**Original Article**

# Knowledge and health belief about osteoporosis among females of Lahore, Pakistan

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**Objective:** To determine osteoporosis knowledge and health belief among females of Lahore.

**Methodology:** The study was conducted on 186 females selected from Lahore, using the convenient sampling technique. We used Osteoporosis knowledge assessment tool and osteoporosis health belief scale. Data were analysed using SPSS 20.

**Results:** A total of 186 females participated in the study with mean age of 35.95 years. Of total participants, 142 were married. Of 7 domains studied, score of each domain was Susceptibility (16.75), Seriousness (20.31), Benefits of Exercises (22.56), Benefits of Calcium Intake (21.41), Barriers to Exercise (18.85), and Barriers to Calcium Intake (19.39).

**Conclusion:** Studied population had good knowledge about osteoporosis. Most participants were good in knowledge. But there is some, there is need to improve their knowledge to improve their quality of life.

**Keywords:** Health belief, knowledge, calcium, fracture, osteoporosis, pain, quality of life.

## INTRODUCTION

Osteoporosis is a bone disease, which can cause morbidity and mortality.[1] It effects bones and fragility of bone increases making them more susceptible to fractures. It affects women near menopause, as there is decreased estrogen production. The risk factors are smoking, lack of physical activity, eating habits, where awareness programs can be very helpful.[2] Osteoporosis is indirect cause of death in bone related disease,[3,4] as 20% patient died in a year because of hip fracture.[5]

Smoking, genetic as well non genetic factors can be involved in development of osteoporosis.[6,7] Idress, et al concluded that implementation of healthy behaviors can reduce risks for osteoporosis.[8] Information about osteoporosis comes from TV ornewspaper.[6,9] Exercise, calcium consumption using the HBM (health belief model) has been equivocal.[10] Attainment of peak bone mass is important for reduction of osteoporosis.[8,11]

Lack of physical activity or sedentary life styles increase chances of osteoporosis.[12] Chinese students have more barrier in dietary intake and exercise as compared to USA students.[13] A study showed 65.7% in age of 40 – 50 years, 22.9% 51 – 60 years of age have low BMD (Bone mineral density).[14] In Pakistan, 43.4% women had osteopenia and 12.9% state of osteoporosis.[15] The basic method or strategy of any chronic health disorder, good understanding dominates over good knowledge to change health behaviors.[16] The objective of this study was to determine osteoporosis knowledge and health belief among females of Lahore.

## METHODOLOGY

This cross sectional descriptive study was conducted from February to July 2018 .The data was collected from Females of age range of 19 – 56 from Thokar, Wapda Town, Chuburji, Gulshan Ravi, Sabzazar, Iqbal town of Lahore who had ability to read, understand and respond. Unwilling persons and Related to Medical field were excluded. The sample size was 348 females calculated by using Formula Z1-a/22 P (1-p/D2. Sample size calculate by following formula is N=186 by applying following parameters Z1-α/2 = 1.96 (Standard normal variants at 5% type I error ($p < 0.05$), $p = 0.49$ (Expected proportion in population, $d = 0.05$ (absolute error). The study was approved by Institutional Review Committee and all participants gave an informed consent.

For data collection, two questionnaires were used. One was Osteoporosis Health belief scale for beliefs about the osteoporosis, having that consists of 42 items, 1 to 6 susceptibility, 7 to 12 seriousness, 13 to 18 exercise benefits 19 to 24 calcium intake benefits, 25 to 30 exercise barrier, 31 to 36 calcium intake barrier and 37 to 42, motivation of health was used. It has validity of 0.91 1712. The second was osteoporosis Knowledge assessment tool (OKAT) that contains 20 items with true, false and don't know option. First 12 was knowledge, 13 to 16 assessed attitude to osteoporosis and last assess practice and perception to prevent osteoporosis. The validity of tool is Fergusson's sigma of 0.96 and Cronbach alpha 0.70.1813.

**Statistical Analysis:** Data were organized and entered on SPSS version 20.

## RESULTS

A total of 186 females participated in the study with mean age of 35.9 years and 142 were married. The risk of bone fractures increased with osteoporosis (n = 1860), physical activity for osteoporosis is very beneficial (n = 37) family history of osteoporosis strongly affect person's health (n = 146), intake of calcium can be achieved from 2 glasses of milk and supplements alone can prevent bone loss (n = 149). Mean score on OKAT was 12.16 ± 2.37 (Table 1).

Total of seven domains were studies and score of each domain was Susceptibility (16.75), Seriousness (20.31), and Benefits of Exercises (22.56), Calcium Intake benefits (21.41), Exercise barriers (18.85), and Calcium Intake barrier (19.39) (Table 2).

