Knowledge Regarding Osteoporosis Risk Factors, Prevention, and Management in Women of Reproductive Ages; in Diyala, 2019

Noor Mohammed Majeed, Huda Adnan Habib[1]

Family Medicine Specialist, Diyala Health Directorate, Iraqi Ministry of Heath, [1]Department of Family and Community Medicine, Al-Kindy College of Medicine, University of Baghdad, Baghdad, Iraq

Downloaded from http://journals.lww.com/ircm by BhDMf5ePHKav1zEoum1tQfN4a+kJLhEZgbsIHo4XMi0hCywCX1AWnYQp/IlQrHD3i3D0OdRyi7TvSFl4Cf3VC1y0abggQZXdgGj2MwlZLeI= on 12/06/2024

Abstract

Background: Osteoporosis is one of the major public health problems from which more and more people in the world are suffering. There is evidence suggesting that osteoporosis knowledge is one contributor to osteoporosis preventive behavior. **Aim of the Study:** To assess the knowledge regarding osteoporosis risk factors, prevention, and management in women of reproductive ages. To identify any association between knowledge and studied factors. **Methodology:** A cross-sectional study was carried out in three primary health-care centers (Al-Takia, Al-Saray, and Al-Mustafa primary health-care centers) from January 1, 2019, to November 31, 2019. A convenient sample of 400 women of reproductive age was selected. The data were collected using Osteoporosis Knowledge Assessment Tool through a direct interview with the women that included personal data, knowledge regarding osteoporosis risk factors, prevention, and management. **Results:** The majority of participants (56%) had moderate adequate knowledge about osteoporosis. The young age, being highly educated, and good economic status were significantly associated with good knowledge. **Conclusion:** Moderate adequate level of knowledge about osteoporosis was found among included subjects, the majority of subjects obtained their knowledge from Internet and physician. Thus, educational programs at all health-care facilities needed to improve the knowledge of women regarding osteoporosis.

Keywords: Knowledge, osteoporosis, prevention, risk factors, women

Introduction

Osteoporosis is a disease of the skeletal system associated with loss of bone mass and an increased risk of fractures affecting women more often than men.[1] Osteoporosis is the most common and worldwide public health silent disease in postmenopausal women.[2] According to the International Osteoporosis Foundation, the symptoms of osteoporosis are not clear till the occurrence of the first fracture and it significantly affects old women.[3,4] The prevalence of osteoporosis has now increased to endemic proportions,[5] posing a major public health problem globally. It is estimated that a new patient suffers from osteoporotic fracture every 03 s; approximately 200 million women are distressed from this disorder worldwide.[6]

Identification of the knowledge about osteoporosis and its preventive methods is the backbone of any awareness program.[1,2] Although osteoporosis is a major health problem, observed data showed insufficient level of knowledge of osteoporosis among osteoporotic patients, adult and older women, and even young female students.[7-11]

Many risk factors for osteoporosis had been highlighted by many researches; some of them are modifiable and, hence, are the target of preventive strategies. These risk factors include calcium and Vitamin D deficiency, sedentary lifestyle, obesity, and smoking.[8,12] Deficient knowledge of major risk factors and preventive measures

Access this article online

Quick Response Code:

Website: www.journalijcm.org

DOI: 10.4103/IRJCM.IRJCM_17_24

Address for correspondence: Prof. Huda Adnan Habib, Department of Family and Community Medicine, Al-Kindy College of Medicine, University of Baghdad, Baghdad, Iraq.
E-mail: adnandrhuda@gmail.com

Submitted: 04-May-2024 **Revised:** 07-May-2024
Accepted: 10-May-2024 **Published:** 21-Aug-2024

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

For reprints contact: WKHLRPMedknow_reprints@wolterskluwer.com

How to cite this article: Majeed NM, Habib HA. Knowledge regarding osteoporosis risk factors, prevention, and management in women of reproductive ages; in Diyala, 2019. IRAQI J COMMUNITY MED 2024;37:81-5.

Downloaded from http://journals.lww.com/ircm by BhDMf5ePHKav1zEoum1tQfN4a+kJLhEZgbsIHo4XMi0hCywCX1AWnYQp/IlQrHD3i3D0OdRyi7TvSFl4Cf3VC1y0abggQZXdgGj2MwlZLeI= on 12/06/2024

of osteoporosis may negatively affect the implementation of changes to healthy lifestyle and best use of preventive services.[13]

In spite of emergence of new therapies for osteoporosis treatment, prevention is still considered more cost-effective and desirable measures.[3,14] Preventive measures in childhood and adolescence are key steps to disease control. An essential measure is to get sufficient dietary calcium early in life.[15,16] Regular 30 min physical activity every day is vital for healthy bones. Routine exercise helps in achieving greater peak bone mass in young and prevents bone loss in older individuals, in addition to adequate calcium intake and regular exercise, optimal amount of Vitamin D, and adequate sunlight exposure.

