

RESEARCH ARTICLE

Knowledge of Postmenopausal Women on Importance of Nutrition and Life style in Prevention and Management of Osteoporosis

Madhusudhan Rao Sirivole^{1*} and Sadvimani Eturi²

¹Dept. of Biochemistry, MNR Medical College, Sangareddy, Medak dist. Andhra Pradesh, India

²KIMS College of Nursing, Sreepuram, Narkatpally, Nalgonda, Andhra Pradesh, India
madhusirivole@gmail.com*; sadhvieturi@gmail.com; +91 8464824736

Abstract

In this study, the knowledge of postmenopausal women on importance of nutrition and life style in prevention and management of osteoporosis was assessed in a small urban slum community in Rangareddy district, Andhra Pradesh, India. The study sample was 100 women (>45 years) who were in their postmenopausal stage. A descriptive study design was adopted with a cross-sectional approach and the participants were interviewed personally through questionnaires. The various variables considered in selecting the target population included age, gender, education, occupation, diet, family history of fractures and medications. The findings showed that among 100 women, only 11% had adequate knowledge, 41% had moderate knowledge and 48% had inadequate knowledge about osteoporosis. There was a statistically significant association found between level of knowledge and demographic variables such as age, education, monthly income and life style patterns.

Keywords: Postmenopausal women, nutrition, life style, osteoporosis, cross-sectional approach, medications.

Introduction

Osteoporosis is a skeletal disorder characterized by low bone mass and deterioration of bone tissue leading to bone fragility. Osteoporosis predisposes the individual to increased risk of fractures of the hip, spine and other skeletal-sites affecting middle aged and older persons, especially those with family history of fragile bones. Osteoporosis in later years although primarily affecting women, also affects men too (Babu *et al.*, 2009). Osteoporotic fractures are frequent in elderly populations especially in women associated with high healthcare costs and individual suffering increasing disability and dependence. Osteoporosis causes fragility fractures which directly or indirectly have an effect on life expectancy and the quality of life (Cheung *et al.*, 2009). In the coming years, as the population ages, the burden of osteoporotic fractures on society will increase and hence, the prevention of osteoporotic fractures is a major public health issue (Warensjo *et al.*, 2011). In women, postmenopausal status is a risk factor for osteoporosis due to lack of beneficial effects of estrogen. The other contributing factors for osteoporosis in men and women include but not limited to certain hormonal deficiencies, chronic use of some medications such as glucocorticoids or steroids, medicines used for acid reflux disease etc. In addition, to increased fracture risk, Hodsman (2005) in his study stated that osteoporosis results in shortening or kyphosis (bending over) of the spine leading to a "hunched over" appearance which can compromise respiratory function because, the thorax is reduced in size.

Osteoporosis is often called a silent epidemic as it does not have a dramatic clinical presentation except when fractures result. A study by Khokhar and Mehta (2001) showed that Indian women lack adequate knowledge regarding osteoporosis and they did not perceive themselves to be susceptible to osteoporosis and did not consider osteoporosis to be a serious disease. They do not realize the importance of consuming a high calcium diet for prevention of osteoporosis. Harinarayan *et al.* (2004) have opined that osteoporosis is a chronic disease with long incubation period and cost-effective treatment strategies and it is important to diagnose and treat it early in its course. Sedentary life style is another important risk factor of osteoporosis. As a greater percentage of Indian women are home makers, they do not have access or time for daily exercise. With the culture of employing domestic help for household chores, the scope for physical activity to the women is significantly curbed leading to obesity and related morbidities. According to WHO technical report (1994) wrist fractures are most common in premenopausal women and it is lower in men. Babu *et al.* (2009) in his study stated that osteoporosis and osteopenia prevalence in India was found to increase steeply after the age of 50 years. Keeping the above facts in view, this study was aimed to assess the knowledge of postmenopausal women on importance of nutrition and life style in prevention and management of osteoporosis.

Materials and methods

Study sample and area: The target population comprised of women above 45 years (N=100) who were in their postmenopausal stage residing at NTR Nagar, Hyderabad.

Research design: The research design adopted in the present study was descriptive and cross-sectional which was considered appropriate because it aims at assessing the knowledge of women regarding nutrition and life style which would also aid in identifying the target population for prevention and management of osteoporosis. Convenient sampling technique was used through non-probability sampling approach. In the present study, the attribute variables are age, education, occupation, diet, family history of fractures and medication etc. A structured questionnaire was developed to collect the data about knowledge on importance of nutrition and life style in prevention and management of osteoporosis. The questionnaire consists of two parts. Part A consists of demographic variables and part B consists of structured questionnaire on importance of nutrition in prevention and management of osteoporosis.

