International Journal of Public Health Science (IJPHS)
Vol. 14, No. 3, September 2025, pp. 1347~1356
ISSN: 2252-8806, DOI: 10.11591/ijphs.v14i3.26055

Quality of life among peri menopausal and post-menopausal women from rural area of Western India

Sanjana Maniktalla[1], Jayashree Sachin Gothankar[2], Arvinder Pal Singh Narula[3]
[1]Department of Community Medicine, Bharati Vidyapeeth (DU) Medical College and Hospital, Pune, India
[2]Incharge-Research, Central Research and Publication Unit (CRPU) and Professor Community Medicine, Bharati Vidyapeeth (DU) Medical College, Pune, India
[3]Department of Community Medicine, Bharati Vidyapeeth (DU) Medical College and Hospital, Pune, India

Article Info

Article history:

Received Oct 14, 2024
Revised Dec 16, 2024
Accepted Mar 6, 2025

Keywords:

Energy
Memory
Menopausalqol questionnaire
Menopause
Sleep

ABSTRACT

Menopause, remains a poorly investigated topic holding increased taboo. In addition to symptoms categorized under vasomotor, vaginal, energy, food and insomnia, it is linked to occurrence of various medical comorbidities. Understanding the status of menopause symptoms and awareness will help provide insight on how it influences women's quality of life. Objective was to assess the association of menopause on attributes of sleep, energy, memory, work, leisure and everyday activities affecting quality of life. This was a community based cross-sectional study conducted over three months in randomly selected villages under rural field practice area of private medical college in Maharashtra. Data was collected during health camps along with house visits. Research tool containing socio-demographic, menopausal status and quality of life components was used targeting women aged 40-65 years. Logistic regression analysis was used to find odds ratio and adjusted odds ratio respectively for menopausal symptoms with associated attributes at 5% level of significance and 95% CI. Results showed the mean age of women was 48.16 years ±8.4 SD, by which 57% had fully attained menopause and it was associated with significant changes in sleep, memory and physical relations. This study lays emphasis on the fact that menopause period is associated with sleep and memory disturbances as well as physical relations in rural women. It also highlights on the poor knowledge and attitude pertaining to menopause in a rural setup.

Corresponding Author:

Sanjana Maniktalla
Department of Community Medicine, Bharati Vidyapeeth (DU) Medical College and Hospital
Pune, Maharashtra, India
Email: s.maniktalla96@gmail.com

1. INTRODUCTION

The years leading up to a peri-menopausal woman achieving menopause are full of uncertainty and significant changes which profoundly impact the woman's quality of life (QOL). Numerous authors in [1]–[3], are of the opinion that menopause not only influences the physical well-being, but it deeply affects the social and mental health as well, thus playing a pivotal role in the welfare and health of a woman. The 2011 census of India, [4]–[6] states that about 96 million women aged 45 years and above had attained menopause and this number is expected to increase to 401 million in 2026 owing to a decline in fertility and early adoption of sterilization. Past studies [7]–[9] have highlighted the effect of menopause on the physical health of women in detail. Amongst the variety of symptoms and varying clinical picture of menopause seen across women of different groups and ethnicities, majority of them can be grouped under four main

categories namely vasomotor, vaginal, insomnia and food. Even though the present public health scenario amongst women, as stated by Meeta *et al.* [10] is not so bleak as before with primary health care and its branches making healthcare resources accessible to the previously marginalized areas, a woman is still not aware about her needs which makes her unable to make sound decisions regarding herself. A woman's quality of life is not just influenced by her physical health, rather there's an interplay of numerous other variables, all of which combined, attribute to her lifestyle and quality of living. From a public health point of view, not enough studies have been conducted on effect of menopause on variables apart from physical health and its symptomatology and the perception of menopause amongst women in a rural setting, where social stigmas play a crucial role in availing health benefits. By analyzing the associations between menopause and above mentioned variables like mood, energy, and physical relations, we can design a more cohesive approach for designing the necessary interventions needed to improve quality of life of women belonging to both perimenopausal and post-menopausal categories.

Thus, we conducted this study with the objective of assessing the association of menopause on certain attributes of life namely sleep, energy, memory, work, leisure, physical relations, and everyday activities, all which play a significant role in determining quality of life of women. These aspects were chosen due to their relevance in influencing overall well-being during menopause. The aim of this study was to better our understanding of how menopause affects daily functioning and general life satisfaction of women.

2. RESEARCH METHOD

2.1. Study design

A community based cross-sectional study was conducted over a period of three months. A list of villages under rural field practice area of private medical college in Maharashtra, India was obtained. The study was carried out by organizing a general health check-up camp at a randomly selected village from the list. Additional data was gathered by house to house visits at the same and consecutive villages as per the list.

