

## Osteoporosis: Knowledge and practices among females of reproductive age group

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**Objective:** To assess the knowledge of osteoporosis and evaluation of the practice of osteoporosis preventive measures, among females of reproductive age group.

**Methodology:** A cross-sectional questionnaire based study was undertaken from September 2015 to February 2016 on 174 females (age range 15-49 years) from Military Hospital and Combined Military Hospital, Rawalpindi, Pakistan through non-probability convenient sampling. Females with any metabolic, muscular or diagnosed bone disease were excluded from the study. The self-administered questionnaire consisted of questions regarding basic demographics, knowledge and practice of preventive factors related to osteoporosis.

**Result:** Majority (86.8%) females knew about osteoporosis. 80% considered major risk factor to

be low calcium intake. Regarding practices, 44.3% of women practiced daily intake of milk in their diet, 69.5 % females practiced physical activity like walking on daily basis and 65.5% have direct exposure of sunlight but only 12.1% of women used calcium supplements.

**Conclusion:** The study revealed that majority of the women knew about osteoporosis and its risk factors but many of them were not practicing appropriate lifestyle and dietary habits to decrease their risk of osteoporosis. Thus, there is a need of standardized approach to promote healthy behaviors to decrease the risk of osteoporosis before menopause. (Rawal Med J 201;43:56-60).

**Key words:** Osteoporosis, preventive measures, reproductive age.

### INTRODUCTION

Osteoporosis is a systemic skeletal disorder characterized by reduction of bone mass, deterioration of bone structure, increasing bone fragility and fracture risk.<sup>1-3</sup> Realization of the threats posed by osteoporosis is of paramount importance due to its lifelong implications.<sup>4</sup> Annually, 8.9 million fractures are caused by osteoporosis worldwide and in every 3 seconds there is an osteoporotic fracture<sup>5</sup> and 200 million women are affected by this disease worldwide.<sup>6</sup> More than 50% of the hip fractures will occur in Asia by the year 2050 according to an estimate.<sup>7,8</sup> It is greatly under diagnosed and undertreated in Asia with severity of this problem particularly in the rural areas of the populous countries.<sup>9</sup> In Pakistan, 9.91 million people are suffering from osteoporosis (7.19 million women, 2.71 million men) and its prevalence is about to increase to 13 million in 2050.<sup>10</sup> Orthodox beliefs about osteoporosis are changed now as it is no more considered a disease of

old age, rather it is a geriatric disease which has an adolescent onset.<sup>11</sup> Osteoporosis is characterized by asymptomatic reduction of bone mass/density and micro-architectural degeneration of bone tissue.<sup>12</sup> Attainment of peak bone mass occurs upto age 30 in men and women and it depends on genetic and environmental factors and also ethnicity. At the distal radius volumetric bone mineral density and bone size are fully attained in late adolescence but in lumbar spine are achieved upto age 29.<sup>13</sup> Risk factors responsible for osteoporosis include sex, family history, aging, sedentary life style, smoking, alcohol abuse and an unbalanced diet.<sup>14</sup> Females have more predisposition towards development of osteoporosis as the protective effect of estrogen which is produced in childbearing phase prevents bone mass erosions in women and terminates with menopause.<sup>11</sup> Consequently, chances of osteoporosis increases with irregular menstruation, amenorrhea.<sup>15</sup> So making young females aware of the risk factors and encouraging them to maintain

strong, dense bone at this age by taking appropriate measures like exercise, calcium and vitamin D intake can help them lead a life free of osteoporosis later.<sup>16</sup> Early assessment & prevention programs should start at young age for prevention of development of risk factors.<sup>17</sup> Effective community based education programs have efficiently improved knowledge & health behaviors regarding osteoporosis & its care.<sup>18</sup> This study aims to assess current knowledge in the females of reproductive age group regarding osteoporosis and to evaluate the practice of osteoporosis preventive measures.

## METHODOLOGY

This descriptive cross-sectional study was conducted at MH and CMH Rawalpindi, Pakistan from August 2015 to February 2016 and included 174 females selected by non probability sampling technique. Females of age 15-49 years i.e. reproductive age, attending medical outpatient department for any reason were included whereas females with any metabolic, muscular or diagnosed bone disease and those not willing to participate were excluded. Ethical approval was taken from the college ethics committee.

