

Effectiveness Of Nursing Intervention Package On Improving Bone Health Among Post Menopausal Women Residing In Rural Villages Of Tiruvannamalai District, Tamilnadu

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Abstract

Osteopenia and osteoporosis are a major health problem in post-menopausal women (PMW). Exercise and diet supplementations are considered a cost-effective strategy to prevent bone health problems in middle aged-older women. The aim of this study was to find out effect of nursing intervention package on improving bone health among post menopausal women. The researcher was adopted a nonequivalent control group pre and post test design. Totally 250 post menopausal women had participated in the study. They had been selected by using enumeration sampling technique. The collected data were analyzed by using the descriptive and inferential statistics. The study results shows that the pre test mean value of bone mineral density in experimental group was 2.26 with S.D 0.70 and control group was 2.29 with S.D 0.84. The calculated student independent 't' test value $t = 1.306$ was found to be statistically not significant. The post test mean value of bone mineral density in experimental group was 1.77 with S.D 0.87 and control group was 2.27 with S.D 0.89 The calculated student independent 't' test value $t = 4.404$ was statistically significant at $p < 0.001$ level. The study findings revealed that there is a significantly increase in bone mineral density level among post menopausal women in experimental group than the control group after providing the selected nursing interventional package (Knowledge on bone health, Calcium Diet and Exercise) for the experimental group.

Key words: Post Menopausal Women, Bone Health, Calcium Diet and Exercise

Introduction

"Your bones are for life. Look after them and they will carry you far"

-Susan Hampshire

Women are the vital set up and heart of the family. In human life span development, menopausal phase signifies the normal aging process that subjects women from the reproductive to the nonreproductive state. The menopausal process may extend for a longer variable period before and after the physiological cessation of menstruation and last many years after that, subjecting women into a complex biophysiological and psychosocial change. (Doubova SV et al., 2011) Menopause is a natural reproductive process that occurs in all women. Menopause affects nearly one-third of women's lives. Menopause stage the woman's loss their articular cartilage is caused by a decline in estrogen levels that develop across menopause. According to statistics, the average woman loses in their life up to 10% of her bone mass during the first five years after menopause. Even when a woman's bone mass before menopause would be less than ideal, any bone loss throughout menopause could lead to osteoporosis. (Jean Hailes 2020)

Menopausal women are having varied symptoms due to the cessation of ovarian oestrogen production resulting in vasomotor symptoms, musculoskeletal changes, urogenital atrophy, cognitive changes, sleep disturbance, sexual dysfunction, and psychological problems. Musculoskeletal complaints are much common in post-menopausal women because the natural protection to osteoporosis is lost leaving women prone to fractures with minor trauma injury.

World Health Organization 2016 reported that menopausal symptoms and their consequences (diseases) were night sweats (83.2%), hot flushes (76.4%), mood swings (72.5%), vaginal dryness (71.4%), irritability (67.5%), fatigue (66.8%), and loss of libido (66.4%).

Bone loss early detection is a major worry for women during menopause and post menopause. Menopause hastens bone deterioration and raises the risk of osteoporosis. According to studies, up to 20% of bone loss can occur throughout these stages, and one out of every ten women over the age of 60 is directly impacted by osteoporosis globally. Bones break down quicker than they are generated during the postmenopausal stage, increasing the probability of fragility fractures in the hip, spine, and wrist, which cause pain, restricted mobility, and diminished function in everyday activities. **(Hormone health 2020)**

According to the **World Health Organization (2016)** Osteoporosis is estimated to affect 200 million women worldwide approximately one-tenth of women aged 60, one-fifth of women aged 70, two-fifths of women aged 80 and two-thirds of women aged 90. Osteopenia and osteoporosis are attributed to a decrease in bone mass and deterioration of bone microstructure, resulting in a loss of overall bone strength. Menopause leads fast bone loss, estimated to be 2–3% each year for the next 5–10 years. **(Aggarwal N and Raveendran 2016)** For all sites, the prevalence of osteoporosis particularly in the elderly, with the World Health Organization **(WHO 2016)** reporting that up to 70% of women over the age of 80 has osteoporosis. More than 61 million people in India are thought to have osteoporosis, with females representing for 80 percent of those affected.

