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Socio-Demographic and Clinical Profile of Patients with Osteoporosis

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Abstract **Original Research Article**

Background: Osteoporosis is a disease which is characterized by low bone mass and susceptibility to fracture. Now a day, osteoporosis is considered as a potential public health issue. Year after year, thousands of people attending several hospital and clinics for taking treatment of osteoporosis in Bangladesh. But we have very limited research-based information regarding the socio-demographic and clinical profile of patients with osteoporosis. ***Aim of the Study:*** The aim of this study was to prepare a socio-demographic and clinical profile of patients with osteoporosis. ***Methods:*** This prospective observational study and was conducted in the Diabetic Association Medical College and Hospital, Faridpur, Bangladesh during the period from January 2020 to December 2021. In total 103 confirmed patients with osteoporosis were included as the study subjects for this study. Proper written consents were taken from all the participants before data collection. A predesigned questioner was used in data collection. All data were collected, processed and analyzed by using MS Office and SPSS version 23 programs as per need. ***Results:*** In this study, female participants were dominating in number and the male-female ratio was 1:2. The highest number of the participants was found from 41-60 years' age group which was 43%. Among all the participants only 13% was illiterate and 27% were housewife; which was the highest number as a single occupation. Majority of the participants of our study were from lower class families as per the socio-economic condition. About half (46%) of our study people were with normal body-weight (BMI: 18.0-24.9). History of any bone fracture was found in 18% patients only. Among 33%, 42% and 25% participants the vitamin D level was found as< 20, 20 – 30 and > 30 ng/ml respectively. ***Conclusion:*** Osteoporosis is one of the severe health problems in the elderly population. The frequencies of this disease are alarming. With the improvement of socio- economic status, people are less likely to develop osteoporosis, which will potentially have a preventive role in osteoporosis.

Keywords: Socio-demographic, Clinical profile, Osteoporosis, Bone density.

1. INTRODUCTION

Osteoporosis is a disease responsible for low bone mass and susceptibility to fracture. It is a metabolic bone disease characterized by reduced bone mineral density, with deterioration of bone microarchitecture, leading to an increase in skeletal fragility and risk of fracture [1]. The diagnosis procedure of osteoporosis is made by assessing the lumbar spine in AP, proximal femoral neck and/or total femur and forearm, as per the criteria proposed by the World Health Organization (WHO) [2]. In the United States, osteoporosis affects about 25 million people, involving more than 1.3 million fractures annually [3]. The clinical features of osteoporosis are often associated with fractures of hip and wrist, spine; even without any significant reduction in bone mineral density or bone symptom, it is also considered as osteoporosis [4]. Fractures caused by osteoporosis contribute to back pain, reduce quality of life, and interfere with activities of daily living [5]. Several risk factors are associated in the development of osteoporosis; some of them cannot be changed, while many other factors can be modified, reducing the incidence of this disease [6]. The socio-economic risk-

factors of osteoporosis are gradually increasing because of the aging of the world population [7]. Brennan *et al.*, (2011) [8] reported that, there is limited evidence of good quality for social inequalities in mineral density and bone fractures and that further research are needed to clarify the relationships between socio-economic status and individual- level indicators as well as bone mineral density. The explanation of osteoporosis and fracture requires a social model that would inform the planning of health service system and social assistance and would allow public health strategies for the prevention, and treatment of this disease [9].

2. METHODOLOGY

This was a prospective observational study and was conducted in the Diabetic Association Medical College and Hospital, Faridpur, Bangladesh during the period from January 2020 to December 2021. This study was approved by the ethical committee of the mentioned hospital. In total 103 confirmed patients with osteoporosis were included as the study subjects for this study. As per the exclusion criteria of this study patient with active cancer, malignant bone metastases, secondary osteoporosis, currently broken bones and cases taking glucocorticoids therapy were excluded. Proper written consents were taken from all the participants before data collection. The total intervention was conducted in accordance with the principles of human research specified in the Helsinki Declaration [10] and executed in compliance with currently applicable regulations and the provisions of the General Data Protection Regulation (GDPR) [11]. A predesigned questioner was used in data collection. All data were collected, processed and analyzed by using MS Office and SPSS version 23 programs as per need.