2.2. Setting

The study was conducted in rural field practice area of a private medical college in the state of Maharashtra, India. We obtained a list of 13 villages under this area, from which one village, Chande was randomly selected by simple random sampling. A team, which consisted of a principal investigator and a medical social worker was formed. Cooperation of the village head and community mobilizers mainly accredited social health activist (ASHA) workers was sought and they were informed regarding the study objectives and the benefit of carrying out this study in their village. Data was collected by organizing a general health-check up camp at selected village and house to house visits. To fulfil the remaining sample size, next three consecutive village from the list of 13 villages, Nande, Pirangut, and Urawade, were selected. Their village head and community mobilizers including ASHA workers were informed, and for consecutive villages, only house-to-house visits were done. In total, four villages out of thirteen villages were covered and women, who fit the inclusion criteria were assessed for their quality of life using the menopausal quality of life questionnaire.

2.3. Sample size

To calculate sample size, prevalence of 70.2% was considered using findings published by M. Kalhan in his study on prevalence of menopausal symptoms in rural women between the ages of 40-60 years [11]. A permissible error of 10% and confidence level of 95%, was used for calculation. Using these above values, the sample size was calculated to be 162, rounding of to 165.

2.4. Study participants

We screened women between the ages of 40-65 years for inclusion in the study. The inclusion criteria of this study were women who were either peri-menopausal or post-menopausal since 10 years. However, after primary screening for age, women who had induced menopause either by pharmacotherapy or surgically, having pre-existing thyroid condition, hypertension, or diabetes were excluded from the study. During the health check-up camp, at the first village, Chale, 62 women between the ages of 40-65 years were screened again, out of which 29 were excluded due to pre-existing diabetes and hypertension. Hence, 33 women were recruited by the principal investigator for the study. Prior consent was obtained from all the eligible women before administering the questionnaire. Objectives of the study and the Likert scale of questionnaire was explained to the women. Then the questionnaire was administered by the principal investigator though interview method to them. A health talk was given at the end of questionnaire to all women, advising them on what all active interventions can be taken to improve their quality of life and how

to combat menopause effectively. After health check-up camp, house visits were done in same village during which 30 women were recruited after being screened in accordance with inclusion and exclusion criteria and were administered the standardized questionnaire by interview technique. Consecutive villages according to the list, Nande, Pirangut, and Urawade in order, were visited from where 102 women were recruited after screening to fulfil the sample size and their QOL was assessed by Principal Investigator. Counselling on the implications and interventions needed to improve QOL in menopause was done at the end of study to all women irrespective of whether they were included in the study or not.

2.5. Variables

Variables were assessed under three headings of socio-demographic characteristics, status of menopause and quality of life. Under socio-demographic characteristics, the variables used were religion, type of family, education and occupation of the woman as well as her husband and their socio-economic status. These variables indicated towards their status in society and ability to avail resources for betterment of their quality of life. Status of menopause was determined by dividing study participants peri-menopausal and post-menopausal status for better understanding of their signs and symptoms and for health education purposes. For quality of life, eight variables were assessed namely sleep, energy, memory, feelings, physical relations, home and daily life activities, work, social life and leisure activities and their association with status of menopause was determined.

2.6. Data sources and measurement

We designed and validated a research tool consisting of questions on three sections. First, to collect the socio-demographic data. Second, to assess the menopausal status of the woman. Third, menopausal quality of life questionnaire having eight components namely sleep, memory, energy, feelings, physical relations, home and daily life activities, work, social life and daily activities, with 45 questions in total, to assess quality of life in menopause women. Each domain had a list of questions under it, which were scored between 1-6 on a Likert scale, where "1" stands for "I am never like this" to "6" which stands for "I am always like this". Reverse scoring of nineteen questions was done. Maximum score was 45 and minimum score was 270. The tool was first translated to the local language and then back translated to English to check for accuracy and whether the technical terms used indicated the same information that the principal investigator was trying to convey to the subject subjects. It was further certified by the subject expert. A written copy of both the translated as well as English version of this questionnaire was with the principal investigator during the process of data collection. In the end, scoring of each domain was done. Participants who scored less than or equal to half the mean of total score were said to have "Poor QOL", while participants who scored more than half of mean of total score, were said to have "Good QOL".

2.7. Statistical analysis

Statistical analysis was done using SPSS software (version 28.0). Continuous variables results were shown by descriptive statistics. Categorical variables results were shown by frequency and percentages. Independent t-test was used to find association between domains of QOL and menopause. Chi-square test was used to find the association between socio-demographic variables and domains of QOL. Throughout the results, a 5% level of significance was maintained. All results were shown with 95% confidence interval, and p-value of <0.05 was considered as significant.

3. RESULTS AND DISCUSSION

The principal investigator and medical social worker visited four villages, out of thirteen and the principal investigator assessed 165 women for their quality of life and its association with menopause. The map in Figure 1 shows the Pune district in Maharashtra, India. The second, Figure 2 shows a detailed map of Pune, with the rural field practice area where the study was conducted. The map shows a complete list of villages under the field practice area, with four specific villages marked where the study was carried out.

