

# International Journal of Research in MEDICAL SCIENCE



ISSN Print: 2664-8733  
ISSN Online: 2664-8741  
Impact Factor: RJIF 8  
IJRMS 2023; 5(2): 09-12  
[www.medicalpaper.net](http://www.medicalpaper.net)  
Received: 07-05-2023  
Accepted: 16-06-2023

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## A cross-sectional review on the prevalence of osteoporosis in premenopausal women of Buldana district, Maharashtra

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DOI: <https://doi.org/10.33545/26648733.2023.v5.i2a.47>

### Abstract

**Background:** The aim of this study is to determine the prevalence of osteoporosis in women who are in their premenopausal stage (35 to 45 years) of the Buldana district of Maharashtra.

**Methods:** A community-based cross-sectional study was effectuated in the Buldana district by conducting a camp. From the women attending around 1000 women of ages 35 to 45 were screened and collected information by using the framed questionnaire.

**Results:** From the cross-sectional study it is founded that 680 out of 1000 i.e., 68% of women are affected with osteoporosis. Most of the women (540) are from SC and ST communities. Moreover, 66.6% of women (666) face struggles while doing their regular activities.

**Conclusion:** The rise of osteoporosis during the premenopausal stage might affect the quality of life of the women and be inherited to their offspring genetically. Most Indian women are facing the same due to the absence of awareness about their physical and mental well-being. Hence it is a mandatory duty of the government to take necessary steps to safeguard the future of Indians.

**Keywords:** Osteoporosis, questionnaire, BMD, and social categories

### Introduction

Even throughout menstrual cycles, the cells start to move in the direction of premenopausal (Zhang and Han, 2020) <sup>[1]</sup>, often known as the menopause transition. The ovaries generate fewer substances throughout the phase, which makes the menstrual period unpredictable or inconsistent. A good system is currently heading toward the conclusion of its developmental cycle. Early menopause can sometimes start in women as early as their mid-30s, although it frequently begins among women between the ages of 35 and 45. Menstrual flow (Thakur *et al.*, 2020) <sup>[2]</sup> and period duration alterations are indicative of it. The following are five premenopausal warning manifestations: warm air flashes: Most women experience asthma symptoms (Luo *et al.*, 2020) <sup>[3]</sup>, and at some point, they occur during the menopause transition, and several sufferers experience them on a regular basis for the foreseeable future. Usually, a disturbance in one's monthly cycle represents the initial indication of early menopause.

Menstruation often starts earlier or later than typical for many women. Due to hormonal fluctuations, a person's menstrual period, which usually lasts 28 days, could start as soon as 3 weeks from now or as late as 4 weeks from now (Feng *et al.*, 2020) <sup>[4]</sup>. According to the World Health Organization (WHO), 30% of premenopausal women have osteoporosis (Chi *et al.*, 2020) <sup>[5]</sup>. According to the statistics, 80% of Indian women suffer from osteoporosis. Even though menopause-related hormonal imbalances significantly impact bone density, women are more likely than men to experience osteoporosis. The female hormone estrogen is primarily responsible for physical health. Following menopause, the content of female hormones (Thakur *et al.*, 2020) <sup>[2]</sup> decreased. This may cause a sharp drop in bone density. However, although older, pre-menopausal white and Asian women are most at risk, men and women of all races are susceptible to osteoporosis. Treatment, a balanced diet, and body fat exercise can improve previously low bone density or forestall bone mineral density.

Based on the most recent estimates, genetic disorders (Bi *et al.*, 2020) <sup>[7]</sup> affect around 200 million individuals worldwide at the moment. The Global Osteoporosis Organization has

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released a survey that demonstrates that 1 in 3 women over 50 and fifty percent of men may have an osteoporotic dislocation during their entire lifetimes. It affects both of these in premenopausal women, and the vast majority of them will collapse at some point in their lives. Serious injuries, or fracturing, result in discomfort and a reduction in function. Deformation is linked to a lower standard of living and a greater likelihood of passing away. Wrist, hip, and spinal injuries brought on by osteoporosis are especially frequent.

