Original Research Article

A Study to Assess the Effectiveness of Self Instructional Module Regarding Prevention of Osteoporosis among Working Women in Selected Institutions of Bangalore

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ABSTRACT

Back ground of the study: The health of families and communities are tied to the health of women-the illness or death of a women has serious and far reaching consequences for the health and well being of her children, family and community. The slogan, *"Healthy Women, Healthy World"*, embodies the fact that as custodians of family health, women play a critical role in maintaining the health of their communities. [1]
Statistics on causes of global mortality in women show that Osteoporosis is the fourth leading cause of death among women after reproductive/maternal conditions, HIV/AIDS and cancer, which causes approximately 4,494,760 deaths each year, making about 36% of total deaths. The burden of disease falls disproportionately on women from low income countries. Developing countries experience double burden of disease, as they strive to control communicable diseases while also dealing with the growing burden of non-communicable or chronic diseases. [2]
Aim: The present study aims to assess the effectiveness of Self Instructional Module regarding prevention of Osteoporosis among working women in selected institutions of Bangalore.
Materials and Methods: An evaluative approach with one group pre-test post-test design was used for the present study. Sample consisted of 60 female teachers, who met the inclusion & exclusion criteria. A self administered questionnaire was used to collect data from the subjects. Data were analyzed by using descriptive and inferential statistics.
Result: In the pre-test the subjects 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. A significant association was found between age and educational status of participants with mean post- test knowledge score.
Conclusion: The study concluded that there was a significant improvement of knowledge among working women in post-test after administering self instructional module. Thus, the study findings indicate that self instructional module was effective enhancing the knowledge of working women regarding prevention of Osteoporosis.

Key words: self instructional module, osteoporosis.

INTRODUCTION & BACKGROUND OF THE STUDY

Osteoporosis takes a huge personal and economic toll. According to IOF 1 in 3 women and 1 in 5 men experience Osteoporotic fractures once in their lifetime.

By 2050, the worldwide incidence of Osteoporotic fracture is projected to increase by 240%. [3] Evidence suggests that although low BMD confers increased risk for fracture, most fractures occur in postmenopausal women. In women over 45

years of age, Osteoporosis accounts for more days spent in hospital than any other diseases including diabetes, myocardial infarction and breast cancer. It is also evident that many women who experience fragility fracture are not appropriately diagnosed and treated for probable Osteoporosis. The great majority of individuals at high risk (possibly 80%) who have already had at least one Osteoporotic fracture are neither identified nor treated. An IOF survey conducted in 11 countries showed denial of personal risk by postmenopausal women, lack of dialogue about Osteoporosis with their doctor and restricted access to diagnosis and treatment before the first fracture result in underdiagnosis and undertreatment of the disease. [4]

Since the clinical outcome of Osteoporosis is bone fracture, attention is now increasingly focused on the identification of patients at high risk of fracture rather than the identification of people with Osteoporosis as defined by BMD alone. Although Osteoporosis is defined in terms of BMD and microarchitectural deterioration of bone tissue, BMD is just one component of fracture risk. Accurate assessment of fracture risk should ideally take into account other risk factors that add information that provided by BMD. [5]

Studies have provided evidence that weight in infancy is a determinant of bone mass in adulthood. Osteoporosis has been shown in studies to have a large genetic component. A parental history of fractures (particularly hip fracture) confers an increased risk of fracture that is independent of BMD. Physical inactivity and sedentary life style as well as impaired neuromuscular function (e.g. reduced muscle strength) are risk factors for developing fragility fractures. Smoking and high intake of alcohol confers a significant risk of future fracture (over 4 units of alcohol/day can double the risk of hip fracture) and the risk increases with age. [6] Prolonged use of corticosteroids doubles the risk of fragility

fractures. Low body weight and weight loss is associated with greater bone loss and increased risk of fracture. After an initial low trauma fracture from a simple fall, the client has an increased equivalent risk of all types of subsequent fractures especially in the next 5-10 years. [7]

Childhood and adolescence are particularly valuable times to improve bone mass through exercise. Higher levels of leisure time, sports activity, and household chores and fewer hours of sitting were associated with significantly reduced risk of fracture. Physical activity and fitness reduce the risk of Osteoporosis, fracture and fall related injuries. [8]

Adequate levels of calcium intake can maximize the positive effect of physical activity on bone health during growth period of children. Calcium supplementation has been shown to have a positive effect on bone mineral density in postmenopausal women. Calcium and Vitamin D reduces rates of bone loss and fracture rates in older male and female adults; especially in institutionalized women, this combined supplementation is of great value. Good nutrition is an important part of successful rehabilitation program in patients who have had an Osteoporotic fracture, as poor nutritional status can slower recovery and increase susceptibility to further fractures. [9]

