

Awareness of Osteoporosis among Al-Ahsa Population, KSA

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Abstract:

Background: Osteoporosis is a serious silent disease that develops slowly over so many years and often diagnosed after the fragility fracture happened. Developing this disease depends on many factors like genetic predisposition, aging, dietary habits, physical activity, endocrine changes, lifestyles, general health condition and using medications.

Aim: To assess the level of awareness of our subjects (aged 40 years and more) about osteoporosis and its risk and protective factors.

Methods: An in-public places designed questionnaire, and carried out in Al-Ahsa Governorate during January 2016. The targeted group was 345 randomly selected people aged 40 years and above. The pre-designed questionnaire consisted of 27 questions. Questions were on socio-demographics, knowledge on osteoporosis (occurrence, signs and symptoms, family history, risk factors, prevention, best screening age and the relationship of osteoporosis with the consumed milk and dairy products, soft drink, physical activity and smoking habits).

Results: Only 11% of the participants did not know about osteoporosis before. 8.12% has been diagnosed with osteoporosis most of them were female (75%). Less than one fifth of our sample (17.68%) knows that osteoporosis is a silent disease. Unsurprising, due to Al-Ahsa people life style where there is lack of regular activity (only 29.6% of the subjects practice sports activity regularly), the mean BMI is high (29.2 kg/m²). Only 2.3% of the subjects were aware of the proper time for screening for osteoporosis. Most of the participants usually take their medical knowledge from either the internet or treating physician. **Conclusions:** The level of awareness about osteoporosis in our community does not guarantee a patient will practice good bone health behavior.

Keywords: Ahsa, awareness, prevention, Saudi Arabia, Osteoporosis.

INTRODUCTION

The Osteoporosis is a progressive systemic skeletal disease characterized by low bone mass and micro-architectural deterioration of bone tissue, with a consequent increase in bone fragility and susceptibility to fracture. Osteoporosis affects both sexes. The World Health Organization (WHO) defined osteoporosis as 'an epidemic of the 21 century'¹.

Osteoporosis prevalence in the Kingdom of Saudi Arabia (KSA) is about 34% in healthy Saudi women aged between 50-79 years, and 30.7% in men². With a reported increase aging of the Saudi population from 45-67

years (in 1960) to 75.7 years (in 2013), osteoporosis prevalence is expected to increase even further³. Osteoporosis has become an increasing health problem. It is a serious silent disease that develops slowly over so many years and often diagnosed after the fragility fracture happened. The incidence of vertebral fractures due to osteoporosis in KSA is between 20%-24%². In Italy, 90000 hip fractures per year affect persons aged older than 50 years⁴. In USA, 90% of 350000 hip fractures per year occur in persons over 65 years⁵. On 2007, the estimated yearly cost for treating patients with proximal femoral fracture due to osteoporosis on KSA was about SR4.27 billion (US\$1.14 billion)⁶. Whereas, in the USA, the estimated yearly cost of osteoporosis related fractures were \$19.2 billion⁷ and it is expected to rise to \$25.3 billion per year by 2015⁸.

Developing this disease depends on many factors like genetic predisposition, aging, dietary habits, physical activity, endocrine changes, lifestyles, general health condition and using medications⁹. The good thing is that osteoporosis easily recognized by screening suspected subjects (the recommended age for screening healthy subjects is at age of 65 years)¹⁰.

We believe that improving the knowledge and the awareness of the community about osteoporosis will had a positive impact on it. So that the aim of this study was to assess the awareness of osteoporosis in Saudi men and women aged 40 years and above.

Aim of study: To assess the level of awareness of osteoporosis and its risk and protective factors in Al-Ahsa Governorate population.

MATERIALS AND METHODS

The study is based on an in-public places designed questionnaire, and carried out in Al-Ahsa Governorate during January 2016. The targeted group was 345 randomly selected people aged 40 years and above. The pre-designed questionnaire consisted of 27 questions including 4 multiple choices, 20 single choice and 3 were an open-ended questions. The questionnaire asked respondents about their age, gender, height, weight, education level and their knowledge on osteoporosis issues that included its occurrence, signs and symptoms, family history, risk factors, prevention, best screening age as well as the relationship of osteoporosis with the consumed milk and dairy products, soft drink, physical activity and smoking habits.

