Prevalence of Osteoporosis Among Postmenopausal Women in a Selected Panchayat of Kerala, India

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Abstract

Background: Osteoporosis is a major public health concern among postmenopausal women, leading to increased morbidity, fractures, and reduced quality of life. In India, the burden of osteoporosis remains underestimated due to underdiagnosis and limited community based screening.Objectives: To determine the prevalence of osteoporosis among postmenopausal women, to examine its association with selected demographic variables, and to develop a lifestyle modification package for prevention and management.**Methods:** A quantitative, non experimental descriptive survey design was adopted. A total of 150 postmenopausal women aged 45–60 years were selected from Ward 3 of Athirampuzha Panchayat, Kottayam district, using systematic random sampling. Participants were screened using a structured osteoporosis risk assessment questionnaire. Bone mineral density was measured using a bone densitometer for women identified as high risk. Data were analyzed using descriptive statistics and chi square test.Results: Among the participants, 73.33% had normal bone density, 10.67% had osteopenia, and 16% had osteoporosis. A statistically significant association was found between educational status and osteoporosis ($\chi^2 = 7.84$, $p < 0.05$). No significant association was observed between osteoporosis and age, type of family, or occupation.**Conclusion:** Osteoporosis and osteopenia were prevalent among postmenopausal women in the community. Educational status emerged as a significant factor associated with osteoporosis. Community based screening and lifestyle modification interventions are essential to reduce the burden of osteoporosis among postmenopausal women.

Keywords: Osteoporosis, Postmenopausal women, Bone mineral density, Lifestyle modification, Community health nursing.

Introduction

Osteoporosis is a chronic metabolic bone disorder characterized by decreased bone mass and micro architectural deterioration of bone tissue, resulting in increased bone fragility and fracture risk. Postmenopausal women are particularly vulnerable due to estrogen deficiency, which accelerates bone resorption. Osteoporosis often remains asymptomatic until fractures occur, earning it the title of a "silent disease."In India, osteoporosis has emerged as a significant public health challenge due to rapid population aging, nutritional deficiencies, physical inactivity, and limited awareness. Despite its high prevalence, osteoporosis is frequently underdiagnosed, especially in rural and semi urban communities. Early identification and preventive strategies are therefore critical.[1,2]

Methods

Study Design and Setting

A quantitative non experimental descriptive survey design was employed. The study was conducted in Ward 3 of Athirampuzha Panchayat, Kottayam district, Kerala.

Population and Sample

The target population comprised postmenopausal women aged 45–60 years. A sample of 150 postmenopausal women was selected using systematic random sampling.

Inclusion Criteria

Postmenopausal women aged 45–60 years

Residents of the selected ward
Willing to participate in the study
Exclusion Criteria
Known cases of diagnosed osteoporosis
Non ambulatory women
Instruments
Demographic Proforma – to collect socio demographic data
Osteoporosis Risk Assessment Questionnaire – to identify women at risk
Bone Densitometer – to measure bone mineral density and confirm osteoporosis based on WHO criteria

Validity and Reliability

The tools were validated by eight experts, with a content validity index of 0.9. Reliability was established using the split half method (r = 0.86).

Data Collection Procedure

After obtaining ethical approval and informed consent, participants were screened using the risk assessment questionnaire. Women identified as high risk underwent bone mineral density testing. A lifestyle modification booklet was provided to all participants.

Data Analysis

Descriptive statistics (frequency and percentage) were used to describe sample characteristics and prevalence. Chi square test was used to assess associations between demographic variables and osteoporosis.[3]

Results

Sample Characteristics

Most participants (41.33%) were aged 51–55 years. A majority (88.67%) belonged to nuclear families, and 72.67% were homemakers. None of the participants had undergone bone mineral density testing prior to the study, nor were they taking calcium or vitamin D supplements.

Prevalence of Osteoporosis

Normal bone density: 73.33%
Osteopenia: 10.67%
Osteoporosis: 16%

Association with Demographic Variables

A statistically significant association was found between educational status and osteoporosis ($\chi^2 = 7.84$, $p < 0.05$). No significant association was found with age, type of family, or occupation.[4]

Discussion

The findings indicate a considerable prevalence of osteoporosis and osteopenia among postmenopausal women, consistent with studies conducted in other parts of India and internationally. The significant association between education and osteoporosis suggests that awareness and health literacy play a crucial role in bone health.The absence of association with age and occupation may be attributed to similar lifestyle patterns among the participants, particularly the physically active nature of homemaking in rural settings.

Implications for Nursing Practice

Practice: Nurses play a key role in early screening, health education, and prevention of osteoporosis among postmenopausal women.

Education:Nursing curricula should emphasize osteoporosis prevention and lifestyle modification strategies.

Administration:Community osteoporosis screening programs and awareness campaigns should be initiated.

Research: Further large scale and interventional studies are recommended.

Limitations

The study was limited to a single panchayat.

Smaller geographic coverage limits generalizability**.**

Conclusion

The study highlights osteoporosis as a significant health problem among postmenopausal women. Early screening, education, and lifestyle modification are essential strategies for prevention and management. Community based nursing interventions can substantially reduce the burden of osteoporosis and improve quality of life among postmenopausal women.[5-7]

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