EFFECTIVENESS OF STRUCTURED TEACHING PROGRAMME ON KNOWLEDGE REGARDING OSTEOPOROSIS AMONG WOMEN

**Ms. Varalaksme.B[1],   Mr. Vijay.A[1],   Ms. Yashavini.M[1], Mr. Vadivazhagan Alias Rathinam.J[2*],
Ms. Valarmathi.T. R.[2],   Dr. Sharadha Ramesh [2]**

[1]B.Sc. Nursing Student, Vinayaka Mission's College of Nursing, Vinayaka Missions Research Foundation, Puducherry.

[2]Lecturer in Nursing, Vinayaka Mission's College of Nursing, Vinayaka Missions Research Foundation, Puducherry.

[2]Principal cum Professor, Dept. of Community Health Nursing, Vinayaka Mission's College of Nursing, Vinayaka Missions Research Foundation, Puducherry

Corresponding Author: -   Mr. Vadivazhagan Alias Rathinam. J.

Email : vadivazhaganrathinam@gmail.com

Abstract: *Background: Osteoporosis is a systematic progressive disease, is responsible for significant morbidity and mortality in ageing postmenopausal women. It is an important public health problem because of its significant complications, namely fractures of proximal femur, vertebrae, distal forearm, proximal humerus, pelvis and other skeletal sites. Compared with other osteoporotic fractures incur the greatest morbidity and direct medical costs for health services. There are now a variety of treatments available for the management of osteoporosis. Prevention of osteoporosis with identification of risk factors, careful examination and a few simple diagnostic tests during teen and early adult years is superior to treatment of old individuals.*

Methods: The research approach for the present study adopted was Quasi experimental evaluative approach with one group pretest posttest design. The data were collected by using self-administered structured knowledge questionnaire from 98 women who were selected by using convenient sampling technique. Pretest was followed by flashcard and posttest was conducted. The data obtained was analysed by using descriptive and inferential statistics.

Results: The findings of the study reveal that the knowledge of the osteoporosis among women was not satisfactory before the flashcard. The posttest knowledge score shows significant increase in knowledge of menopausal women. Hence, the flashcard was an effective method of providing information and improving the knowledge of osteoporosis among women.

Conclusion: Providing an effective education to the women enable them to aware about osteoporosis and empowering them with adequate knowledge which in turn contributes, to improve the total quality of their lives.

Keywords: osteoporosis, high risk, woman, menopause.

1. INTRODUCTION :

Osteoporosis is a bone disease that develops when bone mineral density and bone mass decrease, or when the quality or structure of bone changes[1]. This can lead to a decrease in bone strength which can increase the risk of broken

bones. Osteoporosis is defined by the World Health Organization as a bone mineral density (BMD) of 2.5 standard deviations below the mean peak mass (average of young healthy adults) as measured by dual-energy X-ray absorptiometry (DXA) applied to the femoral neck and reported as a T-score. It is a chronic disease affecting one in three women and one in five men over the age of 50 years. It causes impaired bone density and quality, hence the name porous. As a result, women having this condition are more susceptible to fracture risk from a non-trivial slip, fall, or even spontaneously[2,4]

Bone disease that develops when bone mineral density and bone mass decrease, or when the quality or structure of bone changes. This can lead to a decrease in bone strength that can increase the risk of broken bones (fracture)[3,5]. Osteoporosis is a systematic disorder the decreased bone mass and microarchitectural deterioration of bone tissue, leading to bone fragility and increased susceptibility to fractures of the hip, spine, and knee. Bone tissue leading to bone strength and consequent increase in fracture risk is occurring with increased frequency due to the aging of the population and affects women more than men, though both sexes are at risk. Osteoporosis is more likely to occur in people who have. Low calcium intake may cause prolonged or permanent disability or even death[6].

Osteoporosis affects mostly older women, but prevention starts when you are younger. No matter your age, you can take steps to build bone mass and prevent bone loss[7,8]. Experts suggest that women start getting screened for osteoporosis at age 65. Women younger than age 65 who are at high risk for fractures should also be screened. Men should discuss screening recommendations with their healthcare providers. Osteoporosis is defined as low bone mineral density caused by altered bone microstructure, ultimately predisposing patients to low-impact, fragility fractures. Osteoporotic fractures lead to a significant decrease in quality of life, with increased morbidity, mortality, and disability[9].

