A Study to Assess the Nutritional Knowledge, Attitude and Practices about Prevention of Osteoporosis among Menopausal Women

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Abstract

Introduction: The disease osteoporosis causes fragile bones and increases the risk of fractures. It occurs when the bone mineral density is reduced, bone microarchitecture deteriorates, and the amount and variety of proteins in bone are altered. Millions of individuals suffer from osteoporosis, which is known as "the health hazard" because of its critical illness, deaths, negative effects on the standard of living, and additional costs to the patient and society. The World Health Organization (WHO) ranks osteoporosis second only to cardiovascular diseases as a global health care problem.

Objective: To assess the nutritional KAP for the prevention of osteoporosis among menopausal females.

Methodology: The study was conducted regarding osteoporosis among 100 postmenopausal females who visited the Vantamuri PHC and Rukmini Nagar UHC, Belagavi. The data were collected using questionnaires and purposive sampling techniques. The obtained data were analyzed using SPSS software. Descriptive were used to determine the association between the levels of knowledge, attitude, and selected general information.

Results: It indicates that 45% of the participants had moderate knowledge about osteoporosis. 86% of women showed a positive attitude towards osteoporosis. The study revealed that 85% of the participant had limited physical activity. The majority of participants have not consumed calcium and vitamin D supplements.

Conclusion: The study concluded that most of the postmenopausal women, who visited the respective PHC Belagavi, have a moderate knowledge of osteoporosis. The majority of postmenopausal women were unaware of the condition, and majorities were unaware of how to prevent osteoporosis.

Keywords: Osteoporosis; KAP; Fracture; Fragility; Morbidity

Introduction

The World Health Organization (WHO) ranks osteoporosis second only to cardiovascular diseases as a global health care problem. Osteoporosis is a major health burden affecting millions of people worldwide. It is a problem growing in significance as the world population ages [1]. The disease osteoporosis causes fragile bones and increases the risk of fractures. It occurs when bone mineral density is reduced, bone microarchitecture deteriorates and the amount and variety of proteins in bone are altered [2]. Osteoporosis can be classified as primary type 1, primary type 2, or secondary. Postmenopausal osteoporosis (primary type 1) is the most common type of osteoporosis in women after menopause. Senile osteoporosis is primary type 2 osteoporosis that affects both men and women in equal amounts after the age of 75. Whereas secondary causes can be related to certain diseases or medication use. A woman's menstrual cycle is permanently discontinued after menopause due to the depletion of ovarian oocytes caused by aging. The diagnosis is often made retroactively after the woman has missed 12 consecutive menstrual cycles. The natural onset of menopause occurs between the ages of 45 to 55 years [3]. Suppressing estrogen production during menopause results in significant increases in bone resorption markers while suppressing bone formation markers. The dramatic drop in estrogen levels during menopause usually leads to a lower bone mineral density in women. Women after menopause are at a higher risk of developing osteoporosis. Nutritional variables, in addition to decreasing hormones after menopause, have a key influence on the development of osteoporosis in women [4]. Women tend to consume insufficient calcium on a daily basis, since the average calcium intake (426 mg/day) for postmenopausal women is insufficient and is linked to low bone density. Osteoporosis, osteoporotic fractures, and other complications can be avoided by increasing osteoporosis awareness [5]. Nutritional considerations may play a key role in osteoporosis prevention and cure. A well-balanced diet rich in Ca (1,200 mg/day); vitamin D (600 IU); and appropriate amounts of protein, magnesium, and vitamin K can all contribute to bone strength [6].

Materials and Methods

Study design: A cross sectional study

Source of data: Post-menopausal women who visited Vantamuri PHC and Rukmini Nagar UHC, Belagavi.

Sample size: 100 sample

Inclusion criteria:

- Post-menopausal women.
- Women who are willing to participate.
- Women who can understand Kannada/English.

Exclusion criteria:

- Women above 60 years of age.
- Premenopausal women.
- Women who are not willing to participate in the study.

Informed consent: A manual written informed consent was obtained from each participant.

Ethical consideration: Ethical clearance of the study was taken from the institutional review committee, Belagavi.

Confidentiality: Superior care was taken to maintain the privacy and confidentiality of the study participants.

Data collection tools: A self-administered questionnaire.

Data collection procedure: The purposive sampling technique was used to select 100 samples who visited the Primary Health Center (PHC) in Vantamuri and the Urban Health Center (UHC) in Rukmini Nagar, Belagavi. The study was conducted between the ages of 40 and 59 years.

- The participants meeting inclusion criteria, and who gave informed consent, were included in the study. They were briefed about the study through the Google form.

