

# Epidemiological Study to Assess the Menopausal Problems during Menopausal Transition in Middle Age Women of Vadodara, Gujarat, India

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## ABSTRACT

**Objective:** The study was designed to determine the prevalence of menopausal symptoms during menopausal transition in middle age (30-60 years) women in Vadodara (N=1000).

**Method:** They were interviewed by means of standard Menopause Rating Scale questionnaire (MRS) to report on the menopausal symptoms which were divided into somatic, psychological and urog. A predesigned questionnaire was used to assess their knowledge associated with menopause along with self-reported health profile.

**Results:** The mean age of the study population was  $42 \pm 5.1$ ; where mean age of premenopausal group was  $40.07 \pm 3.79$ , peri menopausal group was  $41.72 \pm 4.28$  and post-menopausal group was  $46.4 \pm 5.32$ . The women reported pain in hands or legs as the most prevalent symptom (73.6%), followed by anxiety (67.4%), physical and mental exhaustion (66.8%). Other symptoms like dryness of vagina (48.5%), heart discomfort (45%), mood swings (35.5%) and irritability (32.8%) were reported by nearly half of the population. Severity of symptoms were observed for anxiety (2.7%), heart discomfort (2.3%), sleep disturbances (2.3%), bladder problems (2.1%). The mean total MRS was found to be rising up during transition from premenopause ( $4.60 \pm 3.07$ ) to perimenopause ( $6.53 \pm 3.93$ ) and showed a decline during transition from perimenopause to postmenopause ( $5.78 \pm 3.03$ ). Amongst the three subscales of MRS, the mean of the Psychological domain ( $2.59 \pm 1.91$ ) was higher followed by somatic symptoms ( $2.03 \pm 1.54$ ) and least by the urogenital symptoms ( $0.92 \pm 0.99$ ). A similar trend was observed during all stages of reproductive life, i.e. premenopausal, perimenopausal or postmenopausal ( $p < 0.001$ ) in these subjects. Knowledge of participants regarding the menopause and related health issues was very poor.

**Conclusion:** The study concluded that, the time span between different menopausal transitions are very short and clashes with the time when a woman is already bearing the highest degree of family responsibilities in her life. Therefore this raises a call for measuring and improving health-related quality of life of women during transition stages.

**Keywords:** Menopause, Menopause Rating Scale, Perimenopause, Postmenopause

## INTRODUCTION

Reproductive ageing in women is a dynamic process occurring over a period of time culminating in menopause, which is a normal "physiological event that occurs universally to all women who reach midlife".<sup>1</sup> Menopause, the permanent cessation of menstruation, is said to have occurred after twelve consecutive months of amenorrhoea not due to pathological or other physiological cause.<sup>2</sup> While the final menstrual period (FMP) is a single event, it is preceded by a series of clinical changes occurring over a period of time that follow recognisable stages, although not all women progress through the stages in a linear fashion and some skip a stage altogether.<sup>3</sup>

**Premature menopause:** should be defined as menopause that occurs at an age less than two standard deviations below the mean estimate for the reference population. In practice, the age of 40 years is frequently used as an arbitrary cut-off point, below which menopause is said to be premature.<sup>4</sup> The signs and symptoms of these include: irregular menses, vasomotor instability (hot flashes and night sweats),

atrophy of genitourinary tissue, increased stress, breast tenderness, vaginal dryness, forgetfulness, mood changes, and in certain cases osteoporosis and/or heart disease.

The MRS scale is a valuable tool for assessing health related quality of life of women in the menopausal transition and it is used worldwide. It is a standardized scale meeting psychometric norms.<sup>5</sup> Indian women experience menopause at lower age with increased life expectancy when compared to women of western countries. This leads to a situation where a woman spend almost a third of her life in menopause along with so many psychological, somatic and urogenital problems (menopause related symptoms).<sup>6</sup> The menopausal symptoms experienced by Indian women vary within different regions of the country. Therefore this study aimed to understand frequency and severity of menopause related problems in women of Vadodara, Gujarat which may help to plan and design a therapy to manage these symptoms.

