

# Knowledge, attitude and practice about osteoporosis among young adults in RIYADH 2019

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## ABSTRACT

**Objectives:** To study the knowledge, attitude and practice level among young Saudi adults regarding osteoporosis. **Methods:** A cross-sectional study was done in Riyadh among Saudis, within the age group (17–30 years old), with sample size (663). A validated questionnaire was distributed in paper and electronic forms. The questionnaire had five parts: first part was the demographic variables, second part the source of the participant knowledge about the disease, third part assessed the knowledge about osteoporosis, fourth part assessed osteoporosis attitudes, and the fifth part assessed the practice for prevention of osteoporosis. The collected data was analysed by Statistical Package for the Social Sciences program. **Results:** It was found that there was low level of knowledge among overall participants; there was no significant difference between male and female in level of knowledge, while the age group 21–25 had the highest knowledge level among all other age groups. Males have better level of practice of a healthy lifestyle that decreases the risk of osteoporosis than females. In total, 52.5% of males have a sufficient level of practice, while only 34.9% of females have acceptable level of practice **Conclusion:** The study found no significant difference between males and females regarding the knowledge of osteoporosis. Males were found to have better level of practice of a healthy lifestyle that decreases the level of osteoporosis than females. The study recommends similar studies and undertake more efforts in promotion of preventive programs for young adults.

**Keywords:** Attitude and practice, knowledge, osteoporosis, Saudi

## Introduction

Osteoporosis is a disease that affects the skeletal system in an irreversible way. It affects both density and quality of bones.<sup>[1-5]</sup> The bones become fragile and that may increase the risk of fractures.<sup>[6,7]</sup> Rising incidence of osteoporosis needs attention towards the emphasis on its management and control; management objectives are to control the consequences of the disease such as bone fractures and started to think of ways to reduce the incidence

pattern. Eating and food choices of young adults is one of the reasons of developing osteoporosis in the future.<sup>[8-14]</sup>

The need of osteoporosis education programs has been established by many previous studies. However, most of these programs designed for older diseased age groups and the main target was to reduce the consequences of osteopenic patients. Thus, giving preventive educational programs to nondiseased population is a low priority. One of the most important nondiseased populations are young adults, which defined as those between 17 and 30 years old.<sup>[15-19]</sup>

Establishing osteoporosis preventive educational programs depends on several factors, one of which is to know the level

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of knowledge among diseased and nondiseased populations, but particularly the second group. The other factor is to assess the method of information seeking, so that educational programs could transmit true reliable information. By understanding that, adequate designed programs would be possible.<sup>[20]</sup>

## Methods

A qualitative, observed cross-sectional study was done during 2019 in Saudi Arabia, Riyadh city.

The data collection was done from the months of January through March 2019. Information was obtained by a precoded Arabic self-administrated questionnaire. A random sampling technique was used to select the participants.

The inclusion criteria were as follows: Saudis in Riyadh city, Aged between 17 and 30, and male or female.

Exclusion criteria: were as follows: non-Saudi participants, aged above 30 and below 17, and residents outside Riyadh city.

### Data collection methods

The questionnaire form was distributed, both paper based and online-based copies, through social media (Twitter, Snapchat and WhatsApp). The use of this sampling technique allowed to reach the greatest possible number of Saudi participants living in Riyadh, facilitating the measurement of knowledge, attitude and practice about osteoporosis among Saudis. The form was filled by Saudi participants from both genders between the age of 17 and 30 years.

