

Awareness of Osteoporosis among Indian Women Aged 30 Years & Above by Using Osteoporosis Health Belief Scale - A Cross Sectional Study

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ABSTRACT

Background: Osteoporosis is a prominent condition present in ageing females characterised by decreased bone mass and micro-architectural deterioration of bone tissue, leading to fractures and disability. Osteoporosis is on rise due to increased life expectancy because of good medical care, it has become crucial to know awareness about osteoporosis in women aged 30 years and above so that preventive steps can be taken, therefore, objective of the study was to evaluate the awareness in Indian women by using Osteoporosis Health Belief Scale.

Methods: 219 women volunteered in the study with mean age of 49.07 years. Cross sectional descriptive study was conducted by collecting convenient sample at V.S.P. M's College of Physiotherapy and Lata Mangeshkar hospital, Nagpur between 2021-2022 as per covid19 norms.

Result and Discussion: The result revealed that surveyed population was aware about osteoporosis, but overall bone health was the new concept. Osteoporosis Health Belief Scale fetched the data about knowledge of participants about lifestyle modifications, dietary changes, weight gain, at the same time they were knowing about importance of physical activity, but implementation of these activities in their daily routine was a difficult task. All participants were very much positive about improving bone health. The study indicated adequate knowledge on osteoporosis in the age group of 40-50 years.

Conclusion: Majority of the population had modest knowledge on osteoporosis. Overall affirmative response was observed on osteoporosis health belief scale. Perceived susceptibility for osteoporosis was low. Practices towards preventing osteoporosis were adequate.

Keywords: Osteoporosis Health Belief Scale.

INTRODUCTION

Osteoporosis is characterized by decreased bone mass and micro-architectural deterioration of bone tissue, leading to an increased susceptibility to fractures. The cellular components of bone include osteoblasts and osteoclasts. Osteoblasts are responsible for laying down new bone and osteoclasts are responsible for bone resorption. If osteoclastic activity exceeds the formation or laying down of bone, then decreased bone density will result in osteopenia.¹

Osteoporosis is concerning problem all over world as it increases risk of fractures with decreasing bone density. Currently in Asia every one out of four hip fractures occur due to osteoporosis.² Osteoporosis leads to micro architectural deterioration of bone tissue leading to fractures in addition it is most common metabolic disease that increases incidences of hospital administration, reduced mobility, mortality among older people. Osteoporosis can affect any age during period of life, it is

of utmost importance to gain maximum peak bone mass density during early life as it is related to amount of bone mass available during later stage of life.³

Recent research suggests that many people with fragility fractures do not undergo proper screening or treatment. Assessing the structural and psychological determinants of health behavior is important in order to better understand and manage the disease.⁴

Overall prevalence of osteopenia and osteoporosis was 49.9% and 18.3% respectively across India in 2019. The prevalence of osteoporosis was 18.4% (2017), 16.3% (2018), 16.4% (2019) and 20.7% (2019-2020). The value shows the upward trend of prevalence of osteoporosis in India, which is a matter of concern.⁵

Sushrut Babhulkar and Shobhit Seth conducted multicentric study on osteoporosis. The observation was proving the upward trend of osteoporosis on investigations but, symptomatically both the genders were affected by the condition. The total sample included 31238 adults.⁵

International Orthopaedic Foundation Facts and Statistics accessible at ioabonehealth.org states that 46% female population is osteopenic out of that 16% suffer from osteoporosis, but they are not aware about their bone health. These statistics were published on 12th June 2020.⁵

WHO documented the overall prevalence of osteoporosis in men was 14.5% and 18% in women in European nations, whereas the Asian population shows higher rate for osteoporosis i.e. 20.2% for men and 34.3% for women.⁵

In 1991 Kim et al. developed the Osteoporosis Health Belief Scale (OHBS) based on health belief model by Rosenstock to evaluate the health beliefs associated with osteoporosis and to understand the relationship between health belief and osteoporosis preventive health behavior including calcium intake and exercise.⁶

Since the development of OHBS it has been used in both men and women in variety of age groups. At least one out of

four women over age of 50 years suffer from osteoporosis, thus health beliefs related to the disease maybe different in older women and younger women.⁴

In India, awareness of osteoporosis is low, since there has been relatively little effort to publicize the disease. Although few surveys indicate that awareness about the disease in the urban population is inadequate, there are no large-scale surveys undertaken to assess the depth of awareness and understanding of osteoporosis in postmenopausal women.⁷

MATERIALS AND METHODS

The cross sectional descriptive study was done among 219 Indian women aged 30 years and above in Nagpur at V.S.P. M's College of Physiotherapy and Lata Mangeshkar hospital and in the vicinity of 3 kilometers of the hospital after obtaining clearance from Ethics Committee and Head of Institution. Osteoporosis Health Belief Scale was the objective questionnaire which was administered in the presence of a researcher. Prior to administration of the questionnaire, anthropometric data and occupation of the participants was noted. Participants were given 20-25 minutes to complete the survey.