3. RESULT

In this study, among total 103 participants, 35% were male whereas the rest 65% were female. So, female participants were dominating in number and the male-female ratio was 1:2. The highest number of the participants was found from 41-60 years' age group which was 43%. Besides this, 3%, 30% and 24% participants were from <30, 30-40 and >60 years' age groups respectively. Among all the participants, only 13% was illiterate. On the other hand, 42%, 36% and 10% participants were secondary, higher secondary and 'graduation & above' level educated respectively. Among all the participants, 27% were housewife; which was the highest number as a single occupation. As service holder, labor, farmer and unemployed person 22%, 17%, 15% and 18% patients had participated respectively in this study. Majority of the participants of our study were from lower class families as per the socio-economic condition. Only 17% were from higher class and the rest 31% were from middle class families. About half (46%) of our study people were with normal body-weight (BMI: 18.0-24.9). Besides this, 9%, 31% and 15% were with underweight (<18.0), overweight (25.00–29.9) and obese (30−34.9) status respectively. History of any bone fracture was found in 18% patients only. Among 33%, 42% and 25% participants, the vitamin D level was found as < 20, 20 – 30 and > 30 ng/ml respectively. In this study, among majority of the participants, habit of taking green leaves, milk and dairy products and 'fish & meats' were observed.

Table 1: Socio-demographic status of participants (N=103)

Characteristics	n	%
Gender distribution		
Male	36	35%
Female	67	65%
Age distribution in year		
<30	3	3%
30-40	31	30%
41-60	44	43%
>60	25	24%
Educational status		
Illiterate	13	13%
Secondary	43	42%
Higher secondary	37	36%
Graduation & above	10	10%
Occupational status		
Housewife	28	27%
Service holder	23	22%
Labor	18	17%
Farmer	15	15%
Unemployed	19	18%
Family status		
Lower	53	51%
Middle	32	31%
Upper	18	17%

Table 2: Clinical status of participants (N=103)

Characteristics	n	%
BMI (Kg/m2) distribution		
Underweight (<18.0)	9	9%
Normal weight (18.0–24.9)	47	46%
Overweight (25.00–29.9)	32	31%
Obese (30−34.9)	15	15%
Fracture history		
Yes	19	18%
No	84	82%
Vitamin D (ng/ml) status		
< 20	34	33%
20 – 30	43	42%
> 30	26	25%
Life habits and nutritional status		
Smoking	32	31%
Alcoholism	2	2%
Exercise	6	6%
Green leaves	89	86%
Milk and dairy products	55	53%
Fish & meats	82	80%
Fast foods	16	16%

4. DISCUSSION

The aim of this study was to prepare a socio-demographic and clinical profile of patients with osteoporosis. In this study, among total 103 participants, 35% were male whereas the rest 65% were female. So, female participants were dominating in number and the male-female ratio was 1:2. In a study it was reported that, 34.2% of male and 65.8% of female had osteoporosis and the majority of patients were female because, according to available literature and the current results, osteoporosis is more common in female then male because of their menopause and hormonal changes [7]. On the other hand, Gallagher & John (2008) reported that, the age factor is essential among individuals' various socio- economic status as it affects the quality of life, such as social interaction and livelihood [12]. The highest number of the participants of our study was found from 41-60 years' age group which was 43%. Besides this, 3%, 30% and 24% participants were from <30, 30-40 and >60 years' age groups respectively. The findings of a recent study [13] indicated that 16.2% of elderly males in northern Iran had osteoporosis at either the spine or hip. Among all of our participants, only 13% was illiterate. On the other hand, 42%, 36% and 10% participants were secondary, higher secondary and 'graduation & above' level educated respectively. In another study, the authors reported that, older age, poor living conditions, low level of education and prolonged illness were associated with lower disease acceptance [14]. Among all of our participants, 27% were housewife; which was the highest number as a single occupation. As service holder, labor, farmer and unemployed person 22%, 17%, 15% and 18% patients had participated respectively in this study. Majority of the participants of our study were from lower class families as per the socio-economic condition. In a study it was reported that, the prevalence of this disease (Osteoporosis) is higher in women with a family income lower than minimum wages [15]. History of any bone fracture was found in 18% patients only in our study. Regarding family history of fractures and osteoporosis, most of the studies reported a positive association between the two [15, 16]. Smoking and consumption of alcohol are risk factors for osteoporosis to the extent that they lower estrogen levels and favor bone loss [16]. Most studies indicated that, physical exercise is beneficial for preventing and treating osteoporosis as it increases the strength and bone density [15, 17].

Limitation of the Study

This was a single centered study with a small sized sample. So, findings of this study may not reflect the exact scenario of the whole country.

5. CONCLUSION & RECOMMENDATION

Osteoporosis is one of the severe health problems in the elderly population. The frequencies of this disease are alarming. Socio-demographic and clinical indicators are essential factors in reducing and increasing the occurrence of osteoporosis diseases. With the improvement of socio-economic status, people are less likely to develop osteoporosis, which will potentially have a preventive role in osteoporosis. For getting more specific findings we would like to recommend for conducting similar more studies with larger sized samples in several places.

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CONFLICT OF INTEREST

None declared.

ETHICAL APPROVAL

The study was approved by the institutional ethics committee.

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