

# Comparison of Hot Flushes and Night Sweats Frequency and Problem Rating Among Working and Non-Working Perimenopausal Women

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## Abstract

**Objective:** To determine the frequency of hot flushes and night sweats problem and compare this among working and non working perimenopausal women.

**Methodology:** This was a prospective comparative analytical study, conducted over a 3 months period from August, 2018 to November, 2018 at KRL Hospital Islamabad, Fauji Foundation Hospital Islamabad, and public sector university Islamabad. A total of 150 women were allocated equally into one of the three respective study groups. One group comprising of 50 nursing staff, second group of 50 female teaching staff and third group of 50 housewives attending the gynae OPD. The women included were over 45 years old, had no physical or mental health problems, and could answer the questions. The tool was a questionnaire that was based on the hot flushes and night sweats problem rating scale questionnaire, devised by Hunter et al in 1995. Data was collected on the performa and analyzed on SPSS 23.

**Results:** The overall prevalence of vasomotor symptoms was 22% in the study participants, and was highest in housewives (45.5%) and teachers (42.4%). The median hot flushes frequency per week was significantly higher in teachers and lowest in nursing staff. (P value=0.001). The mean problem rating score was more in the teacher followed by housewives and nurses. (P value=0.012).

**Conclusion:** Hot flushes were more frequently occurring and more stressful at work for teachers as compared to nursing staff. Housewives experiences more hot flushes and night sweats than nursing staff but both of them cope better with the stress.

**Keywords:** Hot Flushes, Menopause, Menopausal symptoms, Vasomotor symptoms.

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## Introduction

Menopause is derived from greek word menos meaning menstruation, and pause meaning cessation and hence defined as permanent cessation of menstruation.<sup>1</sup> This is proceeded by a transition period that is stated as perimenopause. The mean age of menopause is 51 years but the menopausal transition can last up till 10 years.<sup>2</sup> This phase is characterized by physical symptoms and most common of them are vasomotor symptoms. The duration of these symptoms varies from 2 to 5 years, with some studies indicating longer duration of more than 10 years.<sup>3</sup> They are more common in certain Western ethnicities, such as Hispanic Americans (49%) and African Americans (45%), but are less common in Asian

countries, with the Japanese population having a prevalence of about 17%.<sup>4</sup>

Hot flushes are defined as periodic sensations of warmth, sweating and flushes that occur due to inappropriate thermoregulatory response.<sup>5</sup> There is resultant vasodilatation leading to perspiration to decrease the core body temperature and drenches the women at night. Different theories have been proposed to elaborate the etiology of hot flushes and night sweats. Some of them include the role of Luteinizing hormone (LH) pulses, disturbance of preoptic area of hypothalamus and neuronal circuits like Kissarh and neurokinins role.<sup>5</sup> Majority of women cope with these

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symptoms but in about 20 % will have troublesome impact on their life affecting social and professional life.<sup>3</sup> This was also proposed in several studies that working women are more affected due to combined stress of menopausal symptoms and work related stress. Hot flushes and night sweats (HFNS) are believed to be associated with disturbed sleep, poor memory concentration, excessive fatigue and hence poor work performance and loss of confidence.<sup>2</sup> Several surveys conducted in UK showed that working women in the age group of 45 to 54 years are experiencing more work related stress and hence this is also a menopausal transition age.<sup>2</sup>

Menopause is a taboo subject, and there is a lack of awareness of menopausal symptoms. Different models have been proposed to prove the relationship of menopausal symptoms with the emotional, physical, and cognitive factors and with stress.<sup>6</sup> The extent, duration, severity and frequency of hot flushes and night sweats are assessed with various self reported and subjective rating scales like the hot flushes related daily interference scale (HFRDIS) and hot flushes rating scale (HFRS).<sup>3</sup> HFRDIS was scale devised for measuring the frequency of hot flushes in breast cancer survivor patients and impact on quality of life.<sup>7</sup> HFRS was devised by Hunter et al in 1995 for assessing the postmenopausal symptom frequency and extent of problem rating and also used for evaluating those individuals taking treatment for hot flushes and night sweats.<sup>8</sup>

Menopause is a neglected topic in our society and the majority of perimenopausal women have no knowledge about the vasomotor symptoms and they don't even know when to consult for treatment. The main aim of this study was to assess the subjective and self reported hot flushes and night sweat frequency with the HFRS scale in our population. The overall prevalence of vasomotor symptoms was noted. The frequency and extent of problem rating of vasomotor symptoms among non working and working women was compared so that proper measures would be taken for the more affected group.

