

Identify Population Attitude Towards Osteoporosis and Pharmacists Involvement in Community Education in Makkah, Saudi Arabia: A Cross-Sectional Study

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Abstract

Introduction: Fracture is the most severe clinical consequence of osteoporosis. Unfortunately, most patients are unaware that they have fragile bones until they fracture the hip, spine, pelvis, or wrist. Thus, increase disability, hospitalization, and so on total health care costs. In Saudi Arabia, many middle-aged and older women were unaware of osteoporosis risk factors with a high prevalence of osteoporosis reported in Saudi Arabia.

Aim: This study's main objective is to evaluate population awareness about osteoporosis and pharmacist's involvement in patient education to minimize the risk of osteoporosis in the Makkah region.

Methods: A cross-sectional study was performed using an online survey. A total of 1390 participants completed the questionnaire from 15 February to 15 Marc 2019.

Results: only 1.4% of participants had a risk for osteoporosis and got the advice from pharmacists. Significantly, 53.7% had a chance but didn't get any advice from either physicians or pharmacists.

Conclusion: The results show a low self-awareness level in Makkah's general population with insufficient involvement of pharmacists in patient education.

Keywords: osteoporosis, pharmacists, fracture, vitamin D deficiency, and calcium

Introduction

Several definitions of osteoporosis have been offered to describe fragility fractures; the process is characterized by low bone mass and microarchitectural deterioration of bone tissue, leading to enhanced bone fragility and increased fracture risk. (1, 2) Fracture is the most severe clinical consequence of osteoporosis. Unfortunately, most patients are unaware that they have fragile bones until they fracture the hip, spine, pelvis, or wrist. (3-5) Thus increase disability, hospitalization, and so on

total health care costs. (6) The diagnosis of osteoporosis can be determined by measuring bone mineral density (BMD). According to The World Health Organization, osteoporosis is diagnosed with a T-score of <-2.5 . (7) Non-modifiable risk factors for osteoporosis include female gender and old age. In contrast, modifiable risk factors for osteoporosis have calcium intake, vitamin D deficiency, smoking, alcohol intake, exercise, underlying disease conditions such as rheumatoid arthritis, and systemic lupus erythematosus. (8, 9) Some medications have been reported to increase osteoporosis, such as glucocorticoid treatment, levothyroxine, proton pump inhibitors, and warfarin. (10-13)

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Osteoporosis treatment medications include bisphosphonates, receptor activator of nuclear

factor kappa-B ligand inhibitors, estrogen agonists/antagonists, parathyroid hormone analogs, calcitonin, Bisphosphonate, and Ca and Vit D supplement. ^(6, 14) Available treatment does not always solve the problems as several studies indicated the link between the long-term use of bisphosphonates and the risk of fracture of the femur. ^(15, 16)

Osteoporosis is estimated to affect 200 million people worldwide. ⁽¹⁷⁾ However, many studies reported that incidence is varied among populations. ⁽¹⁸⁻²¹⁾ It affects 30% of all postmenopausal women in the United States and at least 40% in Europe. ⁽²²⁾ It affects men, as well. ⁽²³⁻²⁵⁾ In Saudi Arabia, osteoporosis reported prevalence ranges from 30% to 48% in women, ⁽²⁶⁻³²⁾ and 21% of Saudi men older than 50. ⁽³³⁾ Importantly, conducted studies in Riyadh showed a low level of awareness about the disease among Saudis men and women. ^(34, 35) Osteoporosis is considered as one of the most important causes of morbidity and mortality in aging women. ⁽³⁶⁾

Prevention is better than cure, and awareness about this disease can help in its prevention. ⁽³⁷⁾ Many studies related to osteoporosis have been conducted in different regions worldwide and pointed out different awareness levels with poor knowledge about this disease in some countries such as UAE, India, and the USA. ^(34, 38-43)

Until our knowledge, no previous study has been conducted to assess pharmacists' involvement in patient education about osteoporosis. Thus, we aim to evaluate population awareness about osteoporosis and pharmacists' involvement in patients' education to minimize the risk of osteoporosis in Makkah region.

Methodology

Study design

This is a cross-sectional study with a total of 1390 participants who completed the questionnaire from February 15 to March 25, 2019 within Makkah, Saudi Arabia.

Data collection

The online survey was anonymous, prepared in Arabic- language format. Consent of participants was considered by their submission. The questionnaire

had four sections; demographic characteristics and risk factors of osteoporosis, daily food intake habits of participant in relation to bone health, participant attitude towards disease management and involvement of physicians and pharmacist in patient education.

