

A Study to Assess the Effectiveness of Interventional Teaching Program on Osteoporosis and Its Prevention Among Perimenopausal Women in Selected Villages of Harohalli Taluk, Ramanagara District.

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ABSTRACT

Osteoporosis is a common condition affecting millions worldwide, with a higher prevalence among women, particularly perimenopausal and postmenopausal women, due to hormonal changes that accelerate bone loss. It increases the risk of fractures, especially in the hips, spine, and wrists, leading to chronic pain, disability, and loss of mobility. Early prevention and management are crucial to reduce its harmful effects. Interventional teaching programs play a crucial role in prevention of osteoporosis.

Methods : This study employed a quantitative approach, pre-experimental one group pre-test post-test design and non-probability convenient sampling technique. A total of 100 perimenopausal women were screened for perimenopausal symptoms. 72 women were experiencing more than 3 perimenopausal symptoms out of which 50 women were recruited from selected villages of Harohalli Taluk. Study subjects pre-interventional knowledge was assessed after which they received education about Osteoporosis and its prevention with the help of an information pamphlet, flash cards and charts. A week post-intervention, study subjects were subjected to answer the same OKAT to assess the knowledge post-intervention.

Results: The study findings revealed that the mean value of knowledge of study subjects pre-intervention is 5.66 with standard deviation 2.016 and the mean value of knowledge post-intervention is 15.94 with standard deviation 1.683. This was a highly significant difference ($p=0.0000$). Moreover, there was no significant association between level of knowledge with their selected bio-socio demographic variables.

Conclusion: The study demonstrates that the Interventional Teaching Program was effective in significantly improving the knowledge of perimenopausal women about Osteoporosis and its prevention.

Keywords: Knowledge, Osteoporosis, Perimenopausal, Intervention..

INTRODUCTION

Osteoporosis, sometimes referred to as the "silent disease," is a degenerative, long-term skeletal condition marked by degeneration of bone microarchitecture and low bone mass. These alterations make bones more brittle and prone to breaking, which frequently happens in the wrist, hip, and spine (1). Because of its great incidence and serious consequences, osteoporosis is ranked among the top non-communicable illnesses by the World Health Organization (WHO), which considers it a major public health problem³.

About 200 million women worldwide suffer from osteoporosis, which is much more common after the age of 50. According to the International Osteoporosis Foundation (IOF), osteoporotic fractures are a major source of harm and hospitalization for older persons, with one in five men and one in three women over 50 experiencing one⁴.

In India, osteoporosis affects more than 61 million people, with women accounting for 80% of cases, making it a significant public health issue⁶.

A sedentary lifestyle in both urban and rural populations, widespread vitamin D insufficiency from restricted sun exposure or cultural dress restrictions, and inadequate dietary calcium are contributing factors⁷. India's dietary calcium intake is much below the daily requirement that is advised, especially in rural areas where availability to foods high in calcium is restricted, according to the Indian Council of Medical Research (ICMR)⁸. The lack of knowledge regarding osteoporosis, its risk factors, and the need of early prevention exacerbates this problem⁹.

Research indicates that the adoption of preventive healthcare practices in rural populations is severely hampered by socioeconomic inequality, cultural norms, and health illiteracy¹⁰. The burden of osteoporosis is increased by this ignorance, which frequently leads to delayed diagnosis and treatment¹².

According to research, women's risk of osteoporosis and associated fractures is greatly increased when they lose up to 10% of their bone mineral density in the first few years following menopause¹⁴. Perimenopause is an important time for preventative intervention because of the hormonal changes that occur during this time, as well as other factors including decreased physical activity and nutritional deficits¹⁵.

A study by Khosla et al. (2018) found that rural women in India often lack knowledge of osteoporosis prevention methods, leading to higher fracture rates and associated complications²⁸.

Osteoporosis presents serious risks to the health and quality of life of perimenopausal women. Preventing osteoporosis can reduce both the physical and emotional burden on individuals, as well as the financial strain on families and healthcare systems²⁹.

Educational interventions have proven to be a key strategy in osteoporosis prevention and management. By providing women with essential information on risk factors, dietary guidelines, and the benefits of physical activity, these programs empower individuals to make healthier choices. Research has also demonstrated that community-specific educational programs can significantly increase awareness and adherence to preventive measures³⁰.

Objectives Of the Study

1. To assess the level of knowledge on osteoporosis and its prevention among perimenopausal women at selected villages of Ramanagara district.
2. To evaluate the effectiveness of interventional teaching program regarding osteoporosis and its prevention among perimenopausal women at selected villages of Ramanagara district.
3. To find out the association between perimenopausal women's knowledge with selected bio-socio demographic variables.

Hypothesis

H01: There is no significant difference between pre-test and post-test level of knowledge regarding prevention of osteoporosis among perimenopausal women.

H02: There is no significant association between pretest level of knowledge regarding prevention of osteoporosis among perimenopausal women and their selected demographic variables.

