

# Patterns and Correlates of Post-menopausal Symptoms in a Cohort of Gynecological Patients Attending Outpatient Department

P Kasikrishnaraja<sup>1</sup>, Senthil Sainathan<sup>2</sup>, M Indira<sup>3</sup>

<sup>1</sup>Associate Professor, Department of Psychiatry, IRT Perundurai Medical College, Perundurai, Erode, Tamil Nadu, India, <sup>2</sup>Assistant Professor, Department of Psychiatry, IRT Perundurai Medical College, Perundurai, Erode, Tamil Nadu, India, <sup>3</sup>Assistant Professor, Department of Obstetrics and Gynecology, IRT Perundurai Medical College, Perundurai, Erode, Tamil Nadu, India

## Abstract

**Objectives:** The aim of this study is to assess the post-menopausal symptoms and to correlate it with parity and various sociodemographic data.

**Materials and Methods:** It was a cross-sectional study hospital-based assessment conducted at the Department of Obstetrics and Gynecology at IRT Perundurai Medical College. A total of 43 healthy participants who presented in the outpatient department were included in the study. All the 43 study participants filled out the menopausal rating scale (MRS) providing data for statistical analysis. The age of participants ranged from 40 to 60 years. Women with surgical menopause, receiving hormonal treatment, having serious medical comorbidities such as thyroid disorders, cardiovascular disorders, diabetes mellitus, and hypertension and those who refused to participate were not included. MRS was used to assess the post-menopausal symptoms assessing the urogenital, psychological, and physical domains.

**Results:** A total of 60 participants were identified, 17 were excluded and 43 participated. The menopausal age was lower and the total mean MRS score was higher among the study population. The parity and age of the participants were inversely correlated, and also parity and age at menopause were also inversely correlated. Musculoskeletal pain and depression were the most severe symptom cluster.

**Conclusions:** Menopausal symptoms were highly prevalent, often underdiagnosed with pain symptoms and psychological cluster predominating.

**Key words:** Depression, Menopause rating scale, Musculoskeletal pain, Post-menopause, Urogenital symptoms

## INTRODUCTION

Menopause is the phase in women's reproductive life in which menstruation stops. The World Health Organization defines natural menopause as the permanent cessation of menstruation resulting from the loss of ovarian follicular activity without an obvious intervening cause and is confirmed only after 12 consecutive months of amenorrhea.<sup>1</sup> About 130 million Indian women are

expected to live beyond menopause by 2015.<sup>2</sup> With scientific advancement, there is a general increase in women's life expectancy, thus many women were likely to live at least two decades' post-menopause, in an estrogen-deficient state.<sup>3</sup> Some of the post-menopausal symptoms such as musculoskeletal pain, urogenital symptoms, and depression experienced women can be disruptive enough to affect the quality of life (QoL) in a negative way.<sup>4</sup> More than 80% of women experience physical or psychological symptoms in the year approaching menopause with various distress and distribution in their lives, leading to decrease in QoL. Menopause-related symptoms have been extensively studied in Western countries, but very little data are available from developing countries, especially Southeast Asia.<sup>4</sup> According to the Indian Menopause Society, there were about 65 million Indian women over

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**Corresponding Author:** Dr. P Kasikrishnaraja, Department of Psychiatry, IRT Perundurai Medical College, Perundurai - 638 053, Erode, Tamil Nadu, India. Phone: +91-9443343642. E-mail: Drkasi@gmail.com

the age of 45 years in the year 2006. Hence, menopausal health demands even higher health-care resource in Indian population.<sup>5</sup> In India, there are lesser health programs that cater to the specific health needs of post-menopausal women. This study is expected to bring out the magnitude of suffering due to health issues among post-menopausal women, which can be addressed at proper platform of sociocultural relevance. Early menopause: It is the time span between the spontaneous or iatrogenic menopause occurring between the age of 40 years and the accepted typical age of menopause for a given population. Delayed menopause: It is not only defined but also may be important in terms of the increased problems associated with the hyperestrogenism. Delayed menopause is 2 SDs over and above the natural average age of menopause in a given population. We may consider it to be beyond 54 years. Premenstrual bleeding is defined as uterine bleeding occurring after at least 1 year of amenorrhea. Commonly reported symptoms of premenstrual syndrome include hot flushes, night sweats, sleep disturbances, urinary frequency, vaginal dryness, poor memory, anxiety, and depression. This study is expected to bring out the magnitude and prevalence of post-menopausal symptoms in a rural population center Perundurai.

