

Evaluating the Effectiveness of Informational Booklet on Knowledge of Osteoporosis among Working Women of, Kolhapur Information Booklet and Osteoporosis

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Abstract

Background: Osteoporosis is a crippling disease. Most cases are undetected till the occurrence of a fracture. Hence, lack of knowledge among women has contributed towards high prevalence of osteoporosis. Therefore, aim of study was to evaluate the effectiveness of informational booklet on osteoporosis among working women of Kolhapur.

Methods: An Interventional study conducted among consenting women staffs of 20-50 years age, of tertiary care hospital, Kolhapur between July 2017–2019. Data collection was done pre and post intervention with a validated and pilot tested questionnaire. Content of the questionnaire included questions pertaining to demography, osteoporosis and its prevention. Data was analysed using R software v 3.6.0. Chi-square test and Wilcoxon's sign rank test used to find the relationship between the variables, ($P < 0.05$).

Results: Of the total participants ($n=60$), most of the women were in the age group of 31-40 ($n=36$) and were Class 4 worker ($n=32$). Women had received education till graduation($n=24$), followed secondary education ($n=18$). Good knowledge scores were not observed with pre-test scores. A significant difference observed between both test scores with the average post test score increasing by 4.9, ($P<0.0001$). After intervention, good scores increased from 0 to 24. Significant association observed between post-test scores and education, occupation, informational booklet, respectively. ($P < 0.05$)

Conclusion: Information booklet can be an effective media for imparting knowledge of osteoporosis.

Keywords: Bone, female, occupation, pamphlets, questionnaire

Introduction

Osteoporosis is a health issue globally, along with heart disease, stroke, diabetes and cancer, taking up a large amount of financial resources for treatment.^{1,2}

Considered a crippling condition, it most often leads to premature mortality, and significant morbidity

manifesting in the form of fractures, bone deformity, and pain.³Worldwide, osteoporosis is the cause of more than 8.9 million fractures annually, with an osteoporotic fracture every 3 seconds.⁴ Asia region is expecting the most dramatic increase in fractures during coming decades; 1 out of 3 females in India suffers from osteoporosis, making it one of largest affected countries.

Maharashtra comes at 10th rank out of 17 major states for nutrition index, so the situation may be regarded as a crisis situation.⁵ Hence, osteoporosis can begin as early as age twenty-five, and poor knowledge of bone health have contributed towards high prevalence. Most patients go undiagnosed until a fracture occurs. Therefore, it is imperative to promote educational interventions

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designed for prevention in women.⁶

Hence, objective was to study the socio-demographic variables, to find out an association between the pre-test and post-test osteoporosis knowledge score of working women with socio-demographic variables, respectively, and to evaluate the effectiveness of informational booklet on knowledge regarding osteoporosis, and its prevention among working women.

Methods

Preparation, validation and reliability testing of structured knowledge questionnaire and Information booklet

Structured knowledge questionnaire on osteoporosis, hereafter referred to as the tool, was designed after thorough literature review and expert discussions. Gilberts classification was used to analyse items in the tool. Information booklet was developed post expert consultation and review of literature. Tool and the information booklet were validated by 16 experts from medical surgical nursing, MD medicine, MA Marathi and English. Reliability of the tool was assessed by ‘Test retest method’ using Karl Pearson’s Coefficient of correlation.

Study design, data collection, and pilot study

A quasi experimental study with pre- test post-test design was conducted among hospital staffs of tertiary care hospital, Kolhapur between July 2017–2019. Data collection commenced post institutional ethical Committee clearance and local permissions. Sample selection was done based on non-probability purposive sampling. Working women of 20-50 years of age, willing to give informed consent, were included in the study. Women with pre-existing conditions of diabetes mellitus, hyperthyroidism, cancer and multiple sclerosis were excluded. Information booklet was used as the intervention. Pre- experimental knowledge and post interventional knowledge was compared and scored using the tool. Pre experimental knowledge was evaluated by providing the study participants with the tool and grading the responses as Good knowledge (21-30), average knowledge (11-20), and poor knowledge (0-10) based on the number of correct answers. Post intervention knowledge was graded similarly. Pre-

test was conducted on the day of administration of the booklet. Post test was conducted 8 days later.

A pilot study was conducted at Aster-Aadhar Hospital and Research Centre, Kolhapur on ten participants. Informational Booklet was administered to the subject after pre-test. Post test was conducted 7 days later using the same tool.

Statistical Analysis

Data obtained was tabulated and analysed using R software (version 3.5.0). Socio-demographic variables were represented using frequency distribution. Chi-square test and Wilcoxon’s sign rank test used to find association between the variables, (P < 0.05).