The questionnaire was composed of five parts:

1. Demographic variables: This part includes age, sex, education level, occupation and residence income.
2. The source of the participant knowledge about the disease: This part has a question about the source of knowledge about the disease
3. Assess the knowledge about osteoporosis: Responses to knowledge items include: true, false and do not know. True answers were scored as 1, while wrong answers and do not know were scored as 0. The total knowledge score ranges from 0 to 28.
4. Assess osteoporosis attitudes: Responses to attitude items include: agree, disagree, and uncertain. Correct answer scored as 1, while wrong answer scored as 0; scores ranged from 0 to 10.
5. Assess the practice for prevention of osteoporosis: This part measures the practices towards preventing osteoporosis. Appropriate practice has a higher score. It is composed of five closed questions, where each answer to a question enquiring about the frequency of practicing a preventive measure was assigned a score – for example, eating calcium-rich food (never = 0; once weekly = 1; 2–3 times weekly = 2; 4–6 times weekly = 3; and daily = 4). For the yes/no items,

the correct answer was assigned a score of 1 point and 0 for the incorrect one.

### Pilot study

The validated questionnaire was obtained from a previous study<sup>[23]</sup> with a permission; we contacted the author (Ahmed K. Ibrahim) for a permission to use the questionnaire list and he gave us the formal permission.

### Data analysis

Data was analysed using SPSS 24.0 version statistical software. Descriptive statistics (mean, standard deviation, frequencies and percentages) was used to describe the quantitative and categorical variables. Bivariate statistical analysis was carried out using appropriate (Chi-square, Student's *t* test, one-way analysis of variance and Pearson's correlation) statistical tests, based on the type of study and outcome variables. A *P* value of < 0.05 and 95% was used to report the statistical significance and precision of results.

### Ethical considerations

1. The informed consent was taken and indicated the purpose of the study and the right of the participant to withdraw at any time without any obligation towards the study team.
2. Participants' anonymity was assured by assigning each participants with a code number for the purpose of analysis only.

No incentives or rewards were given to participants.

## Results

The total of 2161 participants completed the questionnaire. Out of those participants, only 683 met the inclusion criteria to be included in the study (those inclusion criteria were 1 – being the age of 17–30; 2 – being from Riyadh). Out of those included, 62.5% were male and 37.5% were female. Participants aged 17–20 were 269, while participants aged 21–25 were 298 and only 103 were from 26 to 30. Only 0.04% of those participants had higher education, while 74.24% had a bachelor degree and only 25.76% only had high school [Table 1].

Table 2 shows the difference in knowledge about osteoporosis between different gender age groups and level of education. We found that there was no significant difference between male and female. Age group 21–25 had the highest knowledge level among all other age groups. In total, 51.4% of people within this age group had high knowledge (*P* = 0.02). No significant difference observed in the level of education between those who have high or low level of education

Males have better level of practice of a healthy lifestyle than females that decreases the risk of osteoporosis. In total, 52.5% of males have a sufficient level of practice while only 34.9% of females have acceptable level of practice (0.001); young

participants (17–20) had a better practice level 45.6% than other age groups (21–25 + 26–30); in those age groups, only 39.9 and 34.0%, respectively, had a good level of practice ( $P = 0.029$ ). There was no observed difference in practice between those who have high level of education and those who do not [Table 3].

Table 4 shows the attitude of participants after being five questions, according to this table, only 35.4% believe that they are susceptible to getting osteoporosis, while 44.2% believe that fractures caused by it may cause disability. In total, 90.5 and 87.6% think that calcium-rich food and exercise may prevent

osteoporosis, respectively, and only disagreed about the benefit of calcium (2.3%) and exercise (3.2). Majority of participants believed that osteoporosis can be cured (52.1%)

## Discussion

Most of our participants were young adults aged from 17 to 30. Also, most were below 26, males made up most of our participants, bachelor degree was the most prominent level of education among the participants, which is not a true high risk group for developing osteoporosis but was chosen because it includes young adults who are still experiencing bone growth and establishing their food behavior. Therefore, it makes them a future risk group for developing osteoporosis if their current lifestyle does not include measures to prevent the disease. In total, 98% of all respondents had heard about the disease with no significant difference between males and females. This is contrary to a study conducted among older females,<sup>[21]</sup> where only (62%) heard about osteoporosis. This difference could be correlated with a difference in age or level of education.

