Study on awareness of osteoporosis and its associated risk factors among housewives and working women in Karachi

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Abstract

Objective: To compare awareness of osteoporosis and its associated risks among working women and housewives.

Methods: This cross-sectional study was conducted at Karachi University and Dow University of Health Sciences, Karachi, from January to April 2015, and comprised working women and housewives who were enrolled using convenience sampling. Data was collected on awareness, dairy, fruit, vegetable, poultry/fish consumption as well as exercise, diagnosis and treatment taken for deficiency of vitamin D. Weight, height and body mass index were noted. Analysis was done using SPSS 17.

Results: Of the 600 participants, 300(50%) were housewives and 300(50%) were working women. Significant differences were observed in marriage years, number of children and income ($p < 0.05$). Body mass index of groups demonstrated that more working women were within normal range weight than housewives ($p<0.05$). Fewer housewives had awareness about osteoporosis and the majority of them had a sedentary lifestyle ($p<0.001$). More housewives were diagnosed with vitamin D deficiency and were prescribed for treatment ($p<0.001$). Dairy and vegetable consumption was found comparable while fruits and poultry/ fish intake was better in working women ($p<0.05$). Since the subjects in both groups had no regular exercise programme, therefore the overall results were insignificant ($p>0.05$).

Conclusion: Greater number of working women had awareness of osteoporosis.

Keywords: Housewives, Working women, Awareness of osteoporosis, Vitamin D deficiency. (JPMA 67: 1879; 2017)

Introduction

Osteoporosis affects millions of people around the world and is a major cause of morbidity which is preventable by modifiable lifestyle factors, proper nutrition, body weight, and physical activity.[1] It is important to adopt a diet rich in calcium and vitamin D because these nutrients work together to support healthy growth and maintenance of bone. The role of vitamin D is well established in preventing osteoporosis and calcium mobilisation into bones.[2,3]

Osteoporosis is an under-diagnosed and under treated disease, yet preventive measures are far better than available treatment options.[4] It is a serious condition for both the patients and health care system. It is projected that this public health problem will increase over the next 30 to 50 years. The first step in its prevention is to increase the awareness of risk factors. It is believed that awareness about osteoporosis has increased within the last 20 years.[5,6] Several studies in different populations have assessed knowledge and attitudes towards osteoporosis aiming to obtain baseline data essential for planning educational interventions regarding osteoporosis.[7,8]

Pakistan is also witnessing vitamin D deficiency and its associated complications, and women constitute a vulnerable group. Their diet is deficient in these essential nutrients starting from the teenage. Around 82.8% of the premenopausal women suffered from vitamin D deficiency. Interestingly, vitamin D deficiency was more common in younger than older women, suggesting that peak bone mass may not be achieved, predisposing to osteoporosis later in their life.[9] A majority of the studies in the past was conducted on postmenopausal women[10] and there is little data available on health beliefs of women in Asia, especially in Pakistan. Not much is known about the level of awareness of the condition among general population of urban areas of Karachi. Moreover, housewives and working women have different schedules and preferences for eating because of the difference in their daily routine. This study was therefore conducted to identify dietary habits, lifestyle and awareness regarding osteoporosis of women population as a whole as well as observed the difference between two groups.

Subjects and Methods

This cross-sectional study was conducted at Karachi University (KU) and Dow University of Health Sciences (DUHS), Karachi, from January to April 2015, and comprised working women and housewives. Women belonging to middle socio-economic group and having two or more children were included. The sample size was calculated through online software OpenEpi (version 3),[11] using cross-sectional sample size formula. Considering 95% confidence level with 80% of power, the total calculated sample size

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was 578 with 289 for each group. We added 4% of non-respondents and therefore rounded the sample size up to 600.[12] The working women were employed at DUHS and KU while the housewives were mostly residents of the KU staff town. Housewives with 14 years of education were selected to minimise the confounding effect of knowledge levels between the two study groups. Convenience sampling technique was used. Women suffering from diabetes, heart diseases, arthritis, tuberculosis and other infectious diseases were excluded. Interview using a structured questionnaire was carried out. General physical examination and blood glucose analysis were done to assess the eligibility. Body mass index (BMI) was calculated by the standard formula.[13]

Verbal consent was taken from every participant. Chi-square test was performed. SPSS 17 was used for data analysis.

Results

Of the 600 participants, 300(50%) were housewives and

Table-1: Demographic characteristics of working women and housewives.