It is projected that more than about 50% of all Osteoporotic hip fractures will occur in Asia by the year 2050. Osteoporosis is greately underdiagnosed and undertreated in Asia, the problem is particularly acute in rural areas. In the most populated countries like China and India, the majority of population (about 60%) lives in rural areas, where the fractures are often treated conservatively at home instead of by surgical treatment in hospitals. Nearly all Asian countries fall far below WHO recommendations for calcium intake of between 1000 and 1300 mg/day. [10] The median dietary calcium intake for adult Asian population is approximately 450mg/day, with potential detrimental impact on bone health in the region.

Keeping in mind these facts and statistics, the augmentation of Osteoporosis needs to be halted and the most effective manner to arrest upwelling progression is by bringing about healthy changes in the life style. Knowledge imparted to the subjects regarding modifiable risk factors and other preventive strategies will prove highly beneficial in reducing the risk of Osteoporosis.

AIM OF THE STUDY:

The present study aims to assess the effectiveness of Self Instructional Module regarding prevention of Osteoporosis among working women in selected institutions of Bangalore.

OBJECTIVES:

1. To assess the pre-test knowledge of working women regarding prevention of Osteoporosis.
2. To implement the self instructional module.
3. To assess the post-test knowledge of working women regarding prevention of Osteoporosis.
4. To evaluate the effectiveness of self instructional module regarding prevention of Osteoporosis.
5. To determine the association between post-test knowledge of working women regarding prevention of Osteoporosis with selected demographic variables.

MATERIALS AND METHODS

One group pre-test post-test design was employed in the study. The study was conducted in Karnataka Public School and Diana Public School, Bangalore. The present study population comprised of female teachers of same setting. A non-probability simple convenient random sampling technique was used to select sample. Sample size comprised of 60.

Self administered questionnaire consisted of two parts namely section I and section II.

Section I:

It included demographic variables such as age, religion, educational status, monthly income, marital status, dietary pattern and type of family.

Section II:

This part consisted of 25 multiple choice questions regarding Osteoporosis. There were two sub-sections under this:

Part-A: This section consists of 11 questions regarding introduction, meaning, causes and risk factors.

Part-B: This section comprise of 14 questions regarding clinical manifestations, diagnosis and prevention.

CONTENT VALIDITY

The content validity of tool was determined by a team of 5 experts. The experts included one Ph.D. in Medical Surgical Nursing and four nursing experts specialized in Medical Surgical Nursing. Based on the experts' suggestions, the tool got its final form.

RELIABILITY

The reliability of the self administered questionnaire was established by using split half method (r=0.8676). In order to establish the reliability, the tool was administered to 10 working women who fulfilled the inclusion criteria. These samples were excluded from the main study. The tool was found to be reliable with the reliability co- efficient of 0.92.

Informed consent was prepared for the study subjects regarding their willingness to participate in the research project and the purpose of carrying out research project was explained to the participants verbally and assurance of confidentiality was given.

RESULTS

The data collected was edited, tabulated, analyzed, interpreted and findings obtained were presented in the form of tables and diagrams represented under following sections:

SAMPLE CHARACTERISTICS

Table I: Distribution of subjects as per their socio-demographic profile N=60

Characteristics	Category	Respondents	
		Number	Percentage (%)
1.Age group (years)	21-30	36	60
	31-40	19	31.6
	41-50	05	8.3
	51 & above	00	00
2.Religion	Hindu	46	76.6
	Muslim	04	6.6
	Christian	10	16.6
	Others	00	00
3.Educational status	Diploma	07	11.6
	Bachelor's degree	29	48.3
	Master's degree	21	35
	Others	03	5
4.Monthly Income (Rupees)	< 10000	54	90
	10001-20000	06	10
	20001-30000	00	00
	> 30001	00	00
5.Marital Status	Married	41	68.3
	Unmarried	19	31.6
	Widow	00	00
	Divorcee	00	00
6.Dietary habits	Vegetarian	20	33.3
	Non-vegetarian	40	66.6
7.Type of Family	Nuclear	42	70
	Joint	18	30
	Extended	00	00

Table II: Aspect wise Pre-test Mean Knowledge scores of Respondents on Osteoporosis

