

# Knowledge and Awareness of Osteoporosis among Saudi Physicians and Nurses: A Cross-Sectional Study

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## Abstract

**Citation:** Alghamdi MA, Mohammed AGA. Knowledge and Awareness of Osteoporosis among Saudi Physicians and Nurses: A Cross-Sectional Study. Open Access Maced J Med Sci. <https://doi.org/10.3889/oamjms.2018.177>

**Keywords:** Osteoporosis; Health professionals; Awareness; Knowledge; Saudi

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**Received:** 25-Jan-2018; **Revised:** 23-Mar-2018; **Accepted:** 24-Mar-2018; **Online first:** 15-May-2018

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**Funding:** This research did not receive any financial support

**Competing Interests:** The authors have declared that no competing interests exist

**AIM:** We aimed to evaluate the awareness and knowledge of osteoporosis in a sample of 141 health professionals.

**MATERIALS AND METHODS:** A group of 141 health professionals (medical, surgical, primary health care and nursing departments) were enrolled in this cross-sectional study in the period from August 2017 to November 2017. The participants completed a questionnaire composed of 19 questions about osteoporosis which covering the main domains of knowledge on osteoporosis. Each correct answer carried 1 point whereas incorrect or 'don't know' carried 0 points. This gave a total score range of 0-19. A cut-off level of < 10 points was considered as poor knowledge while  $\geq 10$  was regarded as good knowledge.

**RESULTS:** Out of 141 respondents, 78 were females, 63 males, mean age of the participants was  $38.17 \pm 9.6$  years, less than 40 years ( $n = 89$ ), more than 40 years ( $n = 52$ ). Nurses ( $n = 54$ ), medical ( $n = 29$ ), surgical ( $n = 35$ ), primary health care ( $n = 23$ ). Most of the study group with experience of fewer than 10 years ( $n = 66$ ), 127 (90.1%) had good knowledge and 14 (9.9%) had poor knowledge  $p$ -value < 0.01.

**CONCLUSION:** Our study revealed that Saudi health professionals have a good of knowledge about osteoporosis and no significant difference in osteoporosis knowledge between the health professional subgroups.

## Introduction

Osteoporosis is defined as a systemic bone disease characterised by decreased bone mass and deterioration of micro-architecture of bone tissue leading to increased risk of fracture [1]. Osteoporosis is a major health problem in both developed and developing countries [2], and it has been considered as the second most important health concern after heart diseases in developed countries [3].

Several studies from different countries have pointed out the lack of awareness of osteoporosis, its risk factors and measures of prevention not only among the general population but also among physicians [4] [5]. Thus expanding the knowledge and

awareness of osteoporosis are important measures warranting better care of osteoporosis with subsequent improvement of life quality and decrease disease burden.

A recent study demonstrated that physician knowledge and education improve patient care and outcome [6]. It worth mentioning that there is a deficiency in the number of Saudi health professionals [7]. Therefore, adequate and updated knowledge of osteoporosis by health professionals is of great importance towards improving patient care.

This study aims to evaluate the knowledge and awareness of osteoporosis in 141 Saudi health professionals.

## Methods

This a cross-sectional study conducted at King Abdullah General Hospital in Bisha from August 2017 to November 2017. A total of 141 health professionals (medical, surgical, primary health care and nursing departments) were enrolled in the study. The participants were selected randomly. Ethical approval was sought from Human Research Ethics Committee at the University of Bisha. All participants were given oral informed consent. The data was collected using a structured questionnaire.

The following data were taken from each participant: age, gender, type of health profession and years of experience. The questionnaire also included 19 questions on osteoporosis knowledge, which cover the definition, risk factors, management, prevention and complications of osteoporosis. Each item has Yes, No, and "Do not know" options. The latter option was designed to avoid guessing. Each correct answer carried 1 point whereas incorrect or 'don't know' carried 0 points. This gave a total score range of 0-19. A cut-off level of < 10 points were considered as poor knowledge while  $\geq 10$  was regarded as good knowledge.

