

## Assessment of Knowledge on Osteoporosis among Middle Aged Women in Maraimalai Nagar, Kattankulathur

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### Abstract

*Introduction:* Osteoporosis is one of the major public health problems from which more and more people in the world are suffering. There is evidence suggesting that osteoporosis knowledge is one contributor to osteoporosis preventive behaviour. Low literacy rates, lack of awareness regarding disease consequences and risk factors ultimately results in increased incidence of this combatable disease. *Objective:* The objective of the study was to assess the knowledge on osteoporosis among middle aged women in Maraimalai Nagar. *Methodology:* The research approach was quantitative and the research design adopted was descriptive research design. The investigator adopted non-probability convenient sampling technique Data was collected from 160 samples in the selected setting. Knowledge on osteoporosis was assessed by using structured questionnaire developed by the investigator. The collected data was analysed using descriptive and inferential statistics. *Results:* Among 160 samples taken for the study, Majority 108 (67.5%) middle aged women had moderate knowledge on osteoporosis, 45 (28.1%) women had inadequate knowledge and only 7 (4.4%) women had adequate knowledge on osteoporosis. *Conclusion:* The results revealed that majority of the samples had moderate knowledge on osteoporosis, hence knowledge on osteoporosis among middle aged can be imparted through periodic mass awareness programme in the community to prevent osteoporosis and to improve the quality of life among middle aged women.

**Keywords:** Osteoporosis; Knowledge; Complications; Prevention.

### Introduction

Osteoporosis is one of the major public health problems associated with aging. It is a serious metabolic bone disease, from which more and more people in the world are suffering [1]. It is more prevalent among women than among men. Osteoporosis is a "silent killer" that millions of people around the world suffer from it and are unaware that they have the condition until they experience a fracture. Several risk factors for osteoporosis have been identified. These include female sex, Asian or Caucasian race, advancing age, family history of osteoporosis or fragility fractures, a low body mass index, menopause before age 45 years, prolonged amenorrhea unrelated to menopause, nulliparity, prolonged lactation, diet low in calcium and vitamin D, poor intestinal absorption of calcium,

lactose intolerance, excessive caffeine or alcohol consumption; smoking, sedentary life style, and prolonged treatment with thyroid hormones, glucocorticoids, anticonvulsants, aluminium antacids, and use of anticoagulants [1].

Approximately 20% of bone mass is genetically determined; however, the risk of osteoporosis can be reduced by optimizing bone mass increasing during youth, conserving bone mass during adulthood and minimizing bone mass loss during advancing age. Among most important preventive habits is a) weight-bearing exercise (e.g. going up and down stairs, jogging, aerobics, swimming, and isometrics for at least 30 minutes daily), b) diet or supplements containing adequate levels of calcium and vitamin D, and c) absence or cessation of smoking and no greater than moderate alcohol and/or caffeine consumption [2].

Worldwide, osteoporosis causes more than 8.9million fractures annually, resulting in a fracture every 3 second [3]. About half of all women above the age fifty develop fracture of hip, wrist or vertebra during their lifetime. It affects 200 million women worldwide approximately one-tenth of women aged 60, one fifth of women aged 70, two-fifths of women aged 80 and two thirds of women aged 90 [4]. After menopause, 54% of females are considered to have osteopenia, and 30% of them could develop osteoporosis in the future. Prevalence of osteoporosis increases with age; it can range from some 5% in women of 50 years old to about 50% in women over 85 years [5].

In India the number of osteoporosis patients is approximately 28 million in 2011 among which 80% are women and is expected to increase another 5million in just 12-14 month [6]. In a study among Indian women aged 30-60 years from low income groups, bone mineral density at all the skeletal sites were much lower than values reported from developed countries, with a high prevalence of osteopenia (52%) and osteoporosis (29%) thought to be due to inadequate nutrition [7] According 2011 census in India the total slum population is 65.5 million out of which 31.5 million are female [8].

Osteoporosis prevention programmes for the young women have the potential to reduce osteoporosis risk and thus prevent or delay the development of the disease. The rationale for early primary intervention is that attaining and maintaining strong, dense bone as a young adult is a critical factor in the prevention of osteoporosis in later life [9]. A key component in developing successful education interventions by health care professionals is understanding what women know about the disease and to what extent they practice preventive behaviours.