A key component in developing successful education interventions by health-care professionals is understanding what women know about the disease and to what extent they practice preventive behaviors.[17,18] Knowledge of modifiable risk factors (smoking, lack of physical exercise, dietary habits, and multiparty) and treatment for osteoporosis should be targeted by prevention programs.[18]

Several tools are available to assess women's knowledge about osteoporosis; this study used the Osteoporosis Knowledge Assessment Tool (OKAT) developed by Winzenberg *et al*. in 2003.[19,20]

The aims of the study are to assess the knowledge regarding osteoporosis risk factors, prevention, and management in women's of reproductive ages in Baqubah city and to determine any association between knowledge and some sociodemographic and other studied factors.

Methodology

Study design

A cross-sectional study.

Study setting

Data were collected from three health-care centers (Al-Takia Primary Health Care Center, AlSaray Primary Health Care Center, and Al-Mustafa Primary Health Care Center) at Diyala governorate.

Study duration

The study was conducted from January 1, 2019, to November 30, 2019.

Target population

A convenient sample of 400 women that attained the primary health-care centers with age between 18 and 50 years.

Study tools and data collection

A convenient sample was collected from the target population during the expected period of data collection. Data were obtained using the OKAT which was developed by Winzenberg *et al*. in 2003.[19-22] The questionnaire form was filled by direct interview with the participants. The questionnaire items included the following information:

Part 1: The participants' sociodemographic factors. Part 2: The second part consisted of the OKAT, which is a 20-item questionnaire, each item having "true," "false," and "don't know" options. Each item is coded 0 if an incorrect answer or a "don't know" answer is given and 1 if the correct answer is given, with a total potential score of 20. This tool included 20 questions that assess the general knowledge of studied females regarding Osteoporosis risk factors, complications, and preventive measures. The total correct responses were given a score out of 20; the scores were categorized as follows:[19]

- Adequate knowledge (good) if >15 (knowledge score >75% of the total score)
- Moderate knowledge (fair) if 10–15 (knowledge score 75%–50% of the total score)
- Inadequate knowledge (poor) if <10 (knowledge score <50% of the total score).

Ethical approval

The study protocol was reviewed and approval was obtained from the Scientific Council of Family Medicine to conduct the study. Furthermore, approval and official letter was obtained from Diyala Health Directorate (including approval by the Ethics Review Committees), which was handed to the manager of each selected primary health-care centers accordingly.

Verbal consent of each interviewed person was approved after full explanation of the aim of the study and ensuring the confidentiality of the collected data which was not be used but for the research purpose.

Statistical analysis

The data collected were entered into Microsoft Excel and loaded into the Statistical Package for the Social Sciences (SPSS) software "version 23" (SPSS Inc., Chicago, IL, USA). The data were analyzed through descriptive statistics; the results were presented as tables and figures. Frequencies and percentage were used to summarize dichotomous data and categorical data. "Chi-square test" was used to compute the association between studied variables. Significant association was considered at level of $P \leq 0.05$.

Results

Table 1 shows the distribution of the sample according to some sociodemographic characteristics and some other variables. It reveals that 58.3% of the participants were of age <30 years, 52% were married, 61% were with moderate income, 63.3% were employed, and 35% of women had a positive history of osteoporosis.

Table 2 shows that the majority of participants (34.8%) reported that Internet was the main source of osteoporosis, followed by 21% reported that the doctors were the main source of information.

Table 3 shows that the majority of participant women (56%) reported moderate knowledge about osteoporosis followed by

Downloaded from http://journals.lww.com/ircm by BhDMf5ePHKav1zEoum1tQfN4a+kJLhEZgbsIHo4XMi0hCywCX1AWnYQp/IlQrHD3i3D0OdRyi7TvSFl4Cf3VC1y0abggQZXdgGj2MwlZLeI= on 12/06/2024

Table 1: The distribution of sample according to some sociodemographic characteristic and other variables

Variable	*n* (%) (*n*=400; 100%)
Age (years)	
≤30	233 (58.3)
31–40	79 (19.7)
41–50	88 (22.0)
Martial state	
Single	167 (41.7)
Married	208 (52)
Divorced	15 (3.8)
Widow	10 (2.5)
Educational status	
Illiterate	7 (1.7)
Primary education	14 (3.5)
Secondary education	78 (19.5)
≥ secondary education	301 (75.3)
Occupational status	
Employee	253 (63.3)
Un employee	147 (36.7)
Income monthly	
Low	56 (14)
Moderate	244 (61)
High	100 (25)
Family history of osteoporosis	
Yes	140 (35)
No	260 (65)

Table 2: The distribution of sample according to their source of information regarding osteoporosis

Source of information	*n*=400, *n* (%)
Friends	5 (1.3)
Relatives	71 (17.7)
Doctors	84 (21)
Internet	139 (34.8)
Books and magazine	60 (15)
Media	15 (3.7)
Others	26 (6.5)

Table 3: Distribution of samples according to their general knowledge score regarding osteoporosis using Osteoporosis Knowledge Assessment Tool

Knowledge according to OKAT	*n* (%)
Inadequate	167 (41.75)
Moderately adequate	224 (56)
Adequate	9 (2.25)
Total	400 (100)

OKAT: Osteoporosis Knowledge Assessment Tool

41.75% of them with inadequate knowledge and only 2.25% reported adequate knowledge.