Osteoporosis is a common and often silent disorder causing significant morbidity and mortality and reduced quality of life. Osteoporosis is also a term used to describe low bone density as measured on a bone density DXA scan[10]. Although fragility fractures caused by osteoporosis can happen in various parts of a body, the wrists, hips, and spine are the most affected sites. Until a broken bone occurs there are typically symptoms. Bone may weaken to such a degree that a may occur with minor stress or spontaneously. which bone weakening increases the risk of a broken bone

Osteoporosis is a chronic (long-term) disease that makes your bones more likely to break. Many people don't know that they have osteoporosis until they break or fracture a bone. Osteoporosis can be managed through lifestyle changes and prescription medicines that strengthen your bones. Describe a decrease in bone mineral density (BMD) below the normal reference value, yet not low enough to meet the diagnostic criteria for osteoporosis[11].

Osteoporosis is a consequence of bone fragility and increased risk of fracture. If not prevented or left untreated osteoporosis can progress painlessly until a bone break[12]. Any bone can be affected but of special concern are fractures of hospitalization and major surgery. It can impair a person's ability to walk unassisted

An additional 33.6 million individuals over age 50 have low bone mass or "osteopenia" of the hip and thus are at risk of osteoporosis and its potential complications later in life. Due primarily to the aging of the population, the prevalence of osteoporosis and low bone mass is expected to increase[13]. The prevalence of osteoporosis ranging from 8% to 62% in Indian women of different age groups has been reported by several studies.

2. NEED FOR THE STUDY:

Current statistics of osteoporosis:

- More than 200 million people are suffering from osteoporosis
- According to recent statistics from the international osteoporosis foundation
- Worldwide, 1 in 3 women over the age of 50 years and 1 in 5 men will experience osteoporosis fracture in their lifetime

In India 61 million people in India have osteoporosis and, out of these, 80 percent are women. The prevalence rate in UK of osteoporosis in the total population amount to 52% on per with the EU27 average (5.6 %). In the uk, 21. 9 % of women and 6.7% of men aged 50 years or more were estimated to have osteoporosis. An estimated 10 million people age, 50 years and older have osteoporosis most of these people are women but about 2 million are men just over 43 million more people including 16 million men. Have low bone mass, putting then at increased risk for osteoporosis among US resident. In worldwide 1 in 3 women over the age of 50 years and 1 in 5 men will experience osteoporosis fracture in their lifetime. One in there women and one in five men over the age of 50 worldwide.

Highest rate of osteoporosis :

* India (2.510, 288). (28.59%)

* China (1839, 315). (18.75%)

* Us of America (819, 445). (8.35%)

* Japan (323, 094). (3.29%)

* Germany (297, 944). (3.04%)

3. STATEMENT OF THE PROBLEM :

A study to assess the effectiveness of structured teaching programme on knowledge regarding osteoporosis among women attending outpatient department at selected hospital.

4. OBJECTIVES :

- To assess the level of knowledge regarding osteoporosis among women in experimental and control group
- To assess effectiveness of structured teaching program on the level of knowledge regarding osteoporosis among women at selected hospital.
- To associated level of knowledge regarding osteoporosis among women with selected demographic variables

5. RESEARCH METHODOLOGY :

A quantitative research study with quasi experimental study under pre and post test method (experimental and control group) was used for the research. The study was conducted among woman in urban area at Ariyankuppam, Puducherry. It was located in the distance of 8.5 km away from our college. The sample were selected for study among woman in urban area and who are full filling the inclusion criteria with total 98 samples (experimental group 49 samples and control group – 49 samples). The research questionnaire was constructed under demographic and self-administrative tool to assess the knowledge questionnaire. After pretest, structured teaching programme was given with health education, pamphlets and handouts regarding the osteoporosis. Then post test was conducted after 7 days. Further it proceeds to descriptive and inferential statistics for data analysis.

6. RESULT AND DISCUSSION :

Major findings of the study were discussed as following:

Regarding first objective of assessment of level of knowledge regarding osteoporosis among women in the experimental and control group.

Pretest of experimental group, 27(55.10%) had moderately adequate knowledge and 22(44.90%) had inadequate knowledge and in the post test, 44(89.80%) had adequate knowledge and 5(10.20%) had moderately adequate knowledge regarding osteoporosis among women.Whereas in the pretest of control group, 25(51.02%) had inadequate knowledge and 24(48.98%) had moderately adequate and in the post test, 27(55.10%) had moderately adequate and 22(44.90%) had inadequate knowledge (Table:-1).