## METHODS AND MATERIALS

Study Type: Epidemiological Study  
 Study Area: Vadodara  
 Subjects: Women between age group of 30-60 years  
 Sample Size: 1000 women

Considering prevalence of menopause as 10.4 % (based on previous study by Nair S et al, 2006, unpublished), with a 95 % confidence limit, and 20 % relative precision of estimate, the sample size required was calculated as follows:

$$\text{Formula for sample calculation} = \frac{(z)^2 \times (1 - p)}{(p) \times (e)^2}$$

$$\text{Sample size (N)} = \frac{(1.96)^2 \times (1 - 0.10)}{(0.10) \times (0.2)^2} = 860 \text{ to round up } N=1000$$

**Experimental design:** Vadodara district was divided into five zones for screening as east, west, north, south and central. An equal number of women were enrolled from each zone; an institutional based approach was carried out through ICDS, so that we could get a mix population including all ethnic groups who represent the lower to middle income group population. General information with regard to age, religion, educational status, profession, etc was collected using a standard questionnaire. The self reported clinical information was collected to know if any medical condition persists, like – thyroid disorder, blood pressure, any medications, last medical test, parity, etc using a predesigned questionnaire. The menopause related symptoms were rated using a predesigned questionnaire and MRS (Menopause Rating Scale) was obtained from Professor Heinemann from Centre of Epidemiology and Health Studies in Berlin.

**Menopause Rating Scale (MRS):** MRS includes 11 symptoms. Each of the eleven symptoms contained in the scale gets 0 (no complaints) or up to 4 scoring points (very severe symptoms) depending on the severity of the complaints perceived by the women. The score increases point by point with increasing severity of symptoms in each of the 11 symptoms. The MRS is divided into three subscales: (a) Somatic – hot flushes, heart discomfort/palpitation, sleeping problems and muscle and joint problems; (b) psychological – depressive mood, irritability, anxiety and physical and mental exhaustion and (c) urogenital – sexual problems, bladder problems and dryness of vagina. The composite scores for each of the subscales are based on adding up the scores of each item of the respective subscales. The total score is the sum of the subscale scores.

**Exclusion Criteria:** Pregnant and lactating women, women with any chronic diseases were excluded from the study.

## STATISTICAL ANALYSIS

The Statistical Package for the Social Sciences Software Version 20.0 was used for analyses. Chi-square test was applied to compare the influence of sociodemographic factors among the different menopausal status. Post hoc analysis using Independent-samples Kruskal-Wallis test was employed to compare the MRS across the different menopausal transition.

## ETHICAL CLEARANCE AND APPROVAL

The study was approved by the Institutional Medical Ethical committee (Approval Number: F.C.Sc. / FND/ ME/ 65). The following approvals were obtained for the study.

- For anganwadi approach, the permission was taken from ICDS Office, Vadodara.
- Prior Consent letter from women - study subjects

## RESULTS

All subjects were categorised as per STRAW (Stages of reproductive Aging Workshop) classification which revealed, 58.7% (587) had normal menstrual cycle pattern, 14.6% (146) were passing through perimenopause phase and 26.7% had turned to their post-menopause phase. The mean age of the study population is  $42 \pm 5.1$ ; where mean age of premenopausal group was  $40.07 \pm 3.79$ , perimenopausal group was  $41.72 \pm 4.28$  and post-menopausal group was  $46.4 \pm 5.32$ .

**Table 1: Sociodemographic data of the women from Vadodara (n=1000)**

Education	Frequency (N)	Percent (%)
Illiterate	297	29.7
Upto 7	361	36.1
Upto 12	312	31.2
>12 or Graduate	30	3.0
Profession	Frequency (N)	Percent (%)
Working	796	79.6
Housewife	204	20.4
Number of children	Frequency (N)	Percent (%)
0 (No child)	33	3.3
1-2	473	47.3
3-4	445	44.5
>4	49	4.9
Number of pregnancy	Frequency (N)	Percent (%)
0 (No pregnancy)	24	2.4
1-2	294	29.4
3-4	536	53.6
>4	146	14.6

Their education profile revealed, 30-35% had completed primary or secondary level schooling and only 3% had completed their graduation, though majority of the women (79%) were working as a maid, salesgirl, peon, guruhudyuog, etc. The distribution of work (profession) is same across premenopausal, peri-menopausal and post-menopausal women. Hence work stress did not show any significant effect on reproductive health of women ( $p=0.212$ ).

Looking to their family history, 47% had  $\geq 2$  children and 45% had 3-4 children and half of the women, 53.6% had experienced pregnancy  $\leq 3$  times. The parity numbers were high amongst elderly ( $p<0.001$ ). The self-reporting medical history were also collected from the women, which revealed 2.5% suffered from thyroid disorder, 25.3% suffered from blood pressure and amongst all, only 14.4% were on medication. On further probing it was understood that the subjects were reluctant to undergo medication for

blood pressure due to the feeling they have to be then on continuous medication.

