Knowledge Regarding Osteoporosis among Young Adult Women of a Selected Community of Pokhara, Kaski

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Abstract

Background: Osteoporosis is a silent killer disease that is highly prevalent among females. Even though the symptoms of osteoporosis can be identified in later stages of life, it can be prevented with a healthy lifestyle adaptation at an early stage of life.

Objectives: The present study aims to assess the knowledge level of osteoporosis among young adult females and examine the association between knowledge level and selected socio-demographic variables.

Methodology: A quantitative descriptive cross-sectional study design was used. A non-probability purposive sampling technique was used to select 153 samples. The data were collected for 6 weeks using a semi-structured interview schedule. Osteoporosis Knowledge assessment tool (OKAT) was used to collect the data. Descriptive statistics (frequency, percentage, mean, standard deviation) was used for quantitative data analysis and inferential statistics (chi-square) were used to find out the association between knowledge level and selected socio-demographic characteristics of the respondents.

Results: The study concluded that 51 percent of the young adult women had an average level of knowledge and 49 percent had a poor level of knowledge regarding osteoporosis. However, none of them had a good level of knowledge regarding osteoporosis. A significant association was found between the knowledge level and educational status of the respondents (p=0.002).

***Keywords**: Knowledge, osteoporosis, young adult women*

Introduction

Osteoporosis is a progressive disorder of the skeletal system characterized by bone frangibility and caused by the decrease in bone mineral density[1]. Osteoporosis has clinically been defined as a condition where bone mineral density measures 2.5 standard deviations or more below the peak bone mass as measured by dual-energy X-ray absorptiometry. Osteoporosis is contributed by several factors such as low intake of calcium in the diet, smoking, sedentary lifestyle, female sex, Asians and Caucasians race, advancing age, menopause before 45 years, family history, multiparity, and prolonged lactation[2]. Females are at higher risk of having osteoporosis than males as females have smaller bones[3].

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The prevalence and incidence of osteoporosis vary worldwide affecting millions of people around the world. The reported prevalence of osteoporosis among women was 9% in the UK, 15% in France and Germany, 16% in the USA, and 38% in Japan. Though osteoporosis is common among women, men are also affected by osteoporosis. However, the reported prevalence of osteoporosis among men worldwide is much less as compared to women[4]. Osteoporosis is a chronic bone disease prevalent in many Asian countries as well. The prevalence is higher in the aged population and females following menopause. About 13% to 18% of women aged 50-year-old and above have osteoporosis, and the numbers rise to 70% of people who are above 80-year-old[5]. Reported prevalence of osteoporosis among post menopausal women in Nepal ranged from 15 % to 26.2% [6].

Osteoporosis is a preventable disease with almost no clinical features except for the fracture. It is a "silent killer" as people suffering from it are unaware that they have the condition until they experience a fracture. Worldwide, osteoporosis causes more than 8.9 million fractures annually, resulting in an osteoporotic fracture every 3 seconds. Osteoporosis-related fractures are a major economic concern in many developed as well as less developed countries[7].

Knowledge, attitude, and practice of adolescents and young adults towards osteoporosis are important to understand as bone health of them as well as their elderly family members can be improved only with adequate knowledge. A systematic review of 34 articles conducted in 2015 on osteoporosis where 16 articles assessed knowledge level on osteoporosis, only four studies revealed a good level of knowledge regarding osteoporosis among adolescents and young adults[8].

Osteoporosis is a preventable disease so it is necessary to assess existing health beliefs and knowledge on osteoporosis in the general population whereby the findings might help to plan adequate strategies to increase awareness and to combat this disease. Assessment of awareness level of the young adult women and working towards reducing the identified gaps in knowledge helps to promote knowledge and better health-seeking behavior. However, in Nepal, limited studies have been conducted to assess knowledge on osteoporosis among young adult women though some studies have been conducted among postmenopausal women. So this study was done to assess the awareness regarding osteoporosis among young adult women.

Methodology

Study Design, setting and population

A community-based cross-sectional study design was used. The study was conducted among young adult women of Birauta 17, Pokhara. Pokhara is a metropolitan city of Nepal and Birauta is located in the Eastern part of Pokhara. The study population included the young adult women aged 20 to 39 years of Birauta-17 of Pokhara, Kaski

Sample size and sample technique

The sample size was calculated using Cochran's formula and 153 young adult women were selected as samples from the accessible population. A non-probability purposive sampling technique was used to select the sample.

Data Collection Instrument

A semi-structured interview schedule was used for data collection. The first part of the questionnaire consisted of questions related to socio-demographic characteristics like age, ethnicity, occupation, religion, educational status, economic status, and marital status of the respondents.