Table 4 shows the association between the sample knowledge score and some sociodemographic characteristics. It reveals that there was a statistically significant association between knowledge score and education status, occupation, and family income. With the highest adequate knowledge were among illiterate, those who were unemployed, those with low income, and in those with no family history of osteoporosis

Discussion

Osteoporosis is considered a major worldwide health problem. Little is known about its definition, risk factors, and prevalence in Diyala governorate.

The present study observed that about one third of women (38.8%) utilize Internet as a main source of information, followed by less than one quarter reported that physician as the main source of information regarding osteoporosis, this could explained that the wide use of Internet on one hand and also give hint that the health-care providers do not deliver sufficient information regarding osteoporosis. This finding disagrees with a study conducted by Kamran et al. in Pakistan among women in 2016 showed that about 34.6% (142) of women identified textbooks/teachers as their source of information making it the most important resource in the region, while electronic media (TV/Radio) ranked the second with 22.4% (92) nominating it as their source.[18] Another study held on adult women in Cairo[23] in 2020 reported that the predominant source of information was mass media (48.3%), followed by friends (37%) while The source of information on the osteoporosis in a study helad by Alhouri et al. in Syria 2022 reported that social media was the main approach that was utilized as a source of information on osteoporosis with rate of 26.30 among the Syrian women population.[24]

This study revealed that more than half of women had moderate knowledge about osteoporosis. This finding is consisted with a study held by Khalifa *et al*. among Saudi women (2017), which showed that 60% of women had moderate knowledge.[25] While Al-Harthi *et al*., 2017 showed that 69% of Saudi women under the study were with good knowledge.[26]

Another study held in 2022 on Iraqi women attending primary care centers by Ahmed *et al*.[27] revealed that only 72 of participants (35.47%) had a good knowledge, while the rest of the participants had a bad knowledge. They illuminate the bad knowledge to the low educational level of the studied women as (55.7%) of them were illiterate or had primary school level, (76.4%) not being employed, as employed females had opportunity to communicate with others and getting information about many subjects in life.[27]

Regarding the association between knowledge score and studied factors, the current study showed that moderate knowledge about osteoporosis was higher among primary school educated women with significant statistical association. This agree with Hussein and Wahdan study held in Egypt 2021 which reported that knowledge level had a significant association with women working status and educational level which act also as a significant predictor for the OP knowledge level.[23]

Downloaded from http://journals.lww.com/ircm by BhDMf5ePHKav1zEoum1tQfN4a+kJLhEZgbsIHo4XMi0hCywCX1AWnYQp/IlQrHD3i3D0OdRyi7TvSFl4Cf3VC1y0abggQZXdgGj2MwlZLeI= on 12/06/2024

Table 4: The association between osteoporosis general knowledge according to Osteoporosis Knowledge Assessment Tool score and some sociodemographic characteristics

Sociodemographic characteristics	OKAT knowledge score				*P*
	Inadequate (167)	Moderate (224)	Adequate (9)	Total (400)	
Age (years)					
≤30	104 (44.6)	124 (53.2)	5 (2.2)	233 (100)	0.612
31–40	27 (34.2)	50 (63.3)	2 (2.5)	79 (100)	
41–50	36 (40.9)	50 (56.8)	2 (2.3)	88 (100)	
Marital status					
Single	83 (49.7)	81 (48.5)	3 (1.8)	167 (100)	0.195
Married	75 (36.1)	131 (62.9)	2 (1.0)	208 (100)	
Divorced	6 (40.0)	7 (46.7)	2 (13.3)	15 (100)	
Widow	3 (30.0)	5 (50.0)	2 (20.0)	10 (100)	
Education level					
Illiterate	3 (42.9)	3 (42.9)	1 (14.2)	7 (100)	0.036
Primary school	4 (28.6)	9 (64.3)	1 (7.1)	14 (100)	
Secondary school	34 (43.6)	42 (53.8)	2 (2.6)	78 (100)	
More than secondary school	126 (41.9)	170 (56.5)	5 (1.6)	301 (100)	
Occupation					
Employee	100 (39.5)	149 (58.9)	4 (1.6)	253 (100)	0.00
Un employee	67 (45.6)	75 (51.0)	5 (3.4)	147 (100)	
Income					
Low	23 (41.1)	29 (51.8)	4 (7.1)	56 (100)	0.016
Moderate	100 (40.9)	141 (57.8)	3 (1.3)	244 (100)	
High	44 (44.0)	54 (54.0)	2 (2.0)	100 (100)	
Family history of osteoporosis					
Yes	65 (46.4)	73 (52.1)	2 (1.5)	140 (100)	0.547
No	102 (39.2)	151 (58.1)	7 (2.7)	260 (100)	

OKAT: Osteoporosis Knowledge Assessment Tool

This study showed that more than half of unemployed women reported adequate knowledge. This finding consisted with a study held by Al-Muraikhi et al. in Qatar among women of reproductive age in 2016 showed that the mean of good knowledge in unemployed women was about 13.6 ± 3.6 which was less compared to the mean score of those