3.1. Socio-demographic characteristics

Table 1 shows the distribution of women according to socio-demographic variables and their percentages. In the current study, mean age was calculated to be 48.16 years ±8.4 SD, with majority of women, 27.87% having attained education up to higher secondary level. Several national and international community based studies [4]–[7] showcased a similar mean age and attainment of education at least up to secondary level [12]–[14]. This showcases a boost towards education amongst women in our study. However, in contrast to the level of education, majority of women, 58.18% in our study were housewives and not earning, in similarity with other studies [15]–[18]. This can be owed to the rural setting where stigma of women being employed and earning, prevails till now. Irrespective of women having achieved a higher

education, compared to other studies, our study highlights the need to create more workplace opportunities to enroll women and increase their self-reliance. Pertaining to education and occupation of husband, 38.79% men had attained education till higher secondary and 35.75% were engaged in service jobs in either public or private sector. This higher proportion of men engaged in service sector further highlights the gender disparity in terms of employment. Socio-economic status was measured by Modified BG Prasad Scale, 2024, which showed majority of women belonged to the lower middle class, as also seen in studies done in a similar setting pertaining to menopause [16], [18].

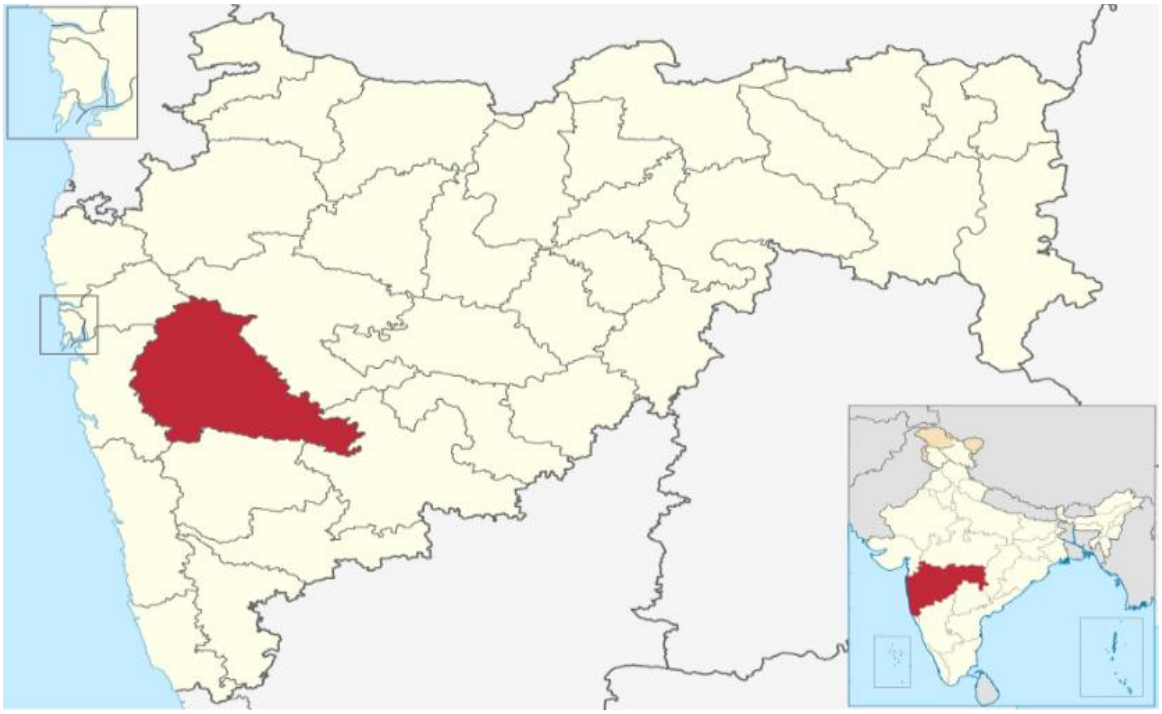

Figure 1. Map of Maharashtra, India with Pune district highlighted

Table 1. Distribution of women pertaining to socio-demographic variables (n = 165)

Variable	Category	Frequency
Religion	Hindu	159 (96.36)
	Buddhism	3 (1.81)
	Muslim	3 (1.81)
Type of family	Extended	6 (3.63)
	Joint	40 (24.24)
	Nuclear	118 (71.51)
Education of women	No formal education	39 (23.63)
	Primary	19 (11.51)
	Secondary	41 (24.84)
	Higher secondary	46 (27.87)
	Graduate	20 (12.12)
Occupation of women	Housewife	96 (58.18)
	Petty business	8 (4.84)
	Service	32 (19.39)
	Agriculture farming	29 (17.57)
Education of husband	No formal education	39 (23.63)
	Primary	6 (3.64)
	Secondary	30 (18.18)
	Higher secondary	64 (38.79)
	Graduate	26 (15.76)
Occupation of husband	Retired	14 (8.48)
	Petty business	14 (8.48)
	Service	59 (35.75)
	Agriculture farming	53 (32.12)
	Deceased	25 (15.2)