Statistical Analysis

All the variables were analyzed using SPSS Var 23.0 software 2015. Descriptive analyses such as percentages and graphs were used to describe the findings of this study.

Results

Participants included in this study were predominantly female (74%, n=1028). Overall 58% of participants had moderate diet contain dairy products and other calcium sources. Beside 31% had low diet containing dairy products and other calcium sources. However, only 11.9% had high diet contain dairy products and other calcium sources (Figure.1. A). Among our participants, 5% of participants are taking calcium supplements (Figure. 1. B). While 13% are taking vitamin D supplements (Figure. 1. C).

Regarding participants attitude towards osteoporosis and its risk factors, around 87.1% of participants never had check for osteoporosis or monitor level of calcium supplements (Figure. 2. A). Despite 66% had at least one of diseases or medications that may increase the risk of osteoporosis (Figure. 2. B). Specifically, 52.7% of participant had a risk for osteoporosis but didn't check for diagnosis. Additionally, 7.3% didn't remember if they ever checked for osteoporosis or not even though they have risk factor (Table. 1).

Finally, only 1.4% of participants had risk for osteoporosis and got the advice from pharmacists. Furthermore, 7.5% listen to advice from a doctor and 2.9% listen from both. Importantly, 53.7% had a risk but didn't get any advice from either physicians or pharmacist (Table. 2).

Discussion

This questionnaire-based study helps to evaluate the patient attitude towards osteoporosis and pharmacists involvement in patients education to minimizing risk of osteoporosis in Makkah region. Current study indicates

that lifestyle patterns of most participants could increase their risk of osteoporosis. Most of participants 89% had low or intermediate calcium intake compared 60% in previous study conducted in Riyadh. It is very important to maximize calcium daily intake in order to increase bone mass, thereby minimize the risk of fracture and osteoporosis in the future. Furthermore, our data indicate many peoples may suffer from osteoporosis but they didn't know, as their risk factors suspect potential of osteoporosis disease. Previous study conducted by Al-sharhrani focused on awareness of postmenopausal women.⁽³⁵⁾ However, this study is more generalized since we included younger women too.

For the first time, this study found low level of pharmacist involvement in patient education about osteoporosis even in patients with some risk factors. Health authorities and pharmacists should have better involvement in patient education about osteoporosis.

Efforts should be applied to improve the awareness about the disease and the importance of early follow up and therefore minimize risk factors and cost of osteoporosis management.

Future studies including another research questionnaire that includes pharmacists to take their opinion, may be helpful. As the pharmacist may have good counselling and communication skills but the patient's response is poor. In that case, increase the awareness of population about the role of pharmacists in community is needed.

Conclusion

The results show low self-awareness level in general population in Makkah with poor involvement of pharmacist in patient education.

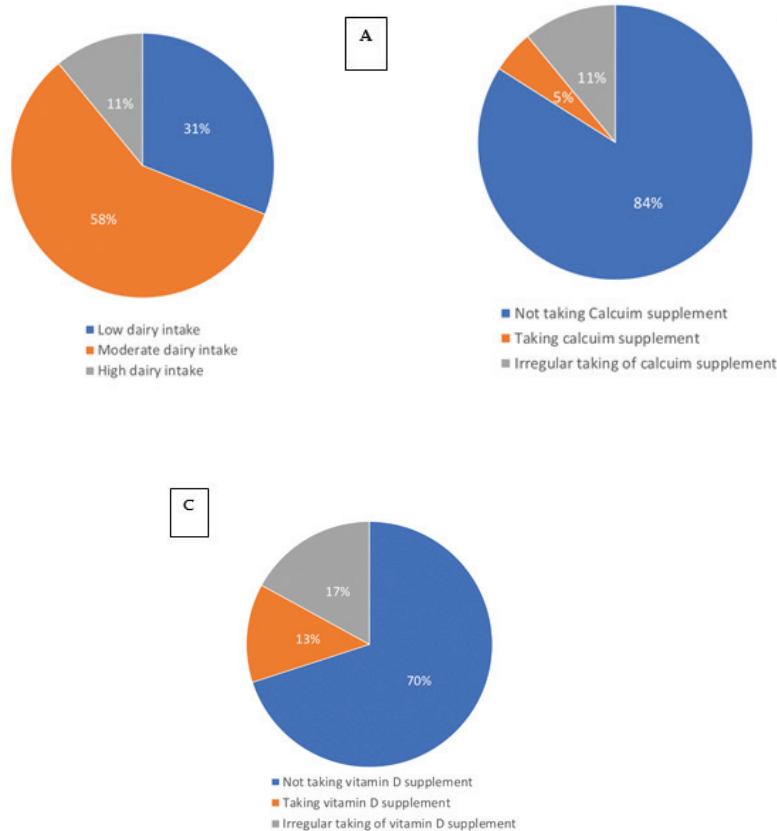


Figure. 1. Participant's daily habits towards factors affecting osteoporosis: (A) The extent to which daily food intake contains dairy products. (B) Percentage of participants who take calcium supplements. (C) Percentage of participants who take vitamin D supplements