RESULTS

A total of 345 subjects completed the questionnaire. The mean age of subjects was 50.5 ± 9.0 years, and age range was from 40 to 90 years old; 170 (49.3%) were between 40-49 years old, 117 (33.9%) were between 50-59 years old, 46 (13.3%) were between 60-69 years old and 12 (3.5%) were 70 years and above (figure 1). Out of them 54.63% of participants were male and 45.37% were female.

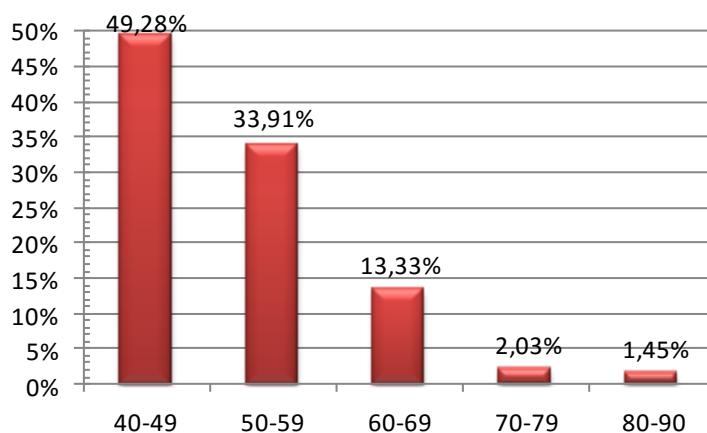


Figure 1. Participants according to age group

That we can calculate their Body Mass Index (BMI). We found that the mean BMI measurement was 29.2 ± 6.3 kg/m^2 with a range between 16.8 and 67.9 kg/m^2 . The education level of the subjects according to gender is shown in Table 1.

Table 1. The education level of the subjects according to gender

education level	Female		Male		Total Count	Total %
	Count	%	Count	%		
Higher	5	3.05%	12	6.63%	17	4.93%
bachelor's	35	21.34%	51	28.18%	86	24.93%
secondary	38	23.17%	48	26.52%	86	24.93%
intermediate	22	13.41%	32	17.68%	54	15.65%
primary	27	16.46%	22	12.15%	49	14.20%
didn't study	37	22.56%	16	8.84%	53	15.36%
Grand Total	164		181		345	100.00%

Participants were asked if they heard about osteoporosis disease. Only 11% said this is the first time they hear about such disease, whereas the 89% they know or they had heard about osteoporosis before. When we test the relationship between the level of education and past knowledge about osteoporosis disease, we found that there is significant correlation ($p < 0.005$) (Table 2).

Table 2. significant relationship between the level of education and past knowledge about osteoporosis disease

past knowledge	Higher		bachelor's		secondary		intermediate		primary		didn't study		Total Count	Total %
	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%		
No		0.00 %	2	2.33%	4	4.65%	10	18.52 %	11	22.45 %	11	20.75 %	38	11.01 %
Yes	17	100%	84	97.67 %	82	95.35 %	44	81.48 %	38	77.55 %	42	79.25 %	307	88.99 %
Grand Total	17		86		86		54		49		53		345	100%

About 90% of the participants said that osteoporosis affects both gender (Table 3) and around 72.3% define osteoporosis as a dangerous disease.

Table 3. What participants said about which gender is affected by osteoporosis

	Female		Male		Total Count	Total %
	Count	%	Count	%		
Men only	1	0.67%	3	1.90%	4	1.30%
Women & Men	127	85.23%	150	94.94%	277	90.23%
Women only	21	14.09%	5	3.16%	26	8.47%
Grand Total	149		158		307	100.00%

Out of 345 only 28 (8.12%) subjects had diagnosed to have osteoporosis, 21 (75%) of them were female (Table 4), most of them were diagnosed at age 52.5 ± 2.5 years. Interestingly 88 (25.5%) participants had one or more of their relatives had osteoporosis, mostly is the mother (43.18%) as shown in Table 5.