MATERIALS AND METHODS

A quantitative approach using a pre-experimental (one group pretest- Post test) design was used. The study was conducted at selected villages of Harohalli Taluk, Karnataka. A total of 100 perimenopausal women were screened for perimenopausal symptoms. 72 women were experiencing more than 3 perimenopausal symptoms out of which 50 women were recruited by using non-probability convenience sampling method. The inclusion criteria for this study were women between 41-50 years of age and having three or more premenopausal symptoms. parents of primary school children and who were willing to participate in the study. Parents with

professional experience in health care and older than 45 were not included in the study. The instrument used for the data collection has two sections: Sociodemographic Data (9 Items), Knowledge Questionnaire on Hand Hygiene (20 Items). Written formal permission was obtained from the authorities of the institutions. The oral consent was obtained from the participants prior to the study. the Pre-test data was collected from a total of 50 samples by distributing the standardized knowledge questionnaire regarding osteoporosis. Followed by interventional teaching program was conducted by distributing information pamphlet and health education was given using charts and flashcards regarding osteoporosis and its prevention. The posttest was conducted by administering the same tools after one week of teaching program. Participant anonymity and confidentiality were maintained throughout the research; no physical or psychological damage to participants was noted. The collected data was analysed using descriptive and inferential statistics.

RESULTS

Description of Sociodemographic Information

The majority of the participants 28 (56%) were in the age group of 41 to 45 years old. Regarding religion, two-thirds of the participants, 38 (76%) were from the Hindu religion and a minimal percentage belonged to Muslim 12 (24%). Regarding the educational status, more than half of the participants obtained primary school 33 (66%), followed by illiterate 8(16%), high school 6(12%), PUC 2(4%) and degree education 1 (2%) respectively. Regarding occupation, majority of them are homemakers 38(76%), followed by self-employed 9 (18%) and employed 6 (12%). Most of the participants are married 48 (96%) and minimal percentage were widowed 2 (4%). Most of the participants Most of the participants' 24 (48%) family monthly income was between Rs 10001 - Rs 20000 and minimal percentage of participants were monthly income of above Rs. 30000, 3(6%). Most of the participants were non-vegetarian 47 (94%), and a minimal percentage were vegetarian 3 (6%). Nearly two third of the participants' Body Mass Index (BMI) was between 22.4-26.6 (34, 68%), followed by 18.1-22.3 (6, 12%) and 26.7+ (10, 20%). Half of the participants received information about hand hygiene practice 47 (58.75%), and one third of the participants did not receive any information on hand hygiene 33 (41.25%).

Pre and Post Intervention Knowledge Among Perimenopausal Women

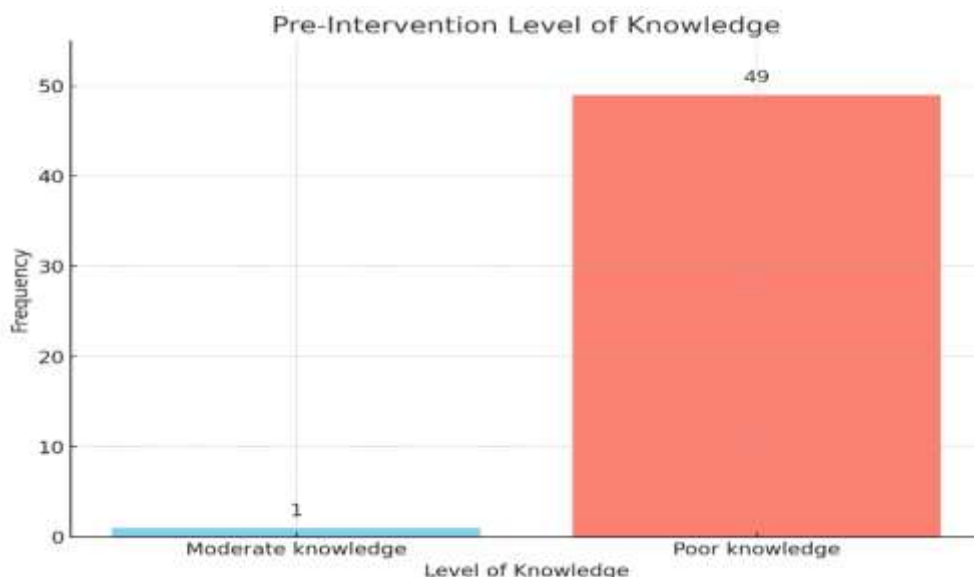


Figure 1 : Distribution of participants based on their pre-intervention level of Knowledge on Prevention of Osteoporosis

Figure 1 shows the level of knowledge on osteoporosis among perimenopausal women. Those who obtained a score >75% were categorized as having good knowledge. Whereas those who obtained a score of 51%–75% were considered to have moderate knowledge, while < 50% had poor knowledge. Out of 50 participants, 98% (n=49) exhibited poor knowledge, while only 2% (n=1) demonstrated moderate knowledge. This indicates a significant gap in awareness regarding osteoporosis and its prevention within the surveyed group.