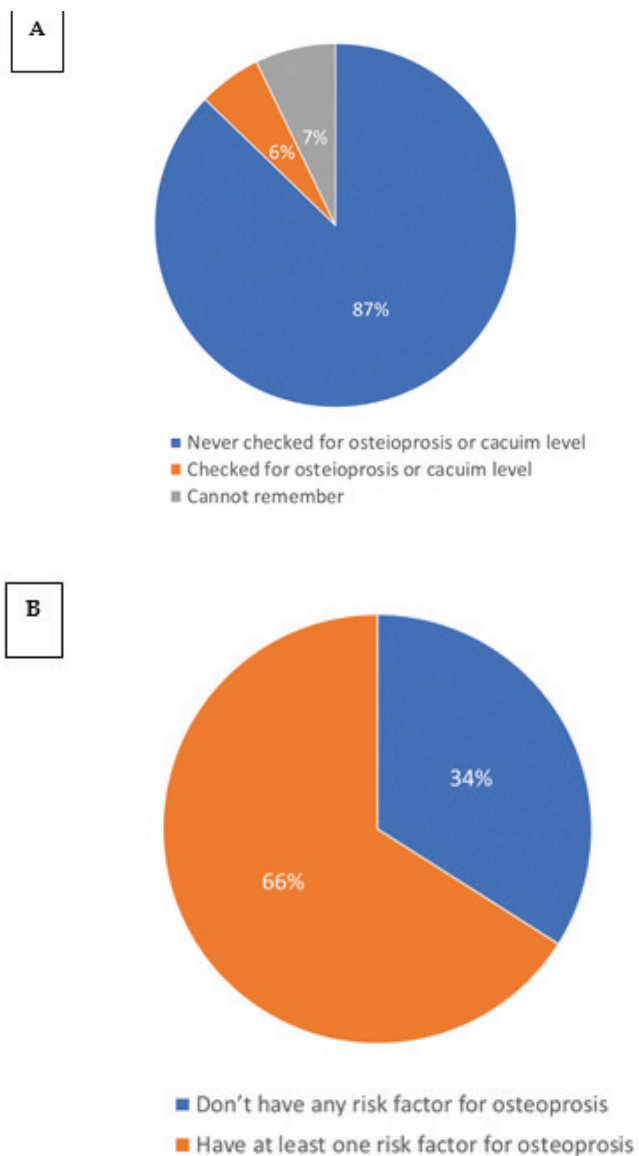


Figure 2. Participants risk factors and their attituded towards diagnosis: (A) Percentage of participants who checked for osteoporosis or calcium level. (B) Evaluation of risk factors of osteoporosis among participants.

Table 1: Percentage of osteoporosis checking among participants.

		Checking for osteoporosis			Total
		No	Yes	I donot know	
Having at least one risk factor of osteoporosis (disease or drug)	No	431 (31%)	7 (0.5%)	40 (2.9%)	478 (34.4%)
	Yes	733 (52.7%)	78 (5.6%)	101 (7.3%)	912 (65.6%)
Total		1164 (83.7%)	85 (6.1%)	141 (10%)	1390 (100%)

Table. 2: Pharmacists involvement in patients’ education about risk of osteoporosis.

		Receiving advice from health care providers				Total
		I did not receive any advice	From pharmacist	From physician	From both	
Having at least one risk factor of osteoporosis (disease or drug)	No	434 (31%)	8 (0.6%)	13 (0.9%)	23 (1.7%)	478 (34.4%)
	Yes	747 (53.7%)	20 (1.4%)	104 (7.5%)	41 (2.9%)	912 (65.6%)
Total		1181 (85%)	28 (2%)	117 (8.4%)	64 (4.6%)	1390 (100%)

Conflict of Interest: The authors have not declared any conflict of interests.

Ethical Clearance: Ethical approval was obtained from IRB commity at College of Medicine, Umm Al-Qura University.

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