Statistical analysis: The data obtained was analyzed using descriptive and inferential statistics. Demographic data contains sample characteristics analyzed in terms of percentage. On the basis of objectives, a null hypothesis for the study was framed.

H_0 : There will be no significant association between the knowledge level of elderly women regarding occurrence of osteoporosis and selected demographic variables.

H_1 : There will be significant association between the knowledge level of elderly women regarding occurrence of osteoporosis and selected demographic variables.

Association between knowledge scores and selected demographic variables were analyzed by chi-squares at 0.05 levels of significance.

Results and discussion

Table 1 represents a divided age distribution of the 100 postmenopausal women. Among them, 16% were in the age group of 45-50 years and 43% were in the age group of 56-60 years. Education is an important tool to improve the knowledge. Only 9% of the population was post graduates and 22% were illiterate (Table 2). Financial status is an important factor that affects the Health. Table 3 shows that majority 31% women are earning in between Rs. 4001-6000 per month. Percentage distribution of women according to their life style patterns shows that majority 53% is doing sedentary work and 47% are doing moderate work (Table 4).

Table 1. Percentage distribution of women according to age.

Age in years	Percentage
45-50	16
51-55	17
56-60	43
61-65	24

Table 2. Percentage distribution of women according to educational status.

Education level	Percentage
Illiterate	22
High school	42
Graduates	27
Post graduates	9

Table 3. Percentage distribution of women according to monthly income.

Monthly income (in Rs./month)	Percentage
<2000	25
2001-4000	23
4001-6000	31
>6000	21

Table 4. Percentage distribution of women according to life style pattern.

Life style pattern	Percentage
Moderate	47
Sedentary	53

Table 5. Percentage distribution of women according to age of menopause.

Age at menopause (Years)	Percentage
35-40	1
41-45	16
46-50	74
51-55	9

Table 6. Percentage distribution of women according to their family history of osteoporosis.

Family history of osteoporosis	Percentage
Yes	63
No	37

Table 7. Percentage distribution of women according to their family history of fracture.

Family history of fracture	Percentage
Yes	32
No	68

Table 8. Family history of orthopaedic problems among postmenopausal women.

Family history of orthopaedic problems	Percentage
Yes	63
No	37

Table 9. Dietary habit among postmenopausal women.

Dietary habit	Percentage
Vegetarian	45
Non-vegetarian	55

From Table 5, it is clear that majority 74% of women got menopause between 46 to 55 years of age. With reference to their family history of osteoporosis, 63% knew that osteoporosis occurred in their families (Table 6). Table 7 explains that 32% reported family history of fractures in elderly family members while, 68% denied. About 63% reported family history of orthopaedic problems (Table 8). Among the study sample, 45% were vegetarians and 55% were non-vegetarians (Table 9). Only 11% of the women had adequate knowledge regarding prevention of osteoporosis (Table 10). Chi-square values were computed to find out the association between level of knowledge and demographic variables.

Table 10. Knowledge level of postmenopausal women regarding prevention of osteoporosis.

Knowledge level	Percentage
Inadequate knowledge (<50%)	48
Moderate adequate Knowledge	41
Adequate knowledge	11

It was revealed that there was a significant association found between the level of knowledge and selected demographic variables such as age, education, working status, monthly income and family history of fractures with chi-square values of 13.31(6 df), 18.36(6 df), 14.69(2 df), 13.6(6 df) and 7.44(df) (Table 11).

Table 11. Association between the knowledge level of postmenopausal women regarding osteoporosis and selected demographic variables.