Diet and exercise programs for postmenopausal women that aimed to increase bone mineral density level (BMD) bone health care is positively associated with an increase in BMD in older adults. The knowledge of the bone health along with the Intake of calcium diet and aerobic exercise and weight-bearing activity are important in maintaining overall bone health. Regular exercise strengthens the bone and can reduce the risk of complications for post menopausal women.

Statement of the Problem

A study to assess the effectiveness of nursing intervention package on improving bone health among post menopausal women residing in rural villages of Tiruvannamalai district.

Objectives

To evaluate the effectiveness of nursing intervention package on improving bone health among post menopausal women.

Materials and Methods

A nonequivalent control group pre and posttest design was used which comes under quasi experimental design. Totally 250 post menopausal women had participated in the study. There were selected 131 participants in experimental group 119 participants in control group from kizhkachirapattu and pappampadi villages Tamilnadu respectively. They had been selected by using enumeration sampling technique. The Post menopausal women bone health knowledge was assessed by knowledge questionnaire and bone mineral density was measured by BMD score of quantitative ultra sound bone densitometer CM 200 machines. Post menopausal women of experimental group were exposed to nursing intervention package including IEC on Bone health, calcium diet supplementations & exercise include brisk walking and home base loading exercises. This was delivered through lecture discussion and demonstration methods by using necessary audio-visual aids. Post menopausal women of control group had followed their routine life style practice.

Results and Discussion

Fig:1. Percentage distribution of level of knowledge on bone health in experimental and control group among post menopausal women. **N = 250(131 + 119)**

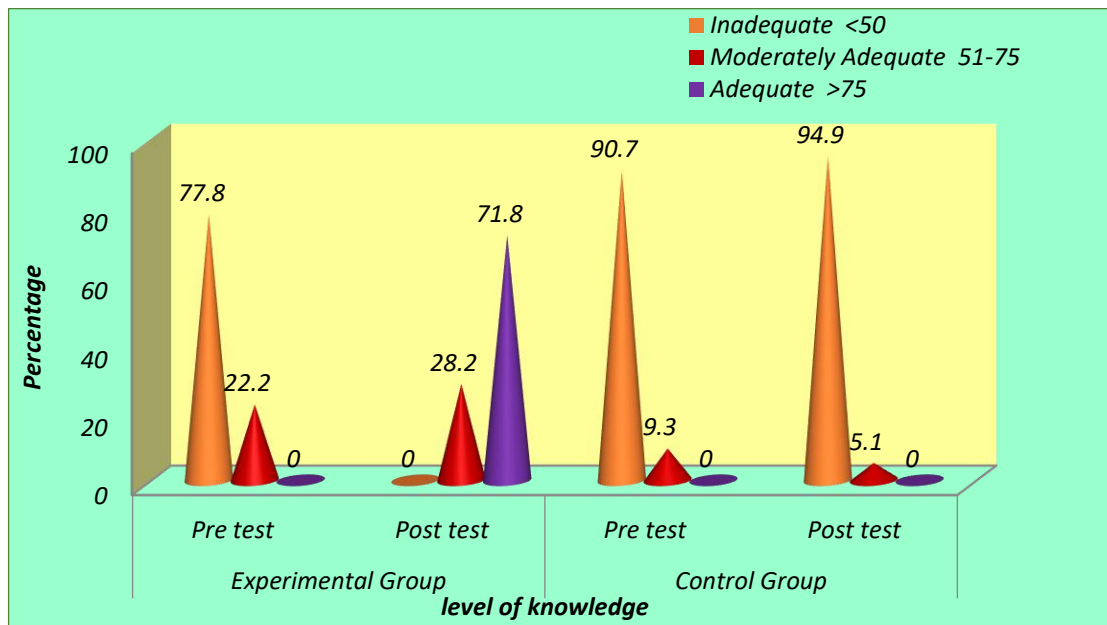


Fig:2. Percentage distribution of pre test and post test level of bone mineral density on bone health in experimental group among post menopausal women. **n = 131**