- Data was collected using a self-administered questionnaire to assess their knowledge, attitude, and practice regarding osteoporosis.

Data analysis

Data was entered and analyzed using Xcel and SPSS software 22.0 version. The frequency and percentage data were analyzed using descriptive statistics. Such as mean and standard deviation was used to analyze the levels of knowledge and attitude scores of osteoporosis among menopausal women. The analyzed data was presented in the form of tables, graphs, and diagrams based on the findings. The relation between levels of knowledge, attitude and socio-demographic variables was determined using the *Chi-square* test.

Results

Table 1 shows the demographic features of the study participants. A total of 100 postmenopausal women were recruited for the study. The majority of them *i.e.* 38% belonged to the age group 55-59 years, followed by 32% belonging to the age group 50-54 years, 23% participants belonged to the age group 45-49 years, and 7% belonged to the age group 40-44 years. Majority of respondents 39% were illiterate (29% studied up to SSLC, 17% PUC, 13% graduates and 2% postgraduates). A maximum of 64% of respondents were non-vegetarians, 24% were ovo-vegetarian and 12% were lacto-vegetarian. The majority of them had no family history of fractures *i.e.* 84% and 16% had a family history of fractures. 74% of study subjects were house waives, 16% of them were laborer, 9% of them were working as government employees and 1% was self-employed.

Table 1: Socio-demographic information.

Sl. No	Variable		Frequency	Percentage
1	Age	40-44	7	7
		45-49	23	23
		50-54	32	32
		55-59	38	38
2	Educational status	Illiterate	39	39
		SSLC	29	29
		PUC	17	17
		Graduate	13	13
		Postgraduate	2	2
3	Food pattern	Lacto-vegetarian	12	12%
		Ovo-vegetarian	24	24%

		Non vegetarian	64	64%
4	Family history of fracture	Present	16	16%
		absent	84	84%
5	Occupation	House wife	74	74%
		Business (self-employed)	1	1%
		Service(government)	9	9%
		labourer	16	16%

Table 2 shows the mean and standard deviation of osteoporosis knowledge and attitude among women. The mean and SD were obtained as 33.33+11.06 and 33.33+46.14.

Table 2: Osteoporosis mean knowledge and attitude of the respondents.

Scores	Mean	SD
Knowledge	33.33	11.06
Attitude	33.33	46.14

Table 3 shows the knowledge status of the participants. Out of 100 participants, the majority of them had an average knowledge (45%). Only 32% of the study participants had good knowledge about osteoporosis. The remaining 32% of the participants had poor knowledge about osteoporosis. Figure represents the distribution of the respondents according to their attitudes. 86% had a good attitude and 14% had an excellent attitude towards osteoporosis.

Table 3: Distribution of the participants according to their knowledge.

S. No	Knowledge Status	Frequency	Percentage
1	Poor Knowledge (score 1-3)	32	32%
2	Average Knowledge (score 4-6)	45	45%
3	Good Knowledge (score 7-10)	23	23%

Figure 1 represents the distribution of the respondents according to their attitudes. 86% had a good attitude and 14% had an excellent attitude towards osteoporosis.

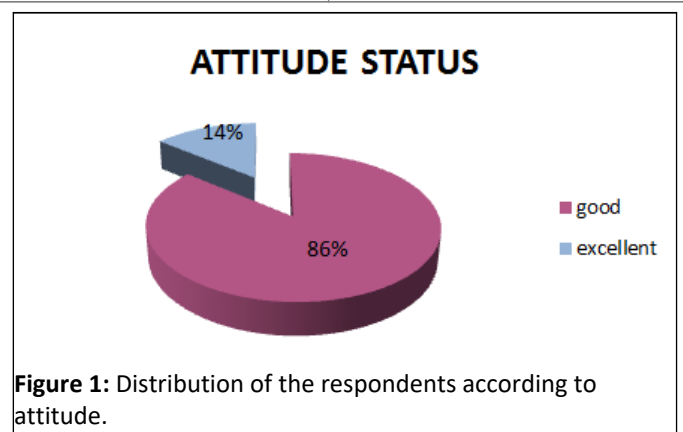**Figure 1:** Distribution of the respondents according to attitude.

Table 4 shows the significant association between socio-demographic data and the knowledge status of respondents, where the educational status of the respondents (p<0.0001) and the monthly incomeof the family (p<0.0001).

Table 4: Association between socio-demographic data and knowledge status.

