

Needs assessment study for management of menopause in the community

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ABSTRACT

Menopause is an inevitable phase in every woman's life. Women may suffer from unpleasant symptoms during perimenopause. Understanding the health needs of the community during this period will help in developing menopause management programs that can improve quality of life. **Aim:** To study the symptoms of menopause and perception of women in relation to menopause in order to understand their needs. **Settings and Design:** A cross-sectional, multi-centric study was undertaken at three institutions (called DH, SJ, and SK) at two cities in India. The study population comprised women between the ages of 40 and 60. Institutional Ethics Committee approval and consent of participants were ensured. **Material and Methods:** Two instruments, a pilot-tested, peer-reviewed, validated, structured questionnaire and the Menopause Rating Scale (MRS) were utilized for the study. The minimum sample size was calculated to be 385 per site. Statistical analysis was conducted using the IBM Statistical Package for Social Sciences. **Results:** A total of 1297 forms were analyzed. MRS scores showed psychological symptoms to be most prevalent. Joint and muscular pains were the most common somatic symptoms. Hot flashes and urogenital symptoms were experienced by a lower number. Our MRS scores were significantly higher than those seen in other regions. Urban women, site SJ, those with irregular menstrual cycles, and lower incomes scored higher than their counterparts. Awareness about menopause was patchy, especially regarding medication or support services available. **Conclusions:** The high MRS scores emphasize the need to institute awareness programs, providing information on choices available for care (hormone replacement therapy, medications, or counseling) and information on where to access services. Primary care physicians can play a vital role in fulfilling this need by ensuring timely knowledge to the community, providing correct diagnosis and treatment. This will help improve the quality of life and sense of well-being of this community.

Keywords: Hormone Replacement Therapy, menopause, Menopause Rating Scale, perimenopause

Background

Spontaneous menopause, the permanent cessation of menstruation caused by loss of ovarian function, occurs at

a mean age of 51–52 years. Menopause between the ages of 40 and 50 is well documented, and there are instances of menopause occurring as late as 58 years of age. The average age of menopause of an Indian woman is 46.2 years, less than that of their Western counterparts (51 years).^[1]

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Perimenopause is an ill-defined time period that surrounds the final years of a woman's reproductive life. It begins with the first onset of menstrual irregularity and ends after 1 year of amenorrhea has occurred, thereby defining the final menstrual

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period (FMP). Menopause is defined retrospectively as the time of the FMP, followed by 12 months of amenorrhea.^[2,3]

During perimenopause, women suffer from unpleasant symptoms that may last from a few months to a few years without knowing why, as awareness and access to menopause-related information and services remain a significant challenge in most countries. Menopause is often not discussed within families, communities, workplaces, or health-care settings.^[4] This reduces sources of information. Those with a low socio-economic status are significantly more affected.^[5]

There is a pressing need to assess the needs of women in the context of menopause. Primary care physicians also need to be aware of the symptoms experienced by perimenopausal women, else many of them may get misdiagnosed.^[6] This information will help lay the foundation for awareness programs, focussed messaging, and improved health care, which will help women manage menopause effectively. It is with this in mind that the study was undertaken.

Aim: To study the symptoms of menopause, the effect of symptoms on daily life, and perception of women in relation to menopause in order to understand their needs.

Settings and Design: This cross-sectional, multi-centric, questionnaire-based study was undertaken at two cities in three institutions working in the field of healthcare. These have been named DH, SJ, and SK for convenience. SJ was from one city, and DH and SK were from another. The study was conducted in the geographic footprint/field practice area of these institutions. The practice area covered both rural and urban zones to varying extents.

DH: This comprised an area mostly in rural Maharashtra with only a small urban population near its headquarters. Some of the sites were in tribal belts of Maharashtra, while others were in prosperous rural settings.

SJ: The urban areas were slum areas, economically backward and a mix of traditional and modern in their outlook. The rural population were from varying economic backgrounds, from daily wage earners to landowners.

SK: The urban and rural population in the field practice area was spread over 29 villages. The main occupation of the rural households was farming.

Period of Study: The study was undertaken from October 15, 2022 to June 30, 2023. Data collection was undertaken during March and April 2023.

Ethics Committee Approval: Institutional Ethics Committee Approval was obtained for both cities.

