Universe International Journal of Interdisciplinary Research
(International Peer Reviewed Refereed Journal)
DOI No. – 08.2020-25662434

© UIJIR | ISSN (O) – 2582-6417
FEB 2024 | Vol. 4 Issue 9
www.uijir.com

EMPOWERING WOMEN FOR STRONGER BONES: THE IMPACT OF AN EDUCATIONAL INTERVENTION ON OSTEOPOROSIS PREVENTION KNOWLEDGE AND PRACTICES IN RURAL SHIMLA, INDIA.

Author's Name: Hemlata Sharma[1]

Affiliation:

1. Assistant Professor, Saraswati Institute of Nursing, Kurali, Punjab, India.

Corresponding Author Name & E-Mail: Hemlata Sharma, ashishvaishnav0766@gmail.com

ABSTRACT

Introduction : Osteoporosis is a major public health concern, particularly among women, due to their higher risk of related fractures. Primary prevention measures are essential in reducing the incidence and burden of osteoporosis-related fractures. Educational programs aimed at improving knowledge and practices related to osteoporosis prevention can play an important role in reducing the risk of developing osteoporosis and promoting healthy bone health among women. Aim of study: The present study aimed to assess the effectiveness of a structured teaching program on the prevention of osteoporosis in terms of knowledge and practices among women residing in a selected rural area of Shimla. Methodology: The study used an experimental approach, with a pre-test post-test control group design, and included 100 women between 25-40 years of age. Data collection was done by using self structured questionnaire and checklist. Result: The experimental group showed a significant improvement in their knowledge scores after the intervention, with a mean pre-test score of 10.38 and a mean post-test score of 18.58, while the control group did not show a significant change, with a mean pre-test score of 9.36 and a mean post-test score of 10.02. Discussion : study highlights the importance of educating women about the prevention of osteoporosis and promoting healthy bone health practices, especially in rural areas where there may be limited access to healthcare resources. The study also highlights the need for further research to develop and evaluate interventions that can improve knowledge and practices related to osteoporosis prevention among women in different populations and settings.

Keywords: Women, Osteoporosis, Prevention, Knowledge, Practices, Educational intervention.

DOI Link :: https://doi-ds.org/doilink/03.2024-15916727/UIJIR

INTRODUCTION

Osteoporosis is a major public health concern that has significant consequences for women's health and well-being. It is a condition characterized by low bone density and deterioration of bone tissue, which leads to an increased risk of fractures and breaks.[1] Osteoporosis is a condition where bones become porous and fragile, often unnoticed until a person experiences a fracture. It is a significant public health issue affecting approximately 75 million people in the US, Europe, and Japan.[2] Osteoporosis is more common in women, with one in two women experiencing related fractures, as women tend to have less bone mass, which is further reduced after menopause and risk of developing osteoporosis increases with age thus numerous studies have recommended educating the female population about the disease.[3,4]

Preventive measures are essential in reducing the incidence and burden of osteoporosis-related fractures, and primary prevention involves measures taken before the onset of the disease to eliminate the possibility of its occurrence. According to the International Osteoporosis Foundation, osteoporosis affects approximately 200 million women worldwide, and one in three women over the age of 50 will experience a fracture related to osteoporosis.[5]

In India, the prevalence of osteoporosis is also high among women. A study conducted in the north Indian state of Himachal Pradesh found that the prevalence of osteoporosis was 36.2% among postmenopausal women.[6] Another study conducted in the southern Indian city of Chennai reported that the prevalence of osteoporosis was 21.4% among women over the age of 50.[7] The prevention of osteoporosis involves adopting a healthy lifestyle, including a balanced diet rich in calcium and vitamin D, regular exercise, and avoiding tobacco and excessive alcohol consumption.[8,9] Educational programmes aimed at improving knowledge and practices related to osteoporosis prevention can play an important role in reducing the risk of developing osteoporosis and promoting healthy bone health among women.[10]

The present study aimed to assess the effectiveness of a educational intervention on the prevention of osteoporosis in terms of knowledge and practices among women residing in a selected rural area of Shimla. The study is significant as it may help identify the gaps in knowledge and practices related to osteoporosis prevention among women in rural areas and develop effective interventions to improve their bone health. The findings of the study may also have broader implications for public health, as the prevention of osteoporosis is crucial for reducing the burden of fractures and related healthcare costs. Overall, this study has the potential to make a valuable contribution to the field of osteoporosis prevention and promote healthy bone health among women in rural areas

DOI Link :: https://doi-ds.org/doilink/03.2024-15916727/UIJIR

METHODOLOGY

The present study used an experimental approach, which was considered the most appropriate to achieve the objectives of the study.The research design used in this study was a pre-test post-test control group design. The experimental group received the educational intervention, while the control group did not receive any intervention. Both groups were assessed for their knowledge and practices related to the prevention of osteoporosis before and after the intervention.The research setting selected for the study was a rural area in Shimla, which is the location where the data was collected.The population for this study comprised women in the age group of 25-40 years in the selected rural area of Shimla.The sample size for the study was 100 women, with 50 participants in the control group and 50 participants in the experimental group. The sample was selected using purposive sampling technique, which means that participants were chosen based on specific criteria.

