

Physical Activity and Menopausal Symptoms

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ABSTRACT

Menopause is an inevitable stage of every woman's life. This cross sectional study was conducted to assess the relationship between physical activity and menopausal symptoms from January to December 2017. By convenient sampling total 213 post menopausal women were interviewed from Mirpur, situated at the northern part of Dhaka. Five most prevalent menopausal symptoms were joint and muscular pain (90.1%), anxiety and sleep disturbance (80.3%), chest discomfort as well as physical and mental exhaustion (78.9%). Most of the respondents were physically active (63.4%), few were inactive (1.9%) and 34.7% respondents were Health Enhancing Physical Activity (HEPA)

active. The mean of total Metabolic Equivalent of Task (MET)-minute per week was 2713.46 ± 1152.24 minutes. Menopausal symptoms retrieved from Menopause Rating Scale were assessed according to physical activity level. Physical and mental exhaustion was found statistically significant ($p=0.04$) with the higher proportion reported in divorced and widowed (90.5%). Significant relationship between psychological subscale and educational status was seen ($p=.03$). There was significant association between dryness of vagina and educational status ($p<0.01$). Physical and mental exhaustion and heart problems were found to be significantly higher among working women ($p<.05$). The relationship between BMI (Body Mass Index) and hot flash was found statistically significant ($p<0.001$). Significant statistical difference also was found between irritability and increase in BMI ($p <0.001$). Hot flash ($p=0.001$) and depression ($p=0.002$) were found to be statistically significant in relation with tobacco use. Uro genital symptoms ($p=.03$), hot flash ($p=0.01$) and depression ($p=0.009$) were found to be statistically significant in relation with history of chronic disease. Only urinary problems were found statistically significant with HRT use. ($p >.05$). Anxiety was found statistically significant ($p=.04$) with highest proportion found in HEPA active women (89.2%). Proportion of sleep problems (100%), physical and mental exhaustion (100%), bladder problems (urinary incontinence) (75%), joint and muscular discomfort (100%) were more in inactive than minimally active and HEPA active women but the relationships were not statistically significant ($p>.05$). The result indicates that physical activity may have some role in reducing menopausal symptoms.

Keywords: Physical activity, Body mass index, Menopausal symptom.

INTRODUCTION

The word Menopause derived from the Greek word *men-* (month) and *pausis* (cessation), can be defined as the end of the woman's fertile life resulting from loss of ovarian follicular function.¹ The age at natural menopause occurs is between the ages of 45 and 55 for women worldwide.²

An unprecedented number of women will experience menopause in the next decade and approximately 40 million

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women will experience menopause in the world. In 1990 it was estimated that there were 467 million post menopausal women worldwide. It is thought that this will increase over 1200 million by 2030.² Bangladesh; one of the most populous countries in the world will also have increased number of menopausal women in the next decade.

Menopause causes a change in hormone level, which in turn causes an increased chance of chronic conditions such as, cancer, type-2 diabetes, osteoporosis and cardiovascular diseases¹ that hamper the overall quality of life.

Women may experience the following changes i.e. hot flushes, sweating, chest discomfort, sleep problems, depressive mood, irritability, anxiety, physical and mental exhaustion, sexual problems, bladder problems (urinary incontinence etc), dryness of vagina and joint and muscular discomfort.³

Hormone replacement therapy is recognized as an effective remedy for improving symptoms.¹ As there are some cancer risks associated with HRT, physical activity has been suggested as an alternative to ameliorate women's quality of life during menopausal transition and beyond. General population trials and reviews have found physical activity to have a beneficial effect on cognitive functioning, depression, sleep patterns, bone density and cardiovascular diseases.⁴ physical activity can be considered as an alternative option for alleviating psychological, vasomotor, somatic and sexual symptoms.¹

WHO recommendation on physical activity for health is throughout a week, adults should do at least an equivalent combination of moderate and vigorous intensity physical activity achieving at least 600 MET-minutes.² Performing daily physical activity might be the best recommendation for women in middle ages to protect their health status.

MATERIALS AND METHODS

This study was carried out to find out the association between physical activity and menopausal symptoms in urban women. A community based cross sectional study was conducted from January to December 2017. The study included 213 post menopausal women by convenient sampling, residing in different areas of Mirpur, Dhaka. Women of surgical menopause and severely ill patients were excluded. Data was collected about socio demographic status, physical activity, menopausal symptoms from face to face Interview of the respondents using a semi-structured pre-tested questionnaire in Bengali, which was developed using selected variables according to the specific objectives. Medical records regarding chronic diseases were reviewed. Height of

the respondents was measured in centimeters by measuring tape and weight in kilogram by Camry weighting machine. Information about the menopausal symptoms in menopausal women was collected by Menopause Rating Scale (MRS) and about physical activity pattern of menopausal women by International Physical Activity Questionnaire (IPAQ).

