ever-use of family planning [Table 3].

Perceptions of menopause

The most common perceptions regarding menopause were that menopause meant loss of fertility, something that all women have to go through, and freedom from menstruation. However, 10% of the women perceived that women who attain menopause are no longer real women and after menopause women have no real purpose in life. Some perceived menopause as a disease (15%) and that after menopause women do not want to have sexual intercourse (34%). Women also felt that after menopause there was no need to visit a gynecologist anymore (19%) [Table 4].

DISCUSSION

In the absence of sufficient data on menopause among rural Indian women, we set out to document their experience of menopause by first estimating the prevalence and severity of menopausal symptoms. Two-thirds of the peri-menopausal women in our study reported at least one symptom of menopause, the most common menopausal symptoms being joint and muscular pains, hot flushes, irritability, and anxiety. This has been similarly reported among urban-dwelling women living in Mumbai[8] and Lucknow,[9] women in rural Kerala,[3] and among mid-life school teachers in Bhopal city.[16] Symptoms reported by our study participants were predominantly somatic and psychological symptoms, rather than urogenital symptoms. This could have been due to a culture of silence around the sexuality of older women, a taboo topic in rural communities, which may have interfered with an honest reporting of urogenital symptoms such as decreased sexual desire and vaginal dryness. According to the study done by Ibraheem *et al.* in Nigeria, urogenital symptoms such as dryness of the vagina (81.3%), pain during intercourse (76.7%)[17] which is very different to our study findings, the low reporting of urogenital, and sexual symptoms in our study may be due to a culture of silence that surrounds topics dealing with sex and sexuality, especially among rural Indian women.[17]

The median MRS score in our study was found to be low, since most of the participants reported mild or moderate, rather than severe symptoms, which could be attributed to the unique sociocultural setting of a rural area, where social status often increases with age, and

Figure 1: Bar-graph depicting the prevalence of symptoms of menopause as per MRS

Dryness of vagina — 24 (12%)
Bladder problems — 30 (15%)
Sexual problems — 48 (24%)
Physical and mental exhausation — 73 (36.5%)
Anxiety — 77 (38.5%)
Irritability — 76 (38%)
Depressive mood — 68 (34%)
Joint and muscular discomfort — 127 (63.5%)
Sleep problems — 62 (31%)
Heart discomfort — 44 (22%)
Hot flushes, sweating — 76 (38%)

n = 200

Yes

Table 1: Severity of menopausal symptoms, based on Menopausal Rating Scale among the study participants (*n*=200)

Symptoms of menopause	None, *n* (%)	Mild, *n* (%)	Moderate, *n* (%)	Severe, *n* (%)	Very severe, *n* (%)
Somatic symptoms of menopause					
Hot flushes, sweating episodes	124 (62.0)	42 (21.0)	25 (12.5)	7 (3.5)	2 (1.0)
Heart discomfort (unusual heart racing, awareness of heartbeat)	156 (78.0)	40 (20.0)	4 (2.0)	0	0
Sleep problems (difficulty falling asleep, disturbed sleep)	138 (69.0)	39 (19.5)	18 (9.0)	5 (2.5)	0
Joint and muscular pain	73 (36.5)	68 (34.0)	37 (18.5)	21 (10.5)	1 (0.5)
Psychological symptoms of menopause					
Depressive mood (feeling down, sad, lack of drive, and mood swings)	132 (66.0)	50 (25.0)	11 (5.5)	4 (2.0)	3 (1.5)
Irritability (feeling nervous, inner tension, feeling aggressive)	124 (62.0)	55 (27.5)	15 (7.5)	4 (2.0)	2 (1.0)
Anxiety (inner restlessness, feeling panicky)	123 (61.5)	56 (28.0)	13 (6.5)	6 (3.0)	2 (1.0)
Physical/mental exhaustion (decreased performance/concentration, forgetfulness)	127 (63.5)	53 (26.5)	16 (8.0)	2 (1.0)	2 (1.0)
Urogenital symptoms of menopause					
Sexual problems (change in sexual desire, activity, and satisfaction)	152 (76.0)	28 (14.0)	14 (7.0)	5 (2.5)	1 (0.5)
Bladder problems (difficulty in urinating, urgency, and incontinence)	170 (85.0)	12 (6.0)	18 (9.0)	0	0
Dryness of vagina (sensation of dryness or burning in the vagina, difficulty with sexual intercourse)	176 (88)	17 (8.5)	7 (3.5)	0	0

Table 2: Correlation between Menopausal Rating Scale score and independent continuous variables (*n*=200)

