

## **TO EVALUATE AWARENESS OF OSTEOPOROSIS IN POSTMENOPAUSAL WOMEN**

**Dr Surendranath Reddy Pothireddy**

Assistant Professor, Department of orthopedics, Patnam Mahendra Reddy Medical College

**Dr Rajya Laxmi Manikonda**

Assistant Professor, Department of Obstetrics & Gynecology, Patnam Mahendra Reddy Medical College

**Dr Mahita Rani Katasani**

Associate Professor, Department of Obstetrics & Gynecology, CMR Medical College

Corresponding Author: Dr Mahita Rani Katasani

### **ABSTRACT**

Background: Osteoporosis is a disease of the skeleton, characterized by a decrease in bone density mass. Osteoporosis is a serious condition in health care because of potentially severe consequences for both the patient and the health care system. More severe complications include fractures—particularly of the spine, wrist, hip, pelvis, and upper arm—after minimal bone trauma, and even mortality. Menopause is a natural physiological phenomenon resulting from primary ovarian failure secondary to apoptosis or programmed cell death. Ovarian function declines with age. Besides these, osteoporosis is the most prevalent disease in menopausal women, and is strongly associated with low quality of life and we concentrate on postmenopausal osteoporosis in this study.

Material and methods: This is a prospective study conducted in the Department of OBGY and Orthopaedics, at Tertiary Care Teaching Hospital over a period of 6 months. Seventy postmenopausal women were included into this study. We detected the age of menopause, the consciousness of osteoporosis, dual x-ray absorptiometry reports, habits of regular walking, drinking of milk, used to calcium and vitamin D supplementation or any antiosteoporotic medicine. Statistical analysis was made by SPSS-20 and data were expressed as mean, standard deviation, minimum- maximum and percent (%).

Result: A total of 70 postmenopausal women were included in the survey; maximum number of postmenopausal women belongs to 45–54 years 51.42% followed by 55–64 years 30% and least were >65 years 18.57%. The most common self-reported comorbidities were hypertension 32% followed by Type 2 diabetes 24.28%, Obesity 15.71%, respiratory disease 12.85%, thyroid disease 10% and Rheumatoid arthritis 4.28%. In our study, Perceived cause of most recent fracture are clumsiness 38.57% followed by Imbalance caused by a medical condition 25.71%, Poor bone health 18.57%, Loss of physical mobility 7.14%, Another illness of mine 5.71% and Lack of

muscle 4.28%

Conclusion: Based on the present study, we can conclude that there is a lack of awareness in postmenopausal women regarding osteoporosis in India's region. This subset of women is unaware of the condition that can lead to fragility fracture if not addressed in time. The study emphasizes that health care professionals should conduct frequent awareness programs in the community to prevent this silent disease, and morbidities that arise from osteoporosis can be minimized.

Keywords: Osteoporosis, Postmenopausal women, Fractures.

## **INTRODUCTION**

Osteoporosis is a disease of the skeleton, characterized by a decrease in bone density mass. In the United States, it is estimated that 10 million persons have osteoporosis and 34 million have low bone mass. [1] It is projected that this public health problem will escalate over the next 30 to 50 years. [2] From 1991 to 1998 in Singapore, the hip fracture rates have increased by 0.7% annually in men and by 1.2% annually in women. [3] Osteoporosis is a serious condition in health care because of potentially severe consequences for both the patient and the health care system. [4] More severe complications include fractures—particularly of the spine, wrist, hip, pelvis, and upper arm—after minimal bone trauma, and even mortality. The quality of life after an osteoporotic fracture may also be affected as there may be pain, loss of independence, problems with adaptation, and greater fears about the future. [5] Furthermore, the cost of treating osteoporosis and its associated fractures may amount to more than a few billion dollars each year in the United States alone. [6]

Efforts to decrease the incidence of osteoporosis include population-based intervention strategies targeted at decreasing the risk factors for osteoporosis. Thus, public awareness of the seriousness, preventive measures, and treatment of osteoporosis is important. A cross-sectional study by Kasper in 127 college women in the United States revealed that 90% of the women had heard about osteoporosis, while a study of Japanese American women aged above 55 years showed that 79% had heard of osteoporosis. [7] However, to our knowledge, there is little data on the health beliefs of women in Asia. Therefore, the aim of this study is to explore the factors related to the knowledge and health beliefs of middle-aged and elderly women towards osteoporosis.