Knowledge of modifiable risk factors (smoking, lack of physical exercise, dietary habits, multiparity) and treatment for osteoporosis should be targeted by prevention programmes. Estimating the level of knowledge of the population can help to guide public health programmes. Some studies have revealed that education programmes for the elderly were effective in improving health promotion knowledge and behaviours [10].

## Materials and Methods

Quantitative approach and descriptive research design was adopted for the study. The variables studied were study variable and demographic

variables. The study variables was Knowledge on osteoporosis among middle aged women whereas the demographic variables includes Age, religion, education, occupation, monthly income, type of diet and type of family. The study was conducted in Maraimalai Nagar, Kancheepuram district. The setting was chosen on the basis of feasibility in terms of availability of adequate samples and co-operation extended by mothers in various houses. The accessible population includes middle aged women those who were resided in Marai Malai Nagar. Sample consisted of the middle aged women those who fulfilled the inclusion criteria. The sample size for the study was estimated based on previous studies and formula applied was  $n=4pq/L^2$ , based on this formula the sample size was 150 but the investigator took 160 samples. Non probability purposive sampling technique was adopted to select the samples for the study. The Inclusion criteria comprised of the women who were between the age group of 36-55 years, women who were willing to participate in this study, women, who were able to read, write, speak and understand Tamil or English. The exclusion criteria includes women who were recently underwent educational sessions on Osteoporosis, middle aged women who were physically ill during the time of data collection, middle aged women who were diagnosed with Osteoporosis.

### *Instruments*

Instrument used for data collection was structured questionnaire developed by the investigators which consist of two sections

*Section A:* Questionnaire to assess the demographic variables of the samples.

*Section B:* Structured questionnaires to assess the knowledge on Osteoporosis among middle aged women which includes 30 questions.

The items of the instrument were established on the basis of opinion of nursing experts. Suggestions were incorporated in the tool. The reliability of the tool was done by test re-test method and its correlation coefficient *r*- value was 0.81 which indicated positive co-relation to proceed for the main study. The proposed study was approved by Institutional Ethics Committee of SRM Medical college Hospital and Research Centre, SRM University, Kattankulathur, Kancheepuram District on 28.10.2016 at 10.00am. Ethical clearance number: 1074/IEC/2016. Permission was obtained from the Dean, SRM college of Nursing and informed consent was obtained from each participant for the study before starting data collection.

After obtaining formal approval from administration, Maraimalai Nagar ward counsellor. The investigator explained the objectives and method of data collection. Data collection was done within the given period of 1 week in Maraimalai Nagar. The data collection was done during the day time. Self-introduction about the investigator and details about the study was explained to the samples and their consent was obtained. The knowledge on

osteoporosis was assessed among middle aged women in Maraimalai Nagar using the tool. The confidentiality about the data and finding were assured to the participants. The participants took 30 minutes to complete the tool and their co-operation was imperative. Descriptive and inferential statistics were used to analyse the collected data. Inferential statistics- chi square was used to find out the association.

**Results**

**Table 1:** Frequency and percentage distributions of demographic data of the middle aged women  
N=160

Name of the Variables	Division of the Variables	Frequency	Percent
Age	36-45Years	91	56.9
	46-55 Years	69	43.1
Religion	Hindu	132	82.5
	Muslim	8	11.9
	Christian	19	5.0
	Others	1	0.6
Occupation	Unemployed	32	20.0
	Unskilled workers	113	70.6
	Skilled worker	13	8.1
	Clerical, shopkeeper, farmer	2	1.3
Mother's Education	Illiterate	7	4.4
	Primary School Certificate	20	12.5
	Middle School Certificate	31	19.4
	High School Certificate	51	31.9
	Intermediate Or Post High School Diploma	17	10.5
Income	Graduate Or Post Graduate	34	21.3
	Rs.1590-4726	33	20.6
	Rs.4727- Rs.7877	29	18.1
	Rs.7877-Rs.11876	22	13.8
	Rs.11,877-Rs.15,753	30	18.8
Type of Family	Above 15,754	46	28.7
	Nuclear family	98	61.3
	Joint family	57	35.6
Type of Diet	Extended family	5	3.1
	Vegetarian	54	33.7
	Non-vegetarian	106	66.3