The current study result is similar with **Marta Hock (2021)** , in this study they use non experimental quantitative approach for tie sample of 70 women. The study result shows that 7.14 % of women are having adequate knowledge regarding osteoporosis, 91.42% have moderately adequate knowledge and 1.42% have inadequate knowledge. So they concluded that more women needed intervention to develop their knowledge[13]

According second objectives regarding effectiveness of Structured Teaching Programme on knowledge regarding Osteoporosis among Women in the experimental group and control group.

The pretest mean score of knowledge in the experimental group was 10.63 ± 1.39 and post test mean score was 17.91 ± 1.35. The mean difference score was 7.28.the pretest mean score of knowledge in the control group was 11.28 ± 1.83 and posttest mean score was 11.34 ± 1.80. The mean difference score was 0.06 (Table:-2).

The current study is consistent with **Asma Hamdi Mohamed (2022)** conducted study of quantitative approach was used for the sample of 60 women. The result shows that the mean difference of the knowledge score of experimental group was 10 and the mean difference of control group was 0.8[14]. As a conclusion the level of knowledge increase in experimental group compared to control group

Regarding third objective is association between level of knowledge regarding osteoporosis among women with selected demographic variables.

The demographic variables type of family ($\chi2=4.926$, $p=0.026$) and family income ($\chi2=7.966$, $p=0.047$) had shown statistically significant association with post test level of knowledge regarding osteoporosis among women at $p<0.05$ level. and the other demographic variables had not shown a statistically significant association with post test level of knowledge regarding osteoporosis among women in the experimental group (Table: -1). .

The current study is similar with the study conducted by **Amarjeet Singh (2022)** to assess the knowledge regarding prevention and management of osteoporosis among working women in selected educational institutions, Bengaluru, with a view to craft an information booklet the study was carried by descriptive approach with the sample of 30 people from the research findings the majority had moderate knowledge. Information booklet was distributed to improve knowledge among the people[15].

Table 1: Frequency and percentage distribution of pretest and post test level of knowledge regarding osteoporosis among women in the experimental and control group.

N = 98(49+49)

Level of Knowledge	Experimental Group				Control Group			
	Pretest		Post Test		Pretest		Post Test	
	F	%	F	%	F	%	F	%
Inadequate (≤10)	22	44.90	-	-	25	51.02	22	44.90
Moderately adequate (11 – 15)	27	55.10	5	10.20	24	48.98	27	55.10
Adequate (16 – 20)	-	-	44	89.80	-	-	-	-

Table 2: Effectiveness of Structured Teaching Programme on knowledge regarding osteoporosis among women in the experimental group and comparison of pretest and post test level of knowledge regarding osteoporosis in the control group.

N = 98(49+49)

Group	Pretest		Post Test		Mean Difference score	Paired 't' test & p-value
	Mean	S.D	Mean	S.D		
Experimental Group	10.63	1.39	17.91	1.35	**7.28**	**t = 23.504** **p=0.0001, S***
Control Group	11.28	1.83	11.34	1.80	0.06	t = 1.769 p=0.083, N.S

Mean Difference score	0.65	**6.57**	***p<0.001
Student Independent 't' test value	t = 1.982 p=0.051 N.S	**t = 20.370 p=0.0001 S***	S – Significant N.S – Not Significant

Table 3: Association of post test level of knowledge regarding osteoporosis among women with selected demographic variables in the experimental group.

N = 49

Demographic Variables	Moderately Adequate		Adequate		Chi-Square Test	p-value
	F	%	F	%		
Age (in years)					χ^2=3.417 d.f=3	p=0.332 N.S
40 – 45	1	2.0	2	4.1		
46 – 50	2	4.1	14	28.6		
51 – 55	1	2.0	24	49.0		
56 – 60	1	2.0	4	8.2		
Height (Centimetre)					χ^2=0.434 d.f=3	p=0.933 N.S
130 – 140 cm	0	0	1	2.0		
141 – 150 cm	2	4.1	14	28.6		
151 – 160 cm	3	6.1	27	55.1		
161 – 170 cm	0	0	2	4.1		
Weight					χ^2=2.029 d.f=3	p=0.566 N.S
30 – 40 kg	0	0	3	6.1		
46 – 50 kg	3	6.1	14	28.6		
51 – 60 kg	2	4.1	22	44.9		
60 – 70 kg	0	0	5	10.2		
Body Mass Index					χ^2=0.364 d.f=2	p=0.834 N.S
20 below kg/m^2	0	0	3	6.1		
20 – 30 kg/m^2	4	8.2	33	67.3		
30 above kg/m^2	1	2.0	8	16.3		
Religion					χ^2=2.508 d.f=3	p=0.474 N.S
Hindu	4	8.2	21	42.9		
Muslim	0	0	12	24.5		
Christian	1	2.0	9	18.4		
Others	0	0	2	4.1		
Marital status					χ^2=2.451	p=0.484