Bone is a mucous membrane that continuously deteriorates and is replaced (Carneiro *et al.*, 2020) [8]. It happens when the amount of newly generated bone is not enough to stop the deterioration of the pre-existing tissue. In addition, women rapidly lose their spine in the first few years after menstruation. For instance, a woman is more prone than a man to develop osteoporosis if menopause occurs quickly or if she has had her uterus removed. However, as a result, heterosexual males, younger women, and kids could develop osteoporosis. Osteoporosis and periodontal disease can both be caused by low oestrogen levels.

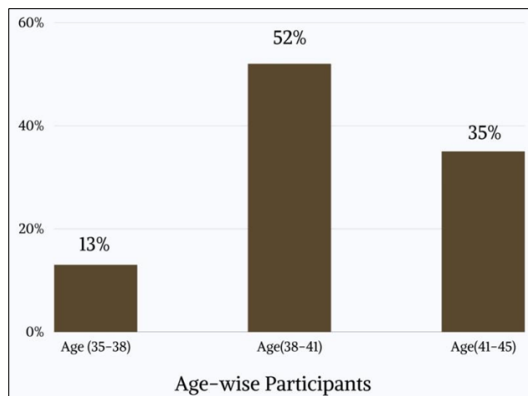
Also, menopausal women (Minonzio *et al.*, 2020) [9] should take particular precautions because hormonal changes and lifestyle decisions might increase the risk of osteoporosis or other problems with bone health. It means no more fiddling with undergarments or napkins, worrying about leaks, or experiencing period cramps, and both psychological symptoms and deep depression have significantly decreased. In India, most women are affected with osteoporosis during the premenopausal and postmenopausal stages. In this study, only women age around 35 to 45 are considered in the Buldana district of Maharashtra. Around 1000 women were questioned and conducted the necessary steps. The details of the women that we interviewed are framed in this study and it is the main aim of this work.

**2. Method**

In this study, we conducted a community-based review in the Buldana district of Maharashtra. The study was conducted around 1000 women around the age of 35 to 45 that is in the premenopausal stage. We have conducted a study of around 500 women from a rural area and another 500 from an urban area. Based on the questionnaire prepared we have collected the information in the written consent. Osteoporosis was diagnosed using Bone Mineral Density (BMD). 1000 women were screened from the camp and the socio-economic grading of all the respondents will be done using SSEE Scale. Necessary charts and tables are included in our study as a descriptive statistic structure.

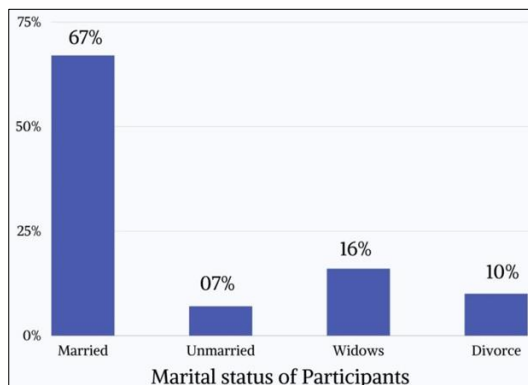
**3. Results**

The 1000 women over the age of 45 participated in a society cross-sectional research at the Buldana district of Maharashtra urban field area of practice. With the aid of link employees, data collection was carried out through house-to-house visits. After aspects of knowledge data, oral consent was gathered using a semi-structured and pre-tested questionnaire. Figure 1 depicts the graphical plot for age-wise participants. The age-wise participants from the age of 35 to 45 age women are involved in this investigation. Participants in our study had an aged from 35 to 45 years; the age groups with the highest percentages of participants were 38–41 years (52%), the least participants were 35–38 years (13%) and the mid-participants from the age of 41-45 that means 35% respectively.



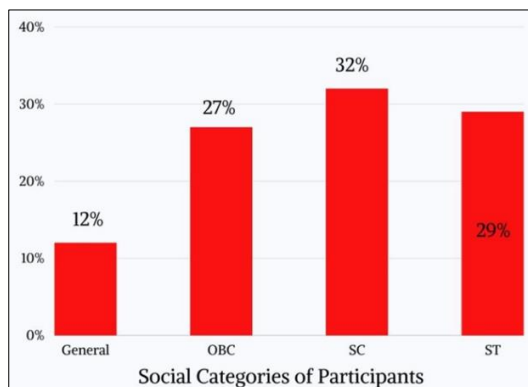
**Fig 1:** Graphical plot for age-wise participants

The graphical plots for the marital status of participants are plotted in Figure 2. The marital status of participants is under the category of married, divorced, unmarried and widows. According to the marital status of participants, 67% of them were married, 7% were unmarried, 16% were widows and 10% of divorced. The majority of 67% of participants were under married and the minority of 7% under the class of unmarried with respect to marital status of participants.