Inclusion Criteria: The study population comprised women between the ages of 40 and 60 who were in the geographic

footprint/field practice area of the institutions participating in the study. Written informed consent was obtained from each of the study participants before recruitment.

Subjects and Methods

Sample Size and Sampling Technique: Menopause is a universal age-related occurrence; its prevalence was assumed to be 50% in the population. This also ensured the largest sample size. The same process has been implemented in other studies.^[7] The minimum calculated sample size was 385 or more for a confidence level of 95% with an error of $\pm 5\%$. A list of 40–60-year-old women was available as part of the health records or with the dependent health center or the Gram Panchayat. Systematic random sampling using probability proportion to size was done based on the number of women aged 40 to 60 years. The maximum sample size was restricted to 500 per site due to logistic and administrative considerations. Since the ethics committee at SJ had given approval for 400 participants, the cap for SJ was 400. The sampling interval for each area was calculated, and women residing in the locality were invited to participate in the study. In case of refusal of consent or unavailability, the next eligible woman was invited to participate. Interview was conducted by trained surveyors who administered the questionnaire in the local language and entered the data onto a Google form created for the questionnaire.

Study Instruments: Two instruments were utilized. They were

- A pre-tested validated questionnaire which included socio-demographic details, source of information, habits, presence of chronic diseases, regularity of menstrual cycles, health seeking behavior, effect of menopause on daily activities, and perceptions regarding menopause.
- The Menopause Rating Scale (MRS) was utilized to assess the symptoms of menopause. MRS is a validated standardized health-related quality of life (HRQoL) scale with good psychometric characteristics. Its use in many countries offers the possibility to compare the test characteristics across countries. Reliability measures (consistency and test–retest stability) were found to be good in all countries where data were obtained.^[8-10] It is composed of 11 items divided into three domains: (i) somatic (hot flashes, difficulty sleeping, palpitations, and joint pains), (ii) psychological (low mood, irritability, anxiety, and physical/mental exhaustion), and (iii) urogenital (vaginal dryness, incontinence, and loss of interest in sex). Each symptom is scored on a severity scale from “0” (no complaints) to “4” (very severe symptoms), and the total MRS score is noted for each individual. Thus, an individual profile of each patient can be established.

Statistical Analysis: A total of 1327 eligible subjects were interviewed, of which 1297 forms were found eligible for analysis (N = 1297). A total of 436 forms were from DH, 400 from SJ, and 461 from SK.

Data were analyzed using the IBM Statistical Package for the Social Sciences version 21 (IBM, Chicago, Delaware, United

States). The study variables – rural/urban, place, age, religion, income, and education – were described using frequencies, proportion, mean, standard deviation, median, and inter-quartile range (IQR).

The overall mean MRS score and mean sub-category scores (somatic, psychological, urogenital) were calculated and associated with age, rural/urban, site of study, education, menstrual cycle stage, and income by quartile. Tests for homogeneity and normality were applied for each of these variables. Non-parametric tests were applied if tests of homogeneity failed. In the case of non-parametric tests, either Mann–Whitney or Kruskal–Wallis tests were applied (depending on the number of groups in the variable under consideration) to determine the association between MRS scores and various independent covariates. The parametric tests utilized were ANOVA and unpaired ‘t’ test depending on the number of groups in the variable under consideration. Chi-square test was applied to test for homogeneity and to test for independence wherever applicable. $P < 0.05$ was considered statistically significant for all analyses.

Results

Socio-demographic Profile (Table 1 provides frequencies and percentages).

Menstrual Cycles. Women were divided into four groups – regular, irregular, stopped <1 year (yr), and stopped ≥ 1 yr – based on the stage of their menstrual cycles. 445 (34.3%) women had regular menstrual cycles; 189 (4.6%) had irregular menstrual cycles; menstrual cycles had stopped for less than 1 year in 95 (7.32%), and 568 (43.8%) stated that their menstrual cycles had stopped for more than 1 year. 68 (5.2%) of women aged 45 years and 166 (12.8%) between the ages of 46 and 50 years stated their menstrual cycles had stopped.

Chronic Diseases: 898 (69.2%) women did not suffer from any ailment. 399 (30.8%) women suffered from one or more ailments. Hypertension [219 (16.89%)] and diabetes [171 (13.18%)] were the most common ailments. 51 (3.93%) suffered from hypothyroidism, and 21 (1.63%) had mental health-related ailments. The ‘Other’ category comprised arthritis, dyspepsia, asthma, and anemia. Expectedly, those in the elder age group had a higher prevalence of chronic diseases.