INTERVENTION

Written permission was obtained from relevant authorities, and informed consent was obtained from 50 women in the experimental group and 50 women in the control group selected through purposive random sampling. Pretest was conducted, followed by administration of educational intervention with audio-visual aids to the experimental group, and a post-test was conducted after 7 days. The same structured interview schedule was used for both pretest and post-test to evaluate the effectiveness of educational intervention.

inclusion criteria for the study were women between 25-40 years of age who were willing to participate and lived in a selected rural area in Shimla. Regarding data collection tool structured demographic performa for sample characteristics and demographic variables, a structured interview schedule for assessing knowledge regarding the prevention of osteoporosis, and a practice checklist to assess the participants' practices related to the prevention of osteoporosis.

DOI Link :: https://doi-ds.org/doilink/03.2024-15916727/UIJIR

RESULT

TABLE 1. Demographic Characteristic Samples **N=100**

SAMPLE CHARACTERISTICS	EXPERIMENTAL GROUP	CONTROL GROUP
1. Age (in years):		
a) 25-30yrs	7 (14%)	5 (10%)
b) 31-35yrs	13(26%)	16 (32%)
c) 36-40yrs	16 (32%)	17 (34%)
d) 41-45yrs	14 (28%)	12 (24%)
2. Occupation		
a) Government Job	4 (8%)	5 (10%)
b) Private job	8 (16%)	16 (32%)
c) Self employed	12 (24%)	12 (24%)
d) House wife	26 (52%)	17 (34%)
3. Family monthly income:		
a) Below 10,000	6 (12%)	9 (18%)
b) 10,001-20,000	17 (34%)	12 (24%)
c) 20,001-30,000	18 (36%)	13 (26%)
d) 30,001 above.	9 (18%)	16 (32%)
4. Educational status:		
a) No formal education.	2 (4%)	4 (8%)
b) Primary education	10 (20%)	12 (24%)
c) Middle school	13 (26%)	10 (20%)
d) Higher secondary	10 (20%)	14 (28%)
e) Diploma/degree.	15 (30%)	10 (20%)
5. Previous exposure to knowledge on osteoporosis		
a) Yes	8 (16%)	6 (12%)
b) No	42 (84%)	44 (88%)

DOI Link :: https://doi-ds.org/doilink/03.2024-15916727/UIJIR

TABLE 3. Mean difference (MD), standard deviation difference, standard error of mean difference and "t" value of pretest - posttest knowledge scores and practice of women in experimental group and women in control group.

GROUP	KNOWLEDGE SCORE				PRACTICE SCORE			
	MEAN DIFFERENCE	SD	SEMD	"t" value	MEAN DIFFERENCE	SD	SEMD	"t" value
Experimental group (pretest) Control group (pretest)	1.02	0.18	0.26	0.84 NS	0.2	0.17	0.24	0.83 NS
Experimental group(post test) Control group (post test)	8.56	0.82	0.3384	25.29*	4.54	0.16	0.3243	13.99*

