Knowledge of Osteoporosis and its Risk Factors among Nursing Staff of a Tertiary Care Hospital

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ABSTRACT

Introduction: Osteoporosis is being reported as a major cause of morbidity among elderly individuals in India. Osteoporotic fracture rates in India are among the highest in Asia. Nursing professionals are the key link in the chain of multidisciplinary approach to the management of this potentially preventable disease, and in educating patients about the various aspects of its evaluation and management. But, there are studies which have shown lack of adequate knowledge among nursing personals. We conducted survey to assess the knowledge among the nursing staff regarding osteoporosis and its risk factors using the Facts on Osteoporosis Quiz (FOOQ) method.

Material and Methods: We conducted this survey among the nursing staff of teaching hospital using the Facts on Osteoporosis Quiz (FOOQ) method. All the participants were asked to answer the questionnaire without disclosing their identity after their approval to participate in the study. The questions were answered in true, false and don't know. The data was analyzed using PASW Statistics 18.0 (SPSS Inc, Chicago, IL, USA). Demographic characteristics and scores on the FOOQ will be summarized using descriptive summary measures, and expressed as mean ± standard deviation for continuous variables and number (percentage) for categorical variables. Observations: A total of 102 out of 120 nurses returned the questionnaires. This translated into a response rate of 85%. All were from the tertiary health center where research was being conducted. The mean score was 14.35. Nurses were aware of certain facts like more requirement of calcium during growing period (98%), impact of menopause (82.4%), effect of smoking (76.5%) but were unaware that walking does not by beneficial effect on ostetoporosis (11.8% correct answer), low weight females are more risk of osteoporosis (31.4% correct answer).

Conclusion: We found that knowledge about osteoporosis among nursing staff was less and more efforts are required to be done to increase their knowledge about osteoporosis for better patient care.

Keywords: Osteoporosis, nurse, knowledge

INTRODUCTION

Osteoporosis is being reported as a major cause of morbidity among elderly individuals in India. Osteoporotic fracture rates in India are among the highest in Asia.[1] People has to be made aware regarding this disease and its complications. The knowledge about osteoporosis is less among the general population. Health care professionals who are directly involved in delivering the treatment to patients are expected to have better understanding and knowledge about osteoporosis. Nursing professionals and doctors are the key link in the management of this potentially preventable disease, and in educating patients about the various aspects of its evaluation and management.

But, there are studies which have shown lack of adequate knowledge among nursing personals.[2-6]

The Osteoporosis KnowledgeTest is used to assess the knowledge level of osteoporosis and its related risk factors among allied healthcare professionals.[7] However, this instrument was designed in a multiple-choice format and was originally meant for an American population. Several inconsistencies in the OKT content have been demonstrated in various studies. Also, the questionnaire addresses knowledge about specific facts and with statistics about osteoporosis.The OKT questionnaire is not suitable for administration and interpretation in its original form in India. The Facts on Osteoporosis Quiz (FOOQ) can be used to assess knowledgeof osteoporosis. FOOQ consists of 20 true and false questions, and its content was generated based on the osteoporosis consensus conference of the National Institutes of Health in 2000. (8) It has a content validityof 0.87 and an internal consistency reliability of 0.76, but unlike the OKT, it does not require in-depth knowledge about statistical figures on osteoporosis.[8]

Hannon et al conducted a randomised study using the FOOQ to investigate nurses' and midwives' knowledge of osteoporosis, as well as to assess their education and training needs.[9] They have raised concern over the competency of nurses and midwives in playing a vital role in health education and promotion, as it found that the mean score of nurses' knowledge of osteoporosis was only 13.75, which was less than the mean score of 16.8 found among a general population in Ailinger et al's study.[8]

We planned this survey to assess the knowledge among the nursing staff regarding osteoporosis and its risk factors using the Facts on Osteoporosis Quiz (FOOQ) method.