**Table 2:** Objective 1: To assess the level of knowledge on Osteoporosis among middle aged women  
N=160

		Frequency	Percent
Knowledge	Inadequate knowledge	45	28.1
	Moderate knowledge	108	67.5
	Adequate knowledge	7	4.4

**Table 3:** Objective 2:- To associate the knowledge on Osteoporosis among middle aged women with their demographic variable N=160

Demographic variables		Knowledge			Total N (%)	Chi Square Value	P Value
		Inadequate Knowledge N (%)	Moderate Knowledge N (%)	Adequate Knowledge N (%)			
Age	36-45Years	24 (53.3)	64 (59.3)	3 (42.9)	91 (56.9)	1.041	0.594
	46-55Years	21 (46.7)	44 (40.7)	4 (57.1)	69 (43.1)	DF = 2	NS
Type of Family	Nuclear Family	27 (60.0)	70 (64.8)	1(14.3)	98 (61.3)	8.511	0.075
	Joint Family	16 (35.6)	35 (32.4)	6 (85.7)	57 (35.6)	DF = 4	NS
	Extended Family	2 (4.4)	3 (2.8)	0(0)	5 (3.1)		
Dietary Pattern	Vegetarian	13 (28.9)	40 (37.0)	1 (14.3)	54 (33.8)	2.184	0.336NS
	Non Vegetarian	32 (71.1)	68 (63.0)	6 (85.7)	106 (66.3)	DF= 2	
Religion	Hindu	31 (68.9)	95 (88.0)	6 (85.7)	132 (82.5)	10.346	0.111
	Muslim	5(11.1)	3(2.8)	0(0)	8(5.0)	DF = 6	NS
	Christian	9 (20.0)	9(8.3)	1(14.3)	19(11.9)		
	Others	0(0)	1(0.9)	0(0)	1(0.6)		
Mother's Education	Illiterate	3(6.7)	4(3.7)	0(0)	7(4.4)	26.020	0.004
	Primary School Certificate	9(20.0)	11(10.2)	0(0)	20(12.5)	DF = 10	***
	Middle School Certificate	6(13.3)	25(23.1)	0(0)	31(19.4)		
	High School Certificate	18(40.0)	31(28.7)	2(28.6)	51(31.9)		
	Intermediate Or Post High School Diploma	8(17.8)	7(6.5)	2(28.6)	17(10.6)		
	Graduate Or Post Graduate	1(2.2)	30(27.8)	3(42.8)	34(21.3)		
Income	Rs.1590-4726	10(22.2)	23(23.1)	0(0)	33(20.6)	12.062	0.148
	Rs.4727- Rs.7877	8(17.8)	21(19.4)	0(0)	29(18.1)	DF = 8	NS
	Rs.7877-Rs.11876	7(15.6)	13(12.0)	2(28.6)	22(13.8)		
	Rs.11,877-Rs.15,753	12(26.7)	15(13.9)	3(42.9)	30(18.8)		
	Rs>15,754	8(17.8)	36(33.3)	2(28.6)	46(28.8)		
Occupation	Unemployed	14(31.1)	18(16.7)	0(0)	32(20.0)	7.826	0.251
	Unskilled workers	27(60.0)	79(73.1)	7(100)	113(70.6)	DF = 6	NS
	Skilled worker	3(6.7)	10(9.3)	0(0)	13(8.1)		
	Clerical, shopkeeper, farmer	1(2.2)	1(0.9)	0(0)	2(1.3)		

\*\*\*-There is Statistical significant association between Mother's Education and Knowledge at 95%(p< 0.05).

## Discussion

Osteoporosis is a significant global public health issue, expected to affect more people world-wide than ever by 2050. It is no longer confined to the growing older population but has implications for all age groups. Public awareness of osteoporosis remains low, especially in less developed countries [11]. The purpose of the present study was to assess the knowledge on osteoporosis among middle aged women. The study results revealed that majority 108 (67.5%) women had moderate knowledge regarding Osteoporosis.

