ORIGINAL ARTICLE

AWARENESS REGARDING OSTEOPOROSIS AMONG MENOPAUSAL WOMEN IN A TANAHU

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ABSTRACT

Introduction: Osteoporosis is the one of the global health problems of the world including Nepal and it has become a major public health issue. Females are eight times more at risk for developing osteoporosis than males, especially the menopausal women. The objective of this study was to assess the level of awareness regarding osteoporosis among menopausal women in a community.

Method: This was a descriptive cross sectional study which was conducted among 88 menopause women residing in Suklagandaki municipality, Tanahu. Non probability purposive sampling method was used and data was collected through face to face interview and analyzed. Chi-square test and Fischer exact test were used to measure the association between the levels of awareness with socio demographic variables using SPSS and the findings were considered significant if p <0.05. Findings were then presented in tabulated form.

Result: Less than half (30.6%) of the respondents had an adequate level of awareness regarding osteoporosis. Respondents demonstrated better awareness on time for getting vitamin D (39.7%) as a preventive measure and facture of bone (31.8%) as a complication of osteoporosis. A significant association was found between awareness level and education (p < 0.01), occupation (p < 0.01), religion (p < 0.04), and monthly income (p < 0.001) in this study.

Conclusion: Majority of respondents had inadequate awareness about osteoporosis. Targeted awareness and educational programs are recommended to enhance knowledge and promote preventive practices among menopausal women.

Key words: Awareness; Menopause; Osteoporosis

INTRODUCTION

Osteoporosis is a global health problem affecting millions of people worldwide. It is a progressive condition characterized by a decrease in bone mass density, leading to fragile bones and an increased risk of fractures.

About one in three women and one in five men, typically aged 50 years and older, are at risk of experiencing a fragility fracture during their lifetime. Osteoporosis is a global health problem affecting millions of people worldwide.[1] The most common risk factor for osteoporosis include advanced age, hormonal changes during menopause, and short stature. Other contributing factors includes disease condition, a history of fracture, low physical activity, inadequate calcium or vitamin D intake, and malnutrition. Asian women are at particularly high risk. Among genders, post-menopausal women are more susceptible due to decreased estrogen levels, which accelerate age-related bone loss. Menopausal Osteoporosis is associated with an estrogen duplication, which enhances the bone loss that occurs with aging.[2]

Globally, about 200 million people are affected by osteoporosis.[3] In Europe alone, approximately 22 million women aged 50–84 years are estimated to have the condition. Due to demographic changes, the number of women with osteoporosis in Europe is projected to rise from 27.5 million in 2010 to 33.9 million by 2025.[4] In Asian countries, around 13–18% of women aged 50 years and above are affected, and the prevalence increases to about 70% among individuals over 80 years old.[5] In Nepal, the prevalence of osteoporosis has been reported to be 22.4%.[6] A cross-sectional study conducted among 2000 postmenopausal women in Guwahati, Northeast India, aimed to assess awareness regarding osteoporosis. The study revealed that only 36.52% of participants had an adequate level of awareness, while the majority (63.48%) demonstrated inadequate awareness about the disease.[7]

Mortality associated with osteoporotic fractures has been reported to range between 15% and 30%, a rate comparable to that observed in breast cancer and stroke.[8] Osteoporosis is increasingly recognized as one of the most prevalent and costly global health concerns. In the Nepalese context, the prevalence of osteoporosis among postmenopausal women has been estimated to range from 15% to 26.2%.6 According to hospital-based data, approximately one in every ten fracture surgeries performed daily at the Nepal Orthopedic Hospital, Jorpati, is attributed to osteoporosis. Similarly, records from the National Trauma Center reveal that among 64 osteoporosis patients visiting the hospital each day, 52 are women, underscoring the significant gender disparity associated with the condition.[9]

In 2021, it was revealed that there is no evidence of nationwide screening programs for osteoporosis in Nepal. Low awareness of osteoporosis, coupled with limited availability and affordability of treatment options, contributes to delayed health-seeking behavior, often resulting in patients presenting only after a fracture has occurred. Preventive measures and early interventions should be prioritized and implemented promptly, especially before the aging population burdened with osteoporosis continues to rise.[10]

Different studies have assessed the perception of women about osteoporosis, its risk factors and seriousness.[5,10] In Nepal as well, different studies have been done to find out about the awareness about the same.[11] While the studies in Nepal have demonstrated some awareness, the studies are limited and are mostly conducted in urban areas. As osteoporosis could be prevented through imparting knowledge among menopausal women and this could help in reducing the burden of disease, so, this study is being done to assess the awareness regarding osteoporosis among menopause women in a rural area.

METHODS

The study was a descriptive cross-sectional study conducted among menopausal women of Suklagandaki municipality-8, located in Tanahun District of Gandaki Province in Nepal.