No.	Knowledge Aspects	Statements	Max. Score	Mean	S.D.
I	Introduction, Meaning, Causes and Risk factors	11	11	5.70	1.67
II	Clinical manifestation, Diagnostic Measures and Prevention	14	14	6.75	1.25

Table III: Aspect wise Post-test Mean Knowledge scores of Respondents on Osteoporosis

No.	Knowledge Aspects	Statements	Max. Score	Mean	S.D.
I	Introduction, Meaning, Causes and Risk factors	11	11	10.89	0.88
II	Clinical manifestation, Diagnostic Measures and Prevention	14	14	12.51	0.97

Table IV: Over all Pre-test and Post-test Mean Knowledge scores of Respondents on Osteoporosis

Aspects	Max. Score	Respondent's Knowledge			Paired 't' Test
		Mean	%age	S.D.	
Pre test	25	12.45	49.8	2.05	
Post test	25	22.55	90.2	0.69	5.6*
Enhancement	25	10.1	40.4	1.36	

* Significant at 5% level,   t (0.05, 59df) = 1.96

Table V: Association between Demographic variables and Post-test Knowledge level of respondents on Osteoporosis

Demographic Variables	Category	Sample	Respondent's Knowledge				χ^2 value	P Value
			Moderately Adequate		Adequate			
			N	%	N	%		
Age group (years)	21-30	36	04	6.66	32	53.3	6.7*	0.05
	31-40	19	02	3.33	17	28.3		
	41-50	05	01	1.66	04	6.66		
Religion	Hindu	46	04	6.66	42	70	0.024 NS	0.05
	Muslim	04	01	1.66	03	05		
	Christian	10	01	1.66	09	15		
	Others	00	00	00	00	00		
Educational Status	Diploma	07	01	1.66	06	10	7.82*	0.05
	Bachelor's	29	02	3.33	27	45		
	Master's	21	02	3.33	19	31.6		
	Others	03	01	1.66	02	3.33		
Monthly Income (In Rs.)	< 10000	54	11	18.33	43	71.6	0.04NS	0.05
	10000-20000	06	01	1.66	05	8.33		
Marital Status	Married	41	10	16.66	31	51.6	0.080NS	0.05
	Unmarried	19	04	6.66	15	25		
Dietary Pattern	Vegetarian	20	02	3.33	18	30	0.58NS	0.05
	Non-Vegetarian	40	07	11.66	33	55		
Type Of Family	Nuclear	42	03	05	39	65	2.78NS	0.05
	Joint	18	04	6.66	14	23.3		

* Significant at 5% Level,   NS: Non-significant

DISCUSSION

The main study was conducted in three phases.

Phase 1: Pre test was done by assessing knowledge through a self administered questionnaire and followed by administration of a self instructional module on 1st day.

Phase 2: Post test was conducted on the seventh day using same knowledge questionnaire

Phase 3: The data collected in phase 1 and phase 2 were analyzed using descriptive and inferential statistics based on the objectives and hypothesis of the study.

The findings were presented under the following section.

Section A: Demographic variables of working women.

Section B: Effectiveness of self instructional module.

Section C: Association of post-test knowledge score of working women.

Section A: Demographic variables of working women.

Majority of the working women (60%) come in the age group 21-30. Most of the working women (76.6%) are Hindu. Study also shows that 48.3% are holding bachelor's degree and 90% are earning <10000 rs. per month. 68.3% are married, 66.6% are non-vegetarian and 70 % live in nuclear family.

Section B: Effectiveness of self instructional module

Results show that post-test mean scores are higher than pre-test mean scores and paired 't' test value (5.6) is higher than tabulated value i.e. 1.93 (df 59; p0.05) and is, thus, significant at 5% level of significance. Hence, self instructional module is effective.

Section C: Association of post-test knowledge score of working women with selected demographic variables.

An association was done between post-test knowledge and selected demographic variables such as age, religion, educational status, monthly income, marital status, dietary pattern and type of family. Among these demographic variables age and educational status have shown a significant association ($p<0.05$) with the mean post-test knowledge scores whereas religion, monthly income, marital status, dietary pattern and type of family do not show any significant association with the mean post-test knowledge score.

CONCLUSION

The result of the study showed that working women had inadequate knowledge regarding Osteoporosis during pretest and Self Instructional Module was found to be effective in improving their knowledge which has been depicted in post test evaluation.

Recommendations:

- Similar study can be undertaken with a larger number of samples to generalize the findings.
- A similar study can be undertaken with control group design.
- A comparative study can be done in both rural and urban areas.
- A comparative study can be done among working and non working women.

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