**Fig 2:** Graphical plot for the marital status of participants

Figure 3 plots the graphical plot for the social categories of participants. Participants' social classes fall into one of four categories: general, OBC, SC and ST. Participants' social class revealed that 12% of them were general, 27% were OBC, 32% were SC, and 29% were ST out of 100% of participants. In terms of social categories of participants, the majority of 32% of participants fell into the SC category, while the least 12% fell into the general category.



**Fig 3:** Graphical plot for social categories of participants

The graphical plot for the region of participants is plotted in Figure 4. These 1000 women participated in this study. Out of these, 500 women that is 50% from rural areas and 500 women like 50% of participants from urban areas. In both urban and rural areas same number of women participated.

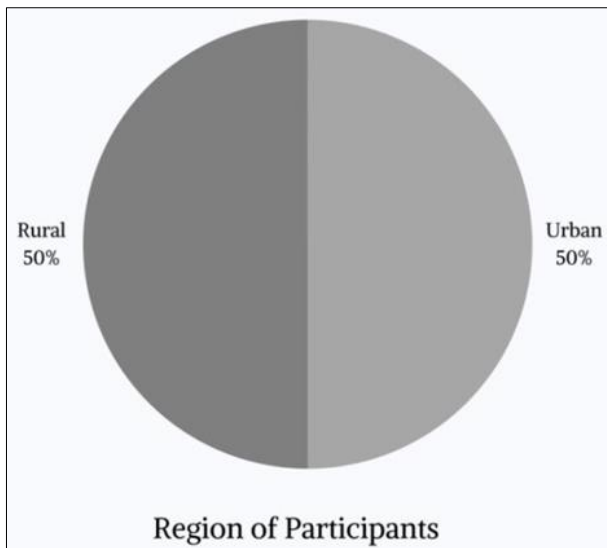


Fig 4: Graphical plot for the region of participants

The graphical plot for the education status of participants is described in Figure 5. The education level of the participants is commonly categorized into primary, secondary and college. Out of 100% of these classes, 67% of participants were educated in primary school, 21% from secondary school level and the remaining 12% of women were educated in college. Most of the women completed their primary level of education compared to the percentages of secondary and college level.

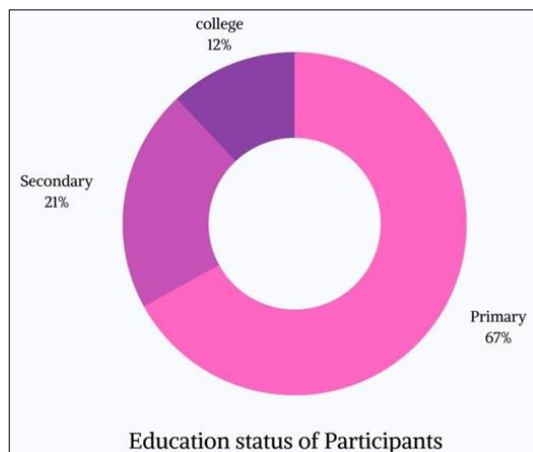


Fig 5: Graphical plot for education status of participants

The graphical plot for the food habits of participants is illustrated in Figure 5. The food behavior of the women participants is both vegetarian as well as non-vegetarian. Among this, 51% of women were under the non-vegetarian category and the remaining 49% of participants were under the category of vegetarian. A higher number of participants was non-vegetarian while compared to the vegetarian categories of participants.

