

## Menopausal Symptoms in Overweight and Obese Middle Aged Women: A Community Based Study

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### ABSTRACT

#### Introduction

Overweight and obesity is on the rise globally and women with higher body mass index at midlife have been found to suffer more from menopausal symptoms. This study aims to assess the menopausal symptoms in overweight and obese middle aged women using menopause rating scale (MRS) in the community setting.

#### Methods

This descriptive cross-sectional study was conducted at Gokarneswore Municipality in Kathmandu district, from June to December, 2021. Women in the age group of 40-60 years were interviewed regarding the frequency and severity of menopausal symptoms using MRS. The collected data were entered and analyzed in SPSS 25.

#### Results

Among the 378 women, 156 (41.3%) were premenopausal, 104 (27.5%) perimenopausal and 118 (31.2%) were postmenopausal women; and 176 (46.6%) were overweight and 87 (23.0%) were obese. Overall, 38-68% suffered from different menopausal symptoms. Most of the menopausal symptoms were not significantly different among normal, overweight and obese middle aged women. Urinary symptom was more frequent in obese premenopausal, however the urogenital symptoms were significantly more in normal weight postmenopausal women ( $p < 0.05$ ). The mean MRS score was similar among normal, overweight and obese women, however according to the menopausal status the mean score was significantly higher among perimenopausal and post menopausal women ( $p < 0.001$ ).

#### Conclusion

This study showed that among the middle aged women almost half were overweight and one-fourth was obese. Menopausal symptoms were similarly distributed in perimenopausal and postmenopausal women in overweight and obese middle aged women. It is important to assess the obesity and menopausal symptoms, which can be specifically targeted for treatment.

#### Keywords

*Menopausal symptoms, middle aged women, obese, overweight*

## INTRODUCTION

Middle age is one of the turning points in life, as it brings many physiological changes in the body of women and roughly starts in the early 40s. Menopause is the time period after stoppage of menstruation and cessation of ovulatory function. The onset of this physiological development not only marks the end of women's reproductive function but also introduces them to a new phase of life. In Nepal the mean age of menopause was found to be 47 to 48 years.<sup>1,2</sup>

The prevalence of overweight and obesity in middle-aged women, is on the rise worldwide, especially over the age of 40 years, with up to 65% being either overweight or obese and up to 30% or more being obese.<sup>3,4,5</sup> A positive association between obesity and more severe menopausal symptoms among postmenopausal women have been seen.<sup>6</sup> There is evidence that women with higher body mass index (BMI) had significantly higher vasomotor symptoms.<sup>7</sup> The Menopause Rating Scale (MRS) is a health-related quality of life scale (HRQoL) which was developed in the early 1990s to measure the frequency and severity of aging-symptoms in women and their impact on the HRQoL.<sup>8</sup> This study aims to assess the menopausal symptoms in overweight and obesity middle aged women using menopause rating scale (MRS) in the community setting.

## METHODS

This was a descriptive cross-sectional study conducted at Gokarneswore Municipality in Kathmandu district, from June to December, 2021. Ethical approval for the study was taken from the Institutional Review Board of Institute of Medicine, Tribhuvan University. After consent, women in the age group of 40-60 years were taken for the study, who attended the health screening camp. They were excluded if there was known psychiatric disorder with or without medications, on hormone replacement therapy, pregnant, unwilling to answer questionnaire or to participate in the study or if the menopause was not natural among the menopausal women.

History was taken including age, parity, marital status, education level, Occupation, ethnicity, age at menopause and relevant examination was done. Patient's height and weight (with minimal clothing) was taken for body mass index (BMI) calculation. It is defined as a person's weight in kilograms divided by the square of height in meters ( $\text{kg}/\text{m}^2$ ).<sup>9</sup> BMI 18.5-24.9 is taken as normal, 25-29.9  $\text{kg}/\text{m}^2$  as overweight and  $\geq 30 \text{kg}/\text{m}^2$  as obese. Women were asked about the frequency and severity of menopausal symptoms using validated Nepali version of Menopausal Rating Scale (MRS).<sup>10</sup> The MRS consists of a list of 11 items contained in the

scale of 0 to 4 scoring points depending on the severity of the symptoms perceived by the women. All these symptoms are categorized to somatic, psychological and urogenital symptoms.