A similar study was conducted by Ellen T. Edmonds and Lori W. Turner to assess osteoporosis knowledge, beliefs and preventive behaviours among 321 premenopausal adult women and to identify sources that they would mostly likely utilize to learn more about the disease. The findings revealed that

277 (86%) of the participants had heard about osteoporosis, but only 3.8% of them were following adequate exercise and intake of recommended 1,200 mg of calcium per day. They believed that they were unlikely to develop osteoporosis and that osteoporosis is less serious than heart disease and breast cancer [12].

Another study was conducted by K Pande et al on knowledge about osteoporosis in learned Indian women; identify their source of knowledge and to study the correlation of level of knowledge with other variables. The results shown that the correct definition of osteoporosis was given by 74%, but there was general lack of awareness in all the areas assessed [13].

Though it is not a common cause of mortality but it contributes to high morbidity among this age group of women. Making the vulnerable aware of the disease will bring there by enhance the quality of life of

women in old age. Public seminars, leaflet distribution, television programme, A pro-active role by health policy planners, medical associations and other non-government organisations will be useful in this regard.

### Conclusion

The study concludes that majority 108 (67.5%) middle aged women had moderate knowledge on osteoporosis, only 7 (4.4%) women had adequate knowledge on osteoporosis and 45 (28.1%) women had inadequate knowledge. The results revealed that majority of the samples had moderate knowledge on osteoporosis, hence knowledge on osteoporosis among middle aged can be imparted through periodic mass awareness programme in the community to prevent osteoporosis and to improve the quality of life among middle aged women.

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### Conflicts of Interest

The author declares no conflict of interest.

### References

1. Lisker R, Lopez MA, Jasqui S, Ponce DC, Leon Resales S, Correa Rotter R, Sanches S, et al. Association of Vitamin D receptor polymorphisms with osteoporosis in Mexican Postmenopausal Women. *Hum Biol* 2003;75:399-403.

2. Suleiman S, Nelson M, Li F, Buxton-Thomas M, Moniz C. Effect of calcium intake and physical activity level on bone mass and turnover in healthy, white, postmenopausal women. *Am J Clin Nutr* 1997;66:937-43.
3. Johnell O, Kanis JA. An estimate of the worldwide prevalence and disability associated with osteoporotic fractures. *Osteoporos Int* 2006;17:1726. <http://www.iofbonehealth.org/facts-statistics.html>.
4. Kanis JA. WHO Technical Report, University of Sheffield, UK; 2007:66.
5. Kanis JA, Johnell O, Oden A, Jonsson B, De Laet C, Dawson A. Risk of hip fracture according to the WorldHealth Organization criteria for osteopenia and osteoporosis. *Bone* 2000;27(5):585-5.
6. <http://www.dnaindia.com/health/report-36-million-osteoporosis-patients-in-india-by-2013-doctor-1600804> [last assessed 22-11-2014].
7. Shatrugna V, Kulkarni B, Kumar PA. Bone status of Indian women from a low-income group and its relationship to the nutritional status. *Osteoporos Int* 2005;16:1827.
8. [www.censusindia.gov.in/2011-Documents/Slum-26-09-.pdf](http://www.censusindia.gov.in/2011-Documents/Slum-26-09-.pdf) [last assessed 18-11-2014].
9. DA, Faulker RA, McKay HA. Growth, physical activity, and bonemineral acquisition. In: Hollosky JO. *Exercise and sport sciences reviews*. Baltimore (MD): Williams and Wilkins, 1996.p.233-66.
10. Huang LH, Chen SW, Yu YP, Chen PR, Lin YC. The effectiveness of health promotion education programs for community elderly. *J Nurs Res* 2002; 10:261-70.
11. Randell A, Sambrook PN, Nguyen TV, et al. direct clinical and welfare costs of osteoporotic fractures in elderly men and women. *Osteoporos Int* 1995;5:427.
12. Edmonds Ellen T, Turner Lori W. Osteoporosis Prevention among College Students: Strategies for Health Professionals [PhD thesis]. University of central Ankasas.
13. Pande K, Pande Sonali, Tripathi S, Kanoi R, Thakur A, Patle S. Poor Knowledge about Osteoporosis in learned Indian Women. *JAPI*. 2005 May;53:433-436.