



## OSTEOPOROSIS – A HIDDEN DISEASE AND ITS MANAGEMENT

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### ABSTRACT:

With the increasing life expectancy, osteoporosis is becoming a serious health problem affecting the modern society especially among women of older age whose early detection can help in reducing the fracture rates and overall socio-economic burden.

**Objectives:** To assess the baseline knowledge regarding osteoporosis, to improve it by giving awareness, thereby creating a positive attitude among the individuals and to find the risk factors that can lead to this condition.

**Materials and Methods:** A prospective Interventional study carried out in a community setup by enrolling 204 women subjects between the age of 35 to 65 years, which began with a pre test to assess the knowledge and to find out the risk factors for osteoporosis aided by a self designed questionnaire among the subjects and they are educated by means of leaflets. After a gap, post test been done on the same subjects to assess their improvement of knowledge

**Results:** The mean pre and post scores are 8.50 and 10.87 respectively which indicates a significant improvement in knowledge with a p value of 0.001 (significant).The major risk factors identified were menopause as well as lack of dairy products in diet.

**Conclusion:** There is a great need for screening people for this disease and proper intervention as well as involvement of health care providers in community setup can make the people gain knowledge and also getting rid of risk factors.

**Key words:** Osteoporosis, Knowledge, Women, Interventional, Screening

### INTRODUCTION

According to the World Health Organization (WHO), Osteoporosis is a condition characterized by a decrease of bone mass and morphology disorder, which consequently increases the susceptibility of bones to fracture. This excessive loss of bone mass usually appears with increasing age but, unfortunately, it often remains undiagnosed until a fracture occurs, which is why it has been called “a silent disease”<sup>1</sup> which has haunted women since the dawn of history. Egyptian mummies from 4,000 years ago have been found with the telltale dowager’s hump.<sup>2</sup> Several studies stated that women have higher chances of developing this condition which is due

to fact that women have lower peak bone mass and smaller bones than men. They also lose bone mineral density more rapidly than men in middle age because of the dramatic reduction in estrogen levels that occurs with menopause.<sup>3</sup> Women are four times likely to develop osteoporosis than men. It is prevalent in Post-Menopausal women but also occurs in men and women with underlying conditions or major risk factors associated with bone demineralization.<sup>4</sup> Screening and diagnosis use a BMD measurement that estimates bone strength. Dual-energy X-ray Absorptiometry (DXA) is the most widely used and validated technique to measure BMD. Other techniques include a vertebral fracture assessment with a densitometer, Peripheral dual-energy X-ray

Absorptiometry, Computed tomography – based Absorptiometry (Quantitative Computed Tomography), and Quantitative Ultrasound Densitometry, but these are not as widely used for reasons such as radiation exposure, lack of standardization of techniques, and cost.<sup>5</sup>

Various studies have been conducted to evaluate Knowledge, Attitude and Practices (KAP) of Osteoporosis in different geographical settings with varied community population. Due to the varying nature of instruments and methodology used, it is not possible to compare these studies. However, there are some that are worth mentioning their limitations.<sup>6</sup>

## MATERIALS AND METHODS

**Study Site:** The study was conducted at selected residential areas of Chitradurga city.

**Ethical Approval:** This study was approved by the “Institutional Human Ethical Committee” of SJM College of pharmacy, Chitradurga. (SJMCP/IEC /PHARMD/06/2017-18)

**Study Duration:** The study was carried out for a period of 6 months.

**Study Design:** Prospective Interventional Study.

**Study Criteria:** The study was carried out by considering the following criteria:

### Inclusion Criteria:

- Women subjects between the age group 35 to 65 years.
- Both working women as well as house wives.

### Exclusion Criteria:

- Subjects who are bedridden.
- Subjects who are having history of cancer

### Source of Data:

- Demographics of study subjects.
- One to one interaction with study subjects.