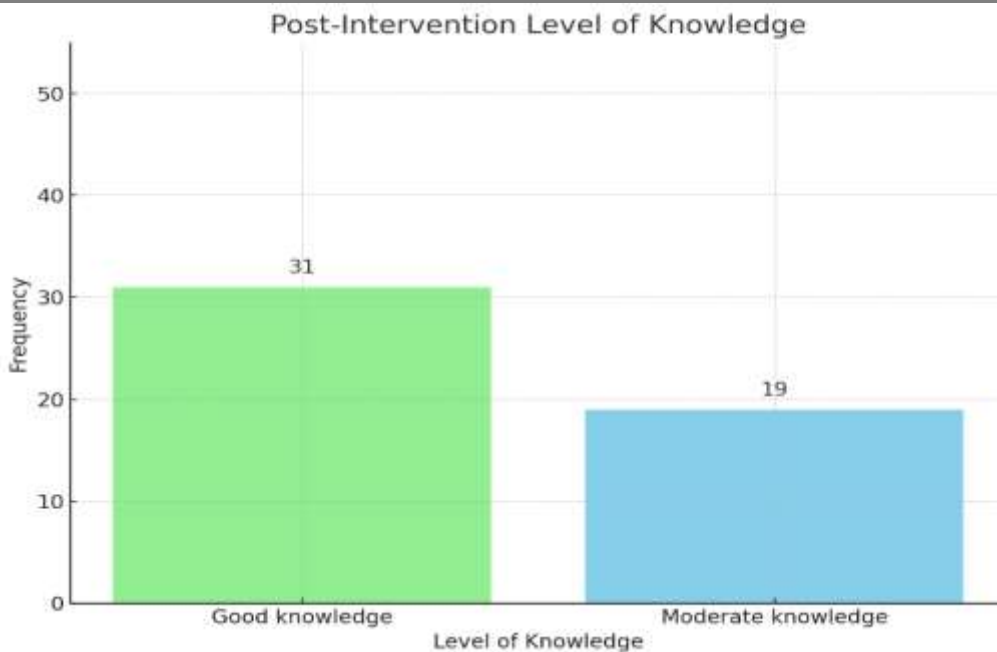


Figure 2 : Distribution of participants based on their post-intervention level of Knowledge on Prevention of Osteoporosis

Figure 2 shows the post-intervention level of knowledge on osteoporosis among perimenopausal women. Out of 50 participants, 62% (n=31) exhibited good knowledge and 38% (n=19) demonstrated moderate knowledge. This indicates a significant improvement in awareness regarding osteoporosis and its prevention within the surveyed group.

Table 1 : Effectiveness of Interventional Teaching Program

Paired 't' Test	Mean	Std.Deviation	t value	df	p value
Pretest	5.66	2.016	-31.312	49	0.000
Post test	15.94	1.683			

The table 1 displays the results of a paired t-test comparing pre-intervention and post- intervention knowledge scores on osteoporosis prevention among perimenopausal women. The mean knowledge score increased from 5.66 (SD = 2.016) before the intervention to 15.94 (SD = 1.683) after the intervention. The t value of -31.312 with 49 degrees of freedom is highly significant (p = 0.000), indicating that the teaching program effectively improved knowledge levels.

Association between Pretest Level of Knowledge with selected demographic variables.

There is no significant association identified between level of knowledge on osteoporosis with selected demographic variables such as age, religion, education status, family income, occupation, marital status, dietary pattern and body mass at a p-value of 0.05.

DISCUSSION

According to this study, the pretest mean value of knowledge is 5.66 with standard deviation 2.016, whereas posttest mean knowledge score is 15.94 with standard deviation 1.683 and the mean difference is 10.28 with the t value of -31.312 is highly significant (p = 0.000). These findings underscore the impact of the interventional teaching program on participants knowledge levels and increase in the level post intervention. Hence Null Hypotheses H01 is rejected and Research Hypotheses H1 is accepted. The results align with a research study carried out by Merrick, et al. (2020) conducted a study focusing on educational interventions for osteoporosis. They found that women who received structured education had a 40% improvement in their knowledge about

osteoporosis. Additionally, 30% of these women reported significantly increased calcium intake and 20% incorporated regular physical activity into their routines, resulting in improved prevention behaviors. This result showed.

that knowledge might influence practice in a way that results in useful practices. There is no significant association between level of knowledge with selected socio-demographic variables. Hence, Null Hypotheses H02 is accepted and Research Hypotheses H2 is rejected.

CONCLUSION

The purpose of study was to evaluate the pre and post intervention level of knowledge on Osteoporosis and its prevention among perimenopausal women at selected villages of Harohalli Taluk, Ramanagara District. The study demonstrates that the Interventional Teaching Program was effective in significantly improving the knowledge of perimenopausal women about Osteoporosis and its prevention.

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