Journal of Chemical Health Risks
www.jchr.org
JCHR (2024) 14(2), 2959-2965 | ISSN:2251-6727

Dietary and lifestyle risk factors of osteoporosis - knowledge among middle aged urban women: A descriptive study in Chittoor district, Andhra Pradesh.

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(Received: 07 January 2024 Revised: 12 February 2024 Accepted: 06 March 2024)

KEYWORDS

Porous bones, adulthood, food habits, physical activity, urban

ABSTRACT:

Introduction: Osteoporosis is a skeletal condition characterized by low bone mass and micro architectural degeneration of bone tissue, leading to diminished bone tension and strength and an increased risk of fragility fracture. Lifestyle and nutritional habits are major factors in bone health. The aim of the study was to assess the knowledge regarding dietary and lifestyle risk factors of osteoporosis among middle aged urban women.

Methods: A descriptive cross sectional research study was conducted among 100 middle-aged urban women. Data was collected using a self-structured knowledge questionnaire. Descriptive and inferential statistics were used to analyze the data using Easy R (EZR) software.

Results: On average, age of the participants were 46.37±5.14 years, of which79 (79%) had inadequate knowledge on dietary and lifestyle risk factors of osteoporosis (8.45±1.21). Age in years, educational status, occupational status, family monthly income and family history of osteoporosis have shown a statistically significant association with the level of knowledge regarding dietary and lifestyle risk factors of osteoporosis where p is < 0.001.

Conclusions: The study concluded that knowledge of osteoporosis was lacking among middle-aged urban women. There is a need to develop awareness initiatives directed at women, particularly those with a low level of education, a low socioeconomic situation, and no prior exposure to osteoporosis. Encouraging the public participation in health promotion programmes and patient education, with a focus on osteoporosis risk factors and preventative techniques is paramount in preventing the risk of osteoporosis.

Introduction

Osteoporosis (OP) is a skeletal condition characterized by low bone mass and micro architectural degeneration of bone tissue, leading to diminished bone tension and strength and an increased risk of fragility fracture. **(Farkhondeh Pouresmaeili et al., 2018)**

Osteoporosis can be primary or secondary, with the primary being the most frequent. It is most commonlyseen in postmenopausal women as postmenopausal osteoporosis. Secondary Osteoporosis is a complication of the main cause. A number of factors have been linked to an increased risk of Osteoporosis. Several strategies, on the other hand, are known to increase bone mineral density and reduce the risk of fractures. However, prevention is preferable to therapy, and osteoporosis is a preventable disease; the first step in preventing it is raising awareness of the risk factors. **(Sarah Sayed El-Tawab, Emmanuel Kamal Aziz Saba, Heba Mohmoud Taha Elweshahi and Mona HamdyAshry, 2016)**

Osteoporosis affects the entire population at various periods of life; however, post menopausal women and the elderly tend to be the most vulnerable to its development. **(Mariola Janiszewska et al., 2015)** Women have a 30-50% lifetime risk of osteoporosis-

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related fractures. **(Reem I. Alrashidy, 2021)** The global prevalence of osteoporosis among the elderly is 21.7%, with Asia having the highest incidence (24.3%), followed by Europe (16.7%) and America (11.5%). Furthermore, the global prevalence of osteoporosis is 35.3%in older women and 12.5% in older men. **(Ahmad Alhouri et al., 2022)** The number of patients with osteoporosis in Indian populations is predicted to be 26 million, with a projected increase to 36 million by 2013. The lifetime risk of osteoporotic fractures is 30-50% in women and 15-30% in men. **(Nidhi Kadam et al., 2019).**

Lifestyle and nutritional habits are major variables in bone health. Calcium and vitamin D deficiency can lead to changes in bone remodelling and bone integrity. Dietary calcium has a significant positive relationship with increased bone mineral density at all places in our bodies. **(Narendra Kumar Chaudhary, Mukti Nath Timilsena, Dev Ram Sunuwar, Pranil Man Singh Pradhan and Raj Kumar Sangroula, 2019)**