Menopause Rating Scale (MRS): The MRS scale was developed and validated from a research network i.e. Organon Germany, Infratest Munich, Universities of Muenster and Berlin, ZEG Berlin. The scale has three dimensions, i.e. psychological (composed of depression, irritability and aggressiveness, anxiety, physical and mental exhaustion), somato-vegetative (composed of hotflash and night sweating, heart discomfort, sleep disturbance, joint and muscular discomfort), and urogenital subscale (composed of sexual problems, bladder problems, dryness of vagina) containing total 11 symptoms. Each of the eleven symptoms are ranged from 0 (no symptom) to 4 scoring points (severe symptom) depending on the severity of the complaints. The composite scores for each of the three dimensions are based on adding up the scores of the items of the respective dimensions. The total score of the MRS ranges between 0 (asymptomatic) and 44 (highest degree of complaints).³

International Physical Activity Questionnaire (IPAQ): An international measure for physical activity was developed in Geneva in 1998 and extensive reliability and validity testing was undertaken across 12 countries (14 sites). The motive of the questionnaires is to provide common instruments to obtain internationally comparable data on health-related physical activity in adults of 15-69 years. The International Physical Activity Questionnaires- Long (IPAQ) assesses separate domain specific scores for walking, moderate-intensity and vigorous-intensity activity within each of the work, transportation, domestic chores and gardening (yard) and leisure-time domains. Computation of the total scores for the long form summation of the duration (in minutes) and frequency (days) for all the types of activities in all domains.⁵

Data were processed and analyzed by using software SPSS, version 16.0. Both descriptive and inferential analysis was done according to the objective of the study. The level of significance was set at 0.05.

Prior to commencement of the study, the research protocol was approved by the Ethical Review Board (ERB) of National Institute of Preventive and Social Medicine (NIPSOM). The objective of the study with its procedure, methods, risks and

benefits were explained to the respondent in easily understandable language and informed written consent was taken from each respondent as well as legal authority. It was assured that all information and records would be kept confidential.

RESULTS

Table I shows the socio demographic and health related characteristics of 213 post menopausal women. Mean age of the respondent was 56.38 (± 5.25) years. Most of the respondents were Muslims (85.9%) and housewives (91.1%). Most of the respondents were married (80.3%) and 43% completed higher secondary and above.

Most of the respondents were physically active (63.4%), few were inactive (1.9%) and 34.7% respondents were HEPA active. The mean of total MET-minute per week was 2713.46 ± 1152.24 minutes. Minimum MET-minutes of activity of the respondents were 360 MET-minute per week and maximum were 8635.50 MET-minutes per week.

Majority of the respondents (54.5%) had no habit of consuming tobacco and the rest (45.5%) consumed smokeless tobacco. More than half of the respondents (55.9%) were suffering from chronic diseases. The result shows that few respondents (4.2%) had history of taking hormone replacement therapy.

Table I: Socio demographic and Health related characteristics (n=213)

Variables		n	%	Mean \pm SD
Age Religion	Islam	183	85.9	
	Hinduism	28	13.1	
	Christianity	2	1.0	
Marital Status	Married	171	80.3	56.38 (± 5.25) years
	Divorced and widowed	42	19.7	
Educational level	Illiterate	21	9.6	
	Upto Primary	22	10.3	
	Primary to higher secondary	79	37.1	
	Higher secondary and above	91	43	
Employment status	Working	19	8.9	
	Non working	194	91.1	
Age at menopause Exercise participation	Inactive	4	1.9	47.39 \pm 2.587 years 2713.46 \pm 1152.24 minutes
	Minimally active	135	63.4	
	HEPA-active	74	34.7	
Body mass index	Underweight	2	.09	
	Normal	71	33.1	
	Overweight	45	21.1	
	Pre obese	70	32.9	
	Obese	25	12	
Chronic diseases	Yes	119	55.9	
	No	94	44.1	
Smoking status	Yes	97	45.5	
	No	116	54.5	
HRT usage	Yes	9	4.2	
	No	204	95.8	

Table II: Menopausal symptoms as assessed by the MRS in total and according to physical activity level (n=2131)

