JETIR.ORG ISSN: 2349-5162 | ESTD Year : 2014 | Monthly Issue
JOURNAL OF EMERGING TECHNOLOGIES AND INNOVATIVE RESEARCH (JETIR)
An International Scholarly Open Access, Peer-reviewed, Refereed Journal

EFFECTIVENESS OF INFORMATION BOOKLET ON KNOWLEDGE REGARDING PREVENTION OF OSTEOPOROSIS AMONG SCHOOL TEACHERS IN SELECTED PRIMARY SCHOOLS OF KAMRUP (M), ASSAM"

[1]Bhanismita Kalita ,[2]Rikupar Iawim ,[3]Jeenat Yengkhom
[1]M.Sc Nursing, [2]Associate Professor,[3]Assistant Professor
Department of Medical surgical Nursing,
CPMS College of Nursing,Amgaon, Bonda, Guwahati, Assam

***Corresponding Author: Ms. Rikupar Iawim**

ABSTRACT

Background: Osteoporosis is a major health burden affecting millions of people worldwide. It is a global problem which is increasing in significance as the population of the world both grows and ages. Osteoporosis ranks as one of the common diseases of aging after diabetes, hypertension, hyper-lipidemia and heart diseases.A study aims to assess the Effectiveness of Information Booklet on Knowledge regarding Prevention of Osteoporosis among School Teachers in Selected Primary schools of Kamrup (M), Assam".
Materials And Methods:A quantitative (evaluative) research approach and pre-experimental one group pre-test post-test research design was adopted for the study. The study was conducted in selected primary schools of Kamrup (M), Assam. The investigator used multistage simple random sampling technique to select 86 participants (Primary school teachers). Structured self-administered knowledge questionnaire was developed to collect data from the subjects. The collected data was analysed and interpreted by using descriptive and inferential statistics.
Results:The study revealed that out of 86 subjects majority i.e.43% were in the age group of 31-40 years, majority i.e. 68.6% were female, majority 74.4% were Hindu, majority 57 % were undergraduate, majority 72.1 % belongs to nuclear family, majority 77.9% were non vegetarian, majority 55.8% of primary school teachers had family history of osteoporosis, majority i.e. 52 primary school teacher's monthly family income under Rs 27654-46089, majority i.e. 33.8% reported that their source of information is colleague/friends, majority i.e. 50% has habit of daily exercise, 50% of primary school teachers have undergone bone density test, majority i.e. 53% teacher has habit of taking calcium supplementation. The findings revealed that, in pre-test, out of 86 respondents, majority i.e. 70(81.4%) had moderately adequate knowledge and 16(18.6%) had inadequate knowledge and no teacher had adequate knowledge regarding prevention of osteoporosis. Whereas in post-test, out of 86 respondents, majority i.e. 73(84.9%) had adequate knowledge and 13(15.1%) had moderately adequate knowledge and no teacher had inadequate knowledge regarding prevention of osteoporosis. Findings also showed the post-test mean percentage scores

in all areas of information booklet were higher than the pre-test mean percentage score. The maximum modified gain scores (0.72) were in area I. Area I on knowledge regarding osteoporosis and minimum modified gain (0.32) was in area II i.e. on preventive measures on osteoporosis. The result also revealed that, the mean difference of pre-test and post-test knowledge score was 9.27 computed 't' (21.59) was found statistically significant at 0.05 level of significance. There was a significant association of pre-test knowledge with family history of osteoporosis ($\chi 2$ value=7.568 and 'p' value= 3.84) and the information booklet was effective in imparting knowledge on prevention of osteoporosis among primary school teachers.
Conclusion: Assessing people's knowledge and beliefs about osteoporosis is fundamental to the formulation of preventive strategies for this condition. It was expected that through a information booklet on knowledge regarding prevention of osteoporosis would upgrade the knowledge of primary school teachers.
Key words: Knowledge, Prevention, Osteoporosis, Information Booklet, Primary School Teacher