## Methodology

This was a prospective comparative analytical study, conducted over a period of 3 months from August, 2018 to November, 2018. The setting comprises of KRL Hospital Islamabad, Fauji Foundation Hospital Islamabad and public sector University in Islamabad

after taking ethical approval certificate from the aforementioned institutions.

A pilot study was conducted first as no reference study was available. The sample size was calculated by using WHO sample size calculator. The formula used was  $n = \frac{\{Z_{1-\alpha/2}\sqrt{2P'(1-P')} + Z_{1-\beta}\sqrt{P_1(1-P_1) + P_2(1-P_2)}\}^2}{(P_1 - P_2)^2}$

The proportion of housewives who experienced hot flushes was 30%, while the percentage of nurses who had hot flushes was 8%, Power of the study was set at 90%, Level of significance was 5%. On the basis of their results, a total of 150 women were consecutively allocated equally into one of the three respective study groups. One group comprising of 50 nursing staff of KRL Hospital Islamabad and Fauji Foundation Hospital working 6 days in a week, comprising of morning, evening or night shift duties. The second group consists of 50 female teaching staff from university, having 8 working hours per day, 6 days in a week. Third group of 50 housewives, attending the gynae OPD at KRL Hospital Islamabad.

Basic demographic details regarding the age of patient, occupation, and menopausal status was noted.

The inclusion criteria include:

1. Age ranging from 45 years to 60 years.
2. No physical and mental disability.
3. Ability to read and understand local language.

Exclusion criteria include:

4. Chronic illness like diabetes mellitus associated with neuropathy, thyroid disease, and cardiac disease.
5. Using hormonal replacement drugs.
6. Drugs like SSRI, SNRI and other centrally acting drugs.
7. Surgical menopause.

The tool was questionnaire that was based on the hot flushes and night sweats problem rating scale questionnaire, devised by Hunter et al in 1995.<sup>8</sup> The questionnaire was translated into local language that was easily understandable. The performa consists of questions regarding the frequency of night sweats and hot flushes in numbers per day and experienced in a previous week. The frequency of 10 per week was considered significant.

The severity was assessed by 3 questions graded on a scale comprising of three questions. "To what extent do

you regard your flushes/sweats as a problem?"; "How distressed do you feel about your hot flushes?"; and "How much do your hot flushes interfere with your daily routine?" Grading was done on the scale ranging from 1 to 10, with 1 indicating least worrisome and 10, more troublesome. Mean average was calculated. Problem rating of 2 was considered significant.

All the data was noted on a performa and entered in SPSS 23.0. Mean age, perimenopausal and postmenopausal women in the three groups compared. The frequency of hot flushes and night sweats and problem rating was calculated in the three groups and compared by applying Kruskal-wallis test first for non-normally distributed data. The hot flushes frequency and problem rating scale was also calculated on the basis of menopausal status by applying non parametric Man-Whitney U test. The level of statistical significance was kept below 0.05.

### Results

A total of 150 patients were included in the study. Out of 150, each of the three groups had 50 participants. Mean age was 48.87±4.26 years. Out of 150, 54 (36%) were post menopausal while the rest 96 (64%) were peri menopausal as shown in table I.

Out of total 150 patients, 33 patients overall reported of problematic vasomotor symptoms that are more than 10 episodes per week. Hence the overall prevalence came out to be 22%. While comparing groups, housewives and teachers have more prevalent vasomotor symptoms i.e. about 45.5% and 42.4% respectively while least for nurses about 12.1% (p-value=0.013). This is shown in figure I.

Median hot flushes frequency was 3 per week (Interquartile range= 9). The difference of median hot flushes frequency was statistically significant among three groups as shown in figure II. Median of hot flushes frequency was greater in teachers as compared to other groups (p< 0.001).