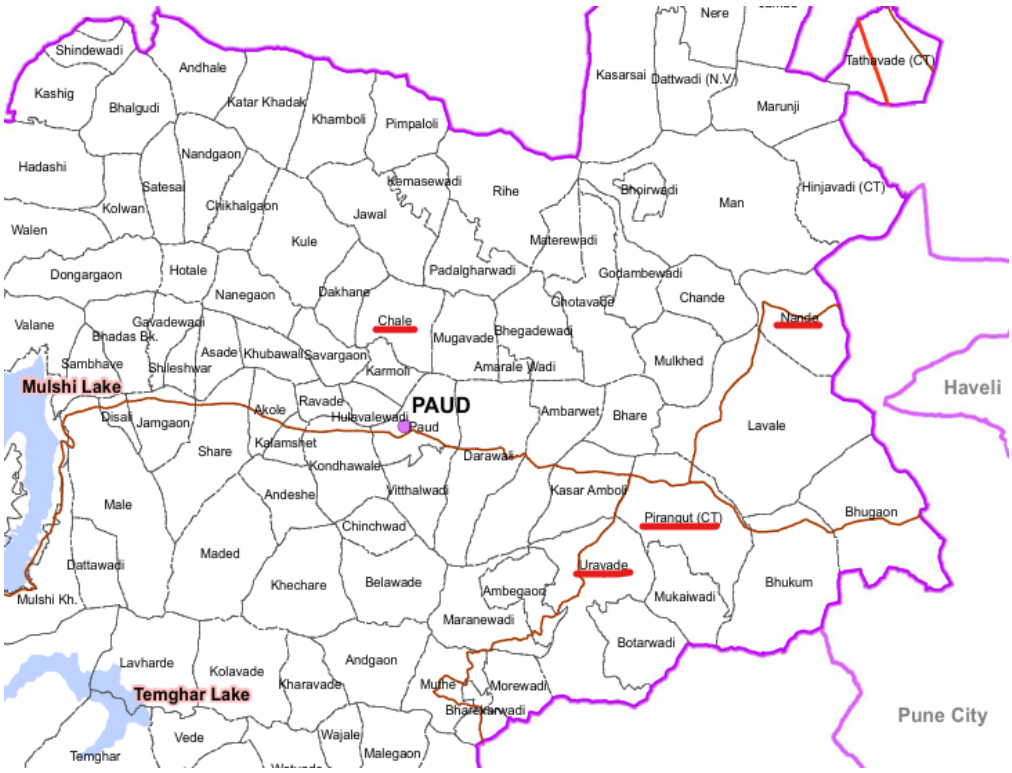

Figure 2. Map of Pune district, which shows the rural field practice area, with specific villages marked where study was conducted

3.2. Quality of life amongst peri-menopausal and post-menopausal women

In our study, 57% women met the criteria of attaining complete menopause, while 43% were in peri-menopausal stage. These results were almost concurrent with percentage of females having attained menopause in other studies [12], [17], [19] in a similar setting. In total eight domains were tested, and a total score was calculated. Women scoring less than or equal to half of mean of total score were said to have "Poor QOL", while women who scored more than half of mean of total score were said to have "Good QOL". For the domain of physical relations, only 63 women answered "yes". For these 63 women, 68.2% had "good QOL" including all eight domains. On excluding physical relations domain, 62.27% women out of 165 had "good QOL" and 32.72% had "poor QOL". These findings are similar to community-based field study in rural setting in Southern India [12], [20]–[22]. This can be owed to similar study setting, age group. Women, specially in rural setting actively participate in all religious events and have increased social interactions, which could have also contributed to this finding. However, this is in contrast to few studies, done in India and abroad, [11], [23], [24] where a significantly higher number of women had "poor QOL". This stark difference can be attributed to improved access to healthcare resources and facilities by women in our study along with better outreach programs to generate awareness on women's health by primary care facilities in rural part of Western India.

3.3. Association between socio-economic characteristics and menopausal QOL

In our study, two separate analysis for association were computed for QOL, one including all domains and the other, excluding the physical relation domain, as only 63 women out of 165 women, answered yes to the domain of physical relations. Tables 2 and 3 depict association of socio-demographic variables with quality of life, with exclusion and inclusion of physical relations domain. No significant association was found between socio-demographic characteristics and quality of life, similar to the study done on middle aged women in rural Northen India [11]. However, the study conducted in an urban setting [18] showed that religion and family size had a significant role to play with decreased QOL in same age group. Other studies of national and international origin, [23], [25], [26] showed that women who were employed had a better QOL but those who were literate had poor QOL compared to those who were less literate. This can be attributed to a different tool to assess QOL, as they had used Hilditch MENQOL questionnaire to assess QOL, in contrast to our study, in which menopausal quality of life questionnaire developed by Hyland of Plymouth University was used, along with different study setting.

Table 2. Association between socio-demographic variables with quality-of-life with exclusion of physical relations domain (n = 165)

