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Knowledge Regarding Osteoporosis and its Prevention among Women in Ernakulam District

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Abstract

Osteoporosis is a systematic skeletal disorders characterized by compromised bone strength predisposing to an increasing risk of bone fracture. This study was undertaken to assess the knowledge regarding osteoporosis and its prevention among 200 women attending selected OPD's of Medical College Hospital, Ernakulam district, Kerala. Quantitative approach and descriptive survey was used in the study. The data was tabulated and analyzed using differential and inferential statistics like frequency, percentage and chi-square test. The conclusion drawn from the study had shown that 54 % had average knowledge regarding prevention of osteoporosis among women. There is an immense need of creating awareness among women regarding prevention of osteoporosis in order to make positive lifestyle changes.

Keywords: knowledge; osteoporosis; women

Introduction

Osteoporosis is a systematic skeletal disorder characterized by compromised bone strength predisposing to an increasing risk of bone fracture. The rate of bone become progressively porous, brittle, fragile, and fracture easily under stress [1]. It is estimated that around 25 million people are affected with osteoporosis in world. Osteoporotic fractures in India occur commonly in both sexes, and may occur at younger age than elderly. The annual incidence rate of osteoporotic fracture in women is greater than combined incidence rate of heart attack, stroke and breast cancer. Osteoporosis is often called a silent epidemic because bone loss occurs without symptoms'. People may not know that a sudden strain, bump, or fall causes a hip fracture. A number of epidemiological studies in osteoporotic population have attempted to determine that some factors make individuals at risk of fractures. Skeletal fragility and falls are the two most important factors leading to osteoporotic fractures [2].

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Around the world, at least one in three women and one in five men over the age of 50 will suffer a fracture caused by weak bones, thirty-three per cent of older adults who suffer a hip fracture become physically impaired and lose their ability to live independently one year after the fracture. In India, based on 2001 census, approximately 163 million Indians are above the age of 60; this number is expected to increase to 230 million by 2015. The total affected population would be around 25 million [3].

Bone mass changes in a person's life time can be categorized into three phases: growth, consolidation and involution. Peak bone mass is accumulated in the growth phase, about 90% of ultimate bone mass is deposited in space. This is followed by consolidation which for 15 years. This starts between ages 35-40 years in both sexes, with acceleration of bone loss within a decade after menopause in women. The prevalence of osteoporosis and low bone mass is expected to increase worldwide with increased aging of the population. Across the globe, the number of individuals aged 50 years and greater is expected to increase nearly fivefold by the year 2050, from 323 million to 1.55 billion [4].

In addition to age the factors that place women at risk of skeletal fragility are early natural or surgical menopause, low levels of estrogen, low body weight and height, low levels of physical activity, smoking, alcohol abuse, and family history of osteoporosis and use of certain drugs. Some gynecological factors

are also been implemented in the pathogenesis of osteoporosis, including parity, breastfeeding, late menarche and menstrual irregularities [5].

During puberty and adolescence the skeleton takes up calcium rapidly and builds up its reserves. This intake of calcium into bone is largely depends on calcium and vitamin D, nutrition as well as exercise. The strength of the bone is built during two decades of life that from onset of adolescents to about age 30 years. After 35 years there is gradual progressive bone loss which continues throughout life and is accelerated at the menopausal women [6].

Hence the prevention for osteoporosis is to build strong bones and maximize peak bone mass before early adulthood. The international osteoporosis foundation 2016 day on May 23 is focusing a global campaign on interdisciplinary symposium on osteoporosis which emphasizing overall prevention of osteoporosis and to avoid long term damage [6].

Osteoporosis cases are increasing all over the world and because of its fracture morbidity and mortality in the women especially in post-menopausal become a global health problem. India is going to have the highest incidence of cases because of its growing elderly population. Recent Indian censes shows that there are 163 million people above 50 years of age and scientific reports suggest that 30% of women and 15% of men are suffering from osteoporosis [7].