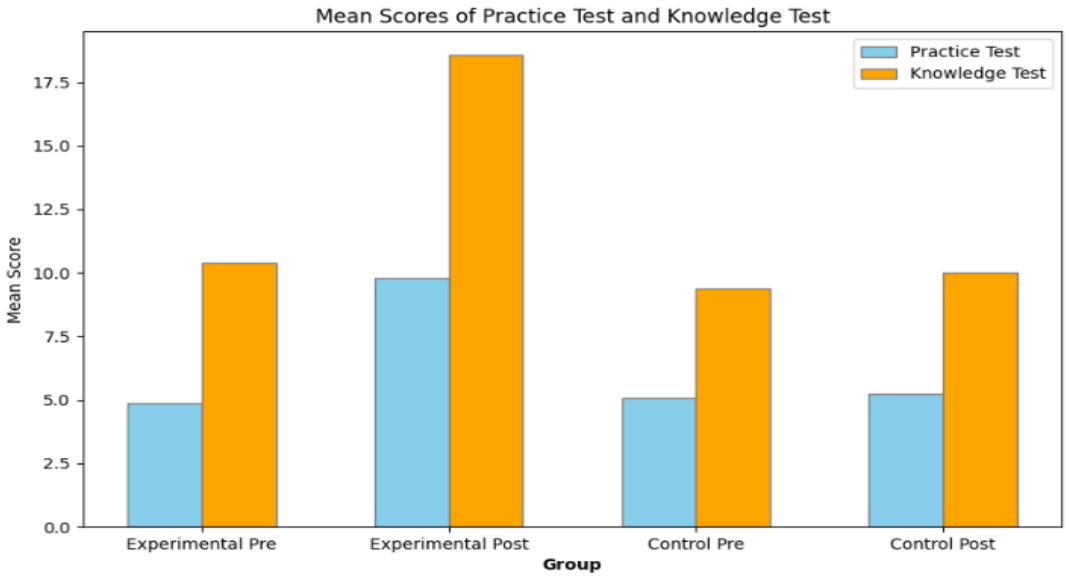

Figure 1 . Mean scores of practice test and knowledge test for experimental and control groups

DOI Link :: https://doi-ds.org/doilink/03.2024-15916727/UIJIR

TABLE 6. Chi square value showing the association pre test knowledge scores and pre-test practice score with women in experimental group

n=50

S. no.	Sample characteristics	Df	Chi square value	
			Pre test knowledge score	Pre test practice score
1.	**Age in years**			
	a. 25-30 yrs			
	b. 1-35yrs	3	1.33^{NS}	11.17*
	c. 36-40yrs			
	d. 41-45yrs			
2.	**Occupation**			
	a. Govt.job			
	b. Pvt.job	3	2.38 ^{NS}	4.15 ^{NS}
	c. Self employed			
	d. Housewife			
3.	**Family monthly income**			
	a. Below 10,000	3	1.93^{NS}	1.55^{NS}
	b. 10,001-20,000			
	c. 20,001-30,000			
	d. 30,001 above			
4.	**Educational status**			
	a. No formal education			
	b. Primary education			
	c. Middle school	4	1.92 ^{NS}	3.48 ^{NS}
	d. Higher secondary			
	e. Diploma/degre			
5.	**Previous exposure to knowledge on osteoporosis**	1	8.5*	3.9*
	a. Yes			
	b. No			

NS= Not significant, *=Significant

DOI Link :: https://doi-ds.org/doilink/03.2024-15916727/UIJIR

DISCUSSION

Osteoporosis is a chronic and irreversible disease that cannot be cured once it is established. Therefore, it is crucial to focus on prevention rather than treatment. Fortunately, there are several modifiable health behaviors that can help recognize the risk of osteoporosis and potentially prevent or delay bone loss. In the present study, we have evaluated the effect of the education and information about osteoporosis knowledge and practice. We observed that simple educational intervention using written material and power point presentation was helpful to increase knowledge and practice regarding osteoporosis prevention. Similarly, a systematic review by Sözen et al. (2017) found that educational interventions can improve the knowledge and practices of women regarding the prevention of osteoporosis. The review included 28 studies from various countries and concluded that educational interventions were effective in improving knowledge and practices related to osteoporosis prevention.[11]

In contrast of present study, Jahrami et al. (2021) found no significant difference in osteoporosis knowledge scores among postmenopausal women who received a structured educational intervention compared to those who did not receive an intervention. The strength of this study is that we performed study with randomization so risk of bias minimise. Our study had several limitations. First, this study probably included participants that are more motivated and inclined to change their behavior than those from the general population. Therefore, we cannot be certain that our results are generalizable to other populations.[12] The deficient knowledge revealed among the present study women before the intervention is expected given their sociodemographic background, where most of them had basic or intermediate education, and about one-third between age of 35-40 year, and more than half were housewives. In fact, the chi square test demonstrated the effect of such variables on their knowledge, as well as their practice.

For example, a study by Tung et al. (2020) found that older age was associated with lower knowledge and practice related to osteoporosis prevention, including less physical activity and calcium intake.[13] Similarly, a study by Kim et al. (2017) found that older age, lower education, and lower income were associated with lower knowledge and practice related to osteoporosis prevention.[14]

In contrast, other studies have found that occupation and income are associated with a higher level of osteoporosis knowledge and better health-related practices. For example, a study by Kim et al. (2016) found that women with higher income and professional occupations had a better understanding of osteoporosis prevention and were more likely to engage in preventive

DOI Link :: https://doi-ds.org/doilink/03.2024-15916727/UIJIR

behaviors.[15] Overall, these studies suggest that sample characteristics such as age, education, income, and occupation play an important role in determining knowledge and practice related to osteoporosis. Furthermore, the findings of these studies highlight the need for targeted education campaigns and interventions aimed at improving knowledge and practice related to osteoporosis, particularly among older women with lower educational status and income.