Variable	Category	QOL excluding PR		Total	Chi-square value	p-value
		Poor	Good			
Religion	Buddhism	1 (33.3)	2 (66.7)	3 (100)	3.51	0.31
	Hindu	53 (33.3)	106 (66.7)	159 (100)		
	Muslim	0 (0)	3 (100)	3 (100)		
Type of family	extended	4 (66.7)	2 (33.3)	6 (100)	3.72	0.29
	joint	14 (34.1)	28 (68.29)	41 (100)		
	nuclear	37 (31.3)	81 (68.6)	118 (100)		
Education of woman	No formal education	16 (41)	23 (59)	39 (100)	8.96	0.06
	Primary	9 (47.4)	10 (52.6)	19 (100)		
	Secondary	15 (36.6)	26 (63.4)	41 (100)		
	Higher secondary	12 (26.1)	34 (73.9)	46 (100)		
	Graduate	2 (10)	18 (90)	20 (100)		
Occupation of woman	Housewife	36 (37.5)	60 (62.5)	96 (100)	4.09	0.25
	Petty business	2 (25)	6 (75)	8 (100)		
	Service	6 (18.8)	26 (82.2)	32 (100)		
	Agriculture farming	10 (52.6)	19 (47.4)	29 (100)		
Education of husband	No formal education	16 (41)	23 (59)	39 (100)	4.88	0.29
	Primary	3 (50)	3 (50)	6 (100)		
	Secondary	12 (30)	18 (70)	30 (100)		
	Higher secondary	16 (25)	48 (75)	64 (100)		
	Graduate	7 (26.9)	19 (73.1)	26 (100)		
Occupation of husband	Retired	5 (35.7)	9 (65.3)	14 (100)	2.73	0.43
	Petty business	3 (21.4)	11 (78.6)	14 (100)		
	Service	15 (25.4)	44 (75.6)	59 (100)		
	Agriculture farming	20 (37.7)	33 (62.3)	53 (100)		

Table 3. Association between socio-demographic variables with quality of life for women with inclusion of physical relations domain (n = 63)

Variable	Category	QOL including PR		Total	Chi-square value	p-value
		Bad	Good			
Religion	Hindu	20 (32.2)	42 (67.8)	62 (100)	0.47	0.49
	Muslim	0 (0)	1 (100)	1 (100)		
Type of family	Extended	0 (0)	2 (100)	2 (100)	1.05	0.59
	Joint	7 (30.4)	16 (69.6)	23 (100)		
	Nuclear	13 (34.2)	25 (66.8)	38 (100)		
Education of woman	No formal education	1 (14.3)	6 (85.7)	7 (100)	3.92	0.41
	Primary	2 (33.3)	4 (66.7)	6 (100)		
	Secondary	6 (40)	9 (60)	15 (100)		
	Higher secondary	9 (41)	13 (59)	22 (100)		
	Graduate	2 (15.4)	11 (84.6)	13 (100)		
Occupation of woman	Housewife	14 (45.2)	17 (54.8)	31 (100)	7.62	0.05
	Petty business	2 (50)	2 (50)	4 (100)		
	Service	3 (20)	12 (80)	15 (100)		
	Farming	1 (7.7)	12 (92.3)	13 (100)		
Education of husband	No formal education	1 (25)	3 (75)	4 (100)	0.77	0.94
	Primary	1 (50)	1 (50)	2 (100)		
	Secondary	4 (30.8)	9 (59.2)	13 (100)		
	Higher secondary	8 (28.6)	20 (71.4)	28 (100)		
	Graduate	6 (37.5)	10 (62.5)	16 (100)		
Occupation of husband	Retired	0 (0)	2 (100)	2 (100)	2.03	0.56
	Petty business	4 (40)	6 (60)	10 (100)		
	Service	7 (26.9)	19 (73.1)	26 (100)		
	Farming	9 (39.1)	14 (60.9)	23 (100)		

3.4. Health domains and menopause

Quality of life was assessed under eight domains according to the menopausal quality of life questionnaire. Table 4 showcases relation of various domains of quality of life with menopause. Association between these domains and attainment of menopause was observed. Under the domain of sleep, energy and memory, significant association was seen between them and women in the post-menopausal group, similar to studies done [11], [12], [24], [27] to assess QOL in peri-menopausal and post-menopausal women. Domain of physical relations exhibited uniqueness pertaining to women in peri-menopausal category, having decreased physical relations compared to women in post-menopausal category [23]. This can be attributable to the lack of awareness of symptoms occurring during this stage, thus impacting the physical as well as mental aspect of health, thereby enhancing the need to generate awareness starting from peri-menopausal stages and before.

3.5. Area of residence

Our study revealed that 32.72% of women residing in rural area had unsatisfactory QOL, excluding the physical relations (PR) component. This finding is in accordance with several other studies, [11], [12], [28]–[31]. A higher proportion of women experienced poor QOL in rural setting. This was primarily due to a different study setting and delays in accessing and affording healthcare. The situation was further worsened by limited resources available in rural areas.

Table 4. Relation of various domains of QOL with menopause (n = 165), (physical relations n = 63)

Domain	Attainment of menopause	N	Mean	Std. deviation	Std. error mean	p-value
Sleep	Po-M	94	22.11	6.711	.692	0.001
	Peri-M	71	25.41	5.756	.683	
Energy	Po-M	94	12.46	4.807	.496	0.002
	Peri-M	71	14.75	4.348	.516	
Memory	Po-M	94	14.41	5.237	.540	0.006
	Peri-M	71	16.65	4.841	.574	
Feelings	Po-M	94	37.88	9.176	.946	0.067
	Peri-M	71	40.31	7.165	.850	
Physical relations	Po-M	21	11.90	2.548	.556	0.039
	Peri-M	42	13.50	2.949	.455	
Home and daily life activities	Po-M	94	21.52	5.572	.575	0.222
	Peri-M	71	22.51	4.446	.528	
Work	Po-M	94	29.10	5.731	.591	0.168
	Peri-M	71	27.93	4.797	.569	
Social life and leisure activities	Po-M	94	23.63	5.257	.542	0.100
	Peri-M	71	24.99	5.175	.614	

