

A comparative study of perimenopausal and postmenopausal profile of working and non-working women

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■ **ABSTRACT** : Menopause, the end of a woman's child bearing years, is marked by the cessation of estrogen and progesterone production by the ovaries. Working and non- working status may also contribute to significant variations in nutritional status. The objective of study was to assess the nutritional status, nutrient intake and menopausal symptoms of perimenopausal and postmenopausal working and non- working women. The study was performed by pretested and predesigned questionnaire- cum- interview for a period of eight months on one hundred respondents in Varanasi of which fifty per cent were perimenopause and fifty per cent were postmenopause women and they both contained equal division of working and non- working samples. In perimenopausal women, normal BMI was found more in non-working (72%) women whereas in case of postmenopausal women, normal BMI was found more in working women as compared to non- working women (72% and 48%, respectively). The prevalence of central obesity according to waist hip ratio was found to be higher in non-working perimenopause women. Regarding dietary intake, it was found that there was very minimal difference in protein, iron, fibre and calcium intake among all the groups. The study revealed, varying nature of menopausal symptoms in all groups with hot flushes, fatigue, lack of energy, irritable nervous and anxiety symptom in perimenopausal women while rheumatic pains, fatigue, lack of energy, forgetfulness and sleep disturbances being more prevalent in postmenopausal women.

■ **KEY WORDS** : Menopause, Estrogen, Progesterone, Body Mass Index, Menopausal symptoms

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With the increasing life expectancy a women spends almost a third of her life in menopause. Menopause represents a landmark in the biological life of a woman, signifying the end of her reproductive life (Bermejo *et al.*, 2008). It is marked by the cessation of estrogen and progesterone production by the ovaries. Natural menopause is diagnosed after 12 months of amenorrhea not associated with a pathological cause. Menopause also can occur for other reasons, however, including removal of both ovaries, radiation or chemotherapy, gland disorders, or very poor health. Perimenopause is the period just prior to the final menstrual period through the first year after the final menstrual period, beginning at the onset of endocrinologic and menstrual changes. This period is also known as the "climacteric" period. Dating from the final menstrual period,

including both natural and surgical menopause condition is the postmenopause.

Even though menopause is a normal physiological state, the transition to menopause means a possible change in health and wellbeing. According to WHO (1996), a variety of symptoms occurring singly or together are frequently reported. Women report physical discomfort, sleeplessness and embarrassment, and complain about many symptoms such as vasomotor symptoms (hot flashes and night sweating) and vaginal dryness which can lead to dyspareunia. These symptoms affect a very high proportion of women (Chiechi *et al.*, 2002).

After menopause, a woman's risk of osteoporosis and heart disease grows. Falling estrogen levels may lead to high cholesterol levels (Libby *et al.*, 2002). All these,

psychological and physiological changes have an impact on food intake and food choices of menopausal women. It is an established fact that a well balanced diet is important for good health and to combat some of the complications of menopause to certain extent. Working and non- working status may also contribute to significant variations in nutritional status. Keeping the above aspects, the present study was undertaken to assess the obesity conditions, nutritional status and investigate the severity of menopausal symptoms of perimenopausal and postmenopausal working and non- working women.

■ RESEARCH METHODS

Subjects:

The present purposive, cross-sectional study included women from different zones of Varanasi city, over a period of 6 months. A total of 50 perimenopausal (working-25, non-working-25) and 50 postmenopausal (working-25, non-working-25) women were randomly selected. The perimenopausal period was defined as less than 12 menstrual cycles within the previous 12 months and postmenopausal was defined as no menstruation within the previous 12 months (Barentsen *et al.*, 2001). Women with history of using oral contraceptives pill/Hormone Replacement Therapy (HRT), phytoestrogens, or having any serious disease within the previous 6 months were also excluded.

Collection of background information:

A detailed predesigned and pretested questionnaire was administered and information on the following was obtained:

General information:

Age, economic status, occupation and type of family were recorded.