CONCLUSION

It can be concluded that the educational intervention had a significant impact on improving the knowledge scores of the experimental group regarding osteoporosis prevention. However, the intervention did not show any significant impact on the control group. The study also found that age, educational status, and previous exposure to knowledge on osteoporosis were associated with the participants' pre-test practice scores. Therefore, targeted educational interventions may be beneficial in improving osteoporosis prevention practices, especially for those with lower levels of education or knowledge about the condition.

DOI Link :: https://doi-ds.org/doilink/03.2024-15916727/UIJIR

REFERENCES

1. Sözen T, Özışık L, Başaran NÇ. An overview and management of osteoporosis. Eur J Rheumatol. 2017 Mar;4(1):46-56. doi: 10.5152/eurjrheum.2016.048. Epub 2016 Dec 30. PMID: 28293453; PMCID: PMC5335887.
2. Kanis, J. Assessment of osteoporosis at the primary health-care level. WHO Scientific Group Technical Report. 2007 [Accessed 22.02.2019];
3. Alexandraki KI, Syriou V, Ziakas PD, Apostolopoulos NV, Alexandrakis AI, Piperi C. The knowledge of osteoporosis risk factors in a Greek female population. Maturitas. 2008;59(1):38-45. 2. 4.
4. Riaz M, Abid N, Patel MJ, Tariq M, Khan MS, Zuberi L. Knowledge about osteoporosis among healthy women attending a tertiary care hospital. J Pak Med Assoc. 2008;58(4):190
5. International Osteoporosis Foundation. About osteoporosis. Available from: https://www.iofbonehealth.org/about-osteoporosis. Accessed 25 April 2023.
6. Sharma S, Tandon VR, Mahajan A, et al. Prevalence of osteoporosis in apparently healthy adults above 40 years of age in Shimla region, Himachal Pradesh, India. J Family Med Prim Care. 2017;6(4):609-613. doi:10.4103/jfmpc.jfmpc_3_17.
7. Shah JD, Mehta H. Prevalence of osteoporosis in women residing in Chennai, Tamil Nadu – A cross sectional study. J Clin Diagn Res. 2016;10(3):OC09-OC13. doi:10.7860/JCDR/2016/15972.7377.
8. Kanis JA, Cooper C, Rizzoli R, et al. European guidance for the diagnosis and management of osteoporosis in postmenopausal women. Osteoporos Int. 2019;30(1):3-44. doi:10.1007/s00198-018-4704-5.
9. World Health Organization. Assessment of fracture risk and its application to screening for postmenopausal osteoporosis. Report of a WHO Study Group. Geneva: World Health Organization; 1994.
10. Hanley DA, Adachi JD, Bell A, et al. Clinical practice guidelines for the assessment and management of osteoporosis. Can Med Assoc J. 2010;182(17):1864-1873. doi:10.1503/cmaj.100771
11. Sözen, T., Özışık, L., &Başaran, N. Ç. (2017). An overview and management of osteoporosis. European Journal of Rheumatology, 4(1), 46-56.
12. Jahrami, H. A., Alsairafi, Z. K., Alsaad, K. O., Alhujairy, R. M., Alhammadi, T. A., Alrajjal, N. M., & Alshamrani, F. A. (2021). Effect of structured educational intervention on knowledge of osteoporosis among postmenopausal women: A randomized controlled trial. Journal of Family Medicine and Primary Care, 10(3), 1418-1424. doi: 10.4103/jfmpc.jfmpc_1390_20
13. Tung, W.-C., Hsu, Y.-C., & Huang, Y.-C. (2020). Knowledge and practice of osteoporosis prevention among community-dwelling elderly individuals in Taiwan: A cross-sectional study. Journal of Clinical Medicine, 9(2), 483. doi: 10.3390/jcm9020483
14. Kim, H.-K., Kim, M.-G., Kim, Y.-S., & Kim, Y.-J. (2017). Factors influencing knowledge and behavior of osteoporosis prevention among Korean middle-aged women. Osong Public Health and Research Perspectives, 8(1), 38-46. doi: 10.24171/j.phrp.2017.8.1.06
15. Kim, J.-E., Lee, J.-H., Kim, J.-H., & Kim, K.-J. (2016). Factors associated with osteoporosis knowledge and osteoporosis preventive behaviors among men and women in Korea: A cross-sectional study. Osong Public Health and Research Perspectives, 7(1), 40-47. doi: 10.1016/j.phrp.2015.10.007

DOI Link :: https://doi-ds.org/doilink/03.2024-15916727/UIJIR