Modifiable risk factors for osteoporosis include sedentary lifestyle and an imbalanced diet, and the non-modifiable risk factors are like sex, ageing, and family history. **(ChinYiChanetal., 2019)** Risks of osteoporosis can be minimized through lifestyle changes and, in certain cases through medicines. In people with osteoporosis, treatment may include both lifestyle modification and medications. **(Amani A Osman, 2013)**80% of women with osteoporosis were unaware of their risk prior to diagnosis. Thus, there is a need to raise knowledge about osteoporosis risk factors and ways to promote bone health. **(Nidhi Kadam et al., 2019).** Hence, the proposed study was planned to assess the knowledge regarding dietary and lifestyle risk factors of osteoporosis among middle aged urban women and to associate the level of knowledge regarding dietary and lifestyle risk factors of osteoporosis with their selected demographic variables.

Materials and Methods

Design : A Descriptive cross sectional research study design was adapted for the present study.

Sample Size : A sample of 100 middle-aged urban women was selected.

Sampling Technique: Purposive sampling technique was used to select the sample.

Inclusion Criteria: Women who are within theage of 30 to 50 years, who could understand Telugu or English language andwho are willing to spare time for giving data were included in the study.

Exclusion Criteria: Women who are bed-bound and terminally ill were excluded from the study

Data collection Procedure: The formal permission was obtained from the Institutional Ethical Committee. A structured knowledge questionnaire with 25 items on the knowledge regarding dietary and lifestyle risk factors of osteoporosis was developed and administered for data collection. The reliability coefficient of the tool was estimated with the Statistical Package for the Social Sciences (SPSS) version 20, Cronbach's alpha was found to be 0.93. Data was analysed based on the objectives of the study using descriptive statistics such as frequency, percentage distribution, mean, and standard deviation to describe demographics and for assessment of the knowledge regarding dietary and lifestyle risk factors of osteoporosis among middle aged urban women. Inferential statistics such as chi square test were used to associate the level of knowledge regarding dietary and lifestyle risk factors of osteoporosis among middle aged urban women with their selected demographic variables.All the statistical analysis was carried out at a 5% level of significance with ap-value of<0.05.

Results

Majority (n=43,43%) of the middle aged urban women of study population were in the age

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group of 40-45 years, studied upto primary education (n=71,71%), housewives(n=62,62%) with a family income rangind from Rs.20001-25000 (n=36,36%). **(Table 1)**

The majority (n=79, 79%) of the middle-aged urban womenhad an inadequate level of knowledge and 21(21%) participants had a moderately adequate level of knowledge with a mean and standard deviation of 8.45±1.21. **(Figure 1)**

Chi square test for association has shown a statistically significant association between age in years, educational status, occupational status, family monthly income,family history of osteoporosisand the level of knowledge regarding dietary and lifestyle risk factors of osteoporosis among middle aged urban women with their selected demographic variables. **(Table 2)**

Discussion

Descriptive research design was used to select the sample; total of 100 middle-aged urban women were selected by purposive sampling technique. Knowledge regarding dietary and lifestyle risk factors of osteoporosis was assessed by using a structured questionnaire. The majorityof the study participants were in the age group of 40-45 years, completed their primary school education, and had no family history of osteoporosis.

The first objective of the study was to assess the knowledge regarding dietary and lifestyle risk factors of osteoporosis among middle aged urban women. It was found that, majority of the study participants had an inadequate level of knowledge and 21% had a moderately adequate level of knowledge. This result was supported by Chin Yi Chan et al., (2019) showed the overall mean total knowledge score was 67.58%. Overall, the respondents scored better in general knowledge (73.38%, SD = 17.08) than in osteoporosis prevention knowledge (61.76%, SD = 16.85).Positive associations were seen between osteoporosis health beliefs and physical activity, dairy, and calcium intake ($p < 0.05$). Bone health was not linked to knowledge, beliefs, or practices about osteoporosis ($p > 0.05$).