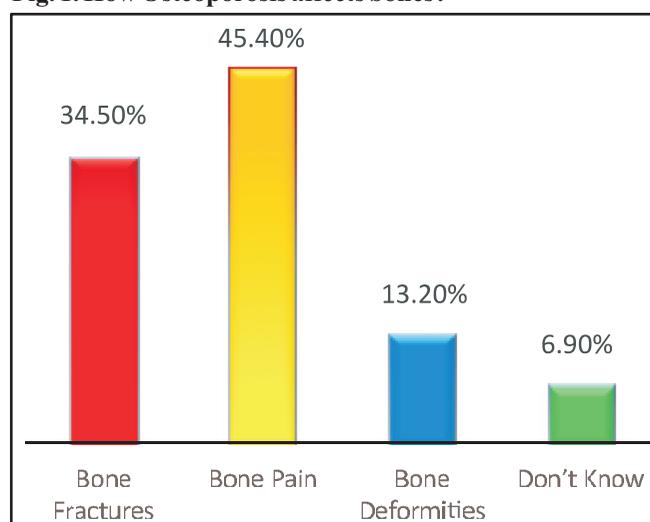
Subjects were surveyed using an interview based questionnaire, which was valid from year 2015-2016. The questions were in English language. Respondents conversant with English language were motivated to fill the questionnaire on spot, while those not familiar with it were provided help. The filled questionnaires were analyzed using SPSS version 20.0.

## RESULTS

A total of 174 questionnaires were filled. The age range was 15-49 years (mean  $26.37 \pm 7.909$ ). Among the study population, 45.4% and 40.8% were married and housewives, respectively. 29.9% had a positive family history of osteoporosis. 4% were illiterate, 4% in primary level, 20% had high school level of education while 72% females had university/postgraduate level of education. On inquiring about source of their knowledge regarding osteoporosis, 44.8% and 36.8% considered television and internet respectively to be the best source. Conferences/seminar (9.2%) and magazines (5.2%) were also identified as reliable sources.

Majority (86.8%) of the participants knew about osteoporosis in which (64.9%) identified osteoporosis as the medical condition caused by lack of bone density while 8.6% considered it to be just an inability to walk. Majority (62.5%) of the women having knowledge regarding osteoporosis were well educated. The response regarding how bones are affected by osteoporosis is shown in Fig. 1.

**Fig. 1. How Osteoporosis affects bones?**

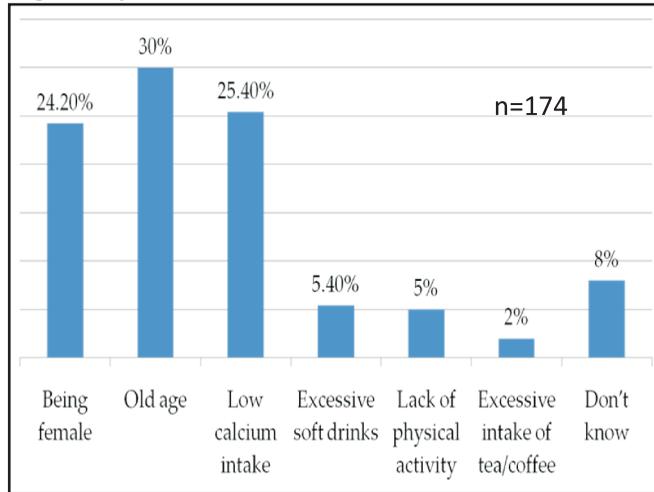


Regarding gender predisposition, majority (82.2%) of the participants knew that osteoporosis is more common in females, 4% knew that males are commonly affected. However, 5.2% did not have any idea about which gender is more commonly affected by osteoporosis. 60% identified bones of legs to be most affected by osteoporosis while 21% considered pelvic bone and only 3% regarded wrist bone as the affected one. Regardless of the educational status majority (73.2%) of the women knew that female gender is the most effected one.

It was good to observe that 85.05% knew that milk and milk products to be the best source of calcium while 7.47% and 3.44% identified vegetables and meat/fish, respectively to be the rich source of calcium. Sunlight is good for bones, majority (93.60%) were well aware with this fact. 5.20% had no knowledge about this fact. Use of long term steroids i.e. more than 3 months, have harmful effects on bones leading to osteoporosis. Mass population 90.20% was not aware of this fact. Only 8.60% had correct knowledge about it. Fig. 2 shows

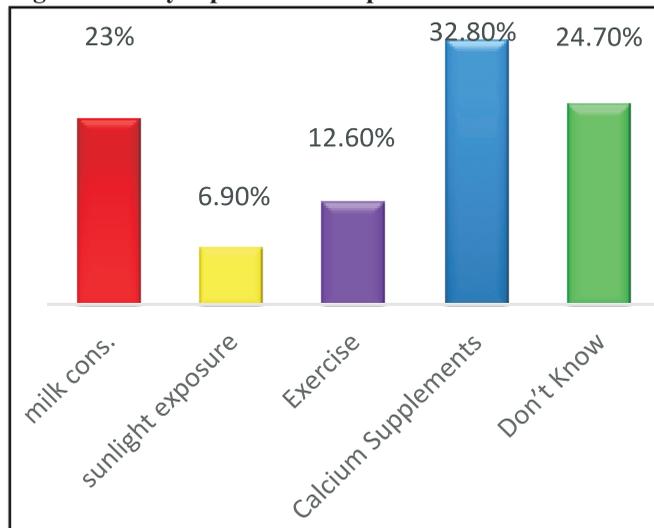
knowledge related to major risk factors among the study population.