*Po-M:- post-menopausal, Peri-M:- peri-menopausal

3.6. Strengths and weaknesses

This study contributed substantially in focusing on domains other than physical health which also get impacted during menopause. Secondly, this study was done in a rural setting, where effect of socio-economic status, education, lack of resources and mental strain caused by them in association with menopause could be studied in depth. However, in such a setting it is common to see women participating eagerly in cultural events, religious practices, and prayers, which attributed to increased proportion of women having a good quality of life in our study. Thirdly, this study not only educated the beneficiaries but also the ASHA workers, who deal with the community on daily basis, thus providing indirect training for them to sensitize the public to this issue. Fourthly, this study not only included the women having achieved menopause, but peri-menopausal women as well, who are approaching this significant phase of their life. This helped them develop a better understanding of the physical, mental and social changes associated with menopause, along with a better approach to deal with them in a timely manner. Lastly, husbands' education and occupation was also taken into account as it plays a key role in the mental well-being and health-seeking behavior of their partners. Our study emphasizes the need to concentrate on menopausal women, as this phase is associated with increased risk of developing comorbidities. Thus, regular health check-ups can be organized under secondary or tertiary care centers. This was a small study involving only 165 beneficiaries in lieu of which more studies with larger sample size need to be carried out in women in varying stages of reproductivity, to affirm and increase our understanding of the findings of our study. The remaining nine villages under the rural field practice area, can be covered as well, as only four were covered by our study. It is vital to shift the focus from physical symptoms of menopause to a cohesive approach involving other domains, all of which influence quality of life in a woman.

4. CONCLUSION

Almost two-thirds of the rural perimenopausal and postmenopausal women in rural area had satisfactory quality of life. However, this period of life is associated with significant changes in sleep, memory, energy and physical relations. Menopause influences more than one-third of a woman's lifespan and lack of knowledge pertaining to it both in healthcare givers and receivers pose a major hurdle in improving their QOL. Hence, more studies need to be done to evaluate the factors affecting the QOL amongst peri and postmenopausal women and measures to tackle the same. Apart from research-related activities, healthcare system needs to be more involved in teaching the postmenopausal women about the possible health issues during menopause and developing a more acceptable behavior regarding it along with practicing the necessary lifestyle modifications needed to improve their quality of life.

ACKNOWLEDGMENTS

The authors are thankful to the participants for their cooperation. This study could be conducted with the co-operation of medical social workers, village heads and ASHA workers.

FUNDING INFORMATION

Authors state no funding involved.

AUTHOR CONTRIBUTIONS STATEMENT

This journal uses the Contributor Roles Taxonomy (CRediT) to recognize individual author contributions, reduce authorship disputes, and facilitate collaboration.

Name of AuthorF	C	M	So	Va	Fo	I	R	D	O	E	Vi	Su	P	Fu
Sanjana Maniktalla	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	
Jayashree Sachin Gothankar	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓		
Arvinder Pal Singh Narula	✓			✓		✓	✓			✓		✓	✓	

C : **C**onceptualization
M : **M**ethodology
So : **So**ftware
Va : **Va**lidation
Fo : **Fo**rmal analysis
I : **I**nvestigation
R : **R**esources
D : **D**ata Curation
O : Writing - **O**riginal Draft
E : Writing - Review & **E**diting
Vi : **Vi**sualization
Su : **Su**pervision
P : **P**roject administration
Fu : **Fu**nding acquisition

CONFLICT OF INTEREST STATEMENT

Authors state no conflict of interest.

INFORMED CONSENT

We have obtained informed verbal consent from all individuals included in this study.

ETHICAL APPROVAL

The research related to human use has been complied with all the relevant national regulations and institutional policies in accordance with the tenets of the Helsinki Declaration and has been approved by the authors' institutional review board or equivalent committee. The approval number given by institutional ethics review board was (IEC) (BVDUMC/IEC/51A). The inclusion of study participants commenced only after obtaining the required permissions. Consent of all participants was obtained for data collection purpose. Assurance was given about maintaining anonymity for publication purposes.

DATA AVAILABILITY

The data that support the findings of this study are available on request from the corresponding author, [SM]. The data, which contain information that could compromise the privacy of research participants, are not publicly available due to certain restrictions.

REFERENCES

[1] K. Peacock, K. Carlson, and Kari M. Ketvertis, "Menopause," *StatPearls*. Accessed: Jul. 15, 2022. [Online]. Available: https://www.ncbi.nlm.nih.gov/books/NBK507826/.

[2] K. M. Bermingham *et al.*, "Menopause is associated with postprandial metabolism, metabolic health and lifestyle: The ZOE PREDICT study," *eBioMedicine*, vol. 85, p. 104303, Nov. 2022, doi: 10.1016/j.ebiom.2022.104303.

[3] K. D. Ballard, D. J. Kuh, and M. E. J. Wadsworth, "The role of the menopause in women's experiences of the 'change of life,'" *Sociology of Health & Illness*, vol. 23, no. 4, pp. 397–424, Jul. 2001, doi: 10.1111/1467-9566.00258.