Data were collected by using non-probability purposive Self structured interview schedule was used as sampling technique where the content was created after reviewing various literatures and validated through expertise knowledge and input. The English version of research tool was examined consulting advisor, experts and translated to Nepali language. Reliability of the instrument was maintained by pretesting among 10% of sample size, that is, 9 menopause women from Suklagandaki municipality ward no 10. On the basis of Pretesting flaws, modification was done. Data was collected from 2022 september 14 to 2022 October 14 (2079/05/30 to 2079/06/30).

Using prevalence of 0.365 (Shaki et al.)[7], with 10% margin of error, the total sample size was calculated to be 88. Ethical approval was taken from IRC of Manmohan Memorial Institute of Health Sciences. Inform consent was obtained from all respondents meeting inclusion and exclusion criteria before data collection.

The questionnaires used for the study consisted of 2 parts:
Part 1: It consisted self-structured questions related to socio-demographic characteristics.
Part 2: It consisted of questions related to awareness regarding osteoporosis including meaning, Risk factors, causes sign and symptoms, diagnosis, and Preventive Measures, treatment and complications.

Each correct response was given 1 and incorrect response was given 0. Normality of Questionnaire was done. Median score of awareness was taken, as there was no normal distribution of awareness score. Respondents with above median score (≥12) were considered having adequate awareness and below median score (<12) as inadequate awareness.
Data analysis was using SPSS version 16. Data was interpreted by using descriptive statistics (frequency, percentage, mean, standard deviation) and Chi-square test and Fischer exact test were used to measure the association between the levels of awareness with socio demographic variables.

RESULTS
Among 88 respondents, the majority (86.3%) were above 53 years of age, with a mean age of 53 ± 2.1 years. More than half (51.1%) were Hindu and 47.7% belonged to the Janajati ethnic group. Most respondents were engaged in household work (64.7%), and nearly one-third (31.8%) could only read and write. Over 60% had a monthly family income between Rs. 35,001– Rs.45,000. (Table 1)

Regarding knowledge, only 28.4% correctly identified osteoporosis as "porosity of bone," and 29.5% recognized it as a silent disease. Vitamin and calcium deficiency were identified as risk factors by 43.1%, and 27.3% associated postmenopausal osteoporosis with hormonal cessation. About 32.9% mentioned bone mineral density scan as the diagnostic test, and 12.6% knew that preventive measures should begin in young adulthood. Only 22.7% identified calcium and vitamin-D rich foods as preventive, and 28.4% considered walking as the best exercise. Fracture was recognized as a major complication by 31.8% of respondents (Table 2).

Overall, 30.6% of respondents had an adequate level of awareness, while 69.4% had inadequate awareness. (Table 3) A significant association was found between awareness level and education (p < 0.01), occupation (p < 0.01), religion (p < 0.04), and monthly income (p < 0.001) (Table 4).

Table 1: Socio-demographic information of the Respondents

Variables	Number	Percent
Age (In years)		
≤53	12	13.7
>53	76	86.3
Mean ±SD = 53± 2.1		
Religion		
Hindu	45	51.1
Buddhist	37	42.2
Christian	4	4.5
Islam	2	2.2
Ethnicity		
Dalit	12	13.6
Janajati	42	47.7
Madhesi	0	0
Muslim	2	2.2
Brahmin/Chhetri	32	36.5
Educational status		
Illiterate	15	17.0
Read and write only	28	31.8
Primary level	24	27.4
Secondary level	18	20.4
Bachelor level	2	2.2
Master level	1	1.1
Occupation		
Agriculture	14	15.9
Household work	57	64.7
Service	11	12.5
Labor	5	5.6
Business	1	1.1
Monthly Family income		
Rs 15000-25000	4	4.5
Rs 25,001-5,000	17	19.4
Rs 35,001-45,000	54	61.4
More than Rs 45000	13	14.7

Table 2: Knowledge on Osteoporosis

Variables	Number	Percent
Meaning		
Fracture of bone	22	25
Porosity of bone*	25	28.4
Extra growth of bone	31	35.3
Shortness of bone	10	11.3
Osteoporosis is called a silent disease due to		
Delayed diagnosis due to delayed symptoms*	26	29.5
Early diagnosis	27	30.6
Early visit of hospital	33	37.8
Early sign and symptoms	2	2.2
Risk factors		
Hormone	35	39.7
Advanced Age	20	22.7
Vitamin and Calcium deficiency	38	43.1
Family history of osteoporosis	16	18.1
Short stature	10	11.3
Smoking	13	14.7
Menopausal women are more prone for osteoporosis		
Hormonal cessation*	24	27.3
Early sign and symptoms of osteoporosis		