The second objective of the study was to associate the level of knowledge regarding dietary and lifestyle risk factors of osteoporosis among middle aged urban women with their selected demographic variables. Age in years, educational status, occupational status, family monthly income and family history of osteoporosis had shown a statistically significant association with the level of knowledge of urban women. This result was supported by Sarah Sayed El-Tawab, Emmanuel Kamal Aziz Saba, Heba Mohmoud Taha Elweshahi and Mona HamdyAshry, (2016) where it was shown that a favourable relationship was discovered between the age of the females investigated and their knowledge score (r= 0.129, P = 0.037). Women's knowledge of osteoporosis was substantially related to their level of education and work status (P = 0.001 and 0.021, respectively). Women have moderate understanding of osteoporosis, including risk factors, preventive methods, and repercussions.

Strengths and Limitations

Because the study was cross-sectional, no inferences could be derived regarding the long-term impact of knowledge, beliefs, and practices on bone health. Thus, long term studies are required to investigate changes in osteo-protective practices and their implications on bone health. A successful intervention programme demands the public's cooperation with the researchers. Educational programmes are critical for educating the public about osteoporosis and promoting prevention. However, general people must be motivated to improve their food or health practices in order to live a healthier lifestyle and to prevent developing osteoporosis.

Conclusion

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Knowledge of osteoporosis is lacking among middle-aged urban women. There is a need to develop awareness initiatives directed at women, particularly those with a low level of education, a low socioeconomic situation, and with no prior exposure to osteoporosis.

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Table 1:- Distribution of demographic variables among middle aged urban women

Demographic variables	n	%
Agein years		
40-45	43	43
46-50	39	39
51->55	18	18
Educational Status		
Noformal education	12	12
Primaryschooleducation	71	71
Highschool education	12	12
Graduates	5	5
Occupation status		
Employed	38	38
Housewife	62	62
Familymonthlyincome (INR)		
Rs.5001-10000	17	17
Rs.10001-15000	20	20
Rs. 15001-20000	13	13
Rs.20001-25000	36	36
Rs.25000-30000	14	14
Type of diet		
Vegetarian	14	14
Non- vegetarian	86	86
Family history of osteoporosis		
Yes	25	25
No	75	75

Table 2: Association between the level of knowledge regarding dietary and lifestyle risk factors of osteoporosis among middle aged urban women with their selected demographic variables.

Demographic variables	Level of knowledge				Chi-square (χ^2)and p-Value
	Inadequate knowledge		Moderately adequate knowledge		
	N	%	N	%	

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Ageinyears						χ^2**=35.23,df=2 p =0.000 **HS**
40-45		21	100	22	27.8	
46-50		0	0	39	49.4	
51->55		0	0	18	22.8	
Educational Status						χ^2**=52.6,df=3 p =0.000 **HS**
No formal education		12	57.1	0	0	
Primary school education		9	42.9	62	78.5	
High school education		0	0	12	15.2	
Graduates		0	0	5	6.3	
Occupation status						χ^2**=43.3,df=1 p =0.000 **HS**
Employed		21	100	17	21.5	
Housewife		0	0	62	78.5	
Family month income						χ^2**=80.7,df=4 p =0.000 **HS**
Rs.5001-10000		17	81	0	0	
Rs.10001-15000		4	19	16	20.3	
Rs.15001-20000		0	0	13	16.5	
Rs.20001-25000		0	0	36	45.6	
Rs.25000-30000		0	0	14	17.6	
5	**Type of diet**					χ^2=0.44,df=1 p =0.506 NS
	Vegetarian	2	9.5	12	15.2	
	Non- vegetarian	19	90.5	67	84.8	
6	**Family history of osteoporosis**					χ^2**=79.74,df=1 p =0.000 **HS**
	Yes	21	100	4	5.1	

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	No	0	0	75	94.9	

***-p < 0.001HS- Highlysignificant , NS-Non-significant**

Figure 1: Distribution of level of knowledge regarding dietary and lifestyle risk factors of osteoporosis among middle aged urban women