INTRODUCTION

Osteoporosis is a chronic, progressive metabolic bone disease marked by low bone mass and deterioration of bone tissue leading to increased bone fragility. In India, it is estimated that 60 million adults have osteoporosis with 2.3 million added annually. Twenty five percent of women over 60 years of age develop vertebral fractures due to osteoporosis. About 30% of hip fractures and 20% of vertebral fractures in men are also due to osteoporosis. Osteoporosis is more common in women than in men for several reasons such as women tend to have lower calcium intake than men throughout their lives, women have less bone mass because of their generally smaller frames, bone resorption begins at an earlier age in women and becomes more rapid at menopause, pregnancy and breastfeeding depletes a women's skeletal reserve unless calcium intake is adequate and, longevity increases the likelihood of osteoporosis.[(2)] There are various factors related to Osteoporosis, among them menopause and aging- is the most common and chronic metabolic bone disease, which is characterized by increased bone fragility. Although it is seen in all age groups, gender, and races, it is more common in Caucasians (white race), older people, and women. With an aging population and longer life span, osteoporosis is increasingly becoming a global epidemic. Currently, it has been estimated that more than 200 million people are suffering from osteoporosis. [(1)]

Specific objectives

1. To assess the level of pre-test knowledge score on prevention of osteoporosis among school teachers in selected primary schools of Kamrup (M), Assam.
2. To assess the level of post-test knowledge score on prevention of osteoporosis among school teachers in selected primary schools of Kamrup (M), Assam.
3. To evaluate the effectiveness of information booklet on knowledge regarding prevention of osteoporosis.
4. To find out the association between pre-test knowledge score regarding prevention of osteoporosis with selected demographic variables among school teachers in selected primary schools of Kamrup (M) Assam.

MATERIAL AND METHODS

In this study quantitative (evaluative) research approach and pre-experimental one group pre-test post-test research design was adopted. The study was conducted in selected primary schools of Kamrup (M), Assam. The investigator used multistage simple random sampling technique to select 86 participants (Primary school teachers). Structured self-administered knowledge questionnaire was developed to collect data from the subjects. The collected data was analysed and interpreted by using descriptive and inferential statistics. The reliability of internal consistency was computed by using split – half technique followed by Spearman Brown prophecy formula. The reliability was found 'r' 0.81. Thus the tool developed was found to be reliable.

RESULT AND DISCUSSION

Characteristics of demographic variables of the primary school teacher.

The findings of the study showed that Majority of the primary school teachers i.e 43% primary school teachers belongs to age group 31-40 years followed by 36 % belongs to 41-50 years and 15.2 % belongs to 51-60 years and minimum number of school teachersbelongs to Below 30 years age group. 59(68.6%) were femae and 27(31.4%) were male. 74.4% were Hindu and 20.9 % were Islam and 4.7% were Christian.57 % were undergraduatande 27.9% were graduate, 15.1% were postgraduate and no teachers were doctorate. 72.1 % belongs to nuclear family and27.9% of primary school teachers belongs to joint family. Majority of primary school teachers were non vegetarian (77.9%) and 22.1 % primary school teachers were vegetarian.55.8% of primary school teachers had family history of osteoporosisand 44.2% of primary school teachers had not family history of osteoporosis.Majority of the primary school teacher's i.e 52 out of 86 primary school teacher's monthly family income under Rs 27654-46089. Majority o primary school teacher i.e. 33.8% reported their source of information is colleague/friends. 50% has habit of daily exercise, 27.9% has no exercise habit and 22.1% has often exercise habit. Regarding measurement of bone strength through medical test 50% of primary school teachers have measured bone strength through medical test and 50% of primary school teachers have not measured bone strength through medical test. Among primary school teachers, majority i.e 53% teacher use to take calcium supplementation and 47% are not taking calcium supplementation.

Table 1: Frequency And Percentage Distribution Of Pre-Test And Post-Test Level Of Knowledge Of Primary School Teachers Regarding Prevention Of Osteoporosis in three Categories n = 86

LEVEL OF KNOWLEDGE	PRE-TEST		POST-TEST	
	FREQUENCY (f)	PERCENTAGE (%)	FREQUENCY (f)	PERCENTAGE (%)
Inadequate knowledge (1-9)	16	18.6	-	-
Moderately adequate knowledge (10-18)	70	81.4	13	15.1
Adequate knowledge (19-27)	-	-	73	84.9
Total	86	100	86	100

The data presented on table 1 showing frequency and percentage distribution of pre-test and post-test level of knowledge of primary school teachers regarding prevention of osteoporosis Results revealed that in pre-test out of 86 subjects, majority i.e.70 (81.4%) had moderately adequate knowledge, 16 (18.6%) had inadequate knowledge where as in post-test majority i.e. 73 (84.9%) had adequate knowledge and 13 (15.1%) had moderately adequate knowledge.

Table 2: Area Wise Pre-Test And Post-Test Mean Percentage Knowledge Score, Mean Percentage Actual Gain Score And Modified Mean Percentage Gain Score Of The Primary School Teachers On Knowledge Regarding Prevention of Osteoporosis

n = 86

SELECTED AREA	MEAN PERCENTAGE		GAIN IN SCORE		
	PRE-TEST %	POST-TEST %	ACTUAL GAIN	POSSIBLE GAIN	MODIFIED GAIN
Area I	38.9	83.33	44.4	61.07	*** 0.72**
Area II	61.5	74.1	12.6	38.5	**** 0.32**
Area III	42.8	81.1	38.3	57.2	0.66

*****Areas of maximum modified gain

** Areas of minimum modified gain

The data presented in table 2 depicts the maximum modified gain scores (0.72) were in the area I. Area I on knowledge regarding osteoporosis and minimum modified gain (0.32) was in area II on preventive measures on osteoporosis. Since the modified gain in all areas were higher than 0.05 it can be concluded that there was gain in knowledge in all area.

Table 3: Effectiveness Of Information Booklet On Knowledge Regarding Prevention Of Osteoporosis

n =86

LEVEL OF KNOWLEDGE	MEAN	SD	MEAN D	't' VALUE	df	*p* VALUE	INFERENCE
Pre-test	12.09	2.78					
Post-test	21.37	2.62	9.27	21.59	85	0.001	S

S= Significant, t (0.05,85 df) = 2.00, '*p*' value= 0.001

The data presented in table 3 showed the mean difference of pre-test and post-test knowledge score was 9.27. Computed 't' (21.59) was found statistically significant at the level of 0.05 significance. Hence, the null hypothesis, H_{01} is rejected and the research hypothesis, H_1 is accepted. So there is increase in knowledge after delivering the information booklet.

Furthermore, effectiveness of information booklet on knowledge regarding prevention of osteoporosis among primary school teachers is computed area wise between pre-test and post-test knowledge score. Findings are presented in table 4.2

Table 4: Area Wise Pre-Test And Post-Test Mean, SD, Mean D, 't' Value Of The Primary School Teachers on Knowledge Regarding Prevention of Osteoporosis

n = 86

Area wise	Level of Knowledge	Mean	SD	Mean D	t value	df	*P* value	Remarks
Area I	Pre-test	5.84	1.90	6.20	21.14	85	0.001	S
	Post-test	12.05	1.96					
Area II	Pre-test	3.69	1.23					
	Post-test	4.45	1.08	0.76	4.846	85	0.001	S
Area III	Pre-test	2.57	1.16					
	Post-test	4.87	0.834	2.30	14.66	85	0.001	S

p<0.05 level of significance

Table 4 illustrates that in area I, mean post-test knowledge score 12.05±1.96 was higher than pre-test mean knowledge score 5.84±1.90 with mean difference of 6.20 with obtained calculated (t-value 21.14, df=85, p=0.001) was found statistically highly significant at 0.05 level of significance.

In area II, mean post-test knowledge score 4.45±1.08 was higher than pre-test mean knowledge score 3.69±1.23 with mean difference of 0.76 with obtained calculated (t-value 4.84, df=85, p=0.001) was found statistically highly significant at 0.05 level of significance.

In area III, mean post-test knowledge score 4.87±0.83 was higher than pre-test mean knowledge score 2.57±1.16 with mean difference of 2.30 with obtained calculated (t-value 14.66, df=85, p=0.001) was found statistically highly significant at 0.05 level of significance.

Findings indicates that information booklet was effective in improving the knowledge regarding prevention of osteoporosis among primary school teachers.

Association between pre-test knowledge regarding prevention of osteoporosis among school teachers with their demographic variables

Overall statistical findings showed that there is significant association between pre-test knowledge regarding prevention of osteoporosis with selected demographic variable such as family history of osteoporosis ($\chi 2$ value=7.568 and 'p' value= 3.84) and there is no significant association between pre-test knowledge with demographic variables such as age, gender, religion, level of education, type of family, type of diet, monthly family income, sources of information, exercise habit, bone density test, calcium supplementation. Hence, the null hypothesis, H_{02} is rejected and the research hypothesis H_2 is accepted in demographic variable such as family history of osteoporosis. The null hypothesis, H_{02} is retained for the demographic variables such as age, gender, religion, level of education, type of family, type of diet, monthly family income, sources of information, exercise habit, bone density test, calcium supplementation.

DISCUSSION

Level of pre-test knowledge score on prevention of osteoporosis among school teachers in selected primary schools of Kamrup (M), Assam.

In the present study the existing knowledge of the primary school teachers in selected primary school was assessed by structured self-administered knowledge questionnaire. The statistical findings

revealed that the majority 70(81.4%) had moderately adequate knowledge and 16(18.6%) had inadequate knowledge and no teacher had adequate knowledge. So it was needed to improve the knowledge.

The present study findings were supported by the findings of the following similar study:

Shawashi TO, Muhammad D (2020) conducted a study on Osteoporosis Knowledge, Beliefs and Self-efficacy Among Female University Student. The sample for the study was 260 female university students in Jordan. They utilized a package of instruments to measure different variables of the study, including demographic data, Osteoporosis Knowledge Assessment Tool (OKAT), Osteoporosis Health Belief Scale (OHBS) and Osteoporosis Self-Efficacy Scale (OSES) They found that Participants had a relatively low level of knowledge regarding osteoporosis, they had fairly positive beliefs towered osteoporosis with a percentage of 70% and moderate self-efficacy in practicing osteoporosis recommended practices. [(29)]

Level of post-test knowledge score on prevention of osteoporosis among school teachers in selected primary schools of Kamrup (M), Assam.

In the present study, the post-test knowledge scores of primary school teachers revealed that the majority 73(84.9%) had adequate knowledge and 13(15.1%) had moderately adequate knowledge and no teacher had inadequate knowledge. So there is improvement in knowledge in post-test.

The present study findings were supported by the findings of following similar study:

Sahni BS (2018) conducted a study to assess the effectiveness of self-instructional module regarding prevention of Osteoporosis among working women in selected institutions of Bangalore. An evaluative approach with one group pre-test post-test design was used for the present study. Sample size was 60 female teachers. A self-administered questionnaire was used to collect data from the subjects. In the pre-test the subject had inadequate knowledge with a mean of 12.45 and standard deviation of 2.05 where as in post-test there was a significant mean knowledge gain of 22.55 and standard deviation of 0.69. [(45)]

Effectiveness of information booklet on knowledge regarding prevention of osteoporosis among primary school teachers in selected primary schools of Kamrup (M),Assam"

The mean difference of pre-test and post-test knowledge score was 9.27. Computed 't' (21.59) was found statistically significant at 0.05 level of significance. So there is increase in knowledge after delivering the information booklet. Hence, the information booklet on knowledge regarding prevention of osteoporosis among primary school teachers was effective as revealed by statistical results.

The present study findings were supported by the findings of following similar study: **Varghese NM, Kumari V, Madanlal M (2013)** conducted a study to assess the effectiveness of an Informational Booklet on prevention of Osteoporosis in terms of knowledge , attitude and expressed practices of working women in Haryana. Sample size was 100 female teaching faculties. Findings revealed that the mean post-test knowledge, attitude and expressed practice score of working women (29.44± 3.52, 100.16 ±6.78, 52.20±4.3) in experimental group was significantly higher than the mean post-test knowledge, attitude and expressed practice score (17.84±4.47, 84.10±5.85, 46.14± 7.48) in comparison group. The calculated 't' value for both experimental and comparison group in knowledge, attitude and expressed practices (t=14.85, t=12.68, t=4.93) was higher than the tabulated value (1.98) [(46)]

Association between pre-test knowledge score regarding prevention of osteoporosis with selected demographic variables among school teachers in selected primary schools of Kamrup (M) Assam.

Overall statistical findings shows that there is significant association between pre-test knowledge regarding prevention of osteoporosis with selected demographic variable such as family history of

osteoporosis ($\chi 2$ value=7.568 and '*p*' value= 3.84) and there is no significant association between pre-test knowledge with demographic variables such as age, gender, religion, level of education, type of family, type of diet, monthly family income, sources of information, exercise habit, bone density test, calcium supplementation. Hence, the null hypothesis, H_{02} is rejected and the research hypothesis H_2 is accepted in demographic variable such as family history of osteoporosis. The null hypothesis, H_{02} is retained for the demographic variables such as age, gender, religion, level of education, type of family, type of diet, monthly family income, sources of information, exercise habit, bone density test, calcium supplementation.

In contrast to the present study it was found in the study carried out by **Alrashidy RI (2021)** a cross-sectional study using interview-based questionnaires to evaluate knowledge of osteoporosis risk factors among adults above 40 years of age in Hafar AI-Batin Region, Saudi Arabia. A total of 513 participants were surveyed (78.8% female and 21.2% male). Findings showed that the study population had an overall good knowledge about osteoporosis risk factors. The analysis detected significant associations between the level of knowledge and the following parameters: gender, marital status, employment status, and education level ($P < 0.05$).[47]

LIMITATIONS

- The study was confined to a small sample size from selected primary schools.
- No attempt was made to do follow up to measure the retention of knowledge among primary school teachers on prevention of osteoporosis**.**

CONCLUSION: From the findings of the study, it was concluded that most of the primary school teachers have moderate knowledge on prevention of osteoporosis. But an educational intervention has been a great effective to increase their knowledge which will be benefited for the teachers as well as for the society. Therefore, the investigator felt that more importance should be given on assessing effectiveness of educational intervention.

RECOMMENDATIONS

- A similar study can be conducted with large sample size to show strong statistical association which may help to draw conclusion that are more definite and generalized to a large population. Thus, there is need to repeat study on a large scale.

- A study can be done to assess the knowledge regarding prevention of osteoporosis by using Osteoporosis Knowledge Assessment Tool (OKAT).

REFERENCES

1. Warburton DER, Nicol CW, Gatto SN, Bredin SSD.Cardiovascular disease and Osteoporosis: Balancing risk management. Vase Health risk management.[Internet]2007[cited 2007 Oct];3(5). Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2291312/

2. Harding, Kwong, Roberts, Hagler, Reinisch. Lewis's Medical Surgical Nursing. Assessment and Management of Clinical Problems. 1st edition in 2011.Vol 2.Published by Reed Elsevier India Private Limited; 2022. Page no: 1539-1541.

3. Wade SW. Strader C. Fitzpatrick LA. Anthony MS. O'Malley CD. Estimating prevalence of Osteoporosis: Examples from industrialised countries. Arch Osteoporosis. [serial online]2010 [cited 2014 May16];9(182). Availlable from: https://pubmed.ncbi.nlm.nih.gov/24847682/

4. Njeze R, Ikechukwn O, Minium A, Olanike AU, Ulugo DA, Njeze NC. Awareness of Osteoporosis in a polytechnic in Enugue:South East Nigeria. Arch Osteoporosis. [serial online] 2017 [cited 2017 Dec];12(1):51. Available from:

   https://pubmed.ncbi.nlm.nih.gov/28540650/

5. Bhadad SK. Chadha M. Sriram U. Pal R. Paul TV. Khadgawal R. The Indian Society for Bone and Mineral research (ISBMR) position statement for the diagnosis and treatment of Osteoporosis in adult. Arch of Osteoporosis. [serial online] 2021 [cited 2021June 26]; 16(1):102. Available from: https://pubmed.ncbi.nlm.nih.gov/34176015/

6. Khadikar A. Mandlik R. Epidemiology and treatment of Osteoporosis in Women : an Indian prospective. International journal of Women's health. [serial online] 2015 [cited 2015 19 Oct];7:841-850. Available from : https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4621228/

7. Kadam NS. Chiplonkar SA. Khadikar AV. Khadikar VV. Prevalence of Osteoporosis in apparently healthy adults above 40years of age. Indian J endocrinol Metab [Internet]2018 [cited 2018];22 (1): 67-73.Available from:https://pubmed.ncbi.nlm.nih.gov/29535940/