### Study Procedure

- The study commenced after getting approval from the Institutional Ethics Committee. After obtaining the informed consent, the study subjects were explained regarding the importance of the study and its benefits. Firstly, subjects were given a questionnaire and the answers were collected and evaluated, which was the pre-test. After the pre-test, structured education was provided in the

form of patient information leaflets as well as power point presentation. After a gap of fifteen days, Post-test was conducted on the same study subjects with the same questionnaire to be filled, after which it was evaluated.

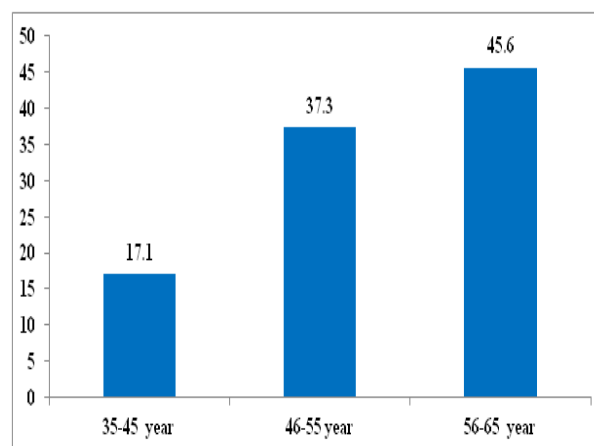
- The questionnaire was of scoring type with multiple choice questions. Each correct answer was awarded one mark, whereas each wrong answer was given zero marks.

### Statistics

- All categorical data were analyzed by percentage and frequencies.
- From the differences in scores of the pre and post test, the impact of the study was analyzed by means of student paired 't' test with a p value of 0.001
- The risk factors were assessed by using 'Chi square' test.
- The data is entered in Microsoft Excel sheets and analysis will be done by SPSS.

## RESULT

- **Distribution of subjects according to age-groups:** out of 204 women subjects, majority were between the ages 56 to 65.



**Figure 1: Distribution of subjects according to age-groups.**

- **Comparison of mean score of knowledge about osteoporosis**

The scores of pre-test and post-test were analyzed by using suitable statistical

parameters as mean, standard deviation, standard error of mean, paired t test to check the

significance of result comparing with p value (< 0.05). In this study the results shown that the mean values of pre-test and post- test are 8.50 and 10.87

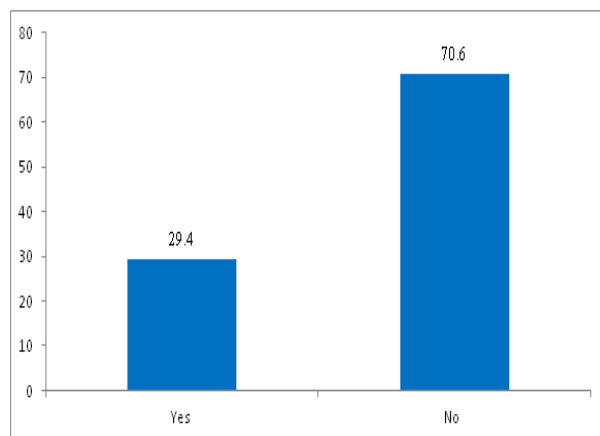
respectively, standard deviation values of pre-test was 2.16 and post- test was 1.78, the p value was 0.001 as tabulated in Table No 1

**Table 1: Comparison of mean score of knowledge about osteoporosis.**

VARIABLES	MEAN SCORE	SD	SEM	T-VALUE	P-VALUE
Pre-test score	8.50	2.16	0.15	14.13	0.001(sig)
Post-test score	10.87	1.78	0.12		