The women were categorized as premenopausal, perimenopausal and postmenopausal according to the STRAW (Stages of Reproductive Aging Workshop) criteria.<sup>11</sup> Premenopause was defined as minor changes in cycle length particularly decreasing length of the cycle. Early perimenopause as cycle length variable with persistent  $\geq 7$  days difference in length of consecutive cycles experienced after the previously regular cycle. Late perimenopause as interval of amenorrhea of  $\geq 60$  days, but had menstruation during the past 2-12 months. Postmenopausal as no menstrual bleeding during the past 12 months. Early and late perimenopause was combined into perimenopausal stage for our analysis.

The collected data were entered and analyzed in SPSS 25. Descriptive statistics were used and the categorical variables were interpreted by frequencies and percentages. Continuous variables were summarized into means with standard deviations. Statistical calculations was performed by chi-squared test and t test, and p value  $< 0.05$  was taken to be statistically significant.

## RESULTS

Among the 378 women 156(41.3%) were premenopause, 104 (27.5%) perimenopausal and 118 (31.2%) were postmenopausal women. The mean age of menopause was  $47.6 \pm 4.2$  years. Of the total women 176(46.6%) were overweight and 87(23.0%) were obese. The majority of the women were illiterate 204(54.0%) and 273(72.2%) were homemaker (Table 1).

Table 2 shows the menopausal symptoms according to the menopausal status of the women. Among the somatic and psychological symptoms, joint and muscular discomfort 257 (68.0%) physical and mental exhaustion 250 (66.1%) were the most common symptoms experienced by the women. All the menopausal symptoms were more frequent in peri and postmenopausal women than the premenopausal women which was statistically significant ( $p < 0.001$ ).

In the somatic symptoms, hot flushes and sweating were more frequent in obese women in comparison to normal weight women, and sleep symptoms were more common in normal weight women however it is not significant. The psychological symptoms were more frequent among the normal weight premenopausal and perimenopausal group, however among the postmenopausal women it is more common in overweight and obese group. Urinary symptom was more common in the

Table 1. Demographic profile of the study population

Characteristics		Number (%)
Age (years)	40-45	177 (46.8)
	46-50	101 (26.7)
	51-55	61 (16.1)
	56-60	39 (10.3)
Parity	0-1	29 (7.7)
	2-4	330 (87.3)
	≥5	19 (5.0)
Marital status	Married	360 (95.2)
	Widow	12 (3.2)
	Divorced/separated	6 (1.6)
Education	Illiterate	204 (54.0)
	Primary	72 (19.0)
	Secondary	78 (20.6)
	≥ Higher secondary	24 (6.3)
Occupation	Homemaker	273 (72.2)
	Service	34 (9.0)
	Business	34 (9.0)
	Laborer	37 (9.8)
Ethnicity	Brahmin	90 (23.8)
	Chhetri	77 (20.4)
	Newar	79 (20.9)
	Janajati	113 (29.9)
	Dalit	19 (5.0)
Menopausal status	Premenopause	156 (41.3)
	Perimenopause	104 (27.5)
	Postmenopause	118 (31.2)
BMI category	Normal	115 (30.4)
	Overweight	176 (46.6)
	Obese grade 1	87 (23.0)
	grade 2	14 (3.7)
	grade 3	4 (1.1)

obese premenopausal, however the urogenital symptoms were statistically more in normal weight postmenopausal women ( $p < 0.05$ ) (Table 3).

The mean MRS score was similar among normal, overweight and obese women, however according to the menopausal status the mean score was significantly higher among perimenopausal and post menopausal women ( $p < 0.001$ ) (Table 4).