The information in order to understand their level of knowledge regarding menopause and its symptoms, phytoestrogen, hormone replacement therapy etc. were collected (Table 1). The data revealed that 80.8% women were aware and had the knowledge about menopause, but very few knew about what is hormone replacement therapy (0.9%), how the menopause is coupled with thyroid hormones (0.6%) or bone health (1.2%).

In our study (Table 2), the women reported the pain in hands or legs was the most prevalent (73.6%), followed by anxiety (67.4%), and physical and mental exhaustion (66.8%). The other symptoms like dryness of vagina (48.5%), heart discomfort (45%), mood swings (35.5%) and irritability (32.8%) were reported by nearly half of the population. More symptoms like sleep disturbances (24.5%), hot flashes (22%), and bladder problems (9.3%) were reported by less number of women.

**Table 2: Percent prevalence of menopausal symptoms in the population (n=1000)**

Symptoms	Percent Prevalence			
		Yes		No
Hot flashes		220(22)	Mild	
	Moderate		46 (20.9)	
	Severe		5 (2.3)	
Heart Discomfort	450 (45)	Mild	395 (87.8)	550 (55)
		Moderate	51 (11.3)	
		Severe	4 (0.9)	
Sleep problems	254 (25.4)	Mild	210 (82.7)	746 (74.6)
		Moderate	38 (15)	
		Severe	6 (2.3)	
Mood swings	355 (35.5)	Mild	272 (76.7)	645 (64.5)
		Moderate	77 (21.7)	
		Severe	6 (1.7)	
Irritability	328 (32.8)	Mild	285 (86.9)	672 (67.2)
		Moderate	43 (13.1)	
		Severe	-	
Anxiety	674 (67.4)	Mild	437 (64.8)	326 (32.6)
		Moderate	219 (32.5)	
		Severe	18 (2.7)	
Physical and Mental Exhaustion	668 (66.8)	Mild	495 (74.1)	332 (33.2)
		Moderate	165 (24.7)	
		Severe	8 (1.2)	
Sexual problem	245 (24.5)	Mild	231 (94.3)	755 (75.5)
		Moderate	13 (5.3)	
		Severe	1 (0.4)	
Bladder problems	93 (9.3)	Mild	78 (83.9)	907 (90.7)
		Moderate	13 (14)	
		Severe	2 (2.1)	
Dryness of vagina	485 (48.5)	Mild	426 (87.8)	515 (51.5)
		Moderate	55 (11.3)	
		Severe	4 (0.8)	
Pain in hands and legs	736 (73.6)	Mild	549 (74.6)	264 (26.4)
		Moderate	172 (23.4)	
		Severe	15 (2)	
Irregular menses	412 (41.2)	Mild	58 (14)	588 (58.8)
		Moderate	50 (12.1)	

		Severe	38 (9.2)	
		Very severe	266 (64.7)	
Swelling	173 (17.3)	Mild	146 (84.4)	827 (82.7)
		Moderate	20 (11.6)	
		Severe	7 (4)	
Weight fluctuation	163 (16.3)	Mild	151 (92.6)	837 (83.7)
		Moderate	10 (6.1)	
		Severe	2 (1.3)	
Hair loss	828 (82.8)	Mild	254 (30.7)	172 (17.2)
		Moderate	556 (67.1)	
		Severe	18 (2.2)	
Constipation	139 (13.9)	Mild	87 (62.6)	861 (86.1)
		Moderate	37 (26.6)	
		Severe	15 (10.8)	
Visual Problem	131 (13.1)	Mild	123 (93.9)	869 (86.9)
		Moderate	7 (5.3)	
		Severe	1 (0.8)	
Nails Cracking	21 (2.1)	Mild	14 (66.7)	979 (97.9)
		Moderate	7 (33.3)	
		Severe	-	

(Figures in parenthesis denote the percent of subjects)

The symptoms were experienced at mild, moderate or severe levels. In our study the severity of symptoms were observed for anxiety (2.7%), heart discomfort (2.3%), sleep disturbances (2.3%), bladder problems (2.1%).