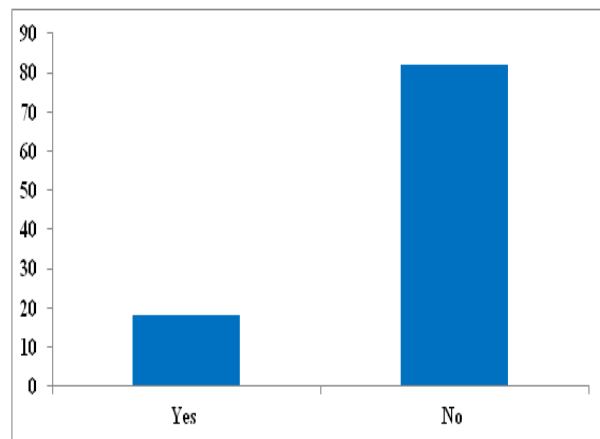
➤ **Risk factor assessment**

**1. Do you have the habit of exposure to early sunlight?**



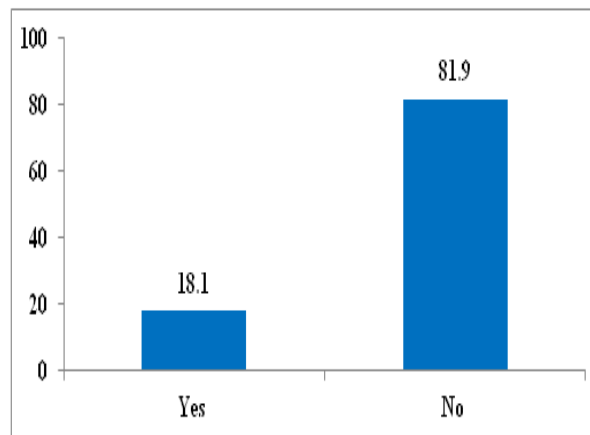
**Figure 2: Response to Question 'Do you have the habit of exposure to early sunlight?'**

**2. Any of your family members have the history of Osteoporosis?**



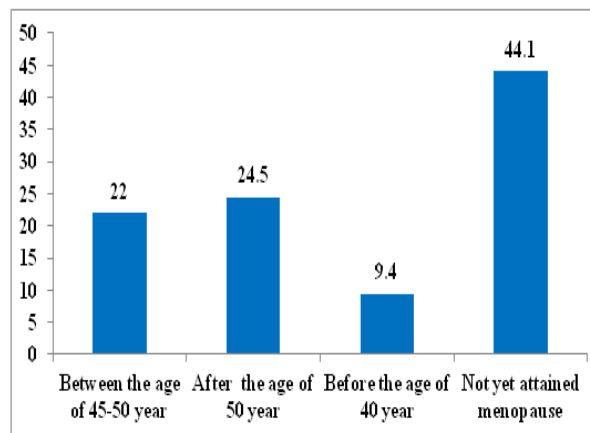
**Figure 3: Response to Question 'Any of your family members have the history of Osteoporosis?'**

**3. Have you met with any fractures recently?**



**Figure 4: Response to Question 'Have you met with any fractures recently?'**

**4. Menstrual history**



**Figure 5: Menstrual history**

**DISCUSSION**

A prospective interventional study was carried out in a community setup among 204 women to assess the prevalence, knowledge as well as risk factors regarding osteoporosis by considering their demographics like age, social habits, menstrual history as well as diet.

We have categorized the entire population within the age of 35 to 65 into 3 groups; 35-45, 46-55 and 56-65 respectively which was found to be contrary with the study conducted by Nikose S<sup>2</sup> et al.,

Our study have shown a significant increase in the knowledge of osteoporosis among subjects (pre-test and post-test mean scores are 8.50 and 10.87 respectively), which resembles the study conducted by Fahim HI<sup>12</sup> et al.,

14 people out of 204 who are working and have the age above 50 are women with menopause, those are at significant risk of getting osteoporosis, that resembles the study conducted by Das BG<sup>13</sup> et al.,

For assessing risk factors, we have analyzed post menopausal women having history of fractures recently with habit of early sunlight exposure shows reasonable similarity with the study conducted by El Tohami E<sup>14</sup> et al.,

There is a significant relation between age, history of fracture and menopause with osteoporosis which relates the study done by Aggarwal N<sup>15</sup> et al.,

## CONCLUSION

○ From our study it is clear that, lack of diagnostic facilities for osteoporosis stands as a hindrance to the quality of life of individuals especially those are geriatric and became menopause which also leads to economic burden. Because of it, majority of population remain undiagnosed and are forced to lead an osteoporotic life. The screening techniques have to be implemented with the investment of funds for better patient care especially in the community setup.