Table 4. Demographic characteristic of participant (age, gender)

	Count	%
No	317	91.88%
Yes	28	8.12%
Female	21	6.09%
40-49	4	1.16%
50-59	10	2.90%
60-69	3	0.87%
70-79	2	0.58%

80-90	2	0.58%
Male	7	2.03%
50-59	5	1.45%
60-69	2	0.58%
Grand Total	345	100.00%

Table 5. Participants relatives with osteoporosis

	Count	%	
mother	38	43.18%	
	One of the children	2	2.27%
	One of the brothers	11	12.50%
father	8	9.09%	
relatives	18	20.45%	
	Grandpa or Grandma	11	12.50%
Grand Total	88	100.00%	

There was no strong significant correlation between subjects who had osteoporosis and having one or more of their relative diagnosed with osteoporosis ($p= 0.074$).

Regarding the proper age for screening for osteoporosis most of the participant said at age 40 years (40%), and only 8 subjects (2.3%) believes it should be at age of 60 to 65 years.

When we asked about the risk factors of osteoporosis most frequently they chose Aging (29.6%) as a risk factor followed by unhealthy food intake (26.8%) than genetic predisposition (15.9%), (Figure 2).

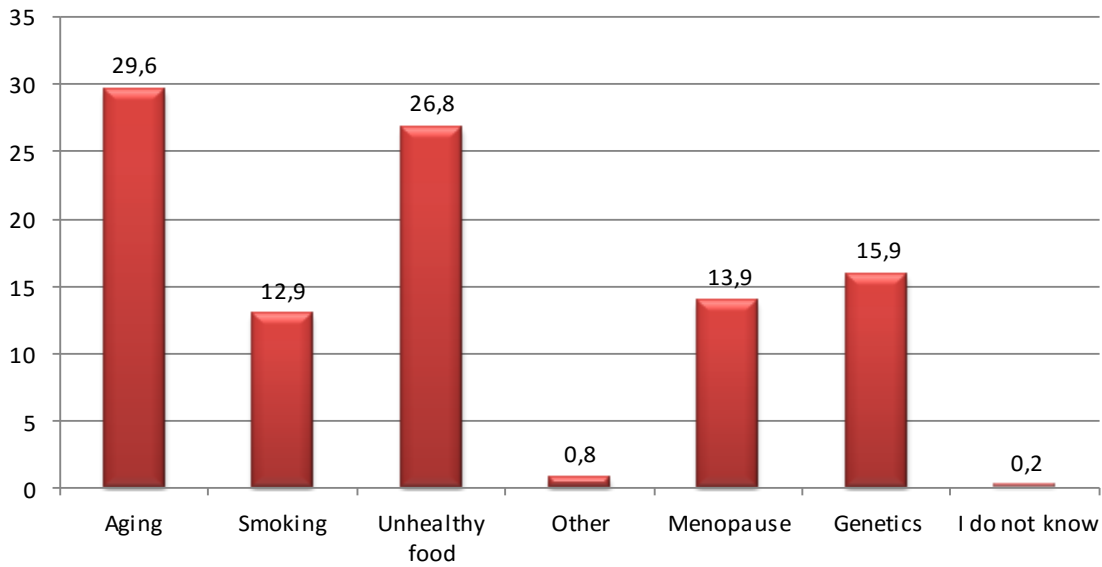


Figure 2. Proportion of chosen answer for risk factors for Osteoporosis

Whereas, the most common chosen answer for protective factors were healthy food intake during childhood and youth (25.5%) followed by early osteoporosis screening (20.8%) than taking food compliments (20.3%),(Figure 3).

For the signs and symptoms of osteoporosis, only 61 (17.68%) subjects mention fragility of bones and easily fractured, whereas the majority 187 (54.2%) subjects said there will be bone and joints pain and 24% of them said we do not know (Figure 4).