Variables	Number	Percent
Dull pain*	25	28.4
Late sign and symptoms of osteoporosis		
Sharp linger pain more than three months*	27	30.6
Osteoporosis can be diagnosed by		
Bone mineral density scan*	29	32.9
Bone mineral density should be measured		
Every five years*	15	17.0
Initiation to adapt the preventive measures for osteoporosis		
Young adulthood	11	12.6
Diet for prevention of osteoporosis		
Food rich in Calcium and Vitamin D	20	22.7
Main source of calcium		
Milk and milk products	10	11.4
Main source of vitamin D		
Direct sunlight*	20	22.7
Time for getting vitamin D		
Early morning*	35	39.5
Best exercise		
Walking*	25	28.4
Average exercise time		
20-30 minutes*	21	23.8
Prevent osteoporosis fracture		
Prevention from fall*	32	36
Treatment for menopausal osteoporosis		
Hormonal replacement therapy*	7	7.5
Awareness		
Complications		
Fracture of bone*	28	31.8
Common sites of fracture		
Hip, spine and wrist*	30	34.0

*Correct Response

Table 3: Sources of Information and Awareness Level

Sources of Information**	Number	Percent
Relatives and friends	38	43.1
Books, magazine	24	27.2
Mass media	50	56.8
Health personnel	35	39.7
Level of Awareness		
Inadequate level	61	69.4
Adequate level	27	30.6

Table 4 : Association Between Level of Awareness and Selected Variable

Variables	Level of Awareness on Osteoporosis		χ^2	p-value
	Inadaquate(%)	Adequate(%)		
Age (In completed years)				
≤ 53	6 (50)	6(50)	7.72	0.85
> 53	55 (72.36)	21(27.63)		
Religion				
Hindu	20(66.6)	25(33.4)		0.04#
Others(Buddhist, Christian, Islam)	41(95.35)	2(4.65)		
Ethnicity				
Janajati	29(69.05)	13(30.95)	7.71	0.82
Others	32(69.57)	14(30.43)		

Variables	Level of Awareness on Osteoporosis		χ^2	p-value
	Inadaquate(%)	Adequate(%)		
Educational				
Illiterate	10(66.64)	5(33.33)	11.07	0.01
Literate	50(69.44)	22 (55.56)		
Occupation				
Unpaid	49(85.97)	8(14.03)	13.03	0.01
Paid	12(38.71)	19(61.29)		
Monthly Family Income (NRs/Month)				
Up to Rs 30,000	18(85.71)	3(14.29)		0.01F
Rs 30,000-60000	43(64.17)	24(35.83)		

F=Fisher's Exact value

DISCUSSION

In this study, 30.6% of respondents had an adequate level of awareness regarding osteoporosis, comparable to the findings of Panta et al. (2020) in Kathmandu, where 40% had adequate awareness.[12] About 28% correctly identified the meaning of osteoporosis, similar to Warjukar and Mohabey's study in Nagpur (37.4%).[13] Only 29.5% recognized osteoporosis as a silent disease, contrasting with the findings of Shrestha and Thapa (2020) in Bharatpur, where 81.7% did so, possibly due to differences in education and health awareness.[14]

Less than half (43.1%) of the respondents mentioned vitamin and calcium deficiency as risk factors, aligning with Chon, SJ et al., in Korea.[15] Regarding symptoms, 28% identified dull back pain as an early sign and 33% reported chronic pain as a late symptom, similar to Senthilraja et al. (2019) who 26% noted pain as a common symptom.[16] About 32.9% were aware that osteoporosis can be diagnosed by bone mineral density scan, consistent with Warjukar and Mohabey's finding (42.6%).[13]

Only 12.6% identified young adulthood as the correct period for prevention, similar to Senthilraja et al. (33.2%).[16] For dietary prevention, 22.7% mentioned calcium and vitamin D rich foods, supported by Warjukar and Mohabey (26.4%).[13] Walking was recognized by 28.4% as the best exercise to prevent osteoporosis, in line with Chaudhary et al. (2019) who reported 37.6%.[17]

Regarding treatment, 8% identified hormone therapy for postmenopausal osteoporosis, contrasting with Panta et al. (2020) (29.3%), likely due to differences in setting and sample size.[12] About 32% mentioned fracture as a major complication, similar to Warjukar and Mohabey (32.6%).[13]

A significant association was found between awareness level and socio-demographic variables such as education (p<0.01), religion (p<0.04), occupation (p<0.01), and income (p<0.001), consistent with the finding of the study conducted by Varghese et al., 2019 in India.[18]

CONCLUSION

Based on the findings of the study, more than half of the respondents had an inadequate level of awareness regarding osteoporosis in menopausal women. Awareness was particularly low in areas such as meaning, risk factors, diagnostic tests, preventive measures, and treatment modalities. However, less than half demonstrated adequate awareness overall, with comparatively better understanding of the role of vitamin D and recognition of fracture as a major complication. A significant association was found between the level of awareness and socio-demographic factors such as religion, education, occupation, and income.

However, further elaborative studies are required to find out the awareness of women regarding osteoporosis in menopausal period, especially in rural part of Nepal.

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AUTHOR CONTRIBUTIONS

CONFLICT OF INTEREST

The authors declare no competing interests.