Level of knowledge	%	<50%	50-75%	>75%	Chi-square value
Age					
a) 45-50 years	16	0	8	8	13.31*
b) 50-55 years	17	5	11	1	6 df
c) 56-60 years	43	24	18	1	
d) 61-65 years	24	19	4	1	
Education					
a) Illiterates	22	20	2	0	18.36*
b) High school	42	21	19	2	6 df
c) Graduates	27	7	17	3	
d) Post graduates	9	0	3	6	
Working					
a) Yes	47	13	26	8	14.69*
b) No	53	35	15	3	2 df
Monthly income					
a) Below Rs.2000	25	20	4	1	13.6*
b) Rs.2001-4000	23	19	10	1	6 df
c) Rs.4001-6000	31	9	14	1	
d) Above Rs. 6000	21	0	13	8	
What age did you attain menopause?					
a) 35 to 40 years	1	1	0	0	1.32
b) 41 to 45 years	16	5	8	3	6 df
c) 46 to 50 years	74	36	32	6	
d) 51 to 55 years	9	6	1	2	
Family history of osteoporosis					
a) Yes	63	32	26	5	0.52
b) No	37	16	15	6	2 df
Family history of fracture					
a) Yes	32	9	20	3	7.44*
b) No	68	39	21	8	2 df
Dietary habits					
a) Vegetarian	45	20	16	9	0.47
b) Non-vegetarian	55	28	25	2	2 df
Medical problems					
a) Yes	26	13	8	5	0.054
b) No	74	35	33	6	2 df
Do you take calcium supplements?					
a) Yes	40	15	15	10	2.93
b) No	60	33	26	1	2 df
Do you take any steroids?					
a) Yes	8	2	5	1	1.85
b) No	92	46	36	10	2 df

*Significant at 0.05 level of significance, df = degree of freedom.

The value represents significant association between level of knowledge and demographic variables at 0.05 level of significance and accepts the hypothesis H_1 (There will be significant association between the knowledge level of elderly women regarding occurrence of osteoporosis and selected demographic variables).

Conclusion

Knowledge of postmenopausal women on importance of nutrition and life style in prevention and management of osteoporosis was assessed in a small urban slum community in Rangareddy district, AP, India. A descriptive study design was adopted with a cross-sectional approach and the participants were interviewed personally through questionnaires. The various variables considered in selecting the target population included age, gender, education, occupation, diet, family history of fractures and medications. The findings showed that among 100 women, only 11% had adequate knowledge, 41% had moderate knowledge and 48% had inadequate knowledge about osteoporosis. There was a statistically significant association found between level of knowledge and demographic variables such as age, education, monthly income and life style patterns. To conclude, the study shows that efforts can be undertaken to educate the elderly women regarding nutrition and life style changes to improve their knowledge to prevent osteoporosis in near future.

Acknowledgements

Authors are thankful to Dr. B. Venkataramana, Assoc. prof., Dept. of Orthopedics, K.I.M.S., Narkatpally for valuable suggestions regarding osteoporosis. Authors are also grateful to the medical officer, UHS, Mansoorabad L.B. Nagar, Hyderabad for giving permission to conduct the study among the elderly people in NTR Nagar. Authors are immensely thankful to the residents of NTR Nagar for their great cooperation and support in conducting this study.

References

1. Babu, A.S., Ikbal, F.M., Noone, M.S., Joseph, A.N. and Samuel, P. 2009. Osteoporosis and Osteopenia in India: A few more observations. *Ind. J. Med. Sci.* 63(2): 76-77.
2. Cheung, A.M., Tile, L., Lee, Y., Tomlinson, G., Hawker, G., Scher, J., Hu, H., Vieth, R., Thompson, L., Jamal, S. and Josse, R. 2008. *PLoS Med.* 5(10): 1-12.
3. Harinarayan, C.V., Ramalakshmi, T. and Venkataprasad, U. 2004. High prevalence of low dietary calcium and low vitamin D status in healthy south Indians. *Asia Pac. J. Clin. Nutr.* 13: 359-364.
4. Hodsman, A.B., Bauer, D.C. and Dempster, D.W. 2005. Parathyroid hormone and teriparatide for the treatment of osteoporosis: A review of the evidence and suggested guidelines for its use. *Endocr. Rev.* 26: 688-703.
5. Khokhar, A. and Mehra, M. 2001. Life style and morbidity profile of geriatric population in an urban community of Delhi. *Ind. J. Med. Sci.* 55: 609-615.
6. Warensjo, E., Byberg, L., Melhus, H., Gedeberg, R., Mallmin, H., Wolk, A., Michaelsson, K. 2011. Dietary calcium intake and risk of fracture and osteoporosis: Prospective longitudinal cohort study. *BMJ.* 342: d1473.
7. WHO. 1994. Assessment of fracture risk and its application to screening for post menopausal osteoporosis. Report of a WHO study group. *World Health Org. Tech. Rep. Series.* 843: 129.