Source and Adequacy of Information about Menopause: 785 (60.52%) stated healthcare workers and 594 (45.80%) stated relatives as their source of information. Friends (291 or 22.44%) and radio/TV (302 or 23.28%) came next. Hardly anyone reported newspapers or books as a source of information. 697 (53.80%) felt they did not have adequate information

Table 1: Characteristics of the Population

Site	DH (n=436), SJ (n=400), SK (n=461)	Remarks
Rural and urban population	727 (56.1%), 570 (43.9%)	
Age divided into two groups.	Mean 48.63 (SD 6.10) Age group 40-50 years 830 (64%) Age group 51-60 467 (36%)	
Religion	Hindu 1072 (82.9%), Muslim 100 (7.7%), Buddhist 55 (4.3%), Christian 48 (3.7%), Jain 11 (0.8%), Other 11 (0.8%)	As most were Hindu, responses were not analyzed based on religion.
Marital Status	Married 1059 (81.6%) Widowed 198 (15.3%) Divorced/Separated 29 (2.2%) Unmarried 11 (0.8%)	
Education (by years of schooling/college). Six slabs were made based on number of years of School (1-12) and college (1-6 years)	0-4 years 506 (39%) 5-7 years 345 (26.6%) 8-10 years 326 (25.1%) 11-12 years 69 (5.3%) 1-3 years college 32 (2.5%) >4 years college 19 (1.5%)	Younger age group were better educated than those above 50 years. Urban were better educated than rural ($P=0.010$). Education and income were not significantly related.
Occupation	Homemakers 772 (55.7%). Farmers 171 (13.2%) Laborers 165 (12.7%) Domestic helps/maids 73 (5.6%) Self-employed 49 (3.8%). Others 67 (9%)	
Income by Quartile	INR 7000 or below; 337 (26%) INR 7001-13000; 315 (24%) INR 13001-21000; 271 (21%) More than INR 21000; Q4-374 (29%)	As income varied widely, median income was utilized. The overall median income was INR 13000 (IQR=2). Median income was the highest at SK (INR 15000) and the lowest at SJ (INR 10000). Median income for rural respondents was INR 13000, and that for Urban was INR 15000.
Habits	21 (1.6%) consumed alcohol. 405 (31.2%) used tobacco in some form.	Majority used chewing tobacco.

regarding menopause. 60% of SJ, 45.99% of SK, and 33.72% of DH respondents stated that they felt they had adequate information regarding menopause.

Visit to Healthcare Facility/Use of Medication for Help with Symptoms: 327 (25.2%) of the respondents stated that they had visited a healthcare facility for their symptoms at least once. 483 (37.3%) felt they needed help with their symptoms.

1038 (80.03%) of respondents had never taken any kind of medication to help with their symptoms. 11 (0.8%) were taking hormones, 172 (13.26%) were taking medications other than hormones, and 76 (5.8%) stated they had taken some medication in the past. Of the 259 (19.9%) who had taken some form of treatment, 115 (44.4%) out of 259 stated they had benefitted from treatment.

MRS Rating Scale: MRS score was utilized to grade symptoms. Joint and muscular pain was the most and vaginal dryness was the least common symptom. Most experienced mild symptoms, and very few experienced severe symptoms. Figure 1 gives the frequencies in percentages.

Our mean MRS score and mean sub-category scores were compared with those of other regions [Table 2]. The difference between the means of sub-category scores (somatic, psychological, and urogenital) was analyzed using ANOVA single-factor test. The *P* value was 0.0004.

MRS Means Analyzed by Variables

MRS means and sub-category means (somatic, psychological, urogenital) were analyzed by rural/urban, site of study, age, education, and income by quartile [Table 3]. Urban women had significantly higher scores than their rural counterparts; site SJ had higher MRS scores than the other sites. Women in the elder age group and those in lower-income quartiles had higher MRS scores as compared to the younger age group and the highest-income quartile.

MRS Means and Menstrual Cycles [Table 4]: It was seen that MRS means and sub-category means were the highest for those whose menstrual cycles had stopped for less than 1 year, followed by those with irregular cycles, followed by those whose menstrual cycles had stopped for more than 1 year. Those with regular cycles had the lowest MRS Mean. The results were significant (*P* = 0.0017).