While the second part of the questionnaire consisted of questions to assess the knowledge level of osteoporosis. Osteoporosis Knowledge Assessment Tool (OKAT) was used to assess the knowledge level of osteoporosis among young adult women. OKAT is a 20 item instrument with true, false and don't know responses, based on the Osteoporosis Australia Osteoporosis Prevention and Self-management course and the information leaflet "Understanding Osteoporosis". The score ranges from 1 to 20[9]. Formal permission to use the tool was obtained via mail from the OKAT developers.

Data Collection Procedure

After obtaining the ethical clearance from the Institutional review committee of Gandaki Medical College (GMC-IRC), the data were collected for 6 weeks. Formal permission was also obtained from the ward office of Birauta, Pokara. After obtaining informed consent from the respondents, a semi-structured interview schedule was used to collect the data. Considering the valuable time of the respondents, data were collected during the daytime to ensure that respondents had enough time to answer the questionnaire. An average time spent on interviewing one respondent was approximately 15 to 20 minutes.

Data Analysis Procedure

Data were analyzed and interpreted according to the objectives of the study and research questions. Both descriptive and inferential statistics were used

to analyze the data. Descriptive statistics (mean, frequency, percentage, and standard deviation) were used to describe the socio-demographic characteristics. Inferential statistics (Chi-square) were used to find out the association between knowledge level and selected socio-demographic characteristics of the respondents.

The obtained data was edited and coded. Data were entered into the computer using the software Epi-data version 3.1 and transferred into Statistical Package for Social Science (SPSS-16 version) for further analysis.

Ethical Consideration

A written ethical clearance was obtained from the Institutional Review Committee of Gandaki Medical College (GMC-IRC). A formal letter of cooperation was written to the Ward office of Birauta, Pokhara. After the provision of sufficient information about the purpose of the study, verbal and written consent was obtained from all study participants. Participants were also informed that participation was voluntary and they can withdraw from the study at any time if they are not comfortable with the questionnaire. To ensure the confidentiality of respondents, their names were not written on the questionnaire

Results

Socio-demographic characteristics of young adult women

The response rate of the study was 100 percent. More than half (57.5%) of the respondents were aged 26 years and above, with a mean age of 26.9. The majority (88.1%) of the respondents were Hindus, and more than half (51%) of them were married. Almost half (46.4%) of the respondents belonged to the upper caste group. About 99.3 percent of the respondents were literate, and more than half (54.9%) had completed a Bachelor's degree. Regarding occupation, about 56.9 percent were unemployed, and among the employed, 15 percent were involved in some services. Almost half (49.7%) of the respondents had a lower medium income. **Figure 1**

Level of Knowledge regarding osteoporosis among young adult women

Item analysis was made to determine which items were answered correctly by more respondents and which items were answered correctly by fewer respondents. The five items which were answered correctly by the respondents in descending order were (1) Osteoporosis leading to fracture (80.4%). (2) Osteoporosis concerning age (71.9%). (3) Broccoli as a source of calcium for vegetarians. (4) Family history as a predisposing factor of osteoporosis. (5) Cigarette smoking is a contributing factor to osteoporosis (62.7%). **Table 1**

The five items in descending order that the respondents failed to answer correctly were (1) Clinical risk factors and osteoporosis (2) Relation between osteoporosis and peak bone mass (34%). (3) The occurrence of symptoms before fracture in osteoporotic patients (21%). (4) Bone loss and menopause. (5) Milk as a source of calcium (11%). **Table 1**

Regarding the level of knowledge, more than half (51%) of the respondents had an average level of knowledge on osteoporosis. About half (49%) of the respondents had a good level of knowledge on osteoporosis. However, none of the respondents had a good level of knowledge of osteoporosis. **Figure 2**

Factors affecting the level of knowledge

The factors that may contribute to the knowledge level of respondents were also analyzed. The Chi-square test revealed a significant association between the level of knowledge and educational status of the respondents ($x2 = 9.614$, $p= 0.002$). However age, occupational status, family income, and marital status had no significant association with the level of knowledge of the respondents. **Table 2**