According to International osteoporosis foundation, it is projected that more than 50% of all osteoporotic fracture will occur in Asia by the year 2050. Osteoporosis is particularly acute in rural areas. In Kerala the majority of the population lines in rural area have the risk of getting osteoporotic fracture. Osteoporosis is an important public concern. Osteoporosis is the third most common cause of hip fracture leading serious long term disability [8].

In India the prevalence of osteoporosis among women aged between 30-60 years was 30%. It is more frequently found in women than men at the ratio 4:1. One of every woman will experience fractures at some point during her life. The awareness of osteoporosis has grown worldwide in recent years. This silently progressing metabolic disease is widely prevalent in India. In Kerala the prevalence of osteoporosis was 62%. Osteoporotic fractures are common cause of morbidity and mortality in adult women [9].

A study was conducted to assess the knowledge, beliefs and preventive behaviors among 321 women. The result revealed that 86% of the participants had heard about osteoporosis but only 3.8% of them were following adequate exercises and intake of recommended 1200 mg of calcium per day. The believed that they were unlikely to develop osteoporosis is less serious than heart disease and breast cancer. Thus the study concluded that the majority of young women are at risk for developing pre mature osteoporosis and it is important to counsel them to prevent this silent thief [10].

None of the available treatment for osteoporosis gives complete cure to the disease. Therefore the prevention of osteoporosis is an important as its treatment. The most important preventive measures are lifestyle changes including exercise, regularly consuming balanced diet with adequate calcium and vitamin D, quitting cigarette smoking and alcohol intake. Educating women in their young adult hood through the health care services regarding preventive measures of osteoporosis is very important [11].

So the investigator found it relevant to assess the knowledge regarding osteoporosis and its preventive measures among women.

Review of literature

The study was conducted among peri and postmenopausal women regarding the prevalence and related risk factors of osteoporosis in India. The prevalence of low Bone Marrow Density was found in more than half of this population (53%). The mean age in group I (normal BMD) was found to be 50.56 ± 5.74 years as compared to 52.50 ± 5.94 in group II with low BMD (P=0.02). The two groups were similar with respect to parity, education, and socioeconomic status, family history of osteoporosis, hormone replacement therapy, and thyroid disorders. 46.8% of the women in group I and 33% of the women in group II had low physical activity and there was no statistically significant difference in sunlight exposure between the groups. Parity or the number of children and type of menopause was not seen to have much association with low BMD in our study. Lack of exercise and low calcium diet were significantly associated with low BMD. Multiple logistic regression analysis showed that age, exercise, menopause, and low calcium diet acted as significant predictors of low bone density [16].

A survey was conducted in China on prevalence of osteoporosis. The prevalence increased with age and varied dramatically based on local versus international diagnosis criteria. The overall prevalence of osteoporosis based on nationwide

surveys ranged from 6.6% to 19.3% (average=13.0%). The prevalence varied considerably across studies, and by regions, gender, and bone sites, but the urban to rural difference was small. In Hong Kong, the prevalence among women ≥50 years ranged from 34.1–37% in the spine; was 7% in the same aged men. In Taiwan, among those aged ≥50 years, average prevalence of osteoporosis was 11.4% in women and 1.6% in men [17].

A cross sectional study was conducted to evaluate the awareness, perception, sources of information, and knowledge of osteoporosisamong Turkish women in 2012. A total of 768 women mean age 53.6±8.2 (40–70) were randomly selected and interviewed during their visits to primary care centers in three rural towns in West Anatolia. A structured questionnaire was administered by trained nurses. Chi-squared test was performed in age and educational level groups for revealing factors influencing the awareness, perception, and knowledge sources of osteoporosis. One-way analysis of variance (ANOVA) analysis was carried out in calculating the difference of knowledge scores among groups. Of the women, 60.8% had heard of and 44.9% had the correct definition for osteoporosis. Awareness and accurate definition of osteoporosis was high in younger and high educated women (p<0.001). Television was the main source of knowledge with the rate of 55%, doctors and nurses/midwives were the second and third sources, respectively. Osteoporosis knowledge was low with a mean score of 5.52 out of 20. Younger and more educated women had higher knowledge scores. Low calcium in diet and menopause were the first two risk factors chosen for osteoporosis. Knowledge about osteoporosis among rural Turkish women is low, and majority of women are unaware of the risk factors and consequences of osteoporosis. An Appropriate educational program should be planned according to community needs, and the target of these programs should be less educated and older women [18].