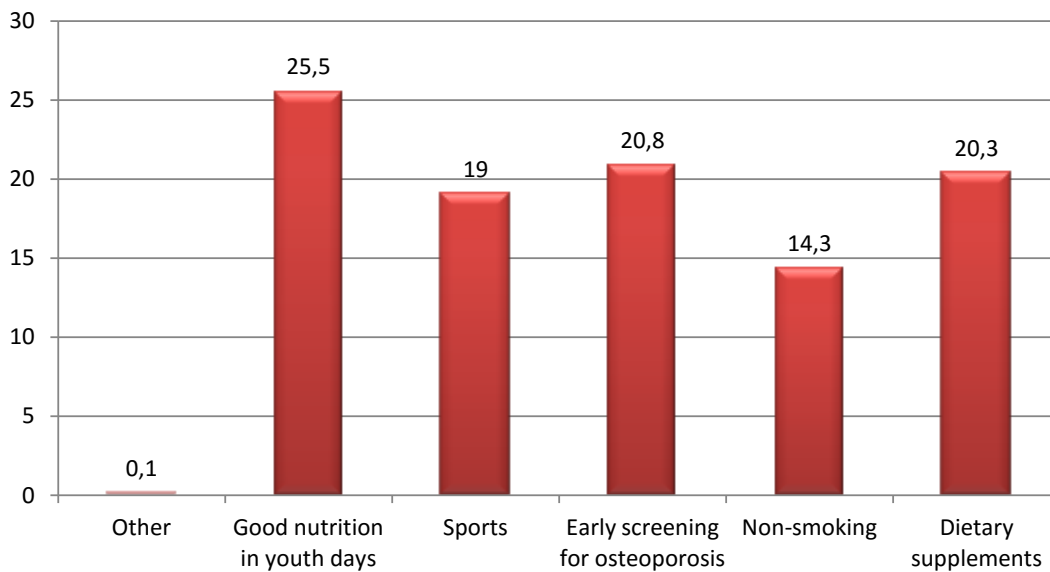


Figure 3. Percent of chosen answer for protective factors against Osteoporosis

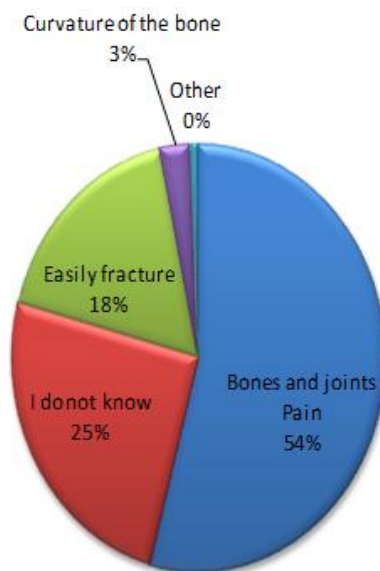


Figure 4. Signs and symptoms of Osteoporosis that our subject's thinks patient will develop

83.48% of participants believe that consumption of milk and its dietary products will decrease the chance of developing osteoporosis in the future (Table 6).

Table 6. Participants perception in benefit of milk consumption for osteoporosis and their consumption frequency

	Count	%
No	18	5.22%
Daily	4	22.22%
Several times a week	7	38.89%
rarely	3	16.67%
Do not drink it	4	22.22%
Yes	288	83.48%
Daily	110	38.19%
Several times a week	121	42.01%
rarely	48	16.67%
Do not drink it	9	3.13%
I don't Know	39	11.30%
Daily	10	25.64%
Several times a week	11	28.21%
rarely	11	28.21%
Do not drink it	7	17.95%
Grand Total	345	100.00%

We found that there is statistically significant positive correlation between the level of education and the daily consumed amount of milk and its dietary products ($p < 0.05$). For soft drinks 82.6% believes that it will increase the chance of developing osteoporosis and about 60.3% believes that smoking enhance the development of osteoporosis. Almost 77.7% said that practicing sports is protective against osteoporosis and most of them (60.2%) prefer walking as a best sport. Unfortunately only 29.6% of our participants are doing sports activity regularly (two times or more per week) (Table 7).