Results

Difficulty index on the item analysis of the tool revealed 3, 22 and 5 as difficult, good and easy questions respectively. Discriminative index indicated 12, 12, 0 and 6 questions to be excellent, good, marginal and poor respectively. Of the 30 items analysed, some were modified, and the final tool consisted of 30 questions. The tool consisted of two parts: Section A: 7 items to obtain sociodemographic data and Section B was the Structured knowledge questionnaire on knowledge regarding osteoporosis and its prevention (Table 1)

Table 1: Osteoporosis Questionnaire

Sr. No	Content	Total number of questions
1.	Meaning of osteoporosis, bone made up by, causes	11
2.	Sign and symptoms, complication, basic investigations	06
3.	Nutrition, prevention	11
4.	Consequences	02
	Total number of questions	30

Information booklet consisted of the following information: Introduction and the meaning of osteoporosis, the effect of osteoporosis on bone, causes of osteoporosis, prevention of osteoporosis, good for your bone Foods, detection of osteoporosis, consequences of osteoporosis.

Sixteen experts validated the tool, they were from medical surgical nursing 9 (n=12), Md Medicine (n=2), M. A in Marathi (n=1), M. A in English (n= 1). Reliability of the tool was computed as $r = 0.74$

Socio- demographic distribution of the participants and knowledge score

Of the total participants (n=60), majority were in the age group of 31-40 (n=36), received education till graduation, (n=24). Most of them were Class 4 Worker (n=32) and had no history of fracture (n=55). Source of information among the participants were newspaper (n=19),and followed by television (n=17). Table 2

Table 2: Frequency distribution table of socio-demographic variables

Socio-demographic Variables	No. of participants (%)
Age in years	
21 - 30	14 (23)
31 - 40	36 (60)
41 – 50	10 (17)
Education	
Primary	9 (15)
Secondary	18 (30)
Higher Secondary	9 (15)
Graduate	24 (40)
Occupation	
Administrative work	9 (15)
Clerical Work	19 (32)
Class 4 Worker	32 (53)
Age of Menarche	
11 – 14	42 (70)
15 – 18	18 (30)
Informational Sources	
Newspaper	19 (32)
Books	12 (20)
Television	17 (28)
Internet	12 (20)
History of Fracture	
No	55 (92)
Yes	5 (8)

In the pre-test scores, good knowledge score was not observed. Participants in age group of 31- 40 had the highest average score. Participants who were graduates seen to have the highest average knowledge score. Class 4 workers had a higher average knowledge score than rest of the participants. Figure 1

No association was seen between socio-demographic variables and pre-test score ($P > 0.05$).

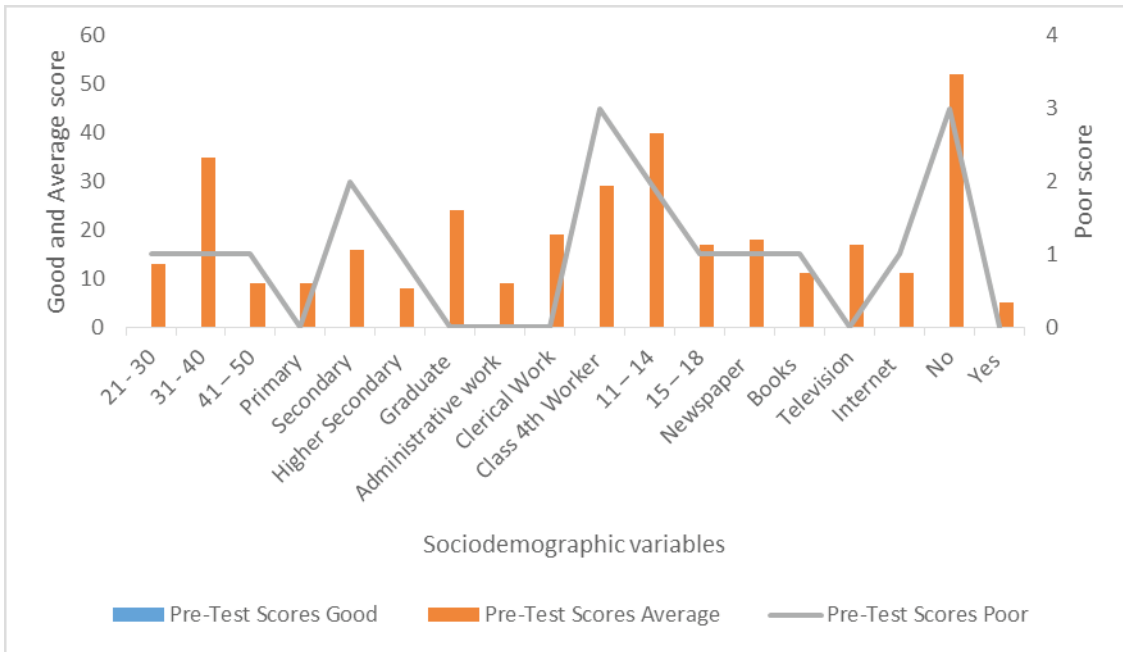


Figure 1: Distribution of socio-demographic variables and pre-test score

Wilcoxon’s sign rank demonstrated a significant difference between pre-test and post-test scores with the average post test score increasing by 4.9 at 5% level of significance ($P < 0.0001$). Good scores were seen to increase from 0 to 24, average knowledge scores reduced from 57 to 36, and poor scores reduced from 3 to 0. Post test scores were found to be significantly associated with education, occupation, informational booklet, respectively. ($P < 0.05$)