Menopause is a natural physiological phenomenon resulting from primary ovarian failure secondary to apoptosis or programmed cell death. Ovarian function declines with age. The onset of menopause features the decreasing production of estradiol, as well as increasing levels of follicle-stimulating hormone (FSH). During the menopausal transition period, women will experience a number of bothersome symptoms, such as hot flashes, night sweats, vaginal atrophy and dryness, dyspareunia, sleep disturbance, and mood swings. Besides these, osteoporosis is the most prevalent disease in menopausal women, and is strongly associated with low quality of life and we concentrate on postmenopausal osteoporosis in this study.

**MATERIALS AND METHODS**

This is a prospective study was conducted in the Department of OBGY and Orthopaedics, at Tertiary Care Teaching Hospital over a period of 6 months. A total of 70 postmenopausal women were enrolled. The presence of menopause was confirmed by elevation of blood FSH levels. The eligibility requirement for inclusion criteria in the study were to be aged >18, having the diagnosis of OP and adequate cognitive abilities, while patients with premenopausal OP, secondary OP and mental retardation were excluded from the study.

The outcome variables in this study were the presence and diagnosis of osteoporosis. The presence or absence of osteoporosis was determined based on T-scores obtained from the BMD measurement of the total femur, femoral neck, and spine with dual-energy X-ray absorptiometry. The T-score is most commonly used to identify osteoporosis and determine fracture risk. In this study, cases with a T-score of  $\leq -2.5$  were considered to have osteoporosis.

To identify and compare factors associated with the presence of osteoporosis and diagnosis experience, age (50–59 years, 60–69 years,  $\geq 70$  years), educational level (middle school or below, high school graduate, university graduate or above), equivalised household income (1st [highest level]–5th [lowest level] quartile), high-risk drinking (drinking alcohol  $\geq 2$  times a week, five drinks at a time), physical activity (vigorous physical activity for  $\geq 20$  minutes three days a week, or moderate physical activity  $\geq 30$  minutes, five days in the last week), hypertension (systolic blood pressure  $\geq 140$ mmHg, diastolic blood pressure  $\geq 90$ mmHg, or hypertension medication), and diabetes (fasting blood sugar  $\geq 126$ mg/dL or diabetes medication), which have either previously been reported as risk factors for osteoporosis or were to be explored in this study, were included as independent variables.

**Statistical analysis**

Statistical analysis was made using computer software SPSS version 26.0 (SPSS Inc. Chicago, IL, USA). Data were expressed as mean, standard deviation, minimum- maximum and percent (%); where appropriate.

**RESULTS****Table 1: Distribution of Age Group**

Age Group (Years)	Frequency	Percentage
45–54	36	51.42
55–64	21	30
>65	13	18.57
Total	70	100

In table 1, maximum number of postmenopausal women belongs to 45–54 years 51.42% followed by 55–64 years 30% and least were >65 years 18.57%

**Table 2: Distribution of Physical activity**

Physical activity	Frequency	Percentage
Yes	29	41.42
No	41	58.57
Total	70	100

**Table 3: Distribution of Comorbidities**

Comorbidities	Frequency	Percentage
Hypertension	23	32.85
Type 2 diabetes	17	24.28
Obesity	11	15.71
Respiratory disease	9	12.85
Thyroid disease	7	10
Rheumatoid arthritis	3	4.28

The most common self-reported comorbidities were hypertension 32% followed by Type 2 diabetes 24.28%, Obesity 15.71%, respiratory disease 12.85%, thyroid disease 10% and Rheumatoid arthritis 4.28% in table 3.