[4] S. Pallikadavath, R. Ogollah, A. Singh, T. Dean, A. Dewey, and W. Stones, "Natural menopause among women below 50 years in India," *Indian Journal of Medical Research*, vol. 144, no. 3, pp. 366–377, Sep. 2016, doi: 10.4103/0971-5916.198676.

[5] N. E. Avis *et al*., "Is there a menopausal syndrome? Menopausal status and symptoms across racial/ethnic groups," *Social Science & Medicine*, vol. 52, no. 3, pp. 345–356, Feb. 2001, doi: 10.1016/S0277-9536(00)00147-7.
[6] N. Santoro, C. Roeca, B. A. Peters, and G. Neal-Perry, "The menopause transition: Signs, symptoms, and management options," *The Journal of Clinical Endocrinology & Metabolism*, vol. 106, no. 1, pp. 1–15, Jan. 2021, doi: 10.1210/clinem/dgaa764.
[7] S. Borker, P. Venugopalan, and S. Bhat, "Study of menopausal symptoms, and perceptions about menopause among women at a rural community in Kerala," *Journal of Mid-life Health*, vol. 4, no. 3, p. 182, 2013, doi: 10.4103/0976-7800.118997.
[8] J. Whiteley, M. daCosta DiBonaventura, J.-S. Wagner, J. Alvir, and S. Shah, "The Impact of Menopausal Symptoms on Quality of Life, Productivity, and Economic Outcomes," *Journal of Women's Health*, vol. 22, no. 11, pp. 983–990, Nov. 2013, doi: 10.1089/jwh.2012.3719.
[9] B. J. DePree, A. Shiozawa, J. Kim, Y. Wang, H. Yang, and S. Mancuso, "Treatment satisfaction, unmet needs, and new treatment expectations for vasomotor symptoms due to menopause: women's and physicians' opinions," *Menopause*, vol. 31, no. 9, pp. 769–780, Sep. 2024, doi: 10.1097/GME.0000000000002399.
[10] M. Meeta, L. Digumarti, N. Agarwal, N. Vaze, R. Shah, and S. Malik, "Clinical practice guidelines on menopause: *An executive summary and recommendations: Indian menopause society 2019–2020," *Journal of Mid-life Health*, vol. 11, no. 2, p. 55, 2020, doi: 10.4103/jmh.JMH_137_20.
[11] M. Kalhan, K. Singhania, P. Choudhary, S. Verma, P. Kaushal, and T. Singh, "Prevalence of menopausal symptoms and its effect on quality of life among rural middle aged women (40–60 Years) of Haryana, India," *International Journal of Applied and Basic Medical Research*, vol. 10, no. 3, p. 183, 2020, doi: 10.4103/ijabmr.IJABMR_428_19.
[12] B. Jayabharathi and A. Judie, "Severity of menopausal symptoms and its relationship with quality of life in post menopausal women-a community based study," *International Journal of Pharmaceutical and Clinical Research*, vol. 8, no. 1, pp. 33–38, 2016.
[13] N. Mahajan, M. Aggarwal, and A. Bagga, "Health issues of menopausal women in North India," *Journal of Mid-life Health*, vol. 3, no. 2, p. 84, 2012, doi: 10.4103/0976-7800.104467.
[14] A. Singh and A. Arora, "Profile of menopausal women in rural north India," *Climacteric*, vol. 8, no. 2, pp. 177–184, Jun. 2005, doi: 10.1080/13697130500117920.
[15] E. Yisma, N. Eshetu, S. Ly, and B. Dessalegn, "Prevalence and severity of menopause symptoms among perimenopausal and postmenopausal women aged 30-49 years in Gulele sub-city of Addis Ababa, Ethiopia," *BMC Women's Health*, vol. 17, no. 1, p. 124, Dec. 2017, doi: 10.1186/s12905-017-0484-x.
[16] A. K. Agarwal, N. Kiron, R. Gupta, A. Sengar, and P. Gupta, "A study of assessment menopausal symptoms and coping strategies among middle age women of North Central India," *International Journal Of Community Medicine And Public Health*, vol. 5, no. 10, p. 4470, Sep. 2018, doi: 10.18203/2394-6040.ijcmph20183995.
[17] A. Punia, S. Lekha, and M. Punia, "Assessment of menopausal problems among rural women using modified menopause rating scale," *International Journal of Medical Science and Public Health*, vol. 6, no. 4, p. 1, 2017, doi: 10.5455/ijmsph.2017.1165712122016.
[18] Y. Krishnamoorthy, G. Sarveswaran, V. Jayaseelan, M. Sakthivel, Y. Arivarasan, and N. Bharathnag, "Assessment of quality of life based on psychological, somatovegetative, and urogenital health problems among postmenopausal women in Urban Puducherry, South India: A cross-sectional observational study," *Journal of Mid-life Health*, vol. 9, no. 4, p. 173, 2018, doi: 10.4103/jmh.JMH_61_18.
[19] Y.-K. Shyu, C.-H. Pan, W.-M. Liu, J.-Y. Hsueh, C.-S. Hsu, and P.-S. Tsai, "Health-related quality of life and healthcare resource utilization in Taiwanese women with menopausal symptoms," *Journal of Nursing Research*, vol. 20, no. 3, pp. 208–218, Sep. 2012, doi: 10.1097/jnr.0b013e318265619b.
[20] H. Lee and J. Kim, "Core contents for a menopausal health literacy intervention for South Korean middle-aged women: an e-Delphi study," *BMC Nursing*, vol. 23, no. 1, p. 509, Jul. 2024, doi: 10.1186/s12912-024-02179-2.
[21] M. Taebi, S. Abdolahian, G. Ozgoli, A. Ebadi, and N. Kariman, "Strategies to improve menopausal quality of life: A systematic review," *Journal of Education and Health Promotion*, vol. 7, no. 1, p. 93, 2018, doi: 10.4103/jehp.jehp_137_17.
[22] V. Singh and M. Sivakami, "Normality, freedom, and distress: Listening to the menopausal experiences of Indian Women of Haryana," in *The Palgrave Handbook of Critical Menstruation Studies*, Singapore: Springer Singapore, 2020, pp. 985–999. doi: 10.1007/978-981-15-0614-7_70.
[23] S. Ray and A. Dasgupta, "An assessment of QOL and its determining factors of post menopausal women in a rural area of West Bengal, India: A multivariate analysis," *International Journal of Medicine and Public Health*, vol. 2, no. 4, pp. 12–19, Oct. 2012, doi: 10.5530/ijmedph.2.4.3.
[24] N. Nisar and N. A. Sohoo, "Frequency of menopausal symptoms and their impact on the quality of life of women: A hospital based survey," *Journal of the Pakistan Medical Association*, vol. 59, no. 11, pp. 752–756, 2009.
[25] P. A. Jacobs, M. E. Hyland, and A. Ley, "Self-rated menopausal status and quality of life in women aged 40-63 years," *British Journal of Health Psychology*, vol. 5, no. 4, pp. 395–411, Nov. 2000, doi: 10.1348/135910700169008.
[26] N. Safwan *et al.*, "Menopause in the workplace: Challenges, impact, and next steps," *Maturitas*, vol. 185, p. 107983, Jul. 2024, doi: 10.1016/j.maturitas.2024.107983.
[27] T. M. Nguyen, T. T. T. Do, T. N. Tran, and J. H. Kim, "Exercise and quality of life in women with menopausal symptoms: A systematic review and meta-analysis of randomized controlled trials," *International Journal of Environmental Research and Public Health*, vol. 17, no. 19, p. 7049, Sep. 2020, doi: 10.3390/ijerph17197049.
[28] L. L. Sievert, "Menopause as a measure of population health: An overview," *American Journal of Human Biology*, vol. 13, no. 4, pp. 429–433, Jul. 2001, doi: 10.1002/ajhb.1075.
[29] V. Malla and A. Tuteja, "Menopausal spectrum of urban Indian women," *Journal of Mid-life Health*, vol. 5, no. 2, p. 99, 2014, doi: 10.4103/0976-7800.134005.
[30] N. Karmakar, S. Majumdar, A. Dasgupta, and S. Das, "Quality of life among menopausal women: A community-based study in a rural area of West Bengal," *Journal of Mid-life Health*, vol. 8, no. 1, p. 21, 2017, doi: 10.4103/jmh.JMH_78_16.
[31] E. Jenabi, F. Shobeiri, S. M. M. Hazavehei, and G. Roshanaei, "Assessment of questionnaire measuring quality of life in menopausal women: A systematic review," *Oman Medical Journal*, vol. 30, no. 3, pp. 151–156, May 2015, doi: 10.5001/omj.2015.34.