Table 1

	Age	BMI kg/m ²	WHR
n	219	219	219
Mean	49.07	24.44	0.76
Std. Deviation	11.382	3.987	0.036

The study included healthy women aged 30 years and above and excluded those diagnosed with osteoporosis, with recent history of fracture within 6 months and those with drug induced osteoporosis.

Participants were given the questionnaire through convenient sampling. Scoring of items was done using the five point Likert scale where 1= strongly disagree, 2= disagree, 3= neutral, 4= agree and 5= strongly agree. Osteoporosis Health Belief Scale consists of following domains- perceived susceptibility to osteoporosis, perceived seriousness of osteoporosis, general health motivation, benefits and

barriers to calcium intake and benefits and barriers to exercise. The minimum - maximum score range was 6-30 for each subscale with possible total score range from 42-210.

Statistical Analysis

Result was obtained for calculated sample size. It was analyzed by EPI-info and SPSS-10, and it was found that modest awareness of osteoporosis in Indian women was present. Cross sectional descriptive study reveals that, they were aware about osteoporosis and its preventive measures, but were unsure about implementation of these measures in their daily routine.

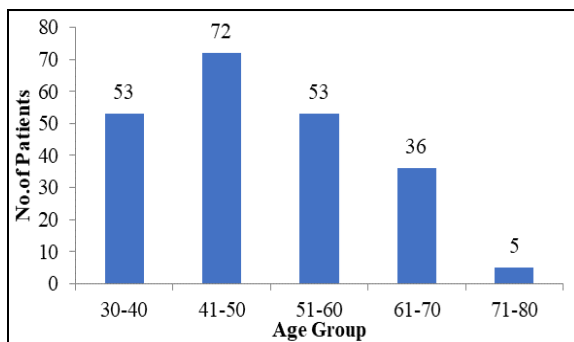


Figure 1

Maximum response was obtained from the age group of 41-50 years of females.

The least number was found in the age group of 71-80 years that was 5.

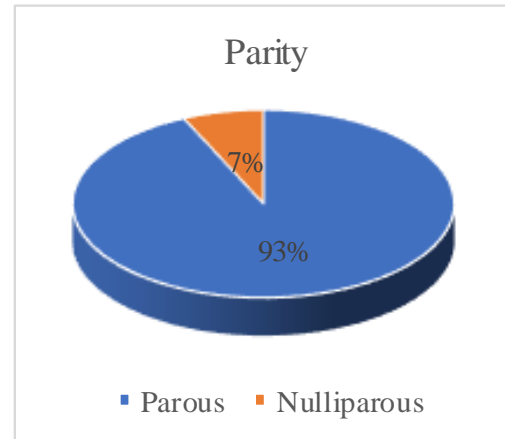


Figure 2

Out of 219 women, 204 women had children while 15 women had no children

Table 2
Gynaecological History

	Menarche	Menopause
n	219	105
Mean	13.19	47.71
Std. Deviation	1.248	2.773

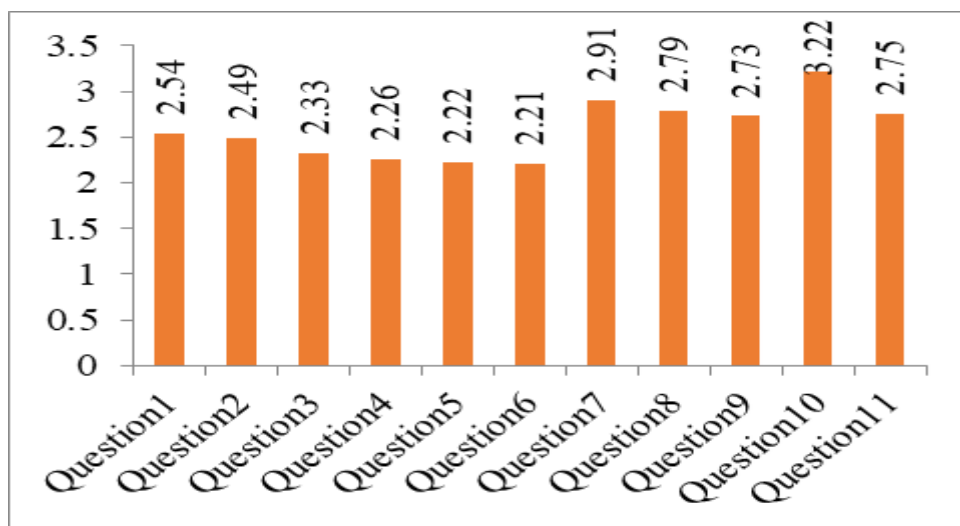


Figure 3

Statistically significant finding revealed that all the participants had prenotion that if they would get osteoporosis, then it would be costly affair for them in terms of finances.