**Table 4: Perceived cause of most recent fracture**

	Frequency	Percentage
Clumsiness	27	38.57
Imbalance caused by a medical condition	18	25.71
Poor bone health	13	18.57
Loss of physical mobility	5	7.14
Another illness of mine	4	5.71
Lack of muscle	3	4.28

In table 4, Clumsiness 38.57% followed by Imbalance caused by a medical condition 25.71%, Poor bone health 18.57%, Loss of physical mobility 7.14%, Another illness of mine 5.71% and Lack of muscle 4.28%

**Table 5: Risk factors for osteoporosis in postmenopausal women**

	Frequency	Percentage
Having a family history of osteoporosis	51	72.85
Smoking	18	25.71
Premature menopause	29	41.42

Having a small body frame	13	18.57
Having 3 or more alcoholic drinks a day	4	5.71
Using a glucocorticoids	18	25.71
Decrease in strength	13	18.57
Having a postmenopausal fracture from falling from a standing position or less	11	15.71
Having rheumatoid arthritis	<b>41</b>	58.57

## DISCUSSION

There are very few such studies from the part of India regarding this silent epidemic. Awareness campaigns have been launched in few countries on osteoporosis at national levels a few decades ago. [8] To raise awareness, we must know the level of the present awareness amongst the general population. [9] The present study assessed the level of awareness of osteoporosis among postmenopausal women more than 45 years and older. Our results suggest that awareness of osteoporosis is very low among our study population. In addition, many women are taking milk without any knowledge of osteoporosis and are having low BMD scores. It has been observed that the selection of the population, age, sex, and menopausal status, residing in rural or urban, and socioeconomic status may influence the degree of awareness.

Cline, noted that women were more susceptible to osteoporosis and can improve by taking calcium and Vit D supplements as compared to men. [11] Few authors from India reported poor awareness of osteoporosis in postmenopausal women are noted. [12]

The study done by Johnson. [13] found that men older than 50 years had significantly lower perceived susceptibility scores compared to women of the same age, supporting the thought that osteoporosis is a disease of women. His results indicate that women should be more aware than men about osteoporosis.

Castel et al., in their study, noted that osteoporosis was rarely recognized until fragility low impact fracture. [14] Sedlak, suggested that physicians could play an important role to improve knowledge regarding osteoporosis and fragility fractures. [15] It has been suggested in the literature that the prevention of osteoporosis be started at an early age in both sexes. We should educate our community about osteoporosis, its prevention, and the reduction of risk factors if any. Another important issue is the prevention of osteoporosis and osteoporotic fractures. In the management of

chronic disease, increased knowledge about the disease is associated with improved patient compliance with its treatment. [16]

Postmenopausal women are susceptible to primary osteoporosis since osteoporosis is closely related to estrogen deficiency. [17] During the menopausal transition period, the drop of estrogen leads to more bone resorption than formation, resulting in osteoporosis. The major health threat of osteoporosis is osteoporotic fractures. [18] The prevalence of osteoporosis and related fractures are higher in postmenopausal women than in older men and is influenced by ethnicity. [19] Since low estrogen levels are the main cause of postmenopausal osteoporosis, menopause hormone therapy is considered as the first line choice for prevention of osteoporosis and its effectiveness has been demonstrated by various studies. [20,21]

As the number of postmenopausal women is on the constant rise in India and with a poor health care system, it is time to raise an alarm regarding osteoporosis in this subset of women. The primary physician can educate each woman attending the hospital.

## CONCLUSION

The present study indicates majority of postmenopausal women do not have any awareness regarding osteoporosis. Many women even do not know the entity, and many of them were clueless regarding osteoporosis and its prevention. The study suggested that healthcare givers should organize camps and awareness programs in their area of responsibility so that the prevalence of this silent disease can be reduced and, in turn, can reduce the health burden arising from osteoporosis.

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