Knowledge of osteoporosis among young adults was relatively low, 45.5% had high knowledge this is in contrast to the same study,<sup>[21]</sup> where only 64.4% had high knowledge about the diseases this high knowledge in older women could be due to higher prevalence of the disease in older women. Although there was no significant difference in knowledge between male and female or between different levels of education, participants aged 21–25 had higher knowledge; this difference in knowledge between age groups is not clear, but even so the attitude towards the disease become more negative with increased age. 90.5% and 87.6% believed that calcium-rich food and exercise could decrease risk for osteoporosis, respectively, yet, only 35.7% of the same respondents have sufficient amount of calcium more than 3 days a week and only 17.6% exercised more than 90 min a week. This gap between attitude and practice could be due to the believe that they could not get osteoporosis in the future, and even if they get it, only a 44.2% believe that fractures caused by osteoporosis could cause disability and also more than 50% believed they could be cured if they get it.

## Conclusion/Recommendations

The findings of the current work demonstrated that there is no significant difference between males and females regarding the knowledge of osteoporosis. Males were found to have better level of practice of a healthy lifestyle that decrease the level of osteoporosis then females. The study recommends similar studies to be obtained with a wider view, as well as the governmental and nongovernmental organizations to undertake more efforts in promotion of preventive programs for young adults.

## Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient(s) has/have given his/her/their consent for his/her/their images and other

**Table 1: Different variables and their frequencies**

Variable	Frequency (%)
Age	
17-20	296 (42.4)
21-25	298 (42.7)
26-30	103 (14.7)
Gender	
Male	256 (36.7)
Female	427 (61.2)
Level of education	
High school or lower	148 (21.2)
Bachelor	507 (72.7)
Higher education	28 (4.0)

**Table 2: The difference in knowledge**

Variable	Knowledge level (%)		Pearson Chi-square	P
	High	low		
Age				
17-20	115 (40.2)	171 (59.8)	7.435	0.024
21-25	151 (51.4)	143 (48.6)		
26-30	45 (43.7)	58 (56.3)		
Gender				
Male	115 (44.9)	141 (55.1)	0.062	0.803
Female	196 (45.9)	231 (54.1)		
Level of education				
High school or lower	58 (39.2)	90 (60.8)	3.537	0.171
Bachelor	238 (46.9)	269 (53.1)		
Higher education	15 (53.6)	13 (46.4)		

**Table 3: The difference in practice**

Variable	Practice classification (%)		Pearson Chi-square	P
	Good	Poor		
Age				
17-20	135 (45.6)	161 (54.4)	4.759	0.029
21-25	119 (39.9)	179 (60.1)		
26-30	35 (34.0)	68 (66.0)		
Gender				
Male	137 (52.5)	124 (47.5)	20.903	0.001
Female	152 (34.9)	284 (65.1)		
Level of education				
High school or lower	70 (45.8)	83 (54.2)	2.286	0.319
Bachelor	210 (40.7)	306 (59.3)		
Higher education	9 (32.1)	19 (67.9)		

**Table 4: Attitude of total participants**

Variable	Attitude towards the disease		
	Agree (%)	Not specified (%)	Disagree (%)
I think that I am susceptible to get osteoporosis			
Total	242 (35.4)	267 (39.1)	174 (25.5)
I think that calcium rich food prevents osteoporosis			
Total	618 (90.5)	49 (7.2)	16 (2.3)
I think that exercise prevents osteoporosis			
Total	598 (87.6)	63 (9.2)	22 (3.2)
I think that osteoporosis cannot be cured			
Total	161 (23.6)	166 (24.3)	356 (52.1)
I think that fractures caused by osteoporosis may cause disability			
Total	302 (44.2)	218 (31.9)	163 (23.9)

clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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### Conflicts of interest

There are no conflicts of interest.

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