Reproductive history:

Age of menopause and whether the subject had undergone a surgical intervention as hysterectomy were recorded.

Physical activity:

Questions were directed on exercise pattern and its type (walking, jogging and Yoga).

Nutritional assessment:

Anthropometric indices:

Weights were measured using spring balance to the nearest 0.5kg, heights by a non-stretchable fibre glass tape to nearest 1mm. Body mass index (BMI) and fat status were computed. Waist and hip circumference was measured using a non-stretchable tape to nearest 1mm and waist-to-hip ratio (WHR) was computed and fat status was assessed.

Diet survey:

Quantitative information on consumption of foods was obtained by 24 hours recall method. Nutrient intake was calculated using food composition tables (Gopalan *et al.*, 2005) and per cent adequacy of nutrients was computed by comparing with Recommended Dietary Allowances (RDA) for Indians (ICMR, 2000).

Symptomatological profile:

Information regarding their complaints both physical and psychological was also analyzed. A 30-item checklist derived from Greens (1976) and Neugarten and Kranines (1965) was used in the present study. The face to face interview taken by the researchers included socio-economic data, medical history and climacteric symptoms. Each item was read out and the women were asked whether they experienced the symptom mentioned. Data were analyzed for frequency of symptom and mean number of menopausal symptoms.

Statistical analysis:

The data collected on different aspects as per the methodology was tabulated and statistically analyzed using Microsoft Excel 2007 to determine mean, standard deviation and percentage. Findings are also illustrated diagrammatically.

■ RESEARCH FINDINGS AND DISCUSSION

The study population comprises of 50 perimenopausal (working-25, non- working-25) and 50 postmenopausal (working-25, non- working-25) women. The results of the study are compiled in Table 1 to 3 and Fig. 1 to 2. Demographic and other characteristics of the study subjects are presented in Table 1. Mean (\pm SD) age of the working and non-working perimenopausal women were 46.10 ± 2.65 years and 46.3 ± 2.92 years, respectively. Mean age at perimenopause of working women was 44.16 ± 4.37 years whereas non-working women was 45.60 ± 14.05 years. The mean(\pm SD) age, postmenopause age of working and non-working postmenopausal women were 57.20 ± 6.01 years, 49.68 ± 2.01 years and 62 ± 8 years, 49.76 ± 2.14 years, respectively. Most of the working and non-working women in both cases had sedentary life style. No one had heavy life style. Physical activity is an essential requirement for maintaining health. Fifty per cent respondents were engaged in some form of physical exercise daily except in non-working perimenopause women (28%).

Assessment of anthropometric indices revealed that in perimenopause women, 64 per cent working women and 72 per cent non-working women had normal BMI. Postmenopausal working women (72%) had more normal BMI than non-working (48%) women and 28 per cent in all categories were obese (Table 2). Waist circumference is indicative of approximate index of intra abdominal fat mass

(WHO, 2000) and total body fat. A higher waist circumference is indicative of increased risk of chronic diseases. WHR was found to be higher in non-working perimenopause women. While in postmenopause women, WHR was found to be higher for more than half of the working and non-working women indicative of higher fat deposits in lower abdomen that is undesirable.

The mean intakes of nutrients of perimenopausal and postmenopausal women is depicted in Fig. 1 and 2, respectively. The mean intake of protein, fibre and calcium was found to be higher in perimenopausal working women compared to non-working women. In perimenopausal women, mean intake of energy and fat was found to be higher as compared to working women. In case of postmenopausal non-working women nutrients (energy, protein, fat, fibre,