Characteristics	Housewives Mean±SD	Working Women Mean±SD	t-test Statistic	P-value
Age (years)	35.56±7.53	35.44±6.65	0.218	0.827
Years of Marriage	13.01±9.32	11.00±7.14	2.95	0.003
Number of Children	3.16±1.97	2.63±1.59	3.59	<0.001
Household, Family Income (Pak Rupees)	44393.33± 21550.25	72000.0± 18605.21	-16.79	<0.001
BMI n (%)	139.02	<0.001		
Underweight = <18.5	14(4.7%)	52(17.3%)		
Normal weight = 18.5-24.9	64(21.3%)	170(56.7%)		
Overweight = 25-29.9	178(59.3%)	62(20.7%)		
Obesity = BMI of ?30	44(14.7%)	16(5.3%)		

BMI: Body Mass Index.

Table-2: Awareness and risk of osteoporosis indicated by deficiency status and dietary intake in working women and housewives.

Characteristics	Housewives		Working Women		Chi square Test	P-value
	Frequency	Percentage	Frequency	Percentage		
Knowledge about osteoporosis					20.28	<0.001
Yes	174	58.0%	226	75.3%		
No	126	42.0%	74	24.7%		
Diagnosed with calcium and vitamin D deficiency					12.35	<0.001
Yes	204	68.0%	162	54.0%		
No	96	32.0%	138	46.0%		
Received treatment for calcium and or vitamin D deficiency					13.09	<0.001
Yes	190	63.3%	146	48.7%		
No	110	36.7%	154	51.3%		
Servings of dairy products consumed					2.45	0.293
2 to 4 per day	74	24.7%	60	20.0%		
1 to 2 per day	92	30.7%	106	35.3%		
1 to 2 per week	134	44.7%	134	44.7%		
vegetables servings including green leafy vegetables consumed per day					0.145	0.93
3-5 servings	78	26.0%	78	26.0%		
Less than 3 servings	100	33.3%	104	34.7%		
No regular pattern	122	40.7%	118	39.3%		
servings of fruits consumed per day					59.18	<0.001
2-4 servings	52	17.3%	116	38.7%		
Less than 2 servings	82	27.3%	106	35.3%		
No regular pattern	166	55.3%	78	26.0%		
Fish or poultry consumed per day					52.74	<0.001
more than 6oz of fish , poultry	98	32.7%	78	26.0%		
Less than 6oz of fish or poultry	138	46.0%	210	70.0%		
6 oz. 1-2 times/week	64	21.3%	12	4.0%		

Table-3: Comparison of exercise and activity level in working women and housewives.

Characteristics	Household Women		Working Women		Chi square Test	P-value
	Frequency	Percentage	Frequency	Percentage		
Is your Life style sedentary					118.71	<0.001
Yes	194	64.7%	62	20.7%		
No	106	35.3%	238	79.3%		
Exercise days/ week					3.36	0.186
3 or more	24	8.0%	14	4.7%		
< 3	10	3.3%	14	4.7%		
No regular program	266	88.7%	272	90.7%		
Barriers in doing exercise					71.17	<0.001
No time	178	59.3%	266	88.7%		
Cost	6	2.0%	4	1.3%		
Lack of facilities	64	21.3%	18	6.0%		
Injury	18	6.0%	8	2.7%		
Lack of motivation	34	11.3%	4	1.3%		

300(50%) were working women.

The mean period of marriage was higher in housewives (13.01±9.32 years) than working women (11.00±7.14 years) (p=0.003). The mean number of children and household income among housewives and working women were also statistically significant (p<0.001). The assessment of BMI in working women and housewives illustrated that the commonest category of BMI in housewives was of overweight, while in working women a majority were in the normal weight category (Table-1).

Better knowledge of osteoporosis was observed in working women compared to housewives (p<0.001). Regarding consumption of dairy products, it was noted that despite having knowledge about osteoporosis, 134(44.7%) women in both study groups were inadequately using dairy foods, i.e. once or twice a week. It was also observed that even though 74(24.7%) housewives and 60(20%) working females were having dairy products 2-4 times per day, a large number in both groups were diagnosed and treated for calcium and vitamin D deficiency despite consuming proper diet. It was also observed that working women had a comparatively better lifestyle, but at the same time a majority of both housewives and working women were not using systematic and organised exercise programme (p<0.001). More housewives were diagnosed with vitamin D deficiency and were prescribed for treatment (p<0.001). Dairy and vegetable consumption were found comparable while fruits and poultry/fish intake was better in working women (Table-2).

The majority of women in both groups had no regular exercise programme (p<0.001), therefore the results were insignificant (p>0.05) (Table-3).

Discussion

It was observed in the current study that more working women had awareness of osteoporosis. The number of housewives was more as far as the maintenance of sedentary lifestyle and diagnoses/treatment taken for calcium and vitamin D deficiencies was concerned. Moreover, fruits, fish and poultry consumption was also observed as healthier in working women group, but unfortunately, vegetable intake was not adequate in either of the groups of women.