The instrument used in this study is the menopause rating scale (MRS). The MRS is a health-related QoL scale, developed in Germany (by The Berlin Center for Epidemiology and Health Research) in the early 1990s.<sup>6</sup> Its intent was to measure the severity of urogenital, physical, and psychological symptom clusters and their impact on the QoL. The MRS is well accepted internationally.

Just like most of the developing countries, it is difficult for women living in rural Turkey to obtain access to health-care services, and this is due to insufficient numbers of rural health-care personnel, reduced quality of health-care services, difficulties in accessing care due to economic reasons, low education level, and low socioeconomic status. The prevalence of inability to reach health services among women is a gender issue in India. Determining the applicability of the MRS as a screening test for rural women would assist rural health-care workers to identify women with severe menopausal symptoms and to refer them to secondary level or tertiary care physicians (gynecologists/psychiatrist) for appropriate medical attention.

## MATERIALS AND METHODS

This is a cross-sectional interview-based descriptive study which was conducted in the small town of Perundurai from a cohort of post-menopausal women attending the outpatient department of IRT Perundurai Medical College. The study was conducted for 2 months from January to

February of 2017. Simple random sampling method was followed among the women who fulfilled the criteria for post-menopausal state. Inclusion criteria for the study were post-menopausal women with at least 1 year of amenorrhea and those who had attained natural menopause in past 5 years. Post-menopausal women who have recently attained menopause that is within 5 years were included in the study to minimize recall bias. Inclusion criteria for the study were post-menopausal women with at least 1 year of amenorrhea and those who had attained natural menopause in past 5 years. Post-menopausal women who have recently attained menopause that is within 5 years were included in the study to minimize bias. Exclusion criteria were surgical menopause of any causes, those who did not consent and serious medical comorbidities like diabetes, cardiovascular diseases, etc.

A total of 70 post-menopausal women were approached and 43 women fulfilled the inclusion criteria and were included in the study. The total duration of amenorrhea was determined, and mean duration of menopausal period and the mean age at attaining menopause were also determined.

The study instruments consisted of pre-tested semi-structured interview-based oral questionnaire. The components of the questionnaire were as follows:

1. A pre-tested semi-structured questionnaire was used to assess the sociodemographic profile of the study population.
2. Age at attaining the menopause was determined and the duration of the menopausal period till the current study period was included.
3. Post-menopausal symptoms were determined using the validated interview-based MRS. The menopausal symptoms assessed in the study were self-reported symptoms by the study subjects. Menopausal symptoms assessed in the study were divided into six categories: Vasomotor, psychosomatic, psychological, sexual, urinary complaints, and "other." The MRS is composed of 11 items assessing menopausal symptoms divided into three clusters:<sup>7</sup> (a) Somatic—hot flushes, heart discomfort, sleeping problems, and muscle and joint problems (items 1-3 and 11, respectively); (b) psychological—depressive mood, irritability, anxiety, and physical and mental exhaustion (items 4-7, respectively); and (c) urogenital-sexual problems, bladder problems, and dryness of the vagina (items 8-10, respectively). Each item can be graded by the subject from 0 (not present) to 4 (1 = mild; 2 = moderate; 3 = severe; 4 = very severe). For a particular individual, the total score per each subscale is the sum of each graded item contained in that subscale. Total MRS score is the sum of the scores obtained for each subscale.

4. Socioeconomic parameters such as occupation, education, and income level were collected.

Informed consent and ethical clearance were obtained. The Statistical Package for the Social Sciences software Version 21.0 (SPSS, an IBM company) was used for analysis.

### Menopausal Status Definitions

Concerning the menopausal status, the following definitions were used pre-menopausal (women having regular menses and  $\geq 12$  menses during the past 12 months); perimenopausal (irregular menses,  $< 12$  menses during the past 12 months), and post-menopausal (no more menses in the past 12 months).