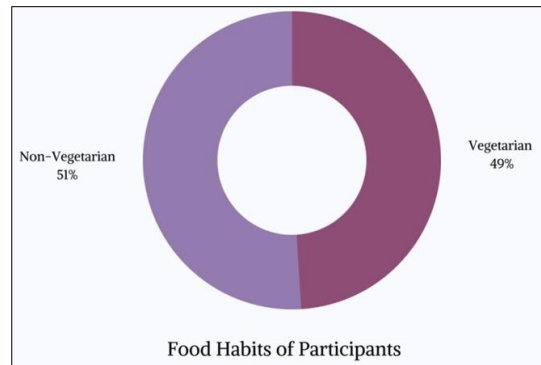


Fig 6: Graphical plot food habits of participants

4. Discussion

Table 1: Prevalence of Osteoporosis based on the age groups

Age category	Osteoporosis		Total
	Yes	No	
35-38 years	70(53.85%)	60(46.15%)	130
39-41 years	370(71.15%)	150(28.85%)	520
42-45 years	240(68.58%)	110(31.43%)	350
Total	680	320	1000

Table 1 displays the identification of osteoporosis based on the age groups such as 35 to 38 years, 39 to 41 years, and 42 to 45 years. Among these three groups, most of the participants in the camp were from the age group 39 to 41 years around 520 women. Out of 520 women, 370 women are diagnosed as osteoporosis patients, and 150 women are free from osteoporosis. From age group 35 to 38 years, 130 women participated and out of that, 70 were diagnosed as osteoporosis patients and others, i.e..., 60 were free from that. For the age group 42 to 45 years 350 women participated in the camp and out of 350, 240 were diagnosed with osteoporosis and 110 women are free from the disease.

Table 2: Prevalence of Osteoporosis based on the social category

Social category	Osteoporosis		Total
	Yes	No	
General	30(25%)	90(75%)	120
OBC	110(40.74%)	160(59.26%)	270
SC	280(87.5%)	40(12.5%)	320
ST	260(89.66%)	30(10.34%)	290
Total	680	320	1000

The social categories of women are classified as general, OBC, SC, and ST and diagnosed details are displayed in Table 2. In the camp around 120 general women were participated and among them, 30 diagnosed as osteoporosis patients and 90 diagnosed as disease free. 270 women were from the OBC category, 320 from the SC, and 290 from the ST. In the category OBC around 110 women were diagnosed as affected, 280 women from SC and 260 from ST as osteoporosis patients.

Table 3: Correlation between Osteoporosis and impacts on daily routine

Diagnosis	Affects the daily routine		Total
	Yes	No	
Yes	590(86.77%)	90(13.24%)	680
No	76(23.75%)	244(76.25%)	320
Total	666	334	1000

The impacts due to osteoporosis on daily routine are framed in table 3. Among the diagnosed patients around 590 women are facing struggles in walking, doing their daily duties, etc. Some of the unaffected women are also facing the struggle as indicated in table 3. Totally, 666 women were facing struggles due to osteoporosis.

**Table 4:** Osteoporosis based on BMD

Bone Mineral Density value	Diagnosis		Total
	Yes	No	
AT score (-1 to 1)	19(5.95%)	300(94.05%)	319
AT score (-1 to -2.5)	287(97.62%)	7(2.38%)	294
AT score < -2.5	374(96.65%)	13(3.36%)	387
Total	680	320	1000

Based on the test conducted for measuring the Bone Mineral Density, the women are diagnosed with the disease. The Normal BMD score must be around -1 to 1. Lowering this value will affect the life of the patients. AT score around -1 to 2.5 is considered less critical and lower than this is a risky factor where the patients might have faced struggles more than the other patients.

### Conclusion

In this study, the prevalence of osteoporosis in premenopausal women (35 to 45 years old) from the Buldana district in Maharashtra was determined. In the Buldana district, the camp was conducted to effectuate the community-based cross-sectional study. Among 1000 participants, 500 participants were from rural and the remaining 500 were from urban areas. 1000 women between the ages of 35 and 45 who attended the event were chosen for screening, and information was gathered using a framed questionnaire. Of around 1000 women, 666 women were facing struggles because of osteoporosis. The Normal BMD score should be between -1 and 1. Lowering this value will have an impact on the patients' lives. AT scores ranging from -1 to 2.5 are considered less critical, and anything less than this is a risk factor, indicating that the patient may struggle more than other patients. Based on the experimental plots, we have revealed 52% of participants from the age of 38 to 41, 32% of participants from the SC category, 67% of participants were married, 67% of women completed their primary studies and 51% of participants have non-vegetarian food habits.

### Conflict of Interest

Not available

### Financial Support

Not available

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#### How to Cite This Article

Bhaote SA, Rajwade AA. A cross-sectional review on the prevalence of osteoporosis in premenopausal women of Buldana district, Maharashtra. *International Journal of Research in Medical Science* 2023; 5(2): 09-12.

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