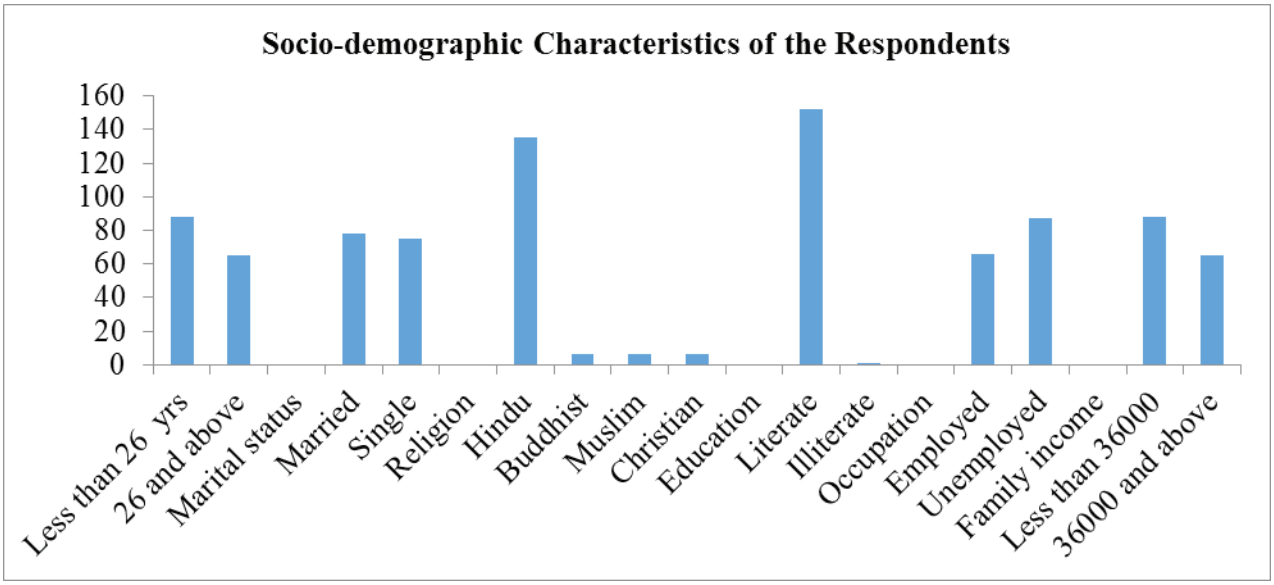

Figure 1: Socio- demographic Characteristics of the Respondents

Table 1: Frequency and percentage of correctly answered questions by respondents (N=153)

Item no.	Item content True, False, Don't Know questions	Correct response	
		N	%
1	Osteoporosis leads to an increased risk of bone fractures (True)	123	80.4
2	Osteoporosis usually causes symptoms (e.g. pain) before fractures occur (False)	21	13.7
3	Having a higher peak bone mass at the end of childhood gives no protection against the development of osteoporosis in later life (False)	34	22.2
4	Osteoporosis is more common in men (False)	72	47.1
5	Cigarette smoking can contribute to osteoporosis (True)	96	62.7
6	White women are at highest risk of fracture as compared to other races. (True)	51	33.3
7	A fall is just as important as low bone strength in causing fractures (True)	92	60.1
8	By age 80, the majority of women have osteoporosis (True)	110	71.9
9	From age 50, most women can expect at least one fracture before they die (True)	66	43.1
10	Any type of physical activity is beneficial for osteoporosis (False)	39	25.5
11	It is easy to tell whether I am at risk of osteoporosis by my clinical risk factors (False)	35	22.9

***Cont*... Table 1: Frequency and percentage of correctly answered questions by respondents (N=153)**

12	Family history of osteoporosis strongly predisposes a person to osteoporosis (True)	97	63.4
13	An adequate calcium intake can be achieved from two glasses of milk a day (False)	11	7.2
14	Sardines and broccoli are good sources of calcium for people who cannot take dairy products (True)	101	66.0
15	Calcium supplements alone can prevent bone loss (False)	74	48.4
16	Alcohol in moderation has little effect on osteoporosis (True)	84	54.9
17	A high salt intake is a risk factor for osteoporosis (True)	66	43.1
18	There is a small amount of bone loss in the ten years following the onset of menopause (False)	16	10.5
19	Hormone therapy prevents further bone loss at any age after menopause. (True)	89	58.2
20	There are no effective treatments for osteoporosis (False)	69	45.1