Perceptions Regarding Menopause: The respondents were asked whether they agreed, disagreed, or were not sure about certain statements regarding menopause. Figure 2 gives frequencies in percentages.

It was noted that of those who felt that they had adequate information (n = 600) regarding menopause, 199 (33.16%) gave incorrect responses regarding loss of fertility, 222 (37.0%) proneness to heart disease after menopause, and need to visit a gynecologist after attaining menopause 176 (29.33%).

Discussion

The study was conducted under the aegis of institutions working in public health, and the study population comprised residents of their field practice area. The aim of the study was to understand the need of the community as regards menopause. This would help the primary care physician to understand how women experience menopause in the Indian context. A high level of awareness regarding menopause and its symptoms would improve management and reduce misdiagnosis and over-medicalization. The study comprised rural and urban women in the 40–60-year age group with low levels of formal education, with modest socio-economic backgrounds. Such communities are most likely to have low awareness and hence an inadequate understanding of menopause. The study brought out certain salient issues which are discussed below.

Information on Menopause. The majority felt they had inadequate information regarding menopause. Healthcare

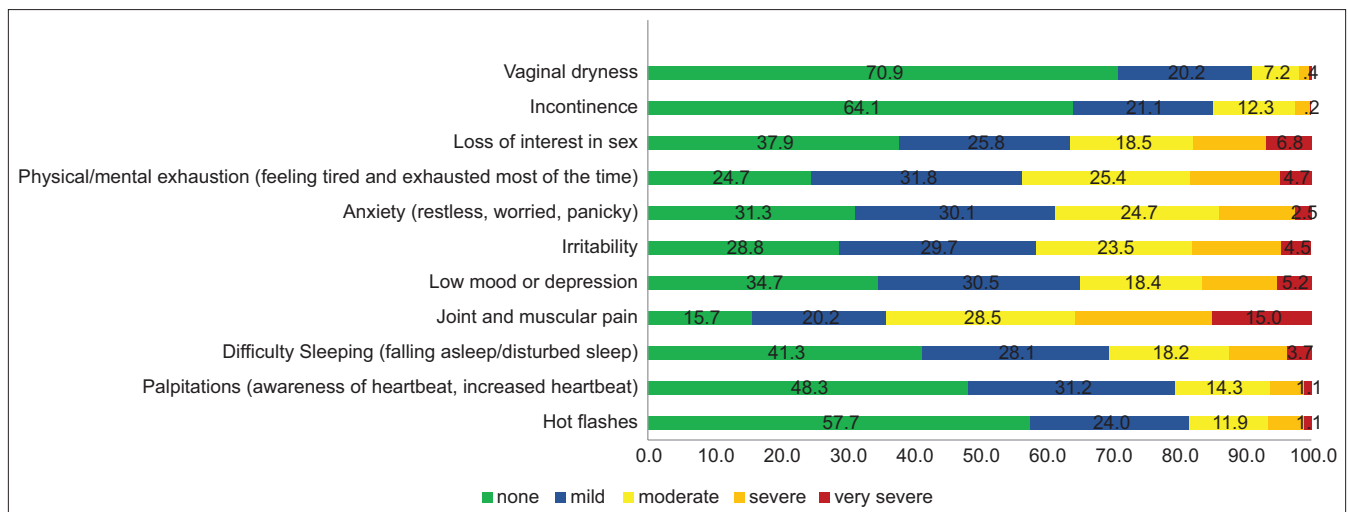


Figure 1: MRS scores by symptoms (percentages)

Table 2: Comparison of MRS Scores Among Regions

	Total score		Somatic Score		Psychological Score		Urogenital Score	
	n	Mean (SD)	n	Mean (SD)	n	Mean (SD)	n	Mean (SD)
Europe	4246	8.8 (7.1)	4465	3.6 (2.9)	4453	3.4 (3.4)	4465	1.9 (2.2)
N. America (USA)	1376	9.1 (7.6)	1440	3.8 (3.1)	1426	3.4 (3.5)	1437	2.0 (2.3)
Lat. America	3001	10.4 (8.8)	3006	4.1 (3.6)	3002	4.9 (4.5)	3005	1.4 (2.2)
Asia	1000	7.2 (6.0)	1000	3.3 (2.7)	1000	2.9 (2.9)	1000	1.0 (1.6)
Present Study (India)	1297	11.90 (7.9)	1297	4.51 (3.45)	1297	5.22 (3.75)	1297	2.17 (1.96)