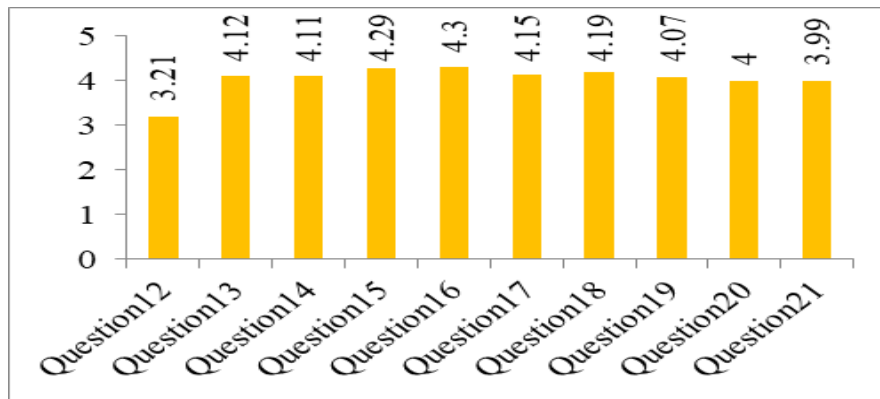


Figure 4

Response to all the questions was encouraging in terms of exercises to prevent osteoporosis.

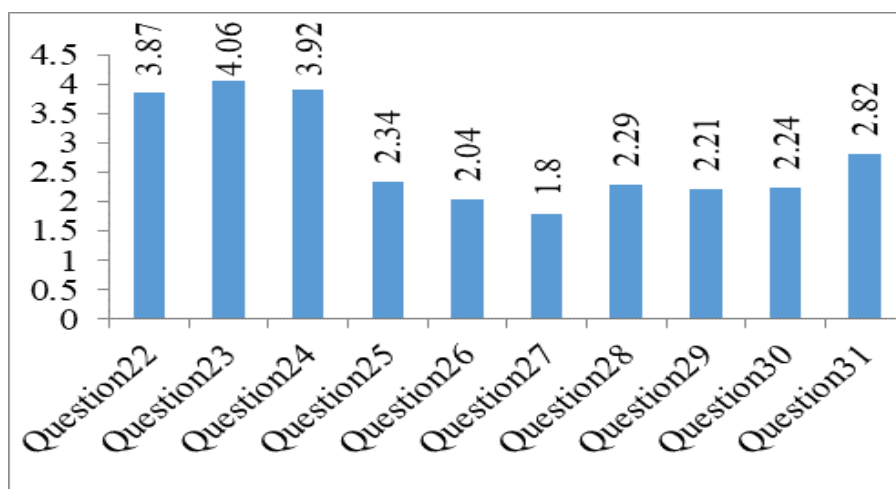


Figure 5

Analysis revealed encouraging factor about family members. All of them had positive responses about exercises from their spouses.

Therefore, the lowest response in terms of disagreement on Likert scale was observed (1.8).

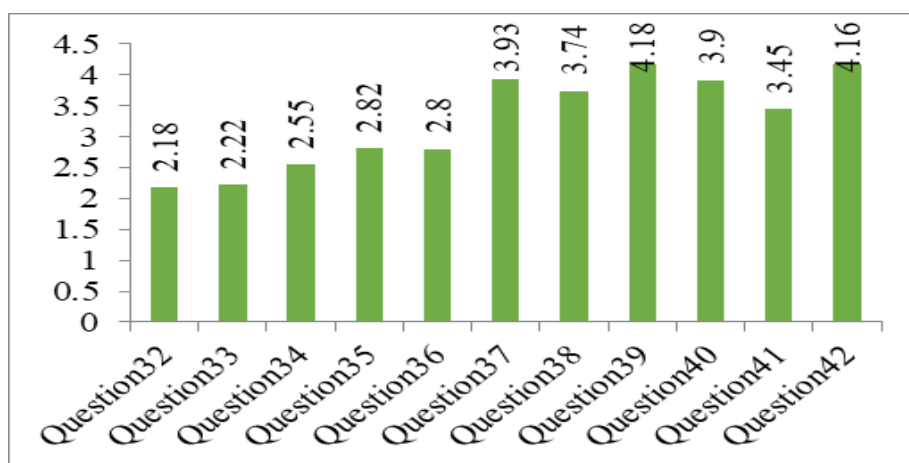


Figure 6

Response to question 32 was disagree on Likert scale. Samples disagreed about calcium rich food being not suitable for them.

Question 39 and question 42 response rate was very encouraging about importance of health among surveyed population.