**Fig. 2. Major risk factors.**



77.6% of women had included tea/caffeine in their daily intake. Only 43.7% eat green vegetables and fruits on daily basis. Only 12.1% of subjects used calcium supplements on regular basis while 47.1% did not use them at all. More than half participants (65.5%) have direct daily exposure for 15-20 minutes of their face and hands to sunlight. In spite of having knowledge regarding helpful effect of physical exercise in preventing osteoporosis, 19.5% subjects practiced exercise rarely. However, 69.5% practiced walking while 5.7% mentioned running as the way of physical activity.

**Fig. 3. Best way to prevent Osteoporosis.**



On inquiring about the frequency of physical exercise, 53.7% of study population performed physical activity on daily basis. 20.70% performed it thrice weekly. 89.1% of the study subjects consumed practiced intake of milk in their diet while 10.9% did not consume milk at all. 44.3% consume it daily. 77.6% have included excessive tea/caffeine in their daily intake in spite of knowing about its harmful effects on bones. Being well versed with the adverse effects of soft drinks intake on bone, 55.7% avoid its intake. In spite of knowing the beneficial effects of vegetables and fruits on health, only 43.7% eats green vegetables and fruits on daily basis. Regarding practice of exposure to sunlight, more than half of the participants (65.5%) had a direct daily exposure to sunlight for 15-20minutes. Only 12.1% of subjects used calcium supplements on regular basis while 47.10% never used it. Only 35.06% of study subjects avoided use of long term steroids owing to its detrimental effects of bone while 39.70% had no idea about it. Practice of preventive measures was more prevalent among literate females having a percentage of 65%. Figure 3 shows the result about preventive measures of osteoporosis.

### DISCUSSION

In this study, selection of reproductive age group was made with an objective of assessing the information and behavior to prevent this disease. Majority (86.8%) knew about osteoporosis; similar results were obtained in a study from Malaysia,<sup>19</sup> showing that women were well versed with osteoporosis. Television is the best source to spread awareness among literate and illiterate people equally, which is confirmed by our study, which corresponds to a study from Egypt.<sup>20</sup> Regarding gender predisposition, majority (82.2%) knew that osteoporosis is more common in females, which is inconsistent with results obtained from a research conducted in Karachi Pakistan.<sup>21</sup> Our study showed that 45.40% considered bone pain to be the main symptom, while a study in Karachi revealed 60% women considered that osteoporosis leads to bone breakage.<sup>21</sup>

Majority of individuals recognized milk and milk

products to be a rich source of calcium, which is also agreed by a study from Egypt.<sup>11</sup> Also, a major bulk (92.5%) were mindful that exposure to sunlight is good for bones and this agrees with study from Egypt<sup>11</sup> and Insel et al.<sup>22</sup> The present study revealed that majority of the population was aware of the risk factors of osteoporosis, also confirmed by a study from Karachi, Pakistan.<sup>21</sup>

Osteoporosis free life can be ensured through appropriate measures like exercise, calcium and vitamin D intake. Our study showed that 89.1% of the study subjects practiced the intake of milk in their diet, 44.3% consumed it daily. The harmful effects of soft drinks were known to study subjects and hence almost half of the population avoided its excess consumption. Our study also showed that 77.6% have included tea/caffeine in their daily intake and are unaware of the gravity of effects caused by its consumption. The study showed that although majority of the sample under study are aware of the risk factors of osteoporosis and its effects on bones yet only 12.1% of subjects used calcium supplements on regular basis.

It is good to observe that more than half of the population has direct daily exposure to sunlight, which naturally produces vitamin D. The sample was collected from only two hospitals of Rawalpindi, thus sample population does not fully represent all females. The predominant population cohort belonged to very highly educated class, and hence depicts good awareness among the literate people but this may not be a true reflection of the general population of the country. Socioeconomic differences related to knowledge, health beliefs, and some of the lifestyle habits were also not explored.

## CONCLUSION

Majority of respondents showed awareness regarding osteoporosis and its related consequences. Yet, there are some conflicts in attitudes and behavior towards factors, which may contribute to the progression of disease. Our study identifies requirement of adoption of more standardized approach coupled with the well-structured health education programs pointing out such gaps between knowledge and practices.

### Author Contributions:

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