P (comparison between subcategory means)=0.0004

Table 3: Comparison of MRS Means by Variables

Variable	Category	Mean MRS score	P	Mean Somatic score	P	Mean Psych-ological score	P	Mean Uro-genital score	P
Residence	Rural	10.59	<0.001 ^a	3.97	<.001 ^a	4.5	<.001 ^a	2.1	0.069 ^a
	Urban	13.59		5.20		6.13		2.24	
Site	DH	10.82	0.026 ^b	4.06	<.001 ^b	4.83	0.046 ^b	1.92	<.001 ^b
	SJ	13.40		5.61		5.80		1.98	
	SK	11.64		4.00		5.08		2.51	
Age	40-50	11.34	0.001 ^d	4.24	<.001 ^d	5.16	0.482 ^d	1.92	<.001 ^a
	51-60	12.92		5.01		5.31		2.59	
Education 6 groups	1	11.89	<.001 ^c	4.54	<.001 ^c	5.12	<.001 ^c	2.22	0.254 ^c
	2	13.18		6.02		5.91		2.23	
	3	10.96		4.26		4.75		1.94	
	4	14.03		4.90		6.59		2.53	
	5	10.07		3.30		4.47		2.28	
	6	8.58		2.57		3.63		2.36	
Income (quartile)	1	14.10	<.001 ^b	5.82	<.001 ^b	6.19	<.001 ^b	2.08	<.001 ^b
	2	11.49		4.42		5.14		1.91	
	3	12.10		4.35		5.07		2.67	
	4	10.14		3.54		4.52		2.07	

Mann-Whitney, ^bKruskal-Wallis, ^cANOVA, ^dUnpaired 't'-test

Table 4: MRS Means by Menstrual cycles

Menstrual Cycles	MRS Mean Score	Mean Somatic Score	Mean Psychological Score	Mean Uro-genital Score
Regular (n=445)	9.74	3.58	5.22	1.58
Irregular (n=189)	14.33	5.55	6.34	2.45
Stopped <1 year (n=95)	16.7	6.51	7.06	3.15
Stopped >1 year (n=568)	11.9	4.58	5.04	2.37

workers and relatives were common sources of information. Radio/TV as a source of information was rated low. Programs using these mediums, if planned, would reach large audiences. Studies have corroborated that for obtaining information about menopause, participants (64.6%) depended on their friends or family members, and many relied on mass media, such as TV/radio (50.5%) and the Internet/social network services (SNSs) (45.0%). In another study, a large number of participants obtained information from the Internet.^[11] Primary care physicians can play a vital role in providing information. Social media platforms and Internet-based information may be used in future.

Age at Menopause. Nearly one fifth of women below 50 years of age had stopped having menstrual cycles. Other studies in India have shown that the menopause age is lower in India than in the West. The mean age of menopause was 44.54 years in a

study in North India.^[12] The reasons for this are poverty, poor health, and nutrition.^[13] Epidemiological studies have identified that age-adjusted mortality is reduced by 2% with each increasing year of age at menopause. In particular, ischemic heart disease mortality is 2% lower. The net effect of a later menopause is an increased life span.^[14] So if Indian women attain menopause earlier, it is all the more necessary to ensure that they have adequate information and access to healthcare to ensure better life expectancy.

Most of the respondents had never taken any medication of any kind to help with their symptoms. Only 11 were taking hormone replacement therapy (HRT), and about 172 were taking medicines other than HRT. Yet, the need for help with symptoms was expressed by a sizeable number. The rates of HRT or medication are far lower than those reported in the West.^[15]