Better knowledge of osteoporosis was observed in working women as compared to housewives with results showing significant difference (p<0.001). However, within the individual group of housewives, the majority had awareness about this health problem. In a comparable study, somewhat different results were obtained where the majority of women in both groups (housewife and working) had satisfactory knowledge of osteoporosis.[14] On the other hand, in a study carried out in Egypt, knowledge was higher in working women, which is similar to the findings of this research.[15]

In this study, regarding the consumption of dairy products, it was noted that despite having knowledge about osteoporosis, the highest percentage of women in both study groups were inadequately consuming dairy foods that is twice a week(44.7%) and surprisingly the number was equal in both groups. Moreover, women who consumed such food 2-4 times daily were fewer in number in both study groups and therefore there was no significant difference.

Findings of another study conducted in Pakistan also revealed almost similar results showing that the majority

of the study participant women (85%) knew about calcium and vitamin D rich foods and osteoporosis and considered it to be a serious health threat. However, in spite of having knowledge the respondents were not practising appropriate lifestyle and dietary habits. Such behaviour included inadequate physical activity, insufficient intake of milk products, fish, poultry and green vegetables.[16]

Many reasons can be cited for the results observed in the current study; indeed there could be lack of time, personal liking, economic constraints, non-availability or poor choice of food and last but not the least, it is a common practice in Pakistani cultural society that despite the availability and affordability of the food items, women prefer to keep it for children or sometimes for male family members. It was also observed that even though, 24.7% housewives and 20% working females were having dairy products 2-4 times per day, a big percentage in both groups were diagnosed and treated for calcium and vitamin D deficiency. Higher risk of osteoporosis was observed in housewives in our study. Almost similar observation was noted in an Iranian study in which the results were not significant, but more housewives were at risk of osteoporosis.[17] An Indian study also revealed similar observations.[18]

Regarding fruits, fish and poultry consumption, working women's practices were better. Although a big number of working women in our study were diagnosed and treated for vitamin D deficiency despite practising better dietary habits, their number was still less than housewives. The consumption of vegetables was not adequate in both groups, hence the results were not statistically significant. In other studies resembling ours, most of the participants in both groups, that is housewives and working ladies were noted as consuming adequate quantities of vegetables and fruits,[19] but poor consumption of fish and poultry was recorded in sedentary women in a study done in India.[20]

The reasons behind a higher number of participants diagnosed and treated for deficiency of vitamin D could be their age group 35-45 years and having two or more children, as is witnessed in another study.[21] Serum 25 (OH) D is used as an indicator of vitamin D status. Also, its level is an important determinant of serum calcium concentration. Hence vitamin D synthesis is not only related to intake of calcium and the vitamin rich food.[22] Indeed, exposure to sunrays is inevitable. One would expect to have a lot of sunrays in women population of our geographical area, but due to cultural and religious reasons many women can't get the required amount of sunrays.[23]

Some studies have also shown that body fat content and BMI are inversely related to serum 25 (OH) D level.[24] As found in this study housewives had a higher percentage of BMI and a higher percentage of this group was seen as receiving treatment for vitamin D and calcium deficiency.

Research has shown that exercise helps ward off osteoporosis by strengthening bones, just as it strengthens muscles and resulting strong bones are less likely to fracture.[5] In our study it was noted that overall quite a large number of the total study population was maintaining a sedentary lifestyle but among these more were housewives indicating that working women had a comparatively better lifestyle ($p<0.001$). It is noted that exercise levels have been low in Pakistan and sedentary living is high which could be due to greater hours spent indoors with computers and watching television. All these factors among Pakistani women were inadequate to promote and maintain good bone health.[10] Regarding exercise frequency in our study sample, the results were not significant and the majority of both housewives and working women were not following any regular exercise programme. However, when inquired about the difficulties encountered in doing exercise, although the commonest barrier in both groups was less time, housewives also mentioned lack of facilities and motivation issues ($p<0.001$).

This study highlights the importance of increasing awareness about osteoporosis and its prevention with the use of dairy products, vegetables, fruits and poultry/fish as well as regular physical activity. Facilities of exercise should be provided by establishing centres at the workplace and also the provision of dairy products should be ensured at an affordable price.

Conclusion

Working women had more knowledge of osteoporosis as compared to housewives. The percentage of women who were diagnosed and treated for calcium and vitamin D deficiency was higher in housewives and more housewives were maintaining a sedentary lifestyle with no regular exercise programme. The highest percentage of women in both study groups was not consuming dairy foods adequately. However, fruits and poultry consumption were better in working women, whereas vegetable intake was inadequate in both study groups.

Disclaimer: The article is part of a PhD thesis.

Conflict of Interest: None.

Source of Funding Disclosure: None.

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