### Statistical Analysis

Analysis was done using the Statistical Package for Social Sciences licensed version 21. The frequencies such as mean, median, mode, sum, and quartiles were calculated for the sociodemographic data. Cross tabulations were done for age at menopause and total MRS score. Non-parametric Pearson correlation was used to calculate the correlation coefficient between age, age at menopause, parity, and total MRS score.

## RESULTS

A total of 60 participants were identified, of which 17 were excluded for several reasons (participation denial, history of hysterectomy with oophorectomy, and serious medical morbidities such as hypertension and/or diabetes). Therefore, 43 healthy participants filled out the MRS providing data for statistical analysis. The age of participants ranged from 40 to 60 years (mean 50 years; median: 50), of which 51.3% were aged 40-50 years; 48.7% (50-60 years). Parity-wise women in 51.2% of cases were para 2 and 30.2% were para 3. Religion wise 93% were Hindu, only 7% of the cases were Christians and Muslims combined. The income level of the participants ranged between 2000 Rs to 20000 Rs with a mean income of 7976 Rs and a median income of 6000 Rs (Tables 1 and 2, Figure 1).

Tables 3 and 4 show that the mean age of attaining menopause was 46.2 years and the median age is 47 years and the mode being 47 years. The range of menopausal age varied between a minimum of 34 years and a maximum of 55 years. 58.1% of the participants attained menopause between 34 and 47 years (Figure 2).

Table 5 shows the mean number of years since the onset of menopause is 3.84 years.

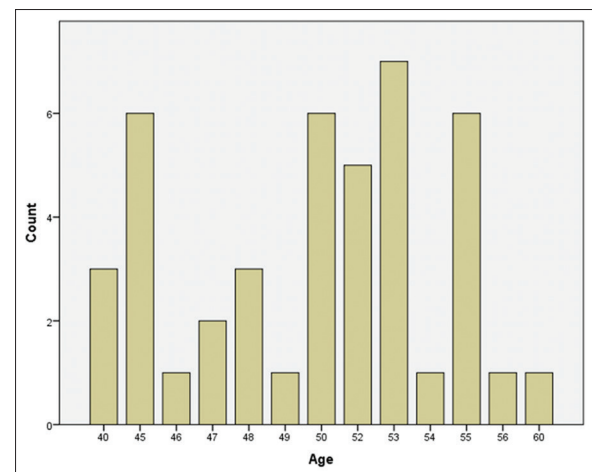
Table 6 shows that the mean total score for the MRS scale was 20.53 and the median score was 21. The mode is 22.

**Table 1: Parity details of the study population**

Statistics		
Parity		
N	Valid	43
	Missing	0
Mean		2.19
Median		2.00
Mode		2
Std. Deviation		.732
Skewness		.074
Std. Error of Skewness		.361
Range		3
Minimum		1
Maximum		4
Percentiles	25	2.00
	50	2.00
	75	3.00

**Table 2: Frequency distribution of the parity**

Parity					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	7	16.3	16.3	16.3
	2	22	51.2	51.2	67.4
	3	13	30.2	30.2	97.7
	4	1	2.3	2.3	100.0
Total		43	100.0	100.0	



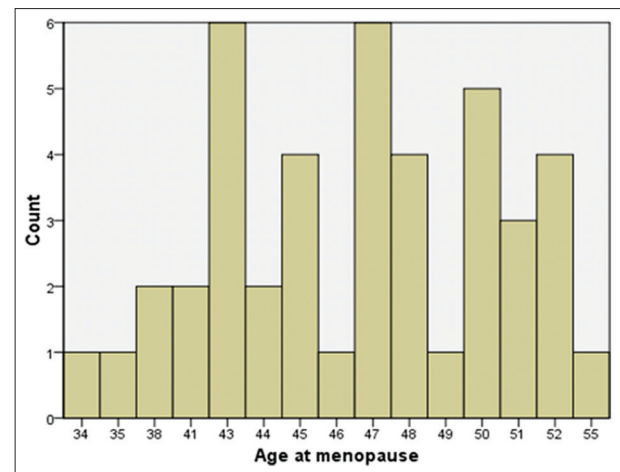
**Figure 1: Age profile of the study population**

The range of the total score varied between a minimum score of 11 to a maximum score of 29. 44.3% of the total MRS scores fell between 20 and 25.