Materials and Methods

The study was undertaken at selected OPD's of Medical College Hospital, Ernakulam district, Kerala. Quantitative approach and descriptive survey was used in the study. 200 women aged between 40-60 years attending in selected OPD's of Medical College Hospital were selected by non-probability convenient sampling method. After obtaining informed consent, tools were administered to women those who met the sampling criteria. Data were collected using demographic proforma and structured knowledge questionnaire regarding osteoporosis and its prevention.

Results

The data was tabulated and analyzed using differential and inferential statistics like frequency, percentage and chi-square test.

Section A: Distribution of sample characteristics.

Table 1 showed that, majority subjects 31.5% were in the age group between 40-45 years, 51% were Christians, 82% were house wife. 50% had only educationupto SSLC, 53.5% belongs to nuclear family, 90.5% were married and 40% (80) hadmonthly income less than 10000.

Section B: Assess the level of knowledge regarding osteoporosis and its prevention among women.

Table 1: Distribution of sample characteristics (n=200)

SI. No	Demographic variables	Frequency (f)	Percentage (%)
1	*Age*		
	40 – 45	63	31.5
	46 – 50	64	32.0
	51 – 55	32	16.0
	56 – 60	41	20.5
2	*Religion*		
	Christian	102	51.0
	Hindu	82	41.0
	Muslim	16	8.0
3	*Occupation*		
	Professional	6	0.03
	Non- Professional	30	15.0
	House wife	164	82.0
4	*Level of education*		
	Illiterate	0	0
	1st to 7th standard	30	15.0
	8th to 10th standard	100	50.0
	PUC	49	24.5
	Diploma / Graduates	21	10.5
	Postgraduates	0	0
5	*Type of family*		
	Joint family	93	46.5
	Nuclear family	107	53.5
6	*Marital status*		
	Married	181	90.5
	Unmarried	19	9.5
7	*Monthly income*		
	Below10000	80	40.0
	10000 – 20000	69	34.5
	Above 20000	51	25.5

Table 2: Frequency and percentage distribution of the women knowledge regarding osteoporosisand its prevention (n=200)

Level of knowledge	Frequency (f)	Percentage (%)
Poor (0-10)	65	33
Average (11-20)	109	54
Good (21-30)	26	13

Table 2 revealed that, 13% had good knowledge, 54% had average knowledge and 33% had poor knowledge about osteoporosis and its prevention. In this, the data was non-normal, so the median [12] and inter quartile ranges Q1 and Q3 [8,17] respectively.

Section C: Association between knowledge with selected demographic variables.

Table 3 showed that, chi-square test was used to identify association between knowledge and selected demographic variables. Result showed that education, monthly income and occupation were significantly associated with knowledge score ($p<0.05$). Hence, the research hypothesis stated was accepted with regard to these variables.

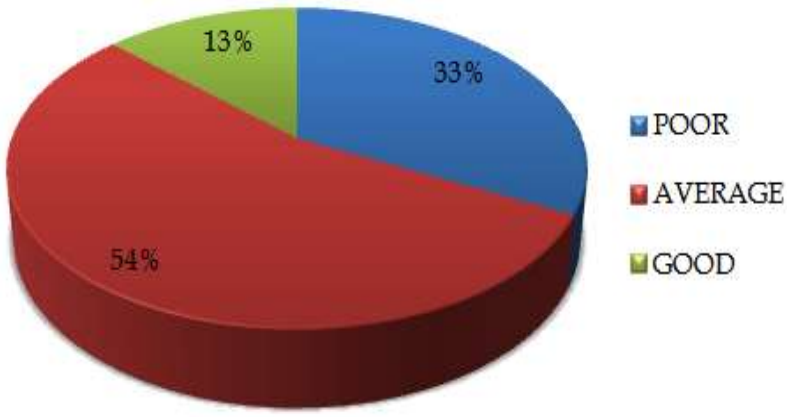

Fig. 1: Pie chart showing the percentage of knowledge of the samples (n=200)

Table 3: Association between knowledge with selected demographic variables

Selected demographic variables	Knowledge regarding osteoporosis			chi square/ fisher	'p' value
	poor	average	good		
Age					
40-45	18	33	12	3.45	0.75
46-50	22	35	7		
51-55	12	17	3		
56-60	13	24	4		
Religion					
Christian	30	58	14	1.83	0.77
Hindu	28	42	11		
Muslim	7	8	1		
Occupation					
Employed	5	24	7	7.27	0.026*
House wife	60	85	19		
Education					
SSLC	52	67	11	16.67	0.002*
PUC	10	31	8		
Diploma/Graduates	3	11	7		
Marital Status					
Married	56	100	25	2.59	0.27
Unmarried	9	9	1		
Monthly Income					
<10000	17	53	10	13.18	0.01*
10000-20000	25	31	13		
>20000	23	23	3		

*significant ($p<0.05$)

Discussion

- *Major findings related to the socio demographic variables of women between the age group of 40-60 years*

Out of 200 women, majority were in the age group between 40-45 years (31.5%), 51% were Christians, 82% were unemployed. 65% had only primary education, 53.5% belongs to nuclear family, 90.5% were married and 40% (80) hadmonthly income less than 10000.

A descriptive study was conducted in USA to assess the prevalence of osteoporosis risk factors among 10,514 menopausal women. The prevalence of osteoporosis risk factors was 67.6%. The most common risk factors were physical inactivity (53.6%), and low calcium intake (30.1%). There was correlation between the menopausal symptoms degree of severity and the risk of sufferings from osteoporosis. The researcher recommended to the prevent risk factors through educating the people regarding prevention of osteoporosis [12].

- *Major findings of levels of knowledge regarding osteoporosis and its prevention.*

Knowledge regarding osteoporosis and its prevention among 200 women revealed that about 13% had good knowledge, 54% had average knowledge and 33% had poor knowledge.

A descriptive study was conducted to establish the level of knowledge about osteoporosis prevention among 292 women aged 51-83 years. Women had the basic exercise knowledge (M = 9.97) and low knowledge concerning risk factors, screening and treatment of osteoporosis (M = 7.87). The calcium knowledge remained on an average level (M = 14.03). Better educated women, city inhabitants as well as women having very good or good social and welfare conditions showed a significantly higher level of knowledge about osteoporosis prevention. Even women undergoing bone densitometry examination present insufficient knowledge about osteoporosis prevention [13].

Another study was conducted to assess the knowledge and practices regarding osteoporosis and its prevention among 100 women attending orthopedic OPD at GGS Medical Hospital, Faridkot, Punjab. The findings revealed that majority (83%) had average knowledge regarding osteoporosis and its prevention. In preventive practices, majority (74%) had inadequate physical activity. All most (100%) were taking moderate diet. Regarding medical checkup and follow up majority (98%) had inadequate medical checkup and follow up. The study concluded that majority of women had some knowledge regarding osteoporosis and they were not taking appropriate preventable measures to prevent osteoporosis [14].

- *Major findings related to knowledge score and selected demographic variables.*

Chi-square test was used to find the association between knowledge score and selected demographic variables. There was significant association between knowledge score with education, occupation and monthly income at $p<0.05$.

An experimental study was done in Jordan among 148 adolescent female students regarding effectiveness of knowledge of osteoporosis. The study used a pretest – post test quasi experimental design. The result revealed that there was a significant increase in overall mean post test score (29.8) regarding osteoporosis knowledge (mean score pre test = 24.1 and post test = 29.8, $p<0.001$). Thus the study concluded that further research towards the follow up of attained knowledge is greatly needed to prevent the occurrence of osteoporosis [15].

Acknowledgement: Nil

Conclusion

In the community, women had some knowledge regarding osteoporosis and its prevention. Women should take appropriate measures to prevent osteoporosis and its complications. A series of health educational sections in community can prevent the occurrence of osteoporosis to a great extent by changing their lifestyle practices.

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