Menopausal symptoms		Physical Activity (%)		
		Inactive	Minimally active	HEPA active
Hot flash	Present	50	62.2	70.3
	Absent	50	37.8	29.7
p value			0.42	
Chest discomfort	Present	75	79.3	78.4
	Absent	25	20.7	21.6
p value			0.94	
Sleep problem	Present	100	80	79.7
	Absent	0	20	20.3
p value			1.00	
Depressive mood	Present	75	77.8	74.3
	Absent	25	22.2	25.7
p value			0.83	
Irritability	Present	75	81.5	67.6
	Absent	25	18.5	32.4
p value			0.06	
Anxiety	Present	75	75.6	89.2
	Absent	25	24.4	10.8
p value			0.04*	
Exhaustion	Present	100	74.8	58.4
	Absent	0	25.2	41.6
p value			0.14	
Sexual problems	Present	0	31.9	24.3
	Absent	100	68.1	75.7
p value			0.27	
Bladder problems	Present	75	23	25.7
	Absent	25	77	74.3
p value			0.07	
Dryness of vagina	Present	50	51.1	55.4
	Absent	50	48.9	44.6
p value			0.84	
Joint symptoms	Present	100	90.4	89.2
	Absent	0	9.6	10.8
p value			0.88	
Psychological	Present	100	97.8	97.3
	Absent	0	2.2	2.7
p value			0.93	
Somatic	Present	100	97	98.6
	Absent	0	3	1.4
p value			0.64	
Urogenital	Present	75	76.3	68.9
	Absent	25	23.7	31.1
p value			0.45	
Total	Present	100	98.5	97.3
	Absent	0	1.5	2.7
p value			0.64	

*indicates statistically significant

The nutritional status was categorized into underweight, normal, overweight, pre-obese, obese and morbid obese according to the Asian classification of nutritional status. Majority of the respondents (33.1%) were within normal range of Body Mass Index (BMI). 32.9% of the respondents were pre-obese, 21.1% were overweight and 12% were obese.

The prevalence of menopausal symptoms as evaluated by Menopause Rating Scale (MRS), the most prevalent menopausal symptoms were joint and muscular pain (90.1%) followed by anxiety and sleep disturbance (80.3%), heart discomfort and physical and mental exhaustion (78.9%). These were followed by depression and irritability and aggressiveness (76.5%), hot flash (64.8%), dryness of vagina (52.4%), sexual problems (28.6%) and bladder problems (25%). (Figure 1)

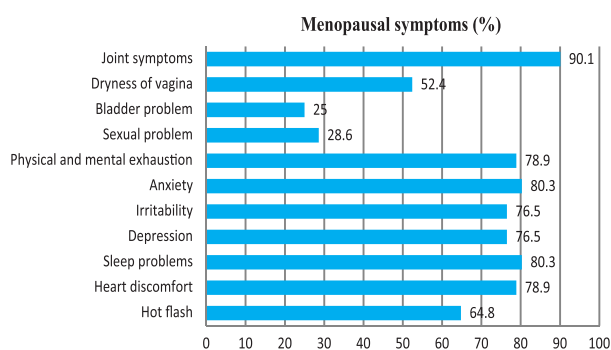


Figure-1: Menopausal symptoms experienced by the respondents

In case of inferential analysis, to assess the relationship Chi-square test was done. Menopausal symptoms experienced by the respondents had no relation with increase in age of the respondents and increase in age at menopause ($p > .05$). Physical and mental exhaustion was found statistically significant ($p=0.04$) with the higher proportion reported in divorced and widowed (90.5%). There was a significant relationship between psychological subscale and educational status where the proportion of psychological symptoms in women who completed above secondary education was relatively less (94.5%) than women who never attended school (100%) and who completed upto secondary education (100%) ($p=.03$). There was significant association between dryness of vagina and educational status ($p<0.01$). Physical and mental exhaustion and heart problems were found to be significantly higher among working women ($p<0.05$).

The prevalence of menopausal symptoms retrieved from MRS was assessed according to physical activity level. Only anxiety was found statistically significant ($p=.04$). Respondents classified as inactive according to IPAQ, had to experience more psychological, somatic and urogenital symptoms than respondents who were minimally active and HEPA active. No significant statistical relation was observed between physical activity and MRS subscales ($p > .05$). (Table II)

The relationship between BMI (Body Mass Index) and hot flash was found statistically significant ($p<0.001$). Significant statistical difference also was found between irritability and increase in BMI ($p < 0.001$).

Hot flash ($p=0.001$) and depression ($p=0.002$) were found to be statistically significant in relation with tobacco use. Urogenital symptoms ($p=.03$), hot flash ($p=0.01$) and depression ($p=0.009$) were found to be statistically significant in relation with history of chronic disease. Only urinary problems were found statistically significant with HRT use. ($p > .05$).

DISCUSSION

In Bangladesh, as there are a few studies regarding menopause and its consequences, this field is unexplored mostly. So the suffering of the menopausal women in Bangladesh is still untold and untreated. This study will provide preliminary information regarding menopause and determine the relationship between improving menopausal symptoms and a non pharmacological intervention like physical activity. The result of the study can be the basis of future nationwide study on menopause and its related factors in Bangladesh.