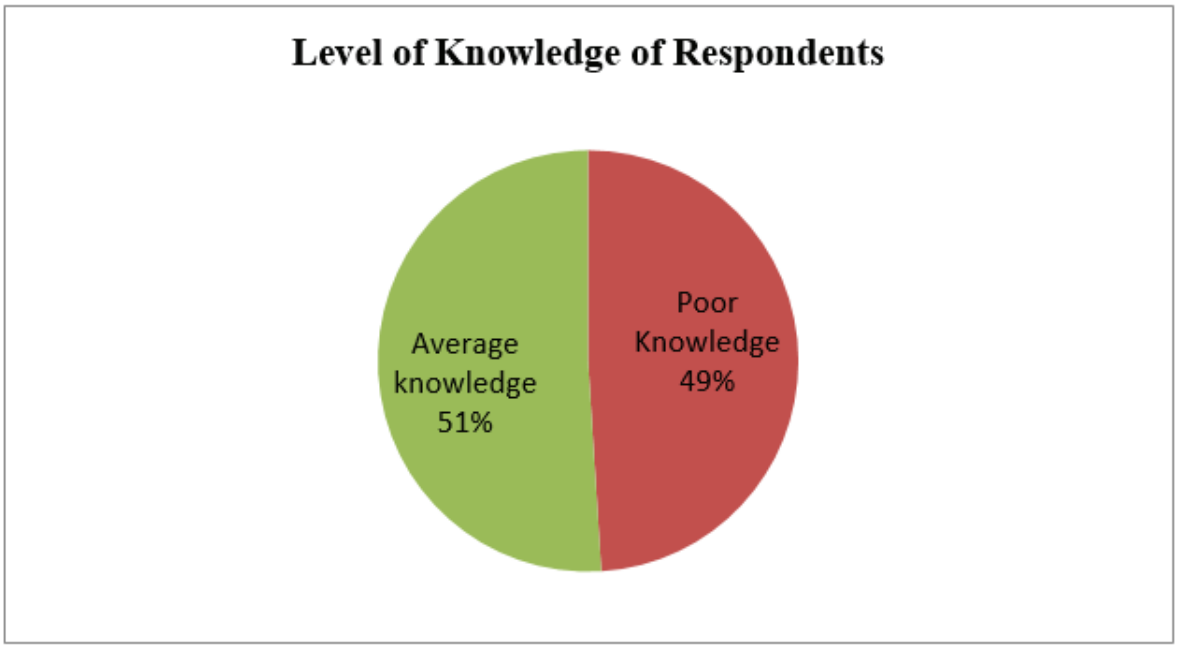

Figure 2: Level of knowledge on Osteoporosis

Table 2: Association between level of knowledge and selected socio-demographic characteristics of the respondents

Characteristics	Knowledge Level		χ^2	*p*-value
	Poor n (%)	Average n (%)		
Age in Years				
<26 years	38	50	2.85	0.093
≥ 26 years	37	28		
Marital Status				
Single	31	44	3.478	.062
Married	44	34		
Family Income				
<36000	41	47	0.489	.484
>36000	34	31		
Education Status				
Below Bachelors	37	20	9.614	.002*
Bachelors and above	37	58		
Occupation Status	35	31	0.747	0.387
Employed	40	47		
Unemployed				

*** *p* value significant at < .05 χ^2 =Chi-square CI= Confidence Interval**

Discussion

The present study shows that about half of the respondents have an average knowledge on osteoporosis and half have poor knowledge. The study findings are consistent with the study conducted among Turkish women who had an inadequate knowledge of osteoporosis[10]. The study findings are also similar with the study done by Alshareef et al[3] which revealed that young Saudi female college students do not have sufficient amount of knowledge about osteoporosis. The study findings are also in line with another study done in El Salvador which revealed that the majority of women in this study have modest knowledge on osteoporosis[11].

The current study shows that level of education have significant association with education status. The study findings are consistent with the other study conducted by Mehmood Riaz which revealed that educated young adult women had more knowledge on osteoporosis[12]. The study findings are also similar to another study which revealed that educated women showed a significantly higher level of knowledge about osteoporosis prevention[13]. Another Study conducted by Roberto Hernandez-Rauda indicated that better educated women had more knowledge about osteoporosis than women with a low education level, regardless of age.

The current study shows no association between levels of knowledge with age, occupation, income. In contrary study conducted by Alamri et al showed there were significant associations between the level of awareness on osteoporosis and age, education, occupation, income (P<0.01)[14].

Conclusion and Recommendation

The study concluded that young adult women had average level of knowledge regarding osteoporosis. A significant association was found between knowledge level and educational status of the respondents.

The results of the study can provide a framework for the policymakers to develop and implement educational programs on osteoporosis for the young adult women at community level. As osteoporosis is a preventable disease, educational interventions on osteoporosis can enhance the quality of life of young adult women.

Limitations of the study

The study was conducted in a single community and might not reflect the characteristics of young adult women in general. This might limit the generalizability of the findings of the study. Also as this study is a cross sectional study, chances of recall bias may be high.

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Conflict of Interest: Nil

Ethical Considerations: The study has been approved by Institutional Review Committee of Gandaki Medical College (GMC-IRC) of Nepal. Written informed consent has also been obtained from the research participants.

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