Statistical analysis was conducted using Statistica (version13.2). Descriptive statistics were used to demonstrate the characteristics of the study population. Continuous variables were expressed as mean  $\pm$  standard deviation whereas categorical variables were measured as frequency and percentages. Kolmogorov-Smirnov and Shapiro-Wilk W test were used to determine nature of the distribution. Kruskal Wallis test was applied to assess the degree of knowledge among the different subgroups where the health profession, age group, gender, and experience were entered as dependent variable while the degree of knowledge was entered as an independent variable, statistical significance is considered as  $P < 0.05$ .

## Results

The characteristics of respondents are shown in Table 1.

**Table 1: Respondents characteristics**

Variable	Category	No	Percentage
Age group	Less than 40	89	63.1
	More than 40	52	36.8
Gender	Male	63	44.6
	Female	78	55.3
Speciality	Medical	29	20.5
	Surgical	35	24.8
	Primary care	23	16.3
Experience	Nurse	54	38.2
	Less than 10	66	46.8
	10-20	57	40.4
	More than 20	18	12.7

The mean age of the participants was  $38.17 \pm 9.6$  years. Concerning their age group, the majority were less than 40 years ( $n = 89$ ), more than 40 years ( $n = 52$ ). In terms of gender, the majority were females ( $n = 78$ ), males ( $n = 63$ ). A large number of the respondents were nurses ( $n = 54$ ), medical ( $n = 29$ ), surgical ( $n = 35$ ), primary health care ( $n = 23$ ). Respondents with experience of fewer than 10 years were greater than other groups ( $n = 66$ ) (see Table 1). Responses to osteoporosis questions are shown in Table 2.

**Table 2: Responses to the questionnaire questions**

Question	Correct No/%	Incorrect (No/%)	Do not know (No/%)
Pain is common in individual with osteoporosis	56 (39.7%)	80 (56.7%)	5 (3.5%)
Osteoporosis is a condition characterised by fragile bones	130 (92.1%)	9 (6.3%)	2 (1.4%)
Osteoporosis and osteomalacia are different conditions	131 (92.9%)	7 (4.9%)	3 (2.1%)
Osteoporosis is common in women than men	136 (96.4%)	4 (2.8%)	1 (0.7%)
Bones are strongest between the ages of 20 to 50 years	125 (88.7%)	11 (7.8%)	5 (3.5%)
Early menopause is a risk factor for osteoporosis	136 (96.5%)	3 (2.1%)	2 (1.4%)
Excessive alcohol intake is a risk factor for osteoporosis	124 (87.9%)	4 (2.8%)	13 (9.2%)
Sun light reduces the risk of getting osteoporosis	128 (90.8%)	12 (8.5%)	1 (0.7%)
Lack of exercise is a risk factor for osteoporosis	123 (87.2%)	11 (7.8%)	7 (4.96%)
Awareness of HRT in prevention of osteoporosis	131 (92.9%)	4 (2.8%)	6 (4.2%)
High chance of sustaining a fracture if the previous history of fragility fractures	131 (92.9%)	3 (2.1%)	7 (4.96%)
Family history predisposes to osteoporosis	101 (71.6%)	25 (17.7%)	15 (10.6%)
low BMI is risk factor for osteoporosis	90 (63.8%)	41 (29.1%)	10 (7.1%)
Osteoporosis increases risk of fractures	131 (92.9%)	4 (4.2%)	6 (2.8%)
Physical activity is beneficial for osteoporosis	121 (85.8%)	16 (11.3%)	4 (2.8%)
If you have osteoporosis, you become shorter due to bent spine	106 (75.1%)	21 (14.89%)	14 (9.9%)
Osteoporosis is treatable disease	107 (75.9%)	31 (21.98%)	3 (2.1%)
There are no effective treatments for osteoporosis available	73 (51.8%)	52 (36.9%)	16 (11.3%)
Calcium supplements and Vitamin D can prevent osteoporosis	129 (91.5%)	8 (5.7%)	4 (2.8%)

Out of 141 respondents, 127 (90.1%) had good knowledge and 14 (9.9%) had poor knowledge - p-value < 0.01. There was no significant difference in the level of knowledge on osteoporosis among the health professionals' subgroups (age groups, sex, experience, and speciality) as shown in Table 3.