MATERIAL AND METHODS

We conducted this survey among the nursing staff a tertiary care hospital attached to a medical college, using the Facts on Osteoporosis Quiz (FOOQ) method. Nurses having degree of nursing and minimum one year of experience of working after completion were included in the study. Nurses with less than one year experience and those who were working in operation theatre were excluded. Total number of nurses eligible for inclusion in study was 435. The sample size was calculated to be minimum 100. The participants were selected randomly. All the participants were asked to answer the questionnaire without disclosing their identity after their approval to participate in the

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Questions	Answer	Correct answer	Percentage
1. Physical activity increases the risk of osteoporosis.	False	82	80.4
2. High-impact exercise (weight training) improves bone health.	True	46	45
3. Most people gain bone mass after 30 years of age.	False	76	74.5
4. Lower weight women have osteoporosis more than heavy women.	True	32	31.4
5. Alcoholism is not linked to the occurrence of osteoporosis.	False	54	52.9
6. The most important time to build bone strength is between 9 and 17 years of age.	True	100	98
7. Normally, bone loss speeds up after menopause.	True	84	82.4
8. High caffeine combined with low calcium intake increases the risk of osteoporosis.	True	92	90
9. There are many ways to prevent osteoporosis.	True	98	96
10. Without preventive measures, 20% of women older than 50 years will have a fracture due to osteoporosis in their lifetime.	True	96	94.1
11. There are treatments for osteoporosis after it develops.	True	80	78.4
12. A lifetime of low intake of calcium and vitamin D does not increase the risk of osteoporosis.	False	76	74.5
13. Smoking does not increase the risk of osteoporosis.	False	78	76.5
14. Walking has a great effect on bone health.	False	12	11.8
15. After menopause, women not on estrogen need about 1,500 mg of calcium (for example, 5 glasses of milk) daily.	True	76	74.5
16. Osteoporosis affects men and women.	True	90	88.2
17. Early menopause is not a risk factor for osteoporosis.	False	82	80.4
18. Replacing hormones after menopause cannot slow down bone loss.	False	74	71.5
19. Children 9 to 17 years of age get enough calcium from one glass of milk each day to prevent osteoporosis.	False	60	58.9
20. Family history of osteoporosis is not a risk factor for osteoporosis.	False	82	80.4
Average score -14.35			

Table-1: Facts on Osteoporosis Quiz (FOOQ) questionnaire

		Participants	Average score
1	Ailinger et al[8]	American general population	15
2	Hannon's[9]	nurses and midwives in North West Ireland	13.86
3	Zang et al[10]	Nurses in Singapore	14.55
4	Present study	Nurses	14.35

Table-2: Comparison to other studies

study.

The questions were answered in true, false and don't know.

STATISTICAL ANALYSIS

The data was analyzed by using PASW Statistics 18.0 (SPSS Inc, Chicago,IL, USA). Demographic characteristics and scores on the FOOQ were summarized using descriptive summary measures, and expressed as mean ± standard deviation for continuous variables and number (percentage) for categorical variables. A p-value of 0.05 was considered statistically significant.

RESULTS

A total of 102 out of 120 nurses returned the questionnaires. This translated into a response rate of 85%. All were from the tertiary health center where research was being conducted. The mean score was 14.35. Responses to all the questions are summarized in table-1.

Question 14 (Walking has a great effect on bone health) was correctly answered as 'False' by only 11.8% (n= 12) of respondents, only 45% (n = 46) of participants responded correctly to question 2 (High-impact exercise [weight training] improves bone health). 94.1% (n = 96) knew that there are many ways to prevent osteoporosis. 76.5% (n = 78) knew that smoking increases the risk of osteoporosis.Only 52.5% (n = 54) were aware that alcohol intake increases risk of osteoporosis. 71.5% (n = 74) correctly knew that "Replacing hormones after menopause can slow down bone loss" and 78.4% (n = 80) were aware that osteoporosis can be treated.Lower weight women have osteoporosis more than heavy women was known to only 31.4% (n = 32).

DISCUSSION

The purpose of our study was to examine the knowledge level of nurses at a tertiary healthcare center with regard to osteoporosis. A self-administered questionnaire was selected as the tool of assessment, as had been previously employed in several studies.[2-6] The mean osteoporosis knowledge score of 14.35 in our study was lower than the finding of 15 by Ailinger et al in the American general population[8], but higher than Hannon's score of 13.86 among nurses and midwives in North West Ireland (Table-2).[9] Studies conducted in the US have suggested that there may not be a difference in the knowledge of osteoporosis between healthcare professionals and the lay public.[2-6] However, no comparison with regard to this can be made with the local general population in India, as no such study has been carried out in the general population using the same instrument. In one study in a tertiary hospital respondents interestingly had lower mean scores than staff from polyclinics and rehabilitation centers. This was explained by the greater involvement of primary care nurses in the nationwide osteoporosis prevention and treatment programs in Singapore, and it also provides a positive outlook for outcomes of future education campaigns, as polyclinic nurses will be at the forefront of such outreach programs. Rehabilitation hospital nurses are likely to have more

experience caring for patients recovering postoperatively from surgery for osteoporotic hip fractures, which may be a likely explanation for their higher mean score on knowledge about osteoporosis.[10]

Question 14 (Walking has a great effect on bone health) was correctly answered as 'False' by only 11.8% of respondents, it suggests that most nurses do not understand that although walking has an obvious cardiovascular benefit, there is little evidence to suggest that it has a beneficial effect on bone density. Only 45% of participants responded correctly to question 2 (High-impact exercise [weight training] improves bone health). Awareness of regular exercise needs promotion.Maximum bone strength develops during 9-17 years of age was answered by 98 percent. It highlights good awareness regarding bone healthand the recommended daily calcium intake for adolescents or the amount of calcium contained in one glass of milk during the early years.Nurses should be made aware that preventive measures with regard to osteoporosis should begin with the pediatric population.The majority of participants (94.1%) knew that there are many ways to prevent osteoporosis and that without these preventive measures, 20% of women > 50 years of age would have a fracture due to osteoporosis in their lifetime. Large number of participants (76.5%) knew that smoking increases the risk of osteoporosis. But only 52.5% were aware that alcohol intake increases risk of osteoporosis. This indicates that nurses are aware of the importance of preventive measures and have reasonable knowledge of certain important risk factor but more awareness should be created regarding important risk factors of osteoporosis. 71.5% correctly knew that "Replacing hormones after menopause can slow down bone loss" and 78.4% were aware that osteoporosis can be treated.Lower weight women have osteoporosis more than heavy women was know to only 31.4%.This suggests that in education programs, emphasis has to be placed on the fact that body mass index (BMI) is positively correlated with bone density. The public expects healthcare workers to be thoroughly knowledgeable about bone health. In order to meet this expectation and to optimize the contribution of nurses to educating patients and the public on the prevention of osteoporosis and its complications, more osteoporosis outreach and educational programs for this group of healthcare professionals are required.

Our study suggests that knowledge about osteoporosis in general among nurses may be lacking on several fronts, such as knowledge of risk factors for osteoporosis and its prevention and treatment.This study is the first of its kind to employ a well-validated questionnaire to assess a wide variety of aspects related to knowledge of osteoporosis among nursing professionals in India.

The number of respondents in this study was small. The population that was studied does not represent the total nursing population of India.The questionnaire did not allow for subjects to elaborate on their views and answers; Demographic data such as age, gender, years in service and disciplines was not collected.

CONCLUSIONS

The findings from this study indicate that the knowledge of osteoporosis among nursing professionals in India may be inadequate.There are considerable gaps in the existing knowledge, especially in the preventive and treatment aspects. This pilot study will hopefully shed light on this neglected aspect of healthcare education and encourage attempts to address these gaps in knowledge.

REFERENCES

1. Lau EM, Lee JK, Suriwongpaisal P, et al. The incidence of hipfracture in four Asian countries: the Asian Osteoporosis Study (AOS). Osteoporos Int. 2001;12:239-43.
2. Berarducci A. Senior nursing students' knowledge of osteoporosis. Orthop Nurs. 2004;23:121-7.
3. Berarducci A, Lengacher CA, Keller R. The impact of osteoporosiscontinuing education on nurses' knowledge and attitudes. J ContinEduc Nurs. 2002;33:210-6.
4. Giangregorio L, Fisher P, Papaioannou A, Adachi JD.Osteoporosis knowledge and information needs in healthcareprofessionals caring for patients with fragility fractures. Orthop Nurs. 2007;26:27-35.
5. Goh ML, Singh RU, Vauski S, et al. Knowledge of risk factorsand current health practices of orthopaedic unit nurses in theprevention of osteoporosis. Singapore Nursing Journal. 2001;28:17-25.
6. Ziccardi SL, Sedlak CA, Doheny MO. Knowledge and healthbeliefs of osteoporosis in college nursing students. Orthop Nurs. 2004; 23:128-33.
7. Kim K, Horan M, Gendler P. Osteoporosis knowledge tests,osteoporosis health belief scale, and osteoporosis self-efficacyscale. Allendale, MI: Grand Valley State University, 1991.
8. Ailinger RL, Lasus H, Braun MA. Revision of the Facts onOsteoporosis Quiz. Nurs Res. 2003;52:198-201.
9. Hannon C, Murphy K. A survey of nurses' and midwives' knowledge of risks and lifestyle factors associated with osteoporosis. OrthopNurs. 2007;11:30-7.
10. Zhang RF, Chandran M. Knowledge of osteoporosis and its related risk factors among nursing professionals. Singapore Med J. 2011;52:158-162.

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