○ There is a significant improvement in the knowledge as well as attitude towards osteoporosis among subjects after the intervention being done via disease leaflets, power point presentations as well as oral counseling.

○ The study provided enough cues to conclude that there are certain risk factors like lack of dairy consumption, lack of exposure to early sunlight and early menopause which can make the a group of people osteoporotic in future.

○ In nutshell, the study concluded that there is a great need for screening people for this disease and proper intervention as well as involvement of health care providers in community setup can

make the people gain knowledge and also getting rid of risk factors.

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## REFERENCES

1. Alkhalidi MM, Porter SL. Exercise Intervention for Osteoporosis Prevention in Postmenopausal Women: A Systematic Review. *J Novel Physiother* 2016;7(1):1-15.
2. Nikose S, Singh P, Khan S, Arora M, Taywade, S. et al. Prevalence of Osteoporosis in Female Population in Rural Central India [By Calcaneal Ultrasound]. *J Women's Health Care* 2015;4(5):1-3.
3. El-Tawab SS, Saba EKA, Elweshahi HMT, Ashry MH. Knowledge of osteoporosis among women in Alexandria (Egypt). *The Egyptian Rheumatologist* 2016;38, 225–31.
4. Sridevi A, Ragi V. Management of osteoporosis in women - A prevalence and interventional study. *Int Arc Integ Med* 2016;3(4):140-45.
5. Kawalkar AC. A Comprehensive Review on Osteoporosis. *J Trauma & Orthopaedics* 2014;9(4):3-12.
6. Ying LU, Genant HK, Shepherd J, Zhao S, Mathur A. et al. Classification of Osteoporosis Based on Bone Mineral Densities. *J Bone and Mineral Research* 2001;16(5):901-10
7. Prentice A. Diet, nutrition and the prevention of osteoporosis. *Pub Health Nutrition* 2004;7(1A): 227–43.
8. Zakai G, Zakai H. Awareness about osteoporosis among university students in Jeddah, Saudi Arabia. *J Adv Lab Res Biol.* 2015;4(2):43-47.
9. Tlt AE, Barghash SS, Al-Salamah NI. Knowledge, Attitude and Practice (KAP) Regarding Osteoporosis among General Population in Saudi Arabia. *Brit J Med Res* 2016;13(4):1-10.
10. Janiszewska M, Firlej E, Kieliszek DZ, Dziedzic M. Knowledge about osteoporosis prevention among women screened by bone

- densitometry. *Menopause Rev* 2016; 15(2): 96-103.
11. Fahim HI, Bakr IM, Sayed AM, Ismail G. An Interventional Study for Osteoporosis Prevention among Female Employees of Faculty of Medicine, Ain Shams University. *The Egyptian Journal of Community Medicine* 2015;33(3):19-31.
  12. Das BG, Deb A, Chattopadhyay A, Basu M, Bhattacharya J. Prevalence and risk factors of osteopenia and osteoporosis in Indian women. *IOSR Journal of Dental and Medical Sciences* 2016;15(2): 15-18.
  13. ElTohami K, Sami W, AL Eidan A, AL Mubarak M, Alotaibi F. Study of Knowledge, Attitude and Practice of Osteoporosis among Adult Women in Majmaah City, Saudi Arabia. *Int J Health Rehab Sci* 2015;4(3):185-93.
  14. Aggarwal N, Raveendran A, Khandelwal N, Sen RK, Thakur JS. Prevalence and related risk factors of osteoporosis in peri and postmenopausal Indian women. *Journal of Mid-life Health* 2011;2(2):81-85.
  15. Sozen T, Ozisik L, Basaran NC. An overview and management of osteoporosis. *Eur J Rheumatol* 2017;4:46-56.