**Table 3: Level of knowledge on osteoporosis among the health professionals' subgroups**

	Category	Degree of knowledge		No	P value
		Good	Poor		
All respondents	All respondents	127 (90.1%)	14 (9.9%)	141	< 0.01
	less than 40	79 (89%)	10 (11%)	89	
Age groups	more than 40	48 (92%)	4 (8%)	52	0.4897
	All Groups	127 (90%)	14 (10%)	141	
	medical	29 (21%)	0 (0%)	29	
Specialities	surgical	31 (22%)	4 (3%)	35	0.0591
	primary care	21 (15%)	2 (1%)	23	
	nurse	46 (33%)	8 (6%)	54	
Gender	All Groups	127 (90%)	14 (10%)	141	0.2030
	male	59 (42%)	4 (3%)	63	
	female	68 (48%)	10 (7%)	78	
Experience	All Groups	127 (90%)	14 (10%)	141	0.1730
	less than 10	57 (40%)	9 (6%)	66	
	10-20	53 (38%)	4 (3%)	57	
	more than 20	17 (12%)	1 (1%)	18	
	All Groups	127 (90%)	14 (10%)	141	

## Discussion

Osteoporosis is a substantial health problem, particularly with an increase in ageing population. The cornerstone of prevention of osteoporosis is to improve knowledge and awareness among health professionals. Physicians in practice have only limited information about the proper and best treatment strategies for osteoporosis [8]. Although there were many studies described osteoporosis knowledge in populations, only scarce data addressed osteoporosis knowledge among health professionals [9].

This study explored the knowledge of health professional on osteoporosis in Saudi Arabia. In our study, 90% of the study group expressed good knowledge on osteoporosis which is significantly high. These findings are almost in accordance with the results of another study concluding that 88% of physicians had a good knowledge of osteoporosis [10]. Furthermore, Saeedi et al. described a range of osteoporosis knowledge between 36.5% and 92.2% among physicians [11]. Moreover, German study reported good knowledge of osteoporosis in 83% of primary care physicians [12]. On the other hand, some studies reported a bit low level of osteoporosis knowledge. In 2013 Al-Musa et al. described an average level of knowledge of 67% [13]. Another study conducted in 490 primary care physicians, 50% demonstrated adequate knowledge of calcium and vitamin D supplementation, 51% were aware of the main therapeutic purposes of osteoporosis [14].

Concerning the questions about osteoporosis, the majority of the respondents demonstrated a good level of knowledge; however, a large gap in knowledge of osteoporosis was detected in two questions assessing symptoms and treatment of osteoporosis with correct answers only of 56% and 73% respectively. Beshyah et al. described poor knowledge about osteoporosis treatment among practising physicians [15]. These results lower than what we observed and it could be explained by several reasons including; the difference in study samples, methods of evaluation of knowledge level and the type of the questions in the assessment questionnaires.

About age groups and length of experience, no statistically significant differences in the degree of osteoporosis knowledge between the various groups, although several studies demonstrated a significant inverse relation between physicians' age and knowledge about osteoporosis [16] [17] [18]. This discrepancy is likely attributed to our small sample, but could also be linked to the heterogeneity of our study population.

In this study, health professional gender did not affect the level of knowledge about osteoporosis, while other studies described that females are more knowledgeable than men [12] [18] [19].

In the present study, the degree of knowledge among the different health professionals' subgroups (medical, surgical, primary health care and nursing) showed no significant differences. However, one previous report showed an increased degree of knowledge in family physicians than did general practitioners [16].

Of note, our study has several limitations; the cross-sectional design decreased the power of the study and outcome bias cannot be excluded due to the small sample. A large sample would have led to a better conclusion.

In conclusion, this present study showed that health professionals have a good knowledge about osteoporosis, but there is no significant difference in osteoporosis knowledge between the health professional subgroups (age groups, sex, experience, and speciality). However, there are a few gaps in knowledge that need to be addressed by adopting educational programs for health professionals to robust patient care and decrease disease burden.

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