Demographic Variables	Moderately Adequate		Adequate		Chi-Square Test	p-value
	F	%	F	%		
Married	3	6.1	28	57.1	d.f=3	N.S
Unmarried	0	0	6	12.2		
Widow	2	4.1	7	14.3		
Divorced	0	0	3	6.1		
Type of family					χ^2=4.926 d.f=1	**p=0.026 S***
Joint family	0	0	23	46.9		
Nuclear family	5	10.2	21	42.9		
Area of residence					χ^2=0.019 d.f=1	p=0.892 N.S
Urban	3	6.1	25	51.0		
Rural	2	4.1	19	38.8		
Type of occupation					χ^2=1.885 d.f=4	p=0.757 .N.S
Daily wages	2	4.1	13	26.5		
Private employees	2	4.1	9	18.4		
Government employees	0	0	2	4.1		
Business	0	0	2	4.1		
Homemaker	1	2.0	18	36.7		
Family income (Rupees)					χ^2=7.966 d.f=3	**p=0.047 S***
Below 5000	0	0	6	12.2		
5000 – 10,000	1	2.0	18	36.7		
10,000 – 20,000	3	6.1	5	10.2		
Above 20,000	1	2.0	15	30.6		
Habits					χ^2=1.394 d.f=3	p=0.707 N.S
Drinking coffee or tea	3	6.1	15	30.6		
Beetle	2	4.1	27	55.1		
Tobacco	0	0	1	2.0		
Smoking	0	0	1	2.0		
Alcohol	-	-	-	-		
Eating habits					χ^2=0.071 d.f=2	p=0.965 N.S
Non-vegetarian	1	2.0	10	20.4		
Vegetarian	2	4.1	15	30.6		
Mixed	2	4.1	19	38.8		
Other food types	-	-	-	-		
Details of menstruation					χ^2=1.095 d.f=2	p=0.578 N.S
Regular	1	2.0	16	32.7		
Irregular	0	0	3	6.1		

Demographic Variables	Moderately Adequate		Adequate		Chi-Square Test	p-value
	F	%	F	%		
Menopause	4	8.2	25	51.0		
Co-morbidity						p=0.902 N.S
Blood pressure	2	4.1	24	49.0	χ^2=1.048 d.f=4	
Diabetes	0	0	1	2.0		
Cancer	0	0	2	4.1		
Heart disease	2	4.1	12	24.5		
5	1	2.0	5	10.2		
Salt intake						p=0.872 N.S
5g (Tea spoon)	3	6.1	21	42.9	χ^2=0.273 d.f=2	
15g (Table spoon)	1	2.0	11	22.4		
Pinch in hands	1	2.0	12	24.5		
Salted food intake						p=0.343 N.S
Pickle	4	8.2	22	44.9	χ^2=2.140 d.f=2	
Salted fish	0	0	12	24.5		
Salted meat	1	2.0	10	20.4		

*$p<0.05$, S – Significant, N.S – Not Significant

7. CONCLUSION:

The study concluded that out of 196 samples women (98 - experimental group 98 - control group) had a adequate awareness when compared to their pretest score pretest among women, 25(51.02%) had inadequate knowledge and 24(48.98%) had moderate level of knowledge and in the post test, 27(55.10%) had adequate knowledge and 22(44.90%) had moderate level of knowledge on osteoporosis among women

REFERENCES:

1. Chithra KM (2022), effectiveness of Planned Teaching Programme on Knowledge regarding Osteoporosis and its Management among Menopausal women in selected rural areas in Bangalore District A and V Publications All right reserved Asian J. Nursing Education and Research. 2023; 13(1):33-35.
2. Nancy.J, (2018) effectiveness of structured teaching programme on knowledge regarding prevention of osteoporosis among health care personnel working in Rajiv Gandhi Government General Hospital, ChennaiEPrints@Tamil Nadu Dr MGR Medical University is powered by EPrints 3 and designed by the Mosys Software Solutions.
3. Sameer Ahmad Dar, Humaira Qadir (2022), Effectiveness of planned teaching programme (ptp) on prevention of osteoarthritis among women in selected area, KASHMIR International Journal of Engineering Applied Sciences and Technologyhttp://www.ijeast.com
4. Ghada M. Alqahtani and Abdullah M. Alghamdi(2021) 1810_20.Assessment of osteoporosis knowledge among adult Saudi females attending the family medicine department at Security Forces Hospital, Riyadh, Saudi Arabia Journal of Family Medicine and Primary Care are provided here courtesy of Wolters Kluwer -- Medknow Publications DOI: 10.4103
5. Sayaf H Alshareef, Abdullah Alwehaibi, Ahmed Alzahrani, Abdulaziz Fagihi, Adel Alkenani, M Alfentoukh (2018), Knowledge and Awareness about Risk Factors of Osteoporosis among Young College Women at a University in Riyadh, KSA Journal of Bone Research DOI:10.4172/2572-4916.

6. Khalid ElTohami, Waqas Sami, AA Eidan, M Mubarak, F Alotaibi (2015) Study of Knowledge, Attitude and Practice of Osteoporosis among Adult Women in Majmaah City, Saudi Arabia International Journal of Health and Rehabilitation Sciences publication DOI:10.5455/ijhrs.000000087. https://www.researchgate.net/publication/283038758_Study_of_Knowledge_Attitude_and_Practice_of_Osteoporosis_among_Adult_Women_in_Majmaah_City_Saudi_Arabia

7. Jalaluddin A Khan, Fiona E. McGuigan, Kristina E. Akesson, Y. M. Ahmed, Faiza Abdu, Hussam Rajab & Mai Albaik (2019) (Osteoporosis knowledge and awareness among university students in Saudi Arabia)Springer

8. Samia Amin, Nor Ashikeen Mukti (2017), Assessment of knowledge level on osteoporosis among a private university students in MalaysiaImperial Journal of Interdisciplinary Research publication

9. Tagreed O. Shawashi, Muhammad Darawad (2020) Osteoporosis Knowledge, Beliefs and Self-efficacy Among Female University Students The Open Nursing Journal research publication

10. Shino Oba and Naomi Kajiyama (2022),Knowledge of Osteoporosis and Its Associated Factors among Public Health Professionals in a Municipal Office in Japan DOI:10.3390/healthcare10040681.

11. Ms. Abhilasha S. Moon, Ms. Varsha Hambarde, Ms. Sarika Bais (2022)   Effectiveness Of Structured Teaching Programme On Knowledge Regarding Pregnancy And Lactation Associated Osteoporosis Among Antenatal Mothers Attending Antenatal OPD At Selected Hospitals Of The City: A Pre-Experimental StudyJournal of Pharmaceutical Negative Results DOI: 10.47750/pnr.2022.13.S09.468.

12. Afnan A Albokhary (2022) Statistical Predictors: Exploring Knowledge, Attitude, and Self-efficacy of Osteoporosis Among Perimenopausal Women journal of algebraic statisticsdoi: 10.47750/pnr.2022.13.S09.468.

13. Peter Tardi, Brigitta Szilagyi, Alexandra Makai, Monika Gyuro, Pongrac Acs, Melinda Jaromi, Balint Molics, Marta Hock (2021) The development of a reliable and valid instrument to measure the osteoporosis-related knowledge: validation of the Hungarian version of Osteoporosis Knowledge Assessment Tool BMC Public Health publication

14. Ensherah S Althobiti, Elham Abdullah Al Nagshabandi and Asma Hamdi Mohamed (2022) Knowledge, beliefs, and preventive behaviors regarding osteoporosis among university students: Scoping review Evidence-Based Nursing Research publication https://www.researchgate.net/publication/344277666_Knowledge_Beliefs_and_Preventive_Behaviours_Regarding_Osteoporosis_Among_Female_Health_Colleges'_Students_at_King_Abdulaziz_University

15. Sougata Panda, Seveka Bali, Anchit Gugnani, Amarjeet Singh, (2022)Knowledge of Osteoporosis among Women in a Low- to Middle-Income Country: Literature Review and Recommendations)Critical Reviews™ in Physical and Rehabilitation Medicine publication DOI: