Research Article

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Assessment of Knowledge Regarding Osteoporosis among Pre-Menopausal Women Residing in Selected Rural Communities

Roopa Kattimani[1], Deelip S Natekar[2], Utalbasha N Dhandargi[3*]

[1]Student, Department of Community Health Nursing, Shri B.V.V.S Sajjalashree Institute of Nursing Sciences, Bagalkot, Karnataka, India

[2]Principal, Department of Community Health Nursing, Shri B.V.V.S Sajjalashree Institute of Nursing Sciences, Bagalkot, Karnataka, India

[3]Professor & HOD, Department of Community Health Nursing, Shri B.V.V.S Sajjalashree Institute of Nursing Sciences, Bagalkot, Karnataka, India

*Address for Correspondence: Dr. Utalbasha N Dhandargi, Professor & HOD, Department of Community Health Nursing, Shri B.V.V.S Sajjalashree Institute of Nursing Sciences, Bagalkot, Karnataka, India
E-mail: roopakattimani8748@gmail.com

ABSTRACT
Background: As a woman approaches menopause there are gradual changes in the physiology of her body. One of the prominent changes is an increase in the fragility of bone due to calcium variation causing Osteoporosis. A low level of estrogen which occurs around the time of menopause leads to increased bone loss. A woman can undergo either primary or secondary osteoporosis. In most cases, the first 'symptom' of osteoporosis is broken bone. As osteoporosis is an emerging health problem, that creates an economic burden, it needs a special focus to promote healthy ageing. Knowledge is the best contributor to reducing the risk of premenopausal women getting osteoporosis.
Methods: Total 70 pre-menopausal women living in chosen rural communities in Bagalkot were chosen with a convenient sampling technique. A structured questionnaire developed by the researcher was used to gather information concerning knowledge about osteoporosis. Chi-square analysis was used to uncover the relationship between knowledge about osteoporosis with socio-demographic factors.
Results: Total 24.28% of women were having good knowledge, 54.28% were having average knowledge, 21.42% of women were having poor knowledge about osteoporosis. A significant relationship was attained between knowledge regarding osteoporosis and occupation (χ^2=14.20, $p<0.007$) and formal education (χ^2=16.22, $p<0.039$) at the position of the significance of 0.05.
Conclusion: After evaluation of knowledge on the subject of osteoporosis among pre-menopausal women, it was found that most women had average knowledge regarding osteoporosis.

Key-words: Premenopausal Women, Osteoporosis, Estrogen, Rural Communities

INTRODUCTION

Osteoporosis is the mainly familiar bone-related complaint in humans, especially in females. As it is not easy to treat, portrays a main public health problem in India. It is widespread among Caucasians, women, and elder citizens.

Most women are not aware of osteoporosis. Osteoporosis generally leads to frequent fractures just as hypertension is a threat factor for stroke. Osteoporosis has an effect on a vast number of people, of both gender and all ethnicities, and its occurrence will enhance as an individual get older [1]. Over 50% of postmenopausal women are more prone to getting osteoporotic-affiliated fractures. Only 33% of older women, who have a hip fracture will be able to return to a normal lifestyle [2]. Osteoporosis is an increasing public health problem. Menopause can raise a woman's possibility of getting osteoporosis [3]. Women may suffer either primary or

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secondary osteoporosis; most postmenopausal women undergo primary osteoporosis. [4]

"Osteoporosis has been defined by the World Health Organization (WHO) as 'low bone mass and microarchitectural weakening and decaying of bone tissue, leading to intense bone fragility and resulting increase in fracture'. The word osteoporosis means 'spongy bones. Osteoporosis is frequently called a 'silent disease' because without the appearance of symptoms bone loss occurs." [5] Osteoporosis is a multi-factorial disease; it occurs due to several causes and it is a gradually rising universal health problem. In India, women will develop osteoporosis at an early age as compared to their western counterparts. Osteoporosis is a most disastrous disease, making the patient stay in hospitals for a longer time. Myocardial infarction and diabetes mellitus occur as complications of osteoporosis. [6] There is a need for early case finding, detection of vulnerable and high-risk women and prevention and treatment of osteoporosis to protect women from further complications. [7]

As 'prevention is better than cure', it is proved that knowing osteoporosis will reduce the chance of getting osteoporosis, and it will further act as major preventive behaviour. [8] Osteoporosis is not as much of common in premenopausal women as compared to postmenopausal women. Osteoporosis develops when a woman attains her postmenopausal period. However, both osteoporotic-related fractures and reduced levels of bone mineral viscosity used to occur in premenopausal women and young women with these abnormalities must require specialized medical attention from personnel of the health department. [9] "If the women are aware of osteoporosis and measures of its prevention in the premenopausal stage then it will be easier for them to prevent the occurrence of osteoporosis in their post-menopausal period".

MATERIALS AND METHODS

Study design- Considering the purpose of the study, a descriptive research method was used and the study was held at; Timmasagar and Kelavadi villages, Taluka Guledagudda, Bagalkot district. Timmasagar and Kelavadi villages are at a distance of 18 kilometres from Bagalkot. The population of Timmasagar is 15,020 and the population of Kelavadi village is 16,126.

Participants- In the present study, participants were women between the ages of 35-50 years. The sample consisted of 70 pre-menopausal women selected by convenient sampling technique.

By using Cochran's formula, data for calculating sample size was used from the findings of the pilot study on outcome variables.

$$\text{Sample size} = Z \text{ value}^2 \times SD^2/d^2.$$

where,
Z is the critical value at 5% level of significance, SD is the Standard deviation, d is the margin of error.

Variable- Knowledge regarding Osteoporosis, using the pilot study data on outcome variables, the sample size was calculated, Z=1.96, SD=0.205, d=5% (0.05).

$$\text{Sample size } (n) = 3.84 \times 0.042 \div 0.0025 = (1.96)^2 \times (0.205)^2 / (0.05)^2$$

The calculated sample size was n=64. The desired size of the sample was found to be 64. Taking into consideration the 10% attrition in data the ultimate sample size was increased to 70 premenopausal women.

Data collection- Data collection was carried out from 14 July 2022 to 29 July 2022 in Timmasagar and Kelavadi, Guledagudda; Bagalkot, India. Data was collected from pre-menopausal women through the self-report method. Before enrolment of subjects and data collection, formal authorization was obtained from the principal of the nursing institution and gram panchayats, of concerned villages. The study was explained to prospective participants and on paper, consent was taken from them. A structured questionnaire was given to participants, who were able to read and write and to participants, who cannot read or write English or Kannada, the researcher read questions and asked them to mark their options. An information booklet was prepared according to lacunae found in knowledge and it was distributed to all participants of the study.

Data collection instruments

Section 1: Socio-Demographic Performa- Comprised of 6 items to assess the socio-demographic factors of premenopausal women.

Section 2: Structured questionnaire to assess osteoporosis knowledge- It comprised 20 items. Each item was followed with 4 options; one correct and three distracters. '1' mark was given for selecting the correct option and '0' mark was given for selecting the wrong option.

Variables under study
Dependent variable- Osteoporosis knowledge.

Research variables- Age, Educational status, spousal status, monthly income of the family, type of diet and occupation.

Inclusion and Exclusion criteria
The study included women who;

- have not attained menopause.
- willing to participate
- were present at the time of information gathering
- were know the convenient language

Women excluded, who,

- have undergone hysterectomy
- were diagnosed with osteoporosis
- mentally ill and not able to cooperate
- were deaf and dumb.

Statistical Analysis- Information was analyzed using SPSS 18. Data were entered in an MS excel sheet and then transferred to SPSS. Data was organized and explained using descriptive and inferential analysis to find out the association between variables.

Ethical Clearance: A certificate of ethical permission was obtained from the ethical committee of the Department of Community Health Nursing, Shri B.V.V.S Sajjalashree Institute of Nursing Sciences, Bagalkot, Karnataka, India.

RESULTS
The mean age of the sample was 40.01+2.64. The socio-demographic data obtained from premenopausal women was organized using frequency distribution.

Distribution of socio-demographic variables- The greater part of pre-menopausal women was 38 years (15.71%) of age, 14.28% were 41 years old, and 11.42% were between 37 to 43 years. A total of 30% of women did not have any formal education, 28.57% of women completed their primary education, 20% of women completed

secondary education, 11.42% completed their degree and of them, 10% completed their pre-university education.48.57% had a monthly income of family of Rs 10,001-Rs 15,000, 18.57% Rs 5001-10,000, 17.14% were having between Rs 15,001-20,000, 10% were having Rs 20,001 and above and 5.71% were having ≤5,000 rupees per month. A total of 74.28% of pre-menopausal women were married, 5.71% were unmarried, 11.42% were the widow and 8.57% were divorced & separated. The majority of pre-menopausal women were working as labourers (44.28%), 28.57% were housewives and 27.14% were working in other occupations. Most pre-menopausal women were having mixed diet (61.42%), about 30% were vegetarian and 8.57% were non-vegetarian.

Knowledge on the subject of Osteoporosis- The mean score on knowledge of premenopausal women about osteoporosis was 7.35±2.46. The premenopausal women were divided into 3 categories based on their level of scores.
Level of knowledge on osteoporosis among premenopausal women (Table 1) depicts that most of (54.28%) premenopausal women had average knowledge, 24.28% had good knowledge and 21.42% women had poor knowledge regarding osteoporosis.

Table 1: Categorization of knowledge on the topic of osteoporosis among pre-menopausal women

Category	Frequency	Percentage (%)
Poor	15	21.42
Average	37	54.28
Good	18	24.28

Association between knowledge with their research variables (Table 2.) depicts that knowledge (*p=0.039*) and occupation (*p=0.007*) had significant association with knowledge and other research variables had no significant association with knowledge.

Table 2: Association between knowledge scores of pre-menopausal women using their research variables

Variables	Df	Chi-square value	Table value	p-value
Age	4	2.30	9.48	0.68
Education	8	16.22	15.50	0.039*

Family income/month	8	7.82	15.50	0.45
Marital status	6	3.47	12.59	0.74
Occupation	4	14.20	9.48	0.007*
Type of diet	4	5.90	9.48	0.20

α = 0.05; Df= Difference of freedom

DISCUSSION

The mean age of participants was 40.01 years+2.64 years. The mean knowledge score regarding osteoporosis was 7.35±2.46. A study on knowledge concerning forestalling of osteoporosis published by Rathod *et al.* [10] led to the conclusion that the mean score and standard deviation of 12.16±2.96 and by Panta *et al.* [11] with the conclusion that is taken as whole osteoporosis responsiveness and perspective, mean scores were 9.39±2.93 and 146.18±11.58, respectively.

Findings related to the assessment of knowledge among premenopausal women revealed that 24.28% of premenopausal women have good knowledge regarding osteoporosis, about 54.28% of women have average knowledge and about 21.42% of premenopausal women have poor knowledge regarding osteoporosis. A descriptive study published by Sofia [12] concluded with result that the majority (28) of women have inadequate knowledge (93%), 2(7%) had moderate knowledge and one of them have sufficient knowledge and study conducted by Senthilraja *et al.* [13] showed that 22.5% were having very poor knowledge, 38.1%-poor, 34.1%-average, and 5.3% were having good knowledge and also similar study investigated by Muhammad *et al.* [14] revealed that only a few (8.0%) women had good knowledge about osteoporosis and the greater part of the women (49.0%) had a poor knowledge and study published by Saeed *et al.* [15] revealed that 33.3% of participants had average knowledge and 32.6%) had good knowledge regarding osteoporosis.

Findings regarding the association among variables of pre-menopausal women showed that; an association between age and knowledge (χ^2=2.30) significant association was not found between knowledge and age (p>0.05).

Association of education and knowledge (χ^2=16.22, p=0.039) showed, a significant association was determined between knowledge and education (p<0.05).

A cross-sectional study published by Puttapitakpong *et al.* [16] showed that educational status (p<0.01) had a significant association with knowledge and a study conducted by Husam *et al.* [17] exposed that there was a considerable difference got between education with knowledge as determined by one-way ANOVA (p<0.001) and a prospective study conducted through Satha *et al.* [18] showed that a significant correlation was established between knowledge concerning osteoporosis (p-value: 0.007) education and also similar to the study conducted by Mangalaraj *et al.* [19] showed that significance was established between knowledge and education (χ^2=9.511, p<0.05).

Association between family income per month and knowledge (χ^2=7.82) shows, there was no association found between knowledge with family monthly income (p>0.05). Association of type of diet with knowledge (χ^2=5.90) showed, there was no relationship established between knowledge with diet (p>0.05). A quantitative experimental study conducted by Suchismita *et al.* [20] concluded with result that a significant association was not determined between knowledge with family monthly income (χ^2=1.61) and type of diet (χ^2=0.20).

Association between marital status and knowledge (χ^2=3.47) showed the association was not found between knowledge with marital status (p>0.05), an association of occupation with knowledge (χ^2=14.20, p=0.007) showed, there was a significant association of knowledge with occupation (p<0.05).

CONCLUSIONS

The study reveals; nearly everyone was found to be having average knowledge regarding osteoporosis. Prior awareness as regards osteoporosis can make women aware of potential health problems associated with ageing.

It is recommended that future research can investigate risk factors associated with osteoporosis to minimize the morbidity of osteoporosis and to focus on premenopausal women, while visiting the community and should educate them regarding their lifestyle and prevention of osteoporosis.

CONTRIBUTION OF AUTHORS

Research concept- Dr. Deelip S Natekar
Research design- Dr. Deelip S Natekar
Supervision- Dr. Deelip S Natekar
Materials- Dr. Deelip S Natekar
Data collection- Ms. Roopa Kattimani

Data analysis and Interpretation- Dr. Utalbasha N Dhandargi

Literature search- Ms. Roopa Kattimani

Writing article- Dr. Utalbasha N Dhandargi

Critical review- Dr. Utalbasha N Dhandargi

Article editing- Dr. Utalbasha N Dhandargi

Final approval- Dr. Utalbasha N Dhandargi

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