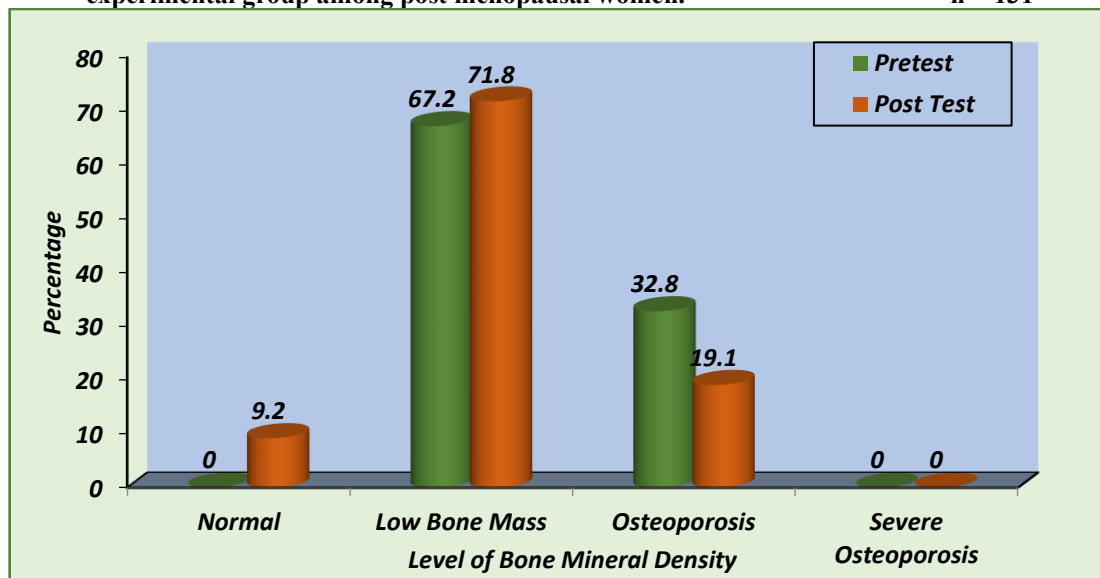
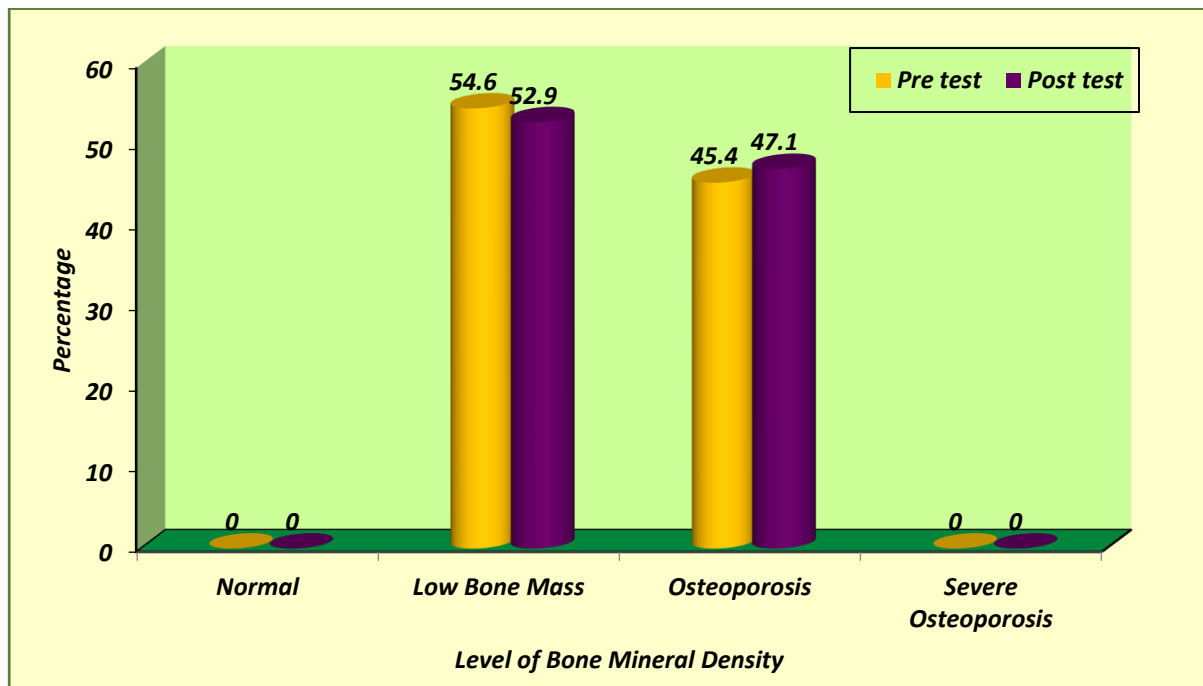


Fig:3. Percentage distribution of pre test and post test level of level of bone mineral density on bone health in control group among post menopausal women. **n = 119**



Comparison of pretest and post test level of knowledge on bone health in experimental and control group among post menopausal women.