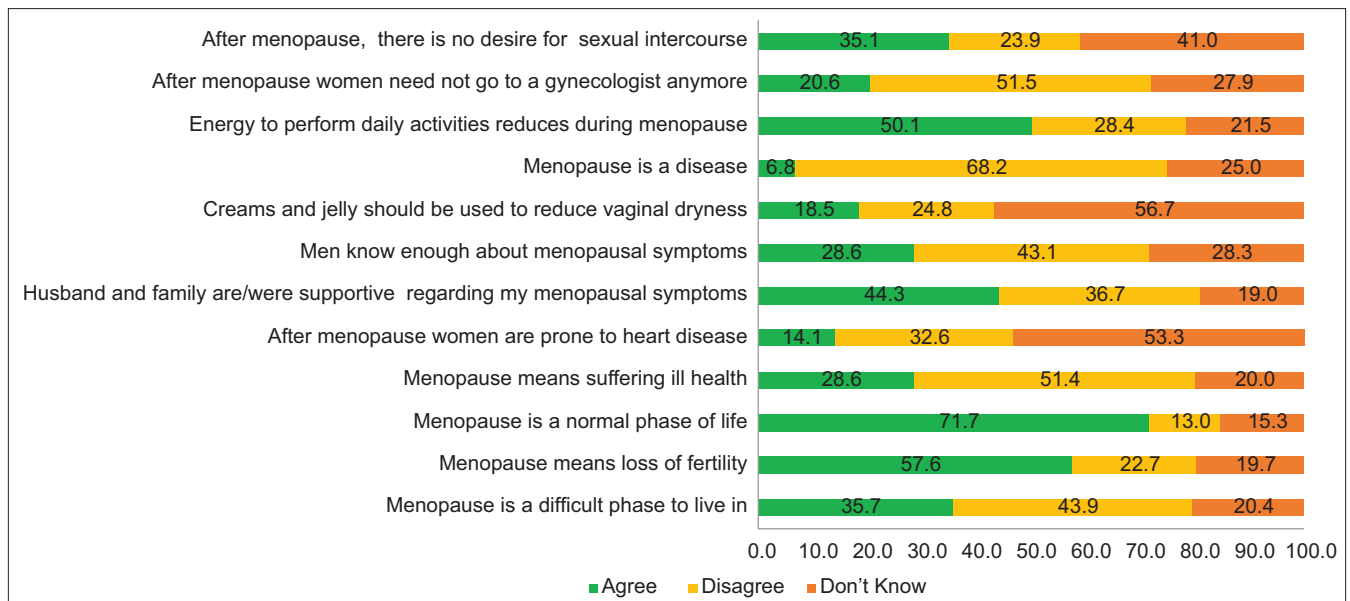


Figure 2: Perceptions regarding menopause

Symptoms of Menopause and the MRS

Psychological symptoms were experienced commonly. Urogenital symptoms were experienced to a lesser extent. Somatic symptoms were a mixed bag. Joint/muscular pain was the most common symptom. These findings are consistent with many other studies.^[10,16]

Likewise, in a study by Joseph *et al.*, the respondents belonging to lower socio-economic strata were found to have more menopausal symptoms and this difference in proportion was statistically significant.^[17]

In a study in Karnataka, India, most women experienced more than one symptom, the most common being somatic symptoms such as joint and muscular discomfort, flashes, as well as psychological symptoms such as anxiety, irritability, physical, and mental exhaustion.^[18]

The prevalence of hot flashes, palpitations, and incontinence was experienced by a lower percentage of women as compared to other sub-categories – but still higher than other regions – in this study. Similar findings have been reported by other studies. For example, a study in Kerala, India, too found that prevalence of hot flashes and night sweats were not reported by women.^[19] Mahajan *et al.* stated that the main symptoms associated with menopause were reported as fatigue (62%), hot flashes (56%), cold sweats (52%), and backaches (51%). Yet another study stated that vasomotor symptoms affected up to 75% of perimenopausal women.^[20] In a study in Haryana, India, Kalhan *et al.* reported that prevalence of menopausal symptoms was found to be 87.7%. The majority of the study subjects had anxiety (80%), followed by physical and mental exhaustion (71.5%), sleep problems (61.2%), irritability (60.7%), joint and muscular discomfort (56%), and heart problems (54%). The most classical

symptom of menopause, that is, hot flashes, was reported in only 36.7%.^[7] The educational level and socio-economic status level had inverse relationship with menopausal symptoms, showing that respondents of lower socio-economic strata and uneducated had more symptoms.^[21] This may be because those with better education and economic backgrounds had better access to care and information.