Table 7. Regularity of sports activity in our participants regardless of the duration

	Count	%
Daily	34	9.86%
Several times a week	68	19.71%
Once a week	61	17.68%
Less than that	62	17.97%
No	120	34.78%
Grand Total	345	100.00%

Again, we discover that as the level of education of the subject increased, the level of activity and sport will increase ($p < 0.001$). Most of our participants (84.8%) prefer to take their medical information and education from either the physician or the internet (Figure 5).

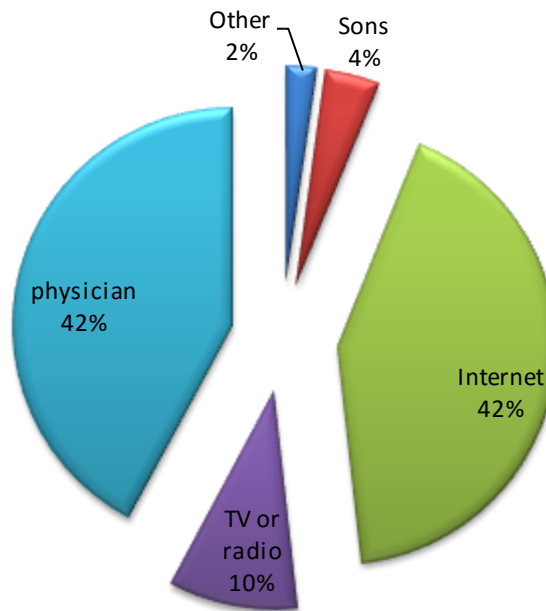


Figure 5. The preferred source for taking medical information

DISCUSSION

This study is design to evaluate the knowledge and awareness of osteoporosis in subjects who are at risk of developing osteoporosis within the next view years. It is seem that most of our subjects are educated (only 15.3% did not enter the school), which, as we think, plays a positive role in gaining some knowledge about osteoporosis. And that what we noticed, the higher the education level, the higher the past knowledge of osteoporosis ($p < 0.005$), more frequent consumption of milk and its dairy products ($p < 0.05$), more physically active and tend to practice sport ($p < 0.001$). Unfortunately, less than one third (29.6%) of our participants practice sports activity regularly; probably that's one of the causes of high mean BMI of our subjects ($29.2 \pm 6.3 \text{ kg/m}^2$); we should consider this as a warning sign for us and for the community that the sedentary life style is affecting our health in so many aspects.

Most of our subject who had diagnosed to have osteoporosis were female (75%) and most of them were diagnosed at age of 52.5 ± 2.5 years. This may be due to that females tend to visit the physician at this age more frequent than the males due to post-menopausal signs and symptoms. It is clear that almost our entire participant did not know the appropriate time for screening for osteoporosis (only 2.3% said that it should be between ages of 60-65 years).

The awareness of risk and preventive factors in our sample is not that good. Most of them were able to recognize some of these factors but not all. We discover that most of the participants were unaware (more than 82.3%) of the fact that an osteoporosis is a silent disease that will present only with fractures with no signs or symptoms before. Unsurprisingly, most of the participants prefer to take their medical knowledge from their treating physician and from the Internet. So, we believe in the benefit of raising the awareness of physician especially primary health care workers regarding osteoporosis. Currently there is few trusted medical websites that run in Arabic language. So we need to improve our trusted online medical resources in Arabic language.

CONCLUSIONS

Our study demonstrated that our community in not fully aware of osteoporosis. And that level of awareness about osteoporosis does not guarantee a patient will practice good bone health behavior. Therefore, it is necessary to find effective ways that can improve and encourage the preventive behaviors of the population, as osteoporosis and its fracture consequences are preventable conditions.

Abbreviation

KSA = Kingdom of Saudi Arabia

USA = United States of America

Competing interests

The authors declare that they have no conflicts of interest.

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Authors' contributions

Al Bahrani participated in the study concept, literature review, Study design, data analysis and manuscript preparation. Alhassan, , Alahmed, Alsaeed, Alhajjimohammed and Al Mazeedi participated in data acquisition. Altahir, Al Sayafi and Alalawi participated in data acquisition and manuscript editing. Al Ali participated in data analysis and manuscript preparation. All authors read and approved the final manuscript.

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