In experimental group, the pre test mean value of knowledge on bone health was 14.22 with S.D 1.96 and the post test mean value of 24.01 with S.D 3.60. The calculated dependent ‘t’ value $t = 31.799$ was found to be statistically significant at $p < 0.001$ level. In control group, the pre test mean value of knowledge on bone health was 14.15 with S.D 1.99 and the post test mean value of 14.21 with S.D 1.98. The calculated dependent ‘t’ value $t = 1.919$ was statistically not significant at $p < 0.05$ level.

Comparison of pre test and post test level of bone mineral density on bone health within experimental and control group among post menopausal women.

In experimental group, the pre test mean value of bone mineral density was 2.26 with S.D 0.70 and the post test mean value was 1.77 with S.D 0.87. The calculated dependent ‘t’ value $t = 5.378$ was found to be statistically significant at $p < 0.001$ level. In control group, the pre test mean value of bone mineral density was 2.29 with S.D 0.84 and the post test mean value was 2.27 with S.D 0.89. The calculated dependent ‘t’ value $t = 1.276$ was statistically not significant at $p < 0.05$ level.

Comparison of pre test and post test level of knowledge on bone health between experimental and control group among post menopausal women.

The pre test mean value of knowledge in experimental group was 14.22 with S.D 1.96 and the pre test mean value in the control group was 14.15 with S.D 1.99. The calculated student independent ‘t’ test value of $t = 0.246$ was not found to be statistically significant at $p < 0.05$ level. The post test mean value of knowledge in experimental group was 24.01 with S.D 3.60 and the post test mean value in the control group was 14.21 with S.D 1.98. The calculated student independent ‘t’ test value of $t = 26.949$ was found to be statistically highly significant at $p < 0.001$ level.

Comparison of pre test and post level of bone mineral density on bone health between the experimental and control group among post menopausal women

The pre test mean value of bone mineral density in experimental group was 2.26 with S.D 0.70 and the pre test mean value of bone health in control group was 2.29 with S.D 0.84. The calculated independent ‘t’ value $t = 1.306$ was found to be statistically not significant. The post test mean value of bone mineral density in experimental group was 1.77 with S.D 0.87 and the post test mean value degree of bone health in control group was 2.27 with S.D 0.89 The calculated independent ‘t’ value $t = 4.404$ was statistically significant at $p < 0.001$ level.

Conclusion

The study findings revealed that there is a significant improvement in the level of bone health among post menopausal women after providing the selected nursing interventional package. Therefore, selected nursing interventional package includes awareness of bone health, calcium diet added in a daily diet and regular exercise performed as a planned programme in a periodical session for post menopausal women with osteopenia and primary osteoporosis stage. The present study revealed that the effectiveness of nursing interventions package on bone health among post menopausal women in the experimental group had significant improvement in their post test level bone mineral density than control group. In control group post menopausal women had undergone normal home routine cares and bone mineral density level was reversely increasing their risk of complication like severe osteoporosis. Hence it can be concluded that selected nursing interventional package is a cost effective, non-invasive, non-pharmacological alternative method in the home care management of bone health. It is a simple and easily accessible and available in all community settings.

Acknowledgment

The authors thank to Management, Principal of working this instution, co-author, librarian and statistician for their constant motivation, support, valuable guidance and direction, appropriate suggestions for successfully completion of Ph.D. study in all respects under their command. I would like to thank my study participants for willingly consenting to participate in my study and for enabling me to complete the study.

Financial support and sponsorship

Nil

Conflicts of interest

There are no conflicts of interest

Ethical approval and consent to participate

The study was approved by the intuition ethical committee and informed consents were received from all participants.

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