In pre-test majority of the subjects had average knowledge (95%), while in post-test it varied between good to average (40% to 60%, respectively). Figure 2

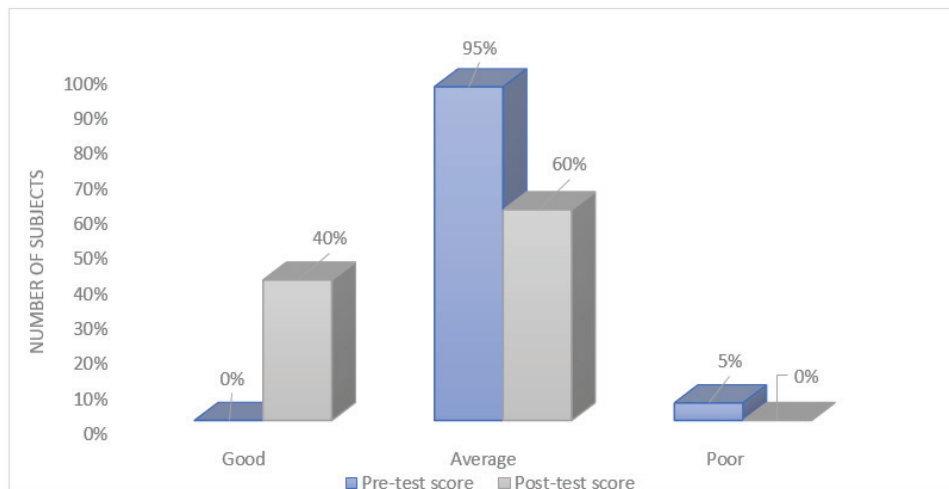


Figure 2: Distribution of Pre-test score & Post-test score

Discussion

Osteoporosis has become a major global health problem currently affecting more than 200 million people world-wide, and resulting in an osteoporotic fracture every 3 seconds.^{7,8} 1 out of 3 females in India suffers from osteoporosis. It is considered to be one of the costly health problems in India posing an economic burden on our country. Despite many emerging therapies for osteoporosis, it remains essentially incurable and prevention is still preferable for controlling the disease. It is seen that patients report to the doctor in later stages of disease.⁹ Hence, this study aimed to assess effectiveness of informational booklet on knowledge regarding osteoporosis among working women of, Kolhapur.

All women were in the reproductive age group of 31-40 years. Similar findings were seen in previous studies.¹⁰ In this age group women are usually susceptible to risk factors of osteoporosis. Hence, awareness and early screening programs for the diagnosis of osteoporosis should be started at a young age.¹¹

Participants were educated as seen in other studies.^{12,13} Education might impact the choice of better sources of calcium.¹³ It would also help in grasping the underlying importance of prevention. Hence, a significant association was found between post test scores and education.

Occupation and physical activity both affect bone health. Women with sedentary occupation, walking activities and heavy weight lifters are at an increased risk of osteoporosis.^{14,15} As these group of workers would be made aware of these issues with the information booklet, this would explain the significant relationship observed between post test scores and occupation.

Menarche was seen at an appropriate age in the participants.¹⁰ Late menarche age is considered a risk factor for osteoporosis, as it impairs peak bone mass.¹⁶

Commonest source of knowledge among women was television and newspaper. This is in concurrence with other studies.^{10,17} It implies accessibility and affordability of mass media. In turn media can be used as a means of health education.¹⁸

Participants had no previous history of fracture as seen in previous study.¹⁹ History of fracture has been

considered as strong predictor of Osteoporosis.²⁰

There was no significant association observed between socio-demographic variables and pre-test score. However, participants in 31-40 years age group, who were graduates and class 4 workers had average knowledge about osteoporosis.

Ideal treatment for osteoporosis is prevention.²¹ The information booklet served as an effective media for increasing knowledge on Osteoporosis. This is obvious with the visible increase in average post test score. Significant association was also found between post test scores and informational booklet. Similar findings were seen in other studies.^{22,23}

The study limitations could be its small sample size. Future researches should focus on rural population.

Conclusion

There was significant increase in post-test score. Thus, information booklet was effective in enabling women to learn more about osteoporosis. Imparting osteoporosis knowledge to younger age group can be an important strategy in curbing osteoporosis.

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