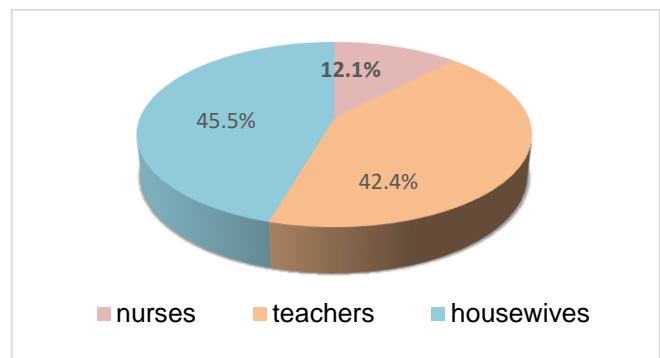


Figure I: Prevalence of Problematic Vasomotor Symptoms among Groups.

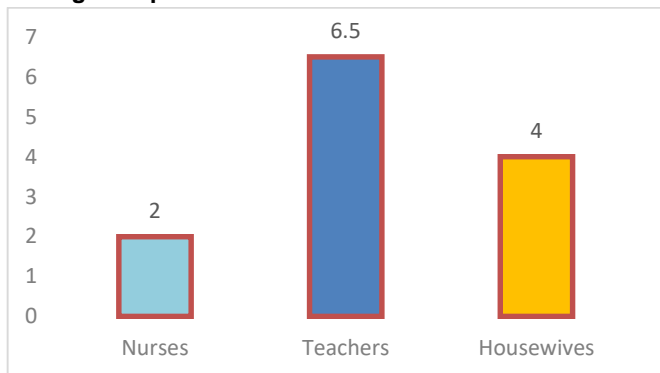


Figure II: Median hot flushes and night sweats frequency per week among the groups.

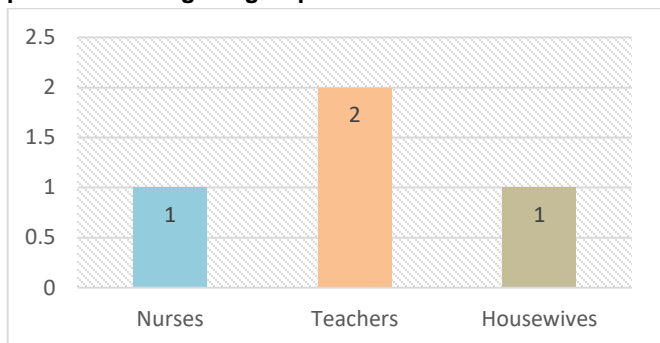


Figure III: Median problem rating scale among the groups.

Median problem rating scale was 1 (IQR= 2). The median problem rating was also statistically higher in teachers as compared to other two groups (p<0.012), as shown in figure III.

Table I: Mean age and menopausal status of the participants.

	Age Mean±SD	P-value	Post Menopausal (N=54)		Peri-Menopausal (N=96)		P-value
			N	%	N	%	
Nurses	49.36±3.70	0.99	18	33.3	32	33.3	0.707
Teachers	49.32±4.23		16	29.6	34	35.4	
Housewives	49.26±3.11		20	37.0	30	31.3	

Table II: Median hot flushes frequency and problem rating among peri menopausal and postmenopausal women.

	Post-Menopausal (N=54) Median ± Iterquartile Range	Peri-Menopausal (N=96) Median ± Iterquartile Range	P Value
Hot flushes frequency	8.50±9	3±6	<0.000
Problem rating scale	3±5	1±1.22	<0.000

Hot flushes frequency was also compared with menopausal status of the participants. The results of Mann-Whitney U test showed statistically significant differences between the medians of hot flushes frequency in peri menopausal and post menopausal women ( $p < 0.000$ ). Similarly, the median of problem rating scale was significantly greater in post menopausal women as compared to peri menopausal women ( $p < 0.000$ ). The results are shown in table II.

## Discussion

Menopause is considered as a taboo world-wide and hence a very limited number of studies have been done to discuss the menopausal symptoms correlation with working environment and their effect on the women's quality of life.