**Table 1: Osteoporosis knowledge assessment.**

| Question | Correct Answer (Number) | Percentage |
|---|---|---|
| 1. Osteoporosis leads to an increased risk of bone fractures. | 180 | 96.8 |
| 2. Osteoporosis usually causes symptoms (e.g. pain) before fractures occur. | 40 | 21.5 |
| 3. Having a higher peak bone mass at the end of childhood gives no protection against the development of osteoporosis in later life. | 53 | 28.5 |
| 4. Osteoporosis is more common in men. | 146 | 78.5 |
| 5. Cigarette smoking can contribute to osteoporosis. | 38 | 20.4 |
| 6. White women are at highest risk of fracture as compared to other races. | 90 | 48.4 |
| 7. A fall is just as important as low bone strength in causing fractures | 50 | 26.9 |
| 8. By age 80, the majority of women have osteoporosis | 44 | 23.7 |
| 9. From age 50, most women can expect at least one fracture before they die. | 36 | 19.4 |
| 10. Any type of physical activity is beneficial for osteoporosis. | 37 | 19.9 |
| 11. It is easy to tell whether I am at risk of osteoporosis by my clinical risk factors. | 131 | 70.4 |
| 12. Family history of osteoporosis strongly predisposes a person to osteoporosis. | 146 | 78.5 |
| 13. An adequate calcium intake can be achieved from two glasses of milk a day. | 149 | 80.1 |
| 14. Sardines and broccoli are good sources of calcium for people who cannot take dairy products. | 115 | 61.8 |
| 15. Calcium supplements alone can prevent bone loss. | 71 | 38.2 |
| 16. Alcohol in moderation has little effect on osteoporosis. | 28 | 15.1 |
| 17. A high salt intake is a risk factor for osteoporosis. | 37 | 19.9 |
| 18. There is a small amount of bone loss in the ten years following the onset of menopause. | 149 | 18.1 |
| 19. Hormone therapy prevents further bone loss at any age after menopause. | 23 | 12.4 |
| 20. There are no effective treatments for osteoporosis available in Pakistan. | 163 | 87.6 |

**Table 2: Osteoporosis Health Belief Scale Score.**

| Variables | Minimum | Maximum | Mean | SD |
|---|---|---|---|---|
| Susceptibility | 6.00 | 30.00 | 16.75 | 7.98 |
| Seriousness | 6.00 | 33.00 | 20.31 | 7.27 |
| Benefits of Exercises | 6.00 | 64.00 | 22.56 | 5.87 |
| Benefits of Calcium Intake | 13.00 | 30.00 | 21.41 | 2.90 |
| Barriers to Exercise | 7.00 | 30.00 | 18.85 | 4.22 |
| Barriers to Calcium Intake | 8.00 | 30.00 | 19.39 | 3.50 |
| Health Motivation | 10.00 | 30.00 | 18.82 | 4.00 |
| Total Score | 78.00 | 205.00 | 138.09 | 24.49 |

## DISCUSSION

USA students observed that osteoporosis was found in them in a greater range because of their body build as compared to Chinese students.[13] Chinese students did not want to change their daily routine. They were used of their daily routine if it changed they would be uncomfortable for them. Calcium prevention for osteoporosis in the eye of USA students and Chinese students were also agreed with its benefits. There was totally difference of health belief score in Chinese and USA students.[13,9] Serbian postmenopausal women were found having had poor knowledge of osteoporosis.[3]

Gopinathan et al concluded that in postmenopausal Indian women osteoporosis awareness level was very deficit and professional health care providers have lot to do for decrease the level of osteoporosis incidence and its related health issues.[16] In current study, they were aware that risk of bone fractures increased with osteoporosis, physical activity for osteoporosis is very beneficial and their family history of osteoporosis strongly affect their health.

Programs related to the systemic education are very helpful for general population and it provided awareness in people of all age.[17] Elsabagh et al, reported that in the participants knowledge about osteoporosis was poor and there was lacked of consequences regarding osteoporosis and daily recommended amount of calcium was not consumed because of lack of knowledge.[20]

Osteoporosis leads to an increased risk of bone fractures. Most of the subjects were not well educated. Majority people were not interested in giving data and they felt hesitant to become the part of research project. Health education programs are needed for the benefits of people. Health education providers should be trained so that they spread the proper awareness and knowledge about osteoporosis in people.

## CONCLUSION

Females of Lahore had good knowledge about osteoporosis. Average score was good. Most of the participants were good in knowledge.

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