Variable	MRS score	
	Correlation coefficient (*r*)	*P**
Age in years	0.16	0.026
Age at menarche	−0.17	0.016
Age at marriage	−0.08	0.264
Age at first childbirth	−0.13	0.070
Age at last childbirth	−0.04	0.593
Years of formal education	−0.10	0.154
BMI	0.19	0.007

*Spearman's correlation test. BMI: Body mass index, MRS: Menopausal Rating Scale

positive attitudes toward aging may reduce the severity of menopausal symptoms. This is substantiated by the largely positive perception of the majority of women in our study who accept that menopause is something that all women have to go through, and it is freedom from menstruation. This also opens up avenues for research into whether positive attitudes and resilience among rural women could be a mitigating factor in their experience of menopausal symptoms.

Our study showed that higher MRS score was significantly correlated with lower age at menarche. This finding is aligned with a recently published pooled analysis of six cohort studies in the USA, UK, and Australia, which found that higher risk of vasomotor symptoms was associated with early menarche; this association was exacerbated in the presence of

overweight and obesity.[17] Higher MRS score among our study participants was also associated with higher BMI. This could be due to the effect of increased adiposity on follicular-stimulating hormone (FSH) and estrogen levels which worsen the symptoms of menopause. This hypothesis is supported by findings from a study in China that looked specifically at the link between menopausal symptoms and obesity,[18] indicating a requirement for mitigating symptoms of menopause through diet, physical activity, and weight reduction.

MRS score was significantly higher among women who were currently chewing tobacco. This matches with the finding among schoolteachers in Bhopal who had higher proportion of symptoms among tobacco chewers.[16] A longitudinal study in the USA proved that smoking increases the risk, severity, and frequency of hot flashes, but that quitting smoking reduces this symptom.[19] Tobacco chewing and smoking are both linked to increased nicotine levels in the blood, the effect of which aggravates vasomotor symptoms of menopause, which could explain our study finding. This also indicates a need for targeted tobacco cessation strategies for perimenopausal women.

We found a significantly higher MRS score among those who experienced irregularity of their menstrual cycles in the past 1 year. This is due to the fact that symptoms of menopause occur as a result of the falling serum estradiol levels and rising FSH levels that accompany irregular monthly periods. This hormonal fluctuation among those with irregular cycles worsened their

Table 3: Association between Menopausal Rating Scale score and independent categorical variables (*n*=200)

Variable	Category	*n* (%)	Median MRS score (IQR)	*P*
Marital status	Currently married	175 (87.5)	4 (1,7)	0.778[b]
	Single/separated/widow	25 (12.5)	4 (1,5)	
Employment	Gainfully employed	140 (70)	4 (1,7)	0.403[b]
	Homemaker	60 (30)	4 (3,7)	
Parity	Nulliparous	7 (3.5)	3 (1,5)	0.494[b]
	Primi/multiparous	291 (96.5)	4 (1,7)	
Regularity of cycles in the past 1 year	Regular	129 (64.5)	3 (1,7)	0.004[a]
	Irregular	71 (35.5)	5 (3,8)	
	None	27 (13.5)	3 (2,6)	
Comorbidities	Yes	59 (29.5)	4 (2,8)	0.140[b]
	No	141 (70.5)	4 (1,7)	
Family planning method (ever used)	No	6 (3)	1.5 (0,6)	0.400[b]
	Yes	167 (83.5)	4 (1,7)	
Tobacco chewing	No	142 (71)	4 (1,7)	0.023[b]
	Yes	58 (29)	5 (3,9)	
Depression	Severe depression	2 (1)	30 (30,30)	<0.001[a]
	Moderately severe depression	9 (4.5)	8 (7,9)	
	Between minor and severe depression	3 (1.5)	12 (12,18)	
	Minor depression	4 (2)	18 (13,25)	
	No depression	182 (91)	4 (1,6)	

[a]Kruskal–Wallis test, [b]Mann–Whitney U-test. MRS: Menopausal Rating Scale, IQR: Interquartile range

menopausal symptoms as compared to those whose monthly cycles are still regular in the perimenopausal period.[20]

A higher MRS score among those with depression was seen in our study and this finding is supported by evidence from Shanghai, China where women with depression were found to have higher prevalence of menopausal symptoms as compared to those without depression.[21] This can be explained by the alteration in the levels of reproductive hormones which may directly affect central neurotransmitter activity and contribute to a dysregulation of the hypothalamic-pituitary-adrenal axis, leading to the onset of depression in vulnerable women. Another reason could be due to the changes in family roles as women proceed to a new phase in life and may have challenges adjusting to their new role of

mother-in-law or grandmother, accompanied by the loss of fertility and fear of aging.[22] Screening and counseling for depression would help women to deal better with menopausal symptoms.