The variations in symptoms reported by studies can be based on many factors. However, there are studies that report that symptoms related to menopause are equally frequent regardless of geographic location, although Asian women report a few menopausal symptoms. Thus, it may be that cultural conditions in Asian countries make the menopausal symptoms easier to handle or that women suffer in silence.^[22]

Menopausal stage, menopausal symptoms, and psychological and socio-economic status can influence the attitude of women toward menopause. Primary care physicians should consider these factors during interventions that aim to improve women's attitudes toward menopause during IEC activities.^[23]

MRS Scores

In our study, MRS scores and means were significantly higher than those elicited in other countries. Knowing the high rates of anemia, low protein intake, and an attitude of ignoring ailments in the community, it may be that the symptoms experienced by these women are because of ageing or malnutrition or both and not just because of menopause.^[24] It is documented that it is difficult to differentiate those symptoms that are truly associated with menopause from those due to ageing. Hot flashes, night sweats, and vaginal dryness are clearly tied to the menopausal transition, and there is some positive evidence of a menopausal link for sleep disturbance.^[25]

An important finding was that MRS scores were the highest for all sub-categories for those with irregular periods, followed by those who had stopped having menstrual cycles for less than a year, followed by those who had attained menopause. This provides us with information on the target population for menopause assistance programs. One could target the women nearing their fourth decade of life for awareness programs. Access to care and counseling could be targeted at those 45–55 years of age or more as this group would be the most symptomatic. This way, there would be better awareness as women enter the perimenopausal stage and they would have access to support as and when they needed it.

Perceptions regarding menopause

This section brought out that perceptions (awareness) regarding menopause were a mixed bag. The incorrect perceptions to some statements like menopause is a disease, there was no loss of fertility after menopause, or after menopause there was no need to visit a gynecologist, even by those who had stated that they had adequate knowledge of menopause, bring out the lack of awareness and the need to create programs to provide correct knowledge to shape attitudes and practices.

Conclusion

This study indicates that menopausal symptoms in the community were quite common, mostly mild, and higher than reported in other regions and that psychological symptoms were experienced the most. The pattern of symptoms and extent of symptoms were similar in many aspects to other Indian studies. Symptoms were maximum during the stage of irregular menstrual cycles. Women and men (who support them) would benefit by having better information on menopause, its consequences, care options available, and means to access the care. Information must be timely as this helps to set one's mind at rest and not create stress wondering about the cause behind the appearance of uncomfortable symptoms which one does not understand. Strengthening mental health services would also help menopausal women. In the final analysis, there is a great need to develop and disseminate correct information that emphasizes menopause as a normal phase of women's lives that can benefit with therapy. Primary care physicians armed with knowledge regarding the needs of the community can play a vital role in implementing key strategies to tackle menopause and its effects. Among others, the use of hormone therapy, which has efficacy for symptoms, osteoporosis, and improved metabolic and cardiovascular health, can especially be implemented. When instituted early in younger post-menopausal women (under 60 years), estrogen has been found to consistently decrease mortality with a favorable risk-benefit profile in low-risk women.^[26]

Limitations of the Study

- (a) Being in the field practice area of healthcare institutions, awareness of the population may be different from the general population.
- (b) Findings are for a particular socio-cultural background, and thus, care may be taken when extrapolating findings.
- (c) Being interview-based responses, one can only assume that responses given are true.
- (d) Being a subject still largely not spoken about, it is possible that some responses may have been given out of a sense of diffidence or inability to voice hidden concerns.

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Conflicts of interest

There are no conflicts of interest.