RESULTS

Surveyed population was aware about osteoporosis, but bone health was the new concept for all. All females were knowing about dietary changes and lifestyle modifications to prevent osteoporosis, at the same time they were unaware about activities, repercussions of their weight and medications which would be the cause for poor bone health. Results were in line with study conducted by Sushrut Babhulkar and Shobhit Seth titled Prevalence of osteoporosis in India: an observation of 31238 adults.

DISCUSSION

The target population for this study was females aged 30 years and above because bone loss normally begins at the age of 30 years and knowing the level of awareness about osteoporosis in women aged 30 years and above is useful for osteoporosis prevention and treatment programs.

In our study few women were holding science graduate degree and most of the participants were 12th pass other than science stream. Even though majority of participants did not have educational background in science, they had ample knowledge and awareness about osteoporosis from various other sources like television, radio, newspapers, internet, peers and family members. Majority of the participants were literate but were not educated about health conditions.

The mean Waist-Hip Ratio (WHR) of the study participants was 0.76, indicating good physical indicator (Table 1). The mean Body Mass Index (BMI) of the study participants was 24.44 kg/m², indicating normal weight range (Table 1). 92% of the females were parous whereas 6% were nulliparous. The mean age for menarche and menopause in the study participants was 13.19 years and 47.71 years respectively (Table2).

Majority (9.1%) of the females who participated in this study had both hypertension and diabetes mellitus, 5.9% females had diabetes mellitus, 5.5% of the

study population had hypertension, 2.3% of the females had cardiovascular disease and 0.5% of the participants were positive for RA factor.

Present study revealed that 17.4% of females had undergone caesarean section, 1.8% of the participants had hysterectomy and total knee replacement each whereas 0.5% of females had undergone cholecystectomy, coronary artery bypass surgery and tubectomy each.

With regards to perceived susceptibility to osteoporosis, response of majority of the participants was neutral that is they were unsure if their chances of getting osteoporosis because of their body build or family history were high (question 1-6). With concern to perceived seriousness of osteoporosis, most of the participants responded as neutral. 64.47% of the participants agreed that it would be costly if they got osteoporosis whereas for rest of the questions, the response rate was in the range of disagree which means that they had perception of having good bone health and would not be affected by osteoporosis (question 7-12).

Most of the participants knew the benefits of exercise to prevent osteoporosis, that is they strongly agreed that regular exercise to prevent osteoporosis would help build strong bones, improves the way one's body looks, makes one feel better and cuts down chances of broken bones (question 13-18). Majority of participants were also aware and had knowledge about benefits of taking enough calcium to prevent osteoporosis, they also agreed that taking enough calcium helps prevent painful osteoporosis, cuts down chances of broken bones and makes one feel good about themselves (question 19-24). Though the participants had good general health motivation, they were unsure if they would incorporate doing exercise and taking enough calcium in their lives to prevent osteoporosis (question 25-35).

The participants were very much aware about health and health issues. All of them wanted to maintain their good health and knowing about keeping the good health was

essential factor in their lives (question 36-42).

Adequate level of knowledge and awareness of osteoporosis in women was documented in this particular study. Majority of the participants knew about osteoporosis, but only one risk factor was known to them that was not eating calcium rich food.

Participants responded in a better way that majority of women were having knowledge and awareness about osteoporosis in contrast with the study conducted by Aggarwal and et al. in Bhopal, India in the year 2018.

In the present study, women were aware about preventive behaviour of osteoporosis. Even they had health motivations to maintain their health and never reported barriers to exercises. They were confident about exercise prescription for osteoporosis, prevention and maintaining good health.

From the present study, it is revealed that osteoporosis health beliefs are modifiable. Therefore, future studies can be planned in terms of intervention and promoting health behaviours may have long term effects and health benefits for health care system. Prevention can be cost effective and individually caring to prevent complications of osteoporosis.

A systemic review of osteoporosis health beliefs in adult men and women was published in the Journal of Osteoporosis in the year 2011 which suggested that measuring health belief is an essential and integral part of conducting survey in the community when it comes to lifestyle disorders and age related problems. Such surveys can build up strong database for building up the national health policies.

The present study did not analyse the exact level of education and socioeconomic status of the participants. Strength of the study was that participants had adequate awareness about bone health and osteoporosis. Scale was very much user friendly, did not face any difficulty while collecting data. Clinical implication of this study was that, pertaining to the study, it was important to involve them in a structured program of exercises in

regards to health promotion among females aged 30 years and above. The importance of exercises could be communicated to them with various media platforms like health promotion, radio advertisements, newspapers, community camps and social media.

CONCLUSION

Majority of the population had modest knowledge on osteoporosis. Overall affirmative response was observed on osteoporosis health belief scale. Perceived susceptibility for osteoporosis was low. Practices towards preventing osteoporosis were adequate. The study indicated adequate knowledge on osteoporosis in the age group of 40-50 years.

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