Table 7 shows the frequency distribution of the total MRS score among the study population. A total score of 22 is found among 7 subjects which is 16.3% of the study

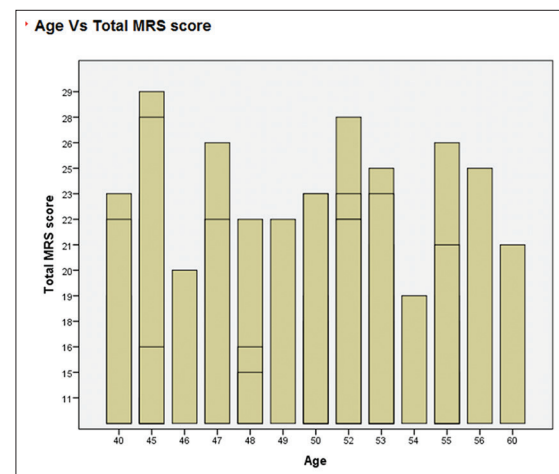
**Table 3: Frequency distribution of the age of menopause**

Age at menopause				
	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 34	1	2.3	2.3	2.3
35	1	2.3	2.3	4.7
38	2	4.7	4.7	9.3
41	2	4.7	4.7	14.0
43	6	14.0	14.0	27.9
44	2	4.7	4.7	32.6
45	4	9.3	9.3	41.9
46	1	2.3	2.3	44.2
47	6	14.0	14.0	58.1
48	4	9.3	9.3	67.4
49	1	2.3	2.3	69.8
50	5	11.6	11.6	81.4
51	3	7.0	7.0	88.4
52	4	9.3	9.3	97.7
55	1	2.3	2.3	100.0
Total	43	100.0	100.0	

**Figure 2: Age at menopause****Table 4: Descriptive statistics frequency distribution of the age at menopause**

Statistics		
Age at menopause		
N	Valid	43
	Missing	0
Mean		46.23
Median		47.00
Mode		43 <sup>a</sup>
Std. Deviation		4.674
Skewness		-.685
Std. Error of Skewness		.361
Range		21
Minimum		34
Maximum		55
Percentiles	25	43.00
	50	47.00
	75	50.00

a. Multiple modes exist. The smallest value is shown

**Figure 3: Age versus total menopausal rating scale score**

The age at menopause was also inversely correlated with Pearson's correlation of  $-0.88$  again it did not attain the significance level.

**Table 5: Number of years since onset of menopause**

Number of Years since onset of Menopause					
	N	Minimum	Maximum	Mean	Std. Deviation
Years since onset of menopause	43	1	10	3.84	2.159
Valid N (listwise)	43				

population and a total score of 23 is found among 6 study subjects coming to 14% of the study population. 46.5% of the study population had a total MRS score between 21 and 29 (Figure 3). Cross tabulated data between age of menopause and the Total MRS score as shown in Table 8.

Table 9 shows that the age and the total MRS score were inversely correlated. The younger the onset of menopause the more severe was the symptoms. The Pearson's correlation was  $-0.087$ , it did not attain the significance level of 0.01.

Table 10 shows that among the MRS subscale, psychological cluster and physical cluster of symptoms such as physical and mental exhaustion (cumulative score 102, mean score 2.37), joint and muscle discomfort (cumulative score 97, mean score 2.26), and depressed mood (cumulative score 98, mean score 2.28) ratings were higher than the other subscales. Surprisingly, hot flushes and heart discomfort scores were the lowest considering the lower age profile of the study population.

## DISCUSSION

During the menopausal phase, middle-aged women undergo a wide range of physical and psychological symptoms, of these, vasomotor and urogenital complaints have been considered the most frequent. Despite this, emotional and somatic symptoms, not necessarily related



**Table 6: Descriptive statistics of the total MRS score**

Total score Data		
Total score frequencies		
N	Valid	43
	Missing	0
Mean		20.53
Median		21.00
Mode		22
Std. Deviation		3.996
Range		18
Minimum		11
Maximum		29
Percentiles	25	18.00
	50	21.00
	75	23.00