References

1. Ahuja M. Age of menopause and determinants of menopause age: A PAN India survey by IMS. *J Midlife Health* 2016;7:126-31.
2. Santoro N. Perimenopause: From research to practice. *J Women's Health (Larchmt)* 2016;25:332-9.
3. Soules MR, Sherman S, Parrott E, Rebar R, Santoro N, Utian W, *et al.* Executive summary: Stages of Reproductive Aging Workshop (STRAW). *Fertil Steril* 2001;76:874-8.
4. World Health Organization. Fact Sheet. Menopause. Available from: <https://www.who.int/news-room/fact-sheets/detail/menopause>.
5. Wani RJ, Gupta AS. Money and menopause: The relationship between socioeconomic class and awareness about menopause in women in Mumbai, India. *J Obstet Gynaecol India* 2013;63:199-202.
6. Aninye IO, Laitner MH, Chinnappan S; Society for Women's Health Research Menopause Working Group. Menopause preparedness: Perspectives for patient, provider, and policymaker consideration. *Menopause* 2021;28:1186-91.
7. Kalhan M, Singhania K, Choudhary P, Verma S, Kaushal P, Singh T. Prevalence of menopausal symptoms and its effect on quality of life among rural middle aged women (40-60 years) of Haryana, India. *Int J Appl Basic Med Res* 2020;10:183-8.
8. Heinemann LA, Potthoff P, Schneider HP. International versions of the Menopause Rating Scale (MRS). *Health Qual Life Outcomes* 2003;1:28. doi: 10.1186/1477-7525-1-28.
9. Heinemann K, Ruebig A, Potthoff P, Schneider HP, Stelow F, Heinemann LA, *et al.* The Menopause Rating Scale (MRS) scale: A methodological review. *Health Qual Life Outcomes* 2004;2:45. doi: 10.1186/1477-7525-2-45.
10. Khatoon F, Sinha P, Shahid S, Gupta U. Assessment of menopausal symptoms using modified menopause rating scale (MRS) in women of Northern India. *Int J Reprod Contracept Obstet Gynecol* 2018;7:947-51.
11. Kim MK, Seo SK, Chae HD, Hwang KJ, Kim T, Yoon BK, *et al.* Perceptions of postmenopausal symptoms and treatment options among middle-aged Korean women. *Yonsei Med J* 2017;58:533-9.
12. Mahajan N, Aggarwal M, Bagga A. Health issues of menopausal women in North India. *J MidlifeHealth* 2012;3:84-7.
13. Pallikadavath S, Ogollah R, Singh A, Dean T, Dewey A, Stones W. Natural menopause among women below

- 50 years in India: A population-based study. *Indian J Med Res* 2016;144:366-77.
14. Ossewaarde ME, Bots ML, Verbeek AL, Peeters PH, van der Graaf Y, Grobbee DE, *et al.* Age at menopause, cause-specific mortality and total life expectancy. *Epidemiology* 2005;16:556-62.
 15. Alsugeir D, Wei L, Adesuyan M, Cook S, Panay N, Brauer R. Hormone replacement therapy prescribing in menopausal women in the UK: A descriptive study. *BJGP Open* 2022;6:BJGPO.2022.0126. doi: 10.3399/BJGPO.2022.0126.
 16. Jadhav A, Bavaskar Y. An epidemiological study of the perimenopausal and menopausal health problems in women living in an urban area of Mumbai, Maharashtra. *Int J Community Med Public Health* 2017;4:3088-93.
 17. Joseph N, Nagaraj K, Saralaya V, Nelliyanil M, Rao PJ. Assessment of menopausal symptoms among women attending various outreach clinics in South Canara District of India. *J Midlife Health* 2014;5:84-90.
 18. Nagaraj D, Ramesh N, Devraj D, Umman M, John AK, Johnson AR. Experience and perceptions regarding menopause among rural women: A cross-sectional hospital-based study in South Karnataka. *J Mid-life Health* 2021;12:199-205.
 19. Borker SA, Venugopalan PP, Bhat SN. Study of menopausal symptoms, and perceptions about menopause among women at a rural community in Kerala. *J Mid-life Health* 2013;4:182-7.
 20. Dalal PK, Agarwal M. Postmenopausal syndrome. *Indian J Psychiatry* 2015;57(Suppl 2):S222-32.
 21. Pal A, Hande D, Khatri S. Assessment of menopausal symptoms in perimenopause and post menopause women above 40 years in rural area Maharashtra (India). *Int J Healthcare Biomed Res* 2013;1:166-74.
 22. Ilankoon IMPS, Samarasinghe K, Elġan C. Menopause is a natural stage of aging: A qualitative study. *BMC Womens Health* 2021;21:47. doi: 10.1186/s12905-020-01164-6.
 23. Dashti S, Bahri N, Fathi Najafi T, Amiridelui M, Latifnejad Roudsari R. Influencing factors on women's attitudes toward menopause: A systematic review. *Menopause* 2021;28:1192-200.
 24. Gandhi A, Pandit S, Malhotra J, Joshi M, Desai J, Biniwale P, *et al.* Iron deficiency in peri-menopausal women: Clinical considerations from an expert consensus. *Indian J Obstet Gynecol Res* 2022;9:153-61.
 25. NIH State-of-the-Science Conference Statement on management of menopause-related symptoms. *NIH Consens State Sci Statements* 2005;22:1-38.
 26. Lobo RA, Gompel A. Management of menopause: A view towards prevention. *Lancet Diabetes Endocrinol* 2022;10:457-70.