## DISCUSSION

This study was conducted in screening health camp setting in Kathmandu among women between 40 to 60 years age. The information was obtained by interview and almost half of the women, 177 (46.8%) were in the age group of 40-45 years, 204 (54.0%) were illiterate and 273 (72.2%) were homemaker. The mean age of menopause was  $47.6 \pm 4.2$  years, which is quite similar to the other studies done in Nepal.<sup>1,2,12</sup>

In the present study, almost half of the women were overweight 176 (46.6%) and 87 (23.0%) were obese. Weight gain accompanied by an increased tendency for central fat distribution is common among women in midlife.<sup>13</sup> Among both men and women, the prevalence of general and abdominal obesity increased more rapidly among individuals aged 40-59 years.<sup>5</sup> In the United States, nearly two-thirds of women aged 40 to 59 years and about three-fourths of women 60 years and older are overweight. Furthermore, almost half of the women in these age groups are obese.<sup>14</sup> Likewise, among postmenopausal Brazilian women 30% were obese.<sup>4</sup>

Hot flushes and sweating was more frequent in obese in comparison to normal weight women in

Table 2. Menopausal symptoms according to the menopausal status of the women, n(%)

Menopausal Symptoms	Overall n=378	Premenopause n=156	Perimenopause n=104	Postmenopause n=118	p-value
Somatic					
Hot flushes, sweating	197 (52.1)	57 (36.5)	67 (64.4)	73 (61.9)	<0.001
Heart discomfort	213 (56.3)	68 (43.6)	63 (60.0)	82 (69.5)	<0.001
Sleep problems	145 (38.6)	42 (26.9)	42 (40.4)	61 (51.7)	<0.000
Joint and muscular discomfort	257 (68.0)	95 (60.9)	78 (75.0)	84 (71.2)	0.039
Psychological					
Depressive mood	202 (53.4)	64 (41.0)	65 (62.5)	73 (61.9)	<0.001
Irritability	204 (54.0)	64 (41.0)	67 (64.4)	73 (61.9)	<0.001
Anxiety	205 (54.2)	66 (42.3)	68 (65.4)	71 (60.2)	<0.001
Physical and mental exhaustion	250 (66.1)	81 (51.9)	79 (76.0)	90 (76.3)	<0.001
Urogenital					
Sexual problems	175 (46.3)	45 (28.8)	56 (53.8)	74 (62.7)	<0.001
Bladder problems	190 (50.3)	61 (39.1)	53 (51.0)	76 (64.4)	<0.001
Dryness of vagina	162 (42.9)	50 (32.1)	43 (41.3)	69 (58.5)	0.002

p-value calculated using Chi-squared test

Table 3. Menopausal symptoms in normal, overweight and obese premenopausal, perimenopausal and postmenopausal women, n(%)

Menopausal Symptoms	Premenopause			Perimenopause			Postmenopause					
	Normal n=57	Overweight n=78	Obese n=31	p-value	Normal n=29	Overweight n=42	Obese n=33	p-value	Normal n=39	Overweight n=56	Obese n=23	p-value
<b>Somatic</b>												
Hot flushes, sweating	14 (29.8)	30 (38.5)	13 (41.9)	0.48	19 (65.5)	24 (57.1)	24 (72.7)	0.37	23 (59.0)	32 (57.1)	18 (78.3)	0.19
Heart discomfort	18 (38.3)	35 (44.9)	15 (48.4)	0.65	18 (62.1)	25 (59.5)	20 (60.0)	0.99	29 (74.4)	38 (67.9)	15 (65.2)	0.70
Sleep problems	17 (36.2)	17 (21.8)	8 (25.8)	0.22	15 (51.7)	15 (35.7)	12 (36.4)	0.34	22 (56.4)	27 (48.2)	12 (52.2)	0.73
Joint and muscular discomfort	29 (61.7)	49 (62.8)	17 (54.8)	0.74	22 (75.9)	35 (83.3)	21 (63.6)	0.15	31 (79.5)	40 (71.4)	13 (56.5)	0.16
<b>Psychological</b>												
Depressive mood	23 (48.9)	29 (37.2)	12 (38.7)	0.42	23 (79.3)	22 (52.4)	20 (60.6)	0.07	21 (53.8)	38 (67.9)	14 (60.9)	0.38
Irritability	20 (42.6)	33 (42.3)	11 (35.5)	0.78	23 (79.3)	23 (54.8)	21 (63.6)	0.10	22 (56.4)	36 (64.3)	15 (65.2)	0.69
Anxiety	21 (44.7)	33 (42.3)	12 (38.7)	0.87	24 (82.8)	24 (57.1)	20 (60.6)	0.07	21 (53.8)	33 (58.9)	17 (73.9)	0.29
Physical and mental exhaustion	26 (55.3)	41 (52.6)	14 (45.2)	0.67	23 (79.3)	34 (81.0)	22 (66.7)	0.32	31 (79.5)	41 (73.2)	18 (78.3)	0.76
<b>Urogenital</b>												
Sexual problems	10 (21.3)	24 (30.8)	11 (35.5)	0.23	16 (55.2)	27 (64.3)	13 (39.4)	0.09	33 (84.6)	30 (53.6)	11 (47.8)	0.005
Bladder problems	13 (27.7)	30 (38.5)	18 (58.1)	0.03	13 (44.8)	23 (54.8)	17 (51.5)	0.71	33 (84.6)	28 (50.0)	15 (65.2)	0.002
Dryness of vagina	12 (25.5)	26 (33.3)	12 (38.7)	0.32	9 (31.0)	21 (50.0)	13 (39.4)	0.22	29 (74.4)	28 (50.0)	12 (52.2)	0.03