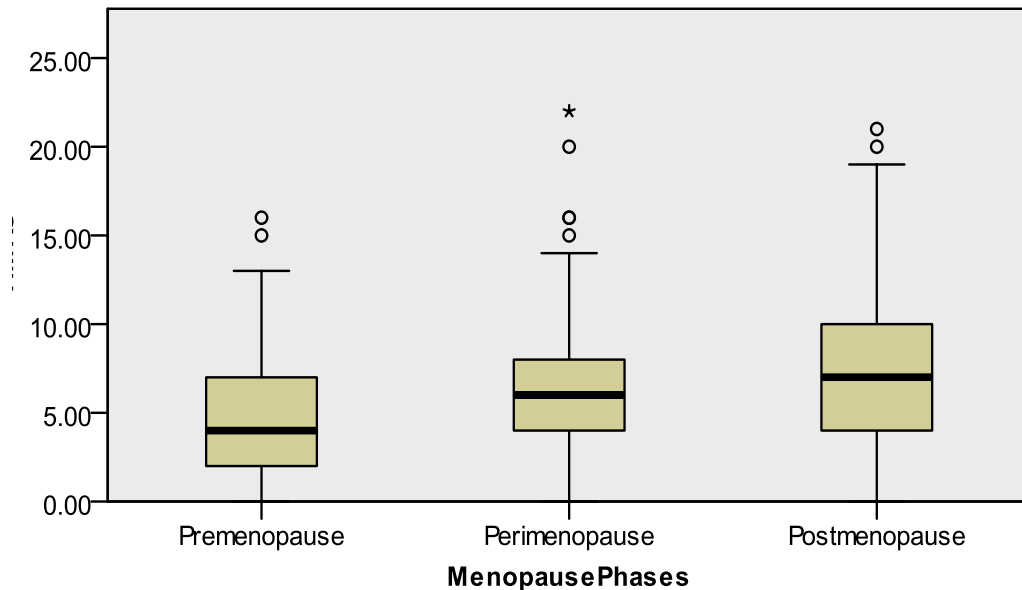
**Other Menopause related symptoms:** Amongst other symptoms related with menopause, hair loss was reported by 82.8% women, irregular menses by 41.2%, swelling by 17.3%, weight fluctuation by 16.3%, constipation by 13.9%, visual problem by 13.1% and only 2.1% women were reported with nails cracking. Among these hair loss and constipation experienced were at moderate frequency, rest all experiences were on mild frequency.

**Table 3: Comparison of Subscales (three different dimensions) and total MRS Score according to the menopausal status (Mean  $\pm$  SD)**

Variable	Premenopause (N=587)	Perimenopause (N=146)	Postmenopause (N=267)	Total Population (N=1000)
Psychological Symptoms	2.20 $\pm$ 1.73	3.05 $\pm$ 1.90	2.81 $\pm$ 1.71	2.59 $\pm$ 1.91
Somatic Symptoms	1.64 $\pm$ 1.24	2.40 $\pm$ 1.7	2.07 $\pm$ 1.31	2.03 $\pm$ 1.54
Urogenital Symptoms	0.77 $\pm$ 0.88	1.08 $\pm$ 1.09	0.89 $\pm$ 0.90	0.92 $\pm$ 0.99
Total MRS	4.60 $\pm$ 3.07	6.53 $\pm$ 3.93	5.78 $\pm$ 3.03	5.54 $\pm$ 3.66

The mean of MRS was found to be rising during transition from premenopause (4.60  $\pm$  3.07) to perimenopause (6.53  $\pm$  3.93) and showed again a decline during transition from perimenopause (6.53  $\pm$  3.93) to postmenopause (5.78  $\pm$  3.03). A similar pattern was observed for mean of all three dimensions i.e., Psychological (2.20  $\pm$  1.73 to 3.05  $\pm$  1.90 and 3.05  $\pm$  1.90 to 2.81  $\pm$  1.71), Somato-vegetative (1.64  $\pm$  1.24 to 2.40  $\pm$  1.7 and 2.40  $\pm$  1.7 to 2.07  $\pm$  1.31) and Urogenital (0.77  $\pm$  0.88 to 1.08  $\pm$  1.09 and 1.08  $\pm$  1.09 to 0.89  $\pm$  0.90) (Table 3) was observed in the study subjects .

## Independent-Samples Kruskal-Wallis Test



**Figure 1: Difference in MRS across menopause phases**

Between the three subscales of MRS, the mean of the Psychological domain ( $2.59 \pm 1.91$ ) was higher followed by somatic symptoms ( $2.03 \pm 1.54$ ) and the least by the urogenital symptoms ( $0.92 \pm 0.99$ ). A similar trend was observed for all three subscales during all stages of reproductive life, i.e. premenopausal, perimenopausal or postmenopausal ( $p < 0.001$ ) (Figure 1).

