

## Osteoporosis knowledge and attitude assessment among females University students in Tabuk, Saudi Arabia

Nawal Khalaf AlAnazi<sup>1</sup>, Marahib Saud AlShahrani<sup>1</sup>, Sarah MohammedAlGosi<sup>1</sup>,  
Hyder Osman Mirghani<sup>2</sup>

<sup>1</sup>Medical Interns, Ministry of Health, Kingdom of Saudi Arabia

<sup>2</sup>Assistant Prof. in Internal Medicine & Endocrine, Faculty of Medicine, University of Tabuk

Correspondence to: Correspondence to Hyder O Mirghani. Assistant Professor of Internal Medicine Faculty of Medicine, Tabuk University, Kingdom of Saudi Arabia

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### Abstract:

**Introduction:** Osteoporosis is a common disease with a lot of morbidity and mortality that can be prevented by educational interventions.

**Objectives:** In the current research, we aimed to study the knowledge and attitude of osteoporosis among females University students in Tabuk.

**Material& Methods:** This cross-sectional study was conducted among women in the Faculty of Medicine and a secondary high school during the period from September 2015 to March 2016. One hundred and fifty women were asked to sign a written informed consent then responded to a questionnaire based on socio-demographic data and the knowledge and attitude questionnaire (the age 15-25). The ethical committee of the Faculty of Medicine approved the research, and the Statistical Package for Social Sciences was used for data analysis.

**Observations & Results:** out of 150 females students aged 15-25 (mean 18.6±3.33 year), nearly two-thirds (62%) of subjects scored from 40-60% on the knowledge and attitude questionnaire, with more than quarter scores from 20-40%. Only 64.7% and 58% knew that exercise and sun exposure could prevent osteoporosis respectively.

**Conclusion:** The current finding revealed an inadequate knowledge and attitude of osteoporosis among females University student, integration of osteoporosis in the University curricula and raising the awareness of the public about this serious disease are highly needed.

**Keywords:** Osteoporosis; knowledge; attitudes; University; females.

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### 1-Introduction

Osteoporosis is a common disease both in women and men with a high rate of mortality (10-20% in hip and spine fractures), patients with osteoporosis have pain, are more depressed, with limited ambulation, and dependent on others<sup>1-3</sup>.

Bone strength is dependent on the degree of bone mineralization, bone microarchitecture, and bone turnover in addition to the bone mineral density. Other factors that compromise bone strength include cigarettes smoking, advanced age, glucocorticoid therapy, previous fracture, and family history of osteoporosis<sup>4,5</sup>. In the United States of America, 53.6 million older adults are affected by osteoporosis and low bone mass density, most of these patients are non-Hispanic White, but a substantial number of other ethnic/races are also affected by the disease<sup>6</sup>

In an analysis conducted in the Kingdom of Saudi Arabia, researchers observed that 34%, of women aged 50-79 years and 30.7% of males were osteoporotic while osteopenia was detected in 36.6% of females and 46.3% of men<sup>7</sup>.

Recent studies confirmed the association of obstructive coronary artery disease and osteoporosis among asymptomatic postmenopausal women regardless of age and coronary risk factors<sup>8</sup>. Metabolic bone disease is a major health problem, when presented with hip fracture osteoporosis leads to high mortality and morbidity, this is often underappreciated by the patients<sup>9</sup>, drawing the attention of physicians, health providers, and the whole community attention to this serious disease is of prime importance to the prevention and management.

Regardless of bone mineral density (BMD), preventive measures, such as adequate calcium and vitamin D intake, smoking cessation, and exercise are recommended. Furthermore, there is evidence that women with normal BMD are less likely adhere to these important preventive measures<sup>10</sup>.

We are not aware of researchers who have assessed osteoporosis knowledge among University students in Tabuk; thus, we conducted this research to study the state of knowledge and attitude about this serious joint disease among University females in Tabuk.

## **2- Material&methods:**

This cross-sectional descriptive study was carried out among women University students in Tabuk City. A stratified random sample was obtained by selecting two schools and two faculties; then a random number was chosen from the student's list. Participants were approached in a ratio of 1; 1 to select 208 students for the study (response rate 72.1%). The students were asked to sign a written informed consent then responded to osteoporosis knowledge questionnaire a well-validated questionnaire constituted of 20 questions asking about risk factors and prevention of osteoporosis. Information collected include; age, marital status, and the 20 components of the inquiry: Osteoporosis cause bone fracture, females are more prone to osteoporosis, pain is a symptom of osteoporosis preceding fracture, smoking contributes to osteoporosis, family history increase the risk, Eating fish and Ca can prevent osteoporosis, exercises can prevent osteoporosis, Sun exposure can protect from osteoporosis, and more twelve question about risk factors and prevention of osteoporosis. Each question with three possible answers ( true, false or don't know. Zero scores were given for wrong or don't know answers then multiplied by 5 to provide five categories: A score of < 20 very poor, 20-40 poor, 40-60 average, 60-80 good, and 80-100 superb. The ethical committee of the University of Tabuk approved the research.