p-value calculated using Chi-squared test

Table 4. MRS score according to the BMI (Body Mass Index) category and menopausal status

Characteristics	Total MRS score (mean±SD)	p-value
BMI category		
Normal	10.8±8.2	0.08
Overweight	9.1±7.4	
Obese	9.5±7.0	
Menopausal status		
Premenopausal	6.4±5.9	<0.001
Perimenopausal	11.3±7.5	
Postmenopausal	12.7±7.9	

the present study, though not significant. Body fat gain was associated with more frequent and/or severe hot flashes among women aged 47-57 years participating in the Study of Women's Health Across the Nation.<sup>15</sup> Sleep symptoms did not seem to be more among overweight and obese women in the present study. However, the shortened sleep and sleep disturbances appear to be related to accumulation of visceral adipose tissue in a study that included midlife women.<sup>16</sup> In a SWAN Sleep Study, among midlife women sleep duration and current BMI was found to be independently associated in cross-sectional analysis, however it has not been associated on longitudinal follow up.<sup>17</sup>

The frequency of muscle and joint pain increased from pre to postmenopausal women however its frequency did not increase with the increasing BMI. In Nigeria among postmenopausal women aged 51-60 years, the highest prevalence rates of musculoskeletal pain was in the lower extremity (189; 61.0%) and the back (164; 52.9%). A direct association was observed between the categories of BMI and lower extremity symptoms ( $p < 0.05$ ).<sup>18</sup>

Psychological symptoms were more frequent in overweight and obese postmenopausal women in the present study. Depressive symptoms are associated with concurrent obesity and related lifestyle factors among women in midlife.<sup>19</sup>

In the present study, urogenital symptoms were more common in the obese premenopausal, overweight perimenopausal. Cross-sectional studies done in community and hospitals of Nepal shows varied prevalence of urogenital symptoms based on menopause rating scale.<sup>2,12,20</sup> These studies showed sexual problems ranging from 47 to 81%, bladder problems 47 to 57% and dryness of vagina in 60 to 63%. All rating scales increased from pre to postmenopausal women and severity of the symptoms higher in postmenopausal. Women with metabolic syndrome have an increased prevalence of sexual dysfunction as compared to matched control.<sup>21</sup>

This study has some limitations, as it was observational and cross-sectional it could not properly address the effect of obesity on menopausal symptoms. Study was done in community of Kathmandu valley cannot relate to the country. A larger and multiple community based study may be needed to come to better conclusion.

## CONCLUSION

About half of the women in their mid-life were overweight and one fourth were obese. Menopausal symptoms were quite common in midlife phase of women especially in peri and postmenopausal women. It is important to assess these symptoms and counsel regarding life style modification and seek proper treatment.

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## CONFLICT OF INTEREST

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