There were some myths and misconceptions associated with menopause that were perceived by the women in our study. One in 10 women felt that that menopause is a disease and that women who attain menopause are no longer real women and have no real purpose in life. However, this level of negative perception was lower as compared to that of Malaysian women where a higher proportion (25%) perceived this[23] and much lower than a Korean study where 65% of mid-life women believed menopause to be a disease.[24] This could be due to the inherent cultural difference between these study settings and ours. Urban-dwelling East Asian communities place a very high premium on outward appearances and beauty standards,[25] and perimenopausal women in such settings may find that themselves struggling to cope with menopause and its ensuing loss of physical attractiveness.

One in every five women in our study felt that after menopause there was no need to visit a gynecologist anymore. This has a public health implication, as breast and cervical cancer screening needs to continue in this age-demographic, and perimenopausal women need to continue to be in contact with the health system.

The results of our study indicate that though the severity of symptoms may be low, the prevalence of symptoms is still high and women in rural areas have some myths and misconceptions regarding menopause. Therefore, support mechanisms are needed for perimenopausal women in rural areas to help them deal with menopause. Community women's groups may be the ideal platform for creating support for rural women going through menopause. These groups also provide the ASHA, ANM, and anganwadi workers with an ideal opportunity to interact with women and provide not only health education regarding menopause but also an opportunity to screen for comorbidities with appropriate referrals. Our study also offers avenue for future research into how the positive attitude and resilience of rural women affect the severity of menopausal symptoms.

Our study reveals scope for further research. In the absence of existing systematic review on this participant, there is scope for systematic review on this topic to generate more robust evidence.

Strengths and limitations of the study
The present study has used MRS, a validated tool. The study highlights the experience of menopause, including

Table 4: Perceptions regarding menopause among perimenopausal women (*n*=200)

Perceptions	Agree, *n* (%)
Menopause is a sign of aging	123 (61.5)
Menopause means loss of fertility	180 (90.0)
All women have to go through menopause	178 (89.0)
Menopause means freedom from menstrual cycles, pregnancy, and childbirth	145 (72.5)
After menopause women become more prone to heart disease	32 (16.0)
Women should discuss with their husband regarding menopause	99 (49.5)
Women should discuss with their family members regarding menopause	90 (45.0)
Menopause means loss of youth	92 (46.0)
Women who attain menopause are no longer real women	19 (9.5)
After menopause women have no real purpose in life	20 (10.0)
Menopause is a disease	30 (15.0)
After menopause have no energy to perform daily activity	83 (41.5)
After menopause women need not go to a gynecologist anymore	38 (19.0)
After menopause women do not want to have sexual intercourse	68 (34.0)

myths and misconceptions, among rural Indian women, who have thus far not been included in such research studies. A study has documented both prevalence and perceptions of menopause among perimenopausal women, which has not been commonly done before. The cross-sectional design is apt for our research question. The MRS scale is designed to be a self-administered tool. However, owing to the challenges of literacy in our population, this instrument was interviewer-administered face to face. This may have caused an under-reporting of urogenital symptoms and sexual problems in our study. Furthermore, being a hospital-based study, the sample may not be reflective of all rural women.

CONCLUSION

The prevalence of symptoms of menopause among rural women of south Karnataka was 70%. The most commonly reported menopausal symptoms experienced by rural women in the perimenopausal period were somatic symptoms of joint and muscular pain, and hot flushes and psychological symptoms of physical and mental exhaustion and anxiety. The median overall MRS score was found to be low (4 [IQR = 1.7]), which points out to lesser severity in this population. Our study found a significant association between MRS score and higher BMI, tobacco chewing, and depression. This indicates a need for mitigating symptoms of menopause

through diet, physical activity, tobacco cessation, and counseling for depression. Perception of menopause was generally positive, but we also found some myths and misconceptions regarding menopause that indicate a need for health awareness in this population. Targeted interventions and health awareness programs using community women's groups as a platform for interaction with village-level health workers are recommended to provide not only health education regarding menopause but also an opportunity to screen for comorbidities with appropriate referrals. Capacity building for village-level health workers regarding screening and counseling for menopause-related symptoms should be also included in the study. Specific health interventions may be designed using the existing health system by expanding the scope of antenatal clinics to include a package of services for peri- and postmenopausal women who often accompany pregnant women for check-ups. Health-care providers should deliver health messages regarding menopause and teach exercises, encourage yoga, meditation, and the importance of having regular balanced diet to help perimenopausal women deal better with menopause.

Conflicts of interest

There are no conflicts of interest.

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