Analysis; the Statistical Package for Social Sciences was used for data analysis, the chi-square was used to compare categorical data and a P-value of < 0.05 considered significant.

## **Observations and results:**

Out of 150 females, 79.3% were single; their ages ranged from 15-22 with mean of 18.6±3.33 years. No female score more than 80% regarding osteoporosis knowledge, 12.7% scored at 80-60%, 62% scored from 40-60 while 25.3% scored from 20-40%. Table(1).

In the current study 97.3% answered correctly that Osteoporosis causes bone fracture, 80% correctly responded that females are more prone to osteoporosis, 71.3% knows that pain is a symptom of osteoporosis preceding fracture, while only 48% and 39.3% knew that smoking and family history contributed to the risk of osteoporosis, regarding prevention of the disease, 84% answered correctly that eating fish and calcium prevent osteoporosis, 64.7% knew that exercise prevent osteoporosis, and 58% knew that sun exposure prevents the disease. Table(2).

Only 17.3% of subjects knew that delaying pregnancy can cause osteoporosis; 34% knew that early puberty/ menarche could cause osteoporosis, 43.3% answered correctly that late puberty/ menarche could cause osteoporosis. Table (3) depicted another component of osteoporosis knowledge among subjects.

Table No (1): Overall score of subjects regarding osteoporosis knowledge

Character	No %
Marital status	
Single	119 (79.3%)
Married	31 (20.7%)
Total knowledge score	
> 80	0
61-80	19 (12.7%)
41-60	93 (62%)
20-40	38 (25.3%)

Table No (2): History and prevention of osteoporosis among the study group

Questions	Correct%	False%	Don't know%
Osteoporosis cause bone fracture	97.3	0	2.7
Females are more prone to osteoporosis	80	10.7	9.3
Pain is a symptom of osteoporosis preceding fracture	71.3	5.4	23.3
Smoking contributes to osteoporosis	48	14.7	37.3
Family history increases the risk	39.3	30.7	30
Eating fish and Ca prevent osteoporosis	84	5.3	10.7
exercises can prevent osteoporosis	64.7	16.7	18.6
Sun exposure can protect from osteoporosis	58	16.7	25.3

Table No (3): Subjects knowledge about osteoporosis

Question	True	False	Don't know
Delaying pregnancy can cause osteoporosis	17.3	30.7	52
Early puberty/ menarche can cause osteoporosis	34	30	36
Late puberty/ menarche can cause osteoporosis	43.3	19.4	37.3
vitamin D deficiency can decrease calcium absorption	79.3	6.7	14
Carbonated drinks and coffee can cause osteoporosis	62.7	4.7	32.7
Using cortisone can cause osteoporosis	26	10	64
Epilepsy drugs can cause osteoporosis	42.7	16.7	40.6
Two daily glasses of milk are enough for calcium requirement	48.7	16	35.3
Sodium rich food can cause osteoporosis	46	17.4	36.6
Gastrointestinal tract disorders and malabsorption can cause osteoporosis	32	18	50
Thyroid and parathyroid glands disorders can cause osteoporosis	30.7	27.7	46.6
chronic kidney diseases & diuretics can cause osteoporosis	41.3	16	42.7

### **Discussion:**

The aim of this study was to assess the knowledge, attitudes, and beliefs among secondary schools and medical students because this important sector of the community when targeted by the correct knowledge it will be of great value in improving bone health among the broad community.

In the present study, the mean age of participants was  $18.6 \pm 3.3.6$  years similar to the age from Sri Lanka study among University students which reported an age of  $20 \pm 2.1$  years.

It is interesting to know that: no female score more than 80% and 62% of women score average similar to Ediriweera de Silva et al.<sup>11</sup> who concluded that 51.6% of university students score from 40-60 (average). In the current study 25.3 scored very poor and were lower than the previous study in which 38.2% score from 20-40%.

Knowledge of the disease and its risk factors are necessary measures towards the prevention of illness, in our study females knowledge about osteoporosis risks is good compared to others from Turkey<sup>12</sup>. Also, women in the present study had good knowledge about eating fish, sun exposure and exercise indicating that our population is motivated towards eating high calcium diet and exercise.

In the present study, 97.3% of participants were aware that osteoporosis causes fracture this can be considered as a good starting point and a good base for conducting community health education about this serious disease.

The current data showed that: only 17.3%, 34%, and 43.3% of students knew that delaying pregnancy, early puberty/ menarche, and late puberty/ menarche can cause osteoporosis respectively. Knowledge of smoking and family history of risk factors was also poor 43%, and 39.3% respectively these were lower than a study conducted in Egypt<sup>13</sup> in which the figures were 60.4% and 52.6% respectively and comparable to research carried out in Iran<sup>14</sup> in which 28.5% and 62.6% knew that family history and risk factors are risk factors for osteoporosis.

**Conclusion:** Poor knowledge and attitude were found among females University students in Tabuk, Saudi Arabia, measures to increase the awareness about osteoporosis through public education and integration in the school curricula are highly needed. Limitations of the study are the small size of the survey sample, and the study was conducted at two schools so generalization cannot be ensured. The reliance on a self-reported questionnaire is more prone to subjectivity.

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