### DISCUSSION

The current study indicates that the transition gaps between premenopause to perimenopause and perimenopause to postmenopause were too short in women. Since, this is a time when women have to play multiple roles to cope up with increasing social responsibilities; this may adversely affect the overall health profile of a woman. Chuni N et al (2011) conducted a study in the Nepalese women and reported the mean age of premenopausal women was 45.1 (SD=2.78), perimenopausal women was 49.14 (SD=2.01) and in postmenopausal women it was 55.67 (SD=5.6).<sup>7</sup> Ahsan et al (2015) reported in his study carried out in Patna, that the mean age of perimenopausal group was 43.45 (SD=2.02) and that of postmenopausal group was 48.52 (SD=2.27); where both values were lower in our study.<sup>6</sup>

Other major observation in the study population, the younger population is more educated than the elders; this indicates that the current generation is more aware and concerned with respect

to their education which may bring impact on healthy lifestyle ( $p < 0.001$ ).

Kaur, Walia and Singh (2004) reported that the 84% of women in north India had prior knowledge about menopause and the most surprising fact in the study was about 47% of the women reported that, they were prepared in advance for menopause, 67% of women had discussed menopause with their friends, 78% had discussed it with their husbands. These kinds of knowledge and awareness was lacking in our study population.<sup>8</sup>

Further, in our study we found only 0.9% women had heard of HRT, this finding is comparable to the study carried out by Agwu M et al (2008) in rural African communities<sup>9</sup> and Dutta R et al (2012) in a rural area of Tamilnadu where 3.2% women had heard of HRT before.<sup>10</sup>

There are variations observed in reporting the symptoms in Indian women. The Ecuadorian group of REDLINC recently described the hot flashes (68.9%), sleep disturbances (68.4%), depressive mood (55.2%), irritability (51.6%), muscle and joint pain (77%) were the most prevalent symptoms in middle aged women in American countries.<sup>11</sup>

The most common symptoms related to menopause reported by Asian women are symptoms that are not directly estrogen dependent. Muscle and joint aches/pains appear to be the predominant symptom among peri and postmenopausal women in Asia.<sup>11</sup> Among peri- and postmenopausal women in northern India, the most prevalent symptom was

muscle and joint pain (55.8%), followed by tiredness or lack of energy (51.2%) and eye problems (49.6%).<sup>11,12</sup> Another study in North India reported on attaining menopause women experienced acuity of vision (n=66, 22%), joint pain/body ache and swelling on body/feet (n=59, 19.8%), high blood pressure (n=22, 7.4%), headache (n=16, 5.4%), hot flashes/burning sensation in feet (n=19, 6.4%), flatulence (n=15, 5%) and sweating (n=9, 3%).<sup>8</sup>

Waidyasekera H et al (2009) also concluded that the most prevalent menopausal symptoms were joint and muscular discomfort (74.7%), Physical and mental exhaustion (53.9%), and hot flushes (39.1%).<sup>13</sup> Mazhar SB and Rasheed S (2009) reported the hot flushes, sleep problems, and joint/muscular discomfort showed a significant ( $p < 0.05$  for all) increase in prevalence from the premenopause category to the postmenopause category.<sup>14,15</sup> Similarly in current study, the rate of symptoms showed an increasing trend from one menopausal stage to the next. The variability in reporting the symptoms may be due to woman's attitude and awareness, socio-cultural factors and other economic factors also.

For three subscales of MRS, similar results were reported by Del Prado M, where the higher score was given by the psychological domain ( $7.7 \pm 4.4$ ) followed by the somatic domain ( $5.8 \pm 3.5$ ) and the least by the urogenital domain ( $2.7 \pm 2.9$ ). Chuni et al (2011) opined, women with physiological and somatic symptoms were less likely to be referred to a gynaecologist for evaluation of symptoms and, women with urogenital symptoms were more likely to be referred to a gynaecologist for evaluation of symptoms. Women with physiological and somatic symptoms may be as results of physical and psychological stress, they experience in midlife.<sup>7</sup>

In the current study, we noted that, the premenopausal women also reported a considerable score for psychological and somatic subscale. This indicates the health quality of life decreases day by day and to impede this strong and effective strategies and therapy should be started from the younger age.

## CONCLUSION

The study concluded that, the time span between different menopausal transitions are very short and clashes with the time when a woman is already fraught with the highest degree of family responsibilities in her life. Therefore this raises a call for measuring and improving health-related quality of life of women during transition stages.

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