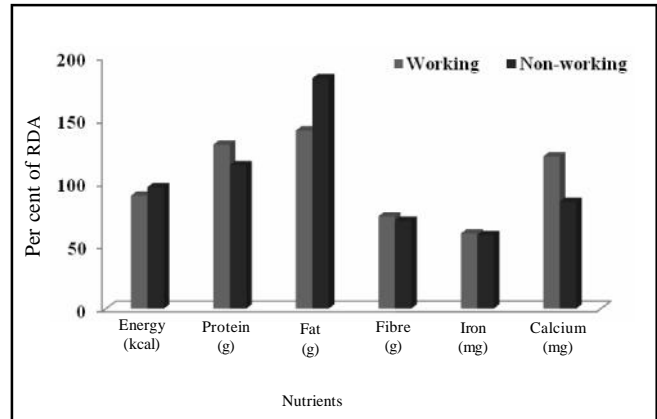


Fig. 1: Nutrient intake as compared to RDA by perimenopause women

Characteristics	Perimenopause		Postmenopause	
	Working (n=25)	Non-working (n=25)	Working (n=25)	Non-working (n=25)
	Mean (S.D.)	Mean (S.D.)	Mean (S.D.)	Mean (S.D.)
Age (years)	46.10 (2.65)	46.3 (2.92)	57.20 (6.01)	62 (8)
Age at menopause (years)	44.16 (4.37)	45.6 (14.05)	49.68 (2.01)	49.76 (2.14)
	Number (%)	Number (%)	Number (%)	Number (%)
Economic status				
1000 – 19999	8 (32)	10 (40)	9 (36)	13 (52)
20000 – 39000	8 (32)	11 (44)	8 (32)	11 (44)
>40000	9 (36)	4 (16)	8 (32)	1 (4)
Life style				
Sedentary	19 (76)	24 (96)	13 (72)	22 (88)
Moderate	6 (24)	1 (4)	7 (28)	3 (12)
Heavy	0 (0)	0 (0)	0 (0)	0 (0)
Exercise pattern				
Regular	11 (44)	7 (28)	12 (48)	13 (52)
Seldom	10 (40)	10 (40)	7 (28)	5 (20)
No	4 (16)	8 (32)	6 (24)	7 (28)
Dietary life style				
Vegetarian	15 (60)	18 (72)	12 (48)	18 (72)
Non-vegetarian	10 (40)	7 (28)	11 (44)	4 (16)
Eggetarian	0 (0)	0 (0)	2 (8)	3 (12)

Details	Body mass index			Waist hip ratio	
	CED	Normal	Obese	Ideal	Obese
Perimenopause					
Working (n=25)	12	64	24	60	40
Non-working (n=25)	-	72	28	40	60
Postmenopause					
Working (n=25)	-	72	28	32	68
Non-working (n=25)	24	48	28	36	64

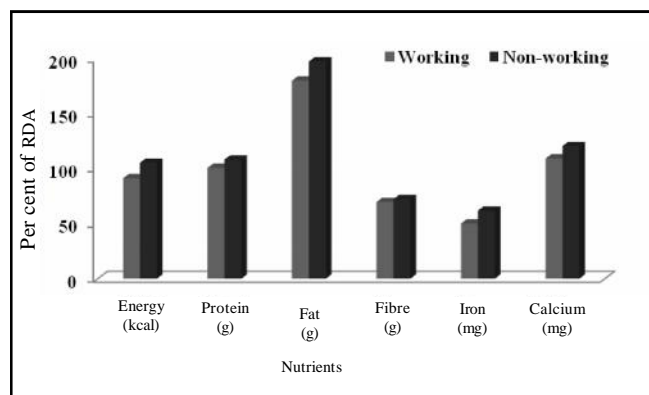


Fig. 2: Nutrient intake as compared to RDA by postmenopause women

iron and calcium) was found to be higher than working women. Results also showed that the intake of fat by all groups was relatively high from the recommended intake which might be due to the fact that it included both visible and invisible fat.