BIOGRAPHIES OF AUTHORS

Sanjana Maniktalla is a third year junior resident at Department of Community Medicine, Bharati Vidyapeeth Deemed University Medical College, Satara Road, Pune, India. She has currently pursuing Doctor of Medicine (MD) in Preventive and Social Medicine. She has a currently a primary investigator in projects related to respiratory health as well as non-communicable diseases. My areas of interest include maternal and child healthcare as well as preventive oncology. She can be contacted at email: s.maniktalla96@gmail.com.

Jayashree Sachin Gothankar is a Professor in the Department of Community Medicine and in charge-research, Central Research and Publication Unit (CRPU) Bharati Vidyapeeth Deemed University Medical College and Hospital, Satara Road, Pune, India. She interested in the infectious disease epidemiology specifically respiratory diseases and maternal and child health. She was also the site leader for the HDSS of the institute and PI for various externally funded projects, namely ICMR and BMGF. She has been guiding postgraduate and Ph.D. students for last few years. She can be contacted at email: jayashreesg@rediffmail.com.

Arvinder Pal Singh Narula is an Assistant Professor, Department of Community Medicine, Bharati Vidyapeeth Deemed University Medical College, Satara Road, Pune, India. His is in-charge of the Rural Health Trining Centre of the Medical College. His involved in activities related to maternal health research and in the health and demographic survey in rural area. He has guided many undergraduate research projects especially related to immunization. He can be contacted at email: arvindernarula@rediffmail.com.