**Table 7: Frequency distribution of the total MRS score**

Total MRS Score				
	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	11	2.3	2.3	2.3
	15	11.6	11.6	14.0
	16	4.7	4.7	18.6
	18	14.0	14.0	32.6
	19	11.6	11.6	44.2
	20	2.3	2.3	46.5
	21	7.0	7.0	53.5
	22	16.3	16.3	69.8
	23	14.0	14.0	83.7
	25	4.7	4.7	88.4
	26	4.7	4.7	93.0
	28	4.7	4.7	97.7
	29	2.3	2.3	100.0
Total	43	100.0	100.0	

**Table 8: Cross tabulation of total MRS score versus age at menopause**

		Total MRS score * age of menopause Crosstabulation															
		Age at menopause															
		34	35	38	41	43	44	45	46	47	48	49	50	51	52	55	Total
Total MRS score	11	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
	15	0	0	0	0	1	0	1	0	1	0	0	0	1	1	0	5
	16	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	2
	18	0	0	0	0	0	0	1	1	1	2	0	1	0	0	0	6
	19	1	0	0	0	1	0	0	0	0	0	1	0	0	2	0	5
	20	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
	21	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	3
	22	0	0	1	0	1	0	2	0	1	2	0	0	0	0	0	7
	23	0	0	1	0	1	0	0	0	2	0	0	1	1	0	0	6
	25	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
	26	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	2
	28	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	2
	29	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Total		1	1	2	2	6	2	4	1	6	4	1	5	3	4	1	43

to sexual hormone levels, may also be present: Headaches, insomnia, anxiety, irritability, sexual problems, fatigue, and

**Table 9: Pearson's correlation between age, age at menopause, and total MRS score**

Correlations between Total MRS score, Age and Age at menopause				
Correlations				
	Total MR score	Age	Parity	Age At Menopause
Total MRS score	Pearson Correlation	1	-.087	.014
	Sig. (2-tailed)		.578	.929
	N	43	43	43
Age	Pearson Correlation	-.087	1	-.076
	Sig. (2-tailed)	.578		.627
	N	43	43	43
Parity	Pearson Correlation	.014	-.076	1
	Sig. (2-tailed)	.929	.627	
	N	43	43	43
Age at menopause	Pearson Correlation	-.088	.887**	-.096
	Sig. (2-tailed)	.573	.000	.538
	N	43	43	43

\*\* . Correlation is significant at the 0.01 level (2-tailed).

**Table 10: Descriptive statistics of the MRS subscales**

		MRS scale									
		depmood	hotflu	heartdis	sleeppro	initab	Anxiety	Phymeneth	seipro	Blapro	dryvag
N	Valid	43	43	43	43	43	43	43	43	43	43
	Missing	0	0	0	0	0	0	0	0	0	0
Mean		2.28	1.30	1.40	2.14	1.95	1.72	2.37	1.88	1.60	1.63
Median		2.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	1.00	2.00
Mode		2	1	1	2	2	2	3	2	1	1
Std. Deviation		.701	.773	.760	.743	.754	.591	.655	.651	.903	.655
Variance		.492	.597	.578	.551	.569	.349	.430	.724	.816	.430
Range		2	4	3	3	3	2	2	4	3	2
Minimum		1	0	0	0	0	1	1	0	0	1
Maximum		3	4	3	3	3	3	3	4	3	3
Sum		98	56	60	92	84	74	102	81	69	70
Percentiles	50	2.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	1.00	2.00

muscles joint aches. These symptoms have been considered as atypical as their presence may not only be limited to the menopausal transitional phase. The expression, magnitude, and frequency of these typical and atypical symptoms may vary from one women to another and possibly be influenced by factors not clearly defined.

In the past years, there has been a growing research interest in determining the frequency of menopausal symptoms, and related biopsychosocial factors, found during the different phases of the menopausal transition.

In this sense, the MRS is also a menopause specific health-related QoL scale, validated in several languages, developed to measure age-/menopause-related complaints.

Estrogens act on the central nervous system (CNS) both through genomic mechanisms, modulating synthesis, release and metabolism of neurotransmitters, neuropeptides, and neurosteroids and through non-genomic mechanisms, influencing neuronal and cellular electrical excitability, synaptic function, and morphological features. Therefore, estrogen's neuroactive effects are multifaceted and encompass a system that ranges from chemical to biochemical and genomic mechanisms.