Results of perimenopausal symptoms in working women revealed that hot flushes (52%), fatigue and lack of energy (84%), irritable nervous (64%), forgetfulness (60%) and excitability/ anxiety (64%) were frequent symptoms (Table 3). Whereas cold hand and feet (56%), fatigue and lack of energy (76%) and irritable nervous (56%) were most common complaints in non-working perimenopause women. The most frequent menopausal symptoms in working and non-working postmenopause women were rheumatic pains

Table 3: Menopausal symptoms

Sr.No.	Symptoms	Perimenopause		Postmenopause	
		Working (n=25)	Non-working (n=25)	Working (n=25)	Non-working (n=25)
1.	Hot flushes	13 (52%)	7 (28%)	4 (16%)	6 (24%)
2.	Cold sweats	12 (48%)	8 (32%)	9 (36%)	7 (28%)
3.	Weight gain	5 (20%)	7 (28%)	9 (36%)	11 (44%)
4.	Flooding	0 (0%)	0 (0%)	0 (0%)	0 (0%)
5.	Rheumatic pains	12 (48%)	11 (44%)	16 (64%)	19 (76%)
6.	Aches in back of neck and skull	2 (8%)	0 (0%)	20 (40%)	9 (36%)
7.	Cold hand and feet	11 (44%)	14 (56%)	7 (28%)	10 (40%)
8.	Numbness and tingling	6 (24%)	6 (24%)	2 (8%)	1 (4%)
9.	Breast pain	2 (8%)	1 (4%)	1 (4%)	0 (0%)
10.	Constipation	4 (16%)	12 (48%)	0 (0%)	0 (0%)
11.	Diarrhoea	0 (0%)	0 (0%)	0 (0%)	0 (0%)
12.	Skin crawls	4 (16%)	18 (52%)	6 (24%)	7 (28%)
13.	Fatigue, lack of energy	21 (84%)	19 (76%)	13 (52%)	13 (52%)
14.	Headache	8 (32%)	9 (36%)	14 (56%)	14 (56%)
15.	Palpitation of heart	3 (12%)	2 (8%)	4 (16%)	4 (16%)
16.	Dizzy spells	8 (32%)	6 (24%)	2 (8%)	0 (0%)
17.	Blind spots before eyes	1 (4%)	1 (4%)	5 (20%)	5 (20%)
18.	Irritable nervous	16 (64%)	14 (56%)	6 (24%)	7 (28%)
19.	Blud depressed	2 (8%)	2 (8%)	3 (12%)	3 (12%)
20.	Forgetfulness	15 (60%)	10 (40%)	17 (68%)	11 (44%)
21.	Excitability/ anxiety	16 (64%)	11 (44%)	3 (12%)	5 (20%)
22.	Sleep disturbances	10 (40%)	8 (32%)	15 (60%)	17 (68%)
23.	Poor concentration	9 (36%)	1 (4%)	9 (36%)	2 (8%)
24.	Crying spells	0 (0%)	0 (0%)	0 (0%)	0 (0%)
25.	Feeling of suffocation	1 (4%)	0 (0%)	0 (0%)	0 (0%)
26.	Worry about body	4 (16%)	2 (8%)	6 (24%)	2 (8%)
27.	Fright, panic	0 (0%)	0 (0%)	3 (12%)	0 (0%)
28.	Worry about nervous breakdown	1 (4%)	4 (16%)	0 (0%)	0 (0%)
29.	Lost of interest in most things	9 (36%)	11 (44%)	1 (4%)	3 (12%)
30.	Pressure/ tightness in head and body	0 (0%)	0 (0%)	0 (0%)	0 (0%)

(64% and 76%, respectively), fatigue and lack of energy (52% and 52%, respectively), forgetfulness (68% and 44%, respectively) and sleep disturbances (60% and 68%, respectively).

Conclusion:

Health and nutritional status of hundred working and non- working perimenopausal and postmenopausal women from selected areas of Varanasi were evaluated in the present study. In both population maximum respondents shows normal BMI. In the study related to dietary intake, it was found that calorie intake of working perimenopause and postmenopause respondents was less than non- working. Fat consumption in non- working was greater than working. On the other hand the difference in protein, iron, and fiber and calcium intake was very minimal. Varying nature of menopausal symptoms in all groups were found. Apart from a nutritious diet an active life style which includes exercise pattern is a cure for a trouble free menopause. Regular exercise benefits the heart and bones, helps to regulate weight and contributes to a sense of overall well being and improvement in mood.

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