One of the large scale study conducted in UK by Griffiths A, et al<sup>9</sup> which comprises of electronic surveys from the women employees aged between 45 to 55 years of 10 organizations dealing with professional, managerial and administrative jobs. The study concluded that 19 symptoms problematic at work, with poor memory and concentration, tiredness and low mood more problematic at work and followed by hot flushes in about 35% of females at work and 40.4% in general life. These results are almost similar to our study where 42.4% of female teaching staff and 45.5% of housewives reported problematic hot flushes and night sweats. Hot flushes were more aggravated by hot unventilated and shared offices, presentations and attention requiring formal meetings and new procedures. This study highlighted the importance of support system at workplace by other employees and by the healthcare practitioners for those women with severe symptoms.

Another study conducted in Australia by Gartoulla P, et al<sup>10</sup> about the association of vasomotor symptoms with the poor working performance in women aged between 40 to 65 years. Working ability was assessed by the working ability index scale (WAI) and results showed association of vasomotor symptoms with the poor working ability after adjusting the confounding variables (ODDS ratio=2.45). But a dutch study conducted by Guekes M, et al<sup>11</sup> concluded no relationship between the menopausal symptoms and working ability and psychosomatic factors were believed to be the strongest predictor. In both of these studies the work ability score was calculated by specialized scales that were not included in our study.

In Egypt study has been conducted by Hammam Ra, et al<sup>12</sup> to assess the severity of menopausal symptoms in about 131 female teaching staff, aged between 45 to 60 years of age. Vasomotor symptoms were considered problematic in 9.2% of participants. These results are in contrast to that of our study where 42.4% of teachers have problematic vasomotor symptoms. In another study of 200 postmenopausal women, hot flushes were reported problematic in about 88% of women. The basic cause may be the combination of menopausal transition and the environmental and socio-cultural factors like overcrowding, poor work station design, work stress, inflexible and long working hours.<sup>13</sup>

Abraham JS, et al<sup>1</sup> in India conducted the study to find the prevalence of menopausal symptoms in 180 postmenopausal women aged 40 to 60 years which was 80% with psychological symptoms more prevalent about 66.1% followed by vasomotor symptoms in about 21.1% of women similar to our study where 22% of females overall had vasomotor symptoms. But hot flushes were regarded as unbearable and not tolerable symptoms, hence leading to medical treatment. Whereas another study by Monica<sup>14</sup> concluded that 77% of menopausal women complaints of hot flushes.

Recently, a large cohort study conducted in USA by Stock D, et al<sup>15</sup> assessed the association of rotating night shifts on the menopausal age. Participants in this prospective cohort trial included registered nursing staff in the United States between the ages of 25 and 42 when it began in 1989, and they were followed until 2011. This study concluded the earlier age of menopause in those women who worked > 10 night shifts in the previous 2 years. This was found that earlier age of menopause was seen in those who had worked night shifts for more than 10 years. This study may prove the disruption of circadian rhythm and hence reproductive function and leading to menstrual cycle irregularities. The association with menopausal symptoms was not studied. In our study, the least affected participants were the nurses with a lowered median frequency per week ( $p < 0.001$ ) and problem rating score ( $p < 0.012$ ). This can also be explained by the circadian rhythm problems associated with the rotating night shift duties in nursing staff.

In Pakistan, various studies have been conducted to study the socio-demographic risk factors associated with the vasomotor symptoms. In one of the study conducted in Islamabad by Jabeen N<sup>16</sup> in 2015, severe vasomotor symptoms were present in 80% of participants. These were more common in women who were obese, from

low socioeconomic backgrounds, housewives, and uneducated. When compared to our study although 45.5% of housewives complained of vasomotor symptoms but problem rating score was greater in teachers. This may be explained by the different tool applied to assess severity in the study of Jabeen N where 3 scored grading system to classify the type of vasomotor symptoms was used. Whereas in another study conducted by Bawar S, et al<sup>4</sup> in Peshawar concluded that hot flushes and night sweats are more prevalent in high socioeconomic group ( $p < 0.001$ ) and over all frequency was about 66%. Over all prevalence was 22% in our study but the socioeconomic groups were not included.

## Conclusion

Hot flushes were more frequently occurring and more stressful at work for teachers as compared to nursing staff. Housewives experiences more hot flushes and night sweats than nursing staff but both of them cope better with the stress. This study suggests the need for counseling sessions and awareness of working women about how to deal with the menopausal transition.

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