Clinical evidences show that, during the climacteric period, estrogen withdrawal in the limbic system gives rise to depressive moods, irritability, and anxiety and that estrogen administration improves these conditions. Despite the evidence pointing toward the direct effect of estrogens on the CNS, psychosocial factors are also important triggering factors for the presence and intensity of menopausal symptoms which also need to be taken into account during clinical assessment. It has been reported by Blümel *et al.*<sup>8</sup> that psychological symptoms are frequent in the pre-menopause and are associated to vasomotor symptoms, situation, that correlates with the present findings and that a negative psychosocial environment is a factor that favors the development of these symptoms.

Estrogen exerts a positive effect over the urogenital system. The vagina, vulva, urethra, and trigone of the bladder all contain estrogen receptors and undergo atrophy when estrogen levels decrease. Symptoms related to urogenital atrophy include vaginal dryness, dyspareunia, urinary frequency, repetitive urinary tract infections, or urinary incontinence.<sup>9</sup> In the present study, urogenital symptoms assessed with the MRS (vaginal dryness, bladder, and sexual problems) were found to be significantly higher among post-menopausal women. It has been reported by Chedraui *et al.*/Maturitas 57 (2007) 271-278 277 that approximately 75-85% of postmenopausal women seek medical attention due to symptoms of vaginal atrophy and atrophic vaginitis<sup>10</sup> and that dyspareunia leads to decreased interest in coitus, moreover as the frequency of coitus diminishes, vaginal lubrication declines further.

The prevalence and patterns of post-menopausal symptom clusters generally vary in different racial and ethnic groups. Population-based cohorts done among Caucasians have reported a higher prevalence of post-menopausal symptoms (40-70%),<sup>11-13</sup> whereas those from Asian countries have generally reported a lower prevalence (10-50%).<sup>14</sup>

Ahuja<sup>15</sup> in his PAN India survey reported that the perimenopausal age in Indian women is  $44.69 \pm 3.79$  years. This PAN India survey was based on the data collected from 21 cities and 26 doctors all over India among a total of 2184 subjects.

The mean menopausal age of the Indian women as interpreted from the survey is  $45.59 \pm 5.59$  years which is generally much lesser than the Western population. They also reported an inverse correlation between parity and age of menopause which is broadly in alignment with our study. In our study, the mean age at menopause is 46.23 years. Ahuja also reported an inverse correlation between parity and age of menopause which again is replicated in our study.

The most prominent reported symptom in our study was physical and mental exhaustion, muscle discomfort, and depressed mood, similar results were reported by several studies conducted in Asian women.<sup>16,17</sup>

Prevalence of menopausal symptoms was found to be relatively low in Asian women compared with Western women.<sup>18,19</sup>

A study by Sowers *et al.*<sup>20</sup> reported significant differences in frequency of menopausal symptoms across different ethnic groups. In their study, Caucasian women were found to have more severe symptoms in all domains of the menopausal symptom cluster than other ethnic groups, and the frequency of vasomotor symptoms was high in African-American woman. There was significant difference among different ethnicities. Chinese and Japanese-American reported significantly fewer symptoms than the Caucasians, Africans-Americans, or Hispanics.<sup>21</sup>

Menopausal symptoms are significantly influenced by various sociodemographic factors, socioeconomic stressors, physical health, and individual's perception about menopause. Apart from ethnic and other sociodemographic differences, the differences in study design, sample size, age range, distribution of menopausal status of participants, and the instruments used may also account for discrepant findings.

In our study, PM woman had significantly higher scores in the physical domain than psychological domain, pain symptoms predominate in our study.

There are several limitations in our study. First, this survey was cross-sectional study, hospital based having small sample size, which might not reflect the situation in the community. Second, in the MRS scale, women were asked to provide data about menstruation retrospectively experienced in the preceding weeks, regularity of menstruation, and past menstrual period, and, hence recall bias is a possibility, especially in some elderly women.

## CONCLUSION

The study attempted to find out the prevalence of menopausal symptoms and correlated with sociodemographic variables regarding menopause in small town Perundurai, Erode district of Tamil Nadu Where the health-care system is fairly advanced than other taluks of the state. Menopausal symptoms were highly prevalent with physical cluster and mood symptoms predominating. The menopausal symptoms were highly underdiagnosed as most of the sufferers were more likely to consult other specialties such

as medicine and orthopedics for pain symptoms and other vasomotor symptoms.

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