The age at menopause varies from 42 – 53 years and the mean age at menopause was found to be 47.39 ± 2.587 years. Another study in Kushtia Bangladesh showed, the mean age at menopause in this study was 51.14 ± 2.11 years⁶ which were slightly higher. But the study findings were quite similar to studies done in Singapore (49.1 years)⁷ and Thailand (48.7 years).⁸

The prevalence of menopausal symptoms as evaluated by Menopause Rating Scale (MRS), the most prevalent menopausal symptoms were joint and muscular pain (90.1%), anxiety and sleep disturbance (80.3%), chest discomfort and physical and mental exhaustion (78.9%). The five most common menopausal symptoms found in another study conducted in Bangladesh were: Feeling tired (92.90%), headache (88.80%), joint and muscular discomfort (76.20%), physical and mental exhaustion (60.90%) and sleeplessness (54.40%).⁶ A study carried out

on multi racial women showed that African- American women reported that hot flash is the most frequent (45.6%) followed by Caucasians (31.2%), Hispanic (35.4%), Chinese (20.5%) and Japanese (17.6%).⁹

The study result showed that, most of the respondents were physically active (63.4%), few were inactive (1.9%) and 34.7% respondents were HEPA active. A large number of respondents were housewife in the current study and they have reported to be engaged in physical activities for a considerable duration of time throughout the day. As a result most of the respondents were found physically active. This result was not similar to Non Communicable Disease risk factors survey Bangladesh 2010 where 20.2% females fell in to moderate physical activity category and 52.8% fell in to high physical activity category.¹⁰

The study result showed menopausal symptoms experienced by the respondents had no significant statistical relation with increase in age at menopause ($p > .05$) which was dissimilar to a study findings stating that joint and muscular symptoms and hot flash were significantly associated with late menopause.¹¹

Prevalence of total menopausal symptoms was highest among those women who were inactive (100%) than those who were minimally active (98.5%) and those who were HEPA active (97.3%). The difference was found statistically not significant. ($p > .05$). Respondents classified as inactive according to IPAQ, had to experience more psychological, somatic and urogenital symptoms than respondents who were minimally active and HEPA active. No significant statistical relation was observed between physical activity and MRS subscales ($p > .05$). In a study conducted on Turkish women, there was a significant relationship between the level of physical activity and total menopausal symptoms and all three MRS subscales.¹²

Among eleven menopausal symptoms, only anxiety was found statistically significant ($p = .04$). A study on Turkish women revealed statistical significant relationship between level of physical activities and some of the menopausal symptoms (sleep problems, joint and muscular discomfort, sexual problems and dryness of vagina) ($p < 0.05$) where the proportion of these symptoms were more in women who were physically inactive. This finding was consistent with the current study findings.¹² Another study of West Midland, UK showed significant statistical relationship between exercise participation and some of the menopausal symptoms (depression, anxiety and somatic symptoms. No difference was recorded in case of vasomotor symptoms (hot flashes,

night sweat etc). Women who were regularly active reported better quality of life than women who were not regularly active.⁴

The study findings are different in perspective of different study population as there is difference between pattern of physical activity in different culture, communities and countries. In western world, performing regular physical exercise like cycling, swimming, playing games, jogging in parks are known as a part of women's life at all ages. But in countries like Bangladesh, women aged above 40 are more engaged to their daily household chores and child care. So determining the relationship between physical activity and menopausal symptoms were influenced by these factors.

Significant statistical differences were found between irritability, hot flash and increase in BMI ($p < 0.001$). Another study showed that obese women reported higher vasomotor symptoms (hot flashes and night sweats) and somatic symptoms than women of normal weight.⁴ In relation with the present study, findings were not similar.

Urogenital symptoms ($p = .03$) were found statistically significant which is inconsistent with another study that stated the total MRS score as well as three subscales were determined to be significantly lower in women with no history of chronic disease.¹²

Only urinary problems were found statistically significant with HRT use. This was due to the lower prevalence of HRT use, for which association between lower prevalence and menopausal symptoms could not be properly obtained. Another study showed in women who have a history of HRT use, somato vegetative subscale were found to be significantly higher compared to those who never used HRT ($p = .047$).¹²

CONCLUSIONS

The current study showed that most of the menopausal symptoms were not significantly associated with physical activity. As we have selected the respondents from one area, it is logical not to extrapolate these data to populations in order to avoid selection bias. Health and well being of post menopausal women should be evaluated in broader spectrum by the government and private sectors in Bangladesh to take necessary preventive and curative measures.

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