		Highknowledge	Average knowledge	Poor knowledge	*Chi square*	P-value
Age	40-44	0	3	4	14.978	0.02
	45-49	8	10	5		
	50-54	5	21	6		
	55-59	10	11	17		
Education	Illiterate	2	12	25	86.164	<0.0001**
	SSLC	3	19	7		
	PUC	3	14	0		
	Graduate	13	0	0		
	Post graduate	2	0	0		
3p+/Monthly income	Below 5,000	0	4	1	36.414	<0.0001**
	5,001-10,000	0	1	1		
	10,001-20,000	2	11	24		
	20,000 and above	21	29	6		
Food pattern	Vegan	0	0	0	2.271	0.3213
	Lacto-vegetarian	5	5	2		
	Ovo-vegetarian	7	11	6		
	Non-vegetarian	11	29	24		
Family history	Present	6	6	4	2.271	0.321
	Absent	17	39	28		
Type of family	Nuclear	20	26	11	15.115	0.001
	Joint	3	19	21		

Table 5 shows the association between socio-demographic data and the attitude status of the study participants. Where, educational status of respondents (p<0.0001).

Table 5: Association between socio-demographic data and attitude.

		Excellent	Good	Poor	*Chi square*	P-value
Age	40-44	0	7	0	2.545	0.467
	45-49	4	19	0		

	50-54	3	29	0		
	55-59	7	31	0		
Education	Illiterate	1	38	0	24.464	<0.0001**
	SSLC	4	25	0		
	PUC	1	16	0		
	Graduate	7	6	0		
	Post graduate	1	1	0		
Monthly income	Below 5,000	0	5	0	9.011	0.029
	5,001-10,000	0	2	0		
	10,001-20,000	1	36	0		
	20,000 and above	13	43	0		
Food pattern	Vegan	0	0	0	9.676	0.008
	Lacto-vegetarian	5	7	0		
	Ovo-vegetarian	1	23	0		
	Non-vegetarian	8	56	0		
Family history	Present	3	13	0	0.357	0.55
	Absent	11	73	0		
Type of family	Nuclear	9	48	0	0.353	0.553
	Joint	5	38	0		

Discussion

The World Health Organization (WHO) ranks osteoporosis second only to cardiovascular diseases as a global health care problem. Osteoporosis is a serious health issue that affects people of all ages. It's a problem that's only growing worse and worse as the world's population ages. Millions of individuals throughout the world suffer from osteoporosis, which is important because of its illness, death, negative impacts on the standard of living, and additional expenditures to both the patient and society. Osteoporosis can be classified as primary type 1, primary type 2, or secondary. Postmenopausal osteoporosis (primary type 1) is the most common type of osteoporosis in women after menopause. Senile osteoporosis is primary type 2 osteoporosis that affects both men and women in equal amounts after the age of 75. Whereas secondary causes can be related to certain diseases or medication use. In the present study, the total numbers of participants were 100, aged between 40-59 years. Most of the study participants 38% were in the age group of 55-59 years. 32% were in the age group of 50-54 years. 23% were in the age group of 45-49 years and the remaining 7% were in the age group of 40-44 years. This study revealed that the majority of women were above 55 years of age. Out of 100 women, 39% were illiterate. Nearly 13% were graduates and only 2% were postgraduate, similar to another study conducted in Madhya Pradesh where 30% of women were illiterate and 14% were graduates. In the study majority of the 64% were consuming non-vegetarian food, 24% were ovo-vegetarian and 12% were lacto-vegetarian. In the present study, the mean knowledge was 33.33, the study showed an average level of knowledge *i.e.* 45% about osteoporosis. This study is similar to the study conducted among adults in Kuala Lumpur, Malaysia, which reported knowledge among the population was average [7].

Limitation

The major limitations of the study were the inability to assess the bone mass density and confirm osteoporosis by bone scan.

Conclusion

The present study showed that participants had a good attitude (86%) towards osteoporosis, which when compared to another study conducted in Kuala Lumpur, Malaysia had similar results *i.e.* good attitude *i.e.,* 49% towards osteoporosis. This study showed that, 85% of the participant had limited physical activity whereas, in the previous study conducted in Saudi Arabia, the percentage of limited physical activity was 57.1%. In this study 100% of participants consumed calcium rich food and 91% had adequate sunlight exposure, which is different from another study conducted in Madhya Pradesh which reported 50% were consuming calcium and 8% were having sunlight exposure.

Recommendations

To generalize the findings, a similar study with a large sample size could be organized.

A comparative survey can be done on knowledge regarding the prevention of osteoporosis among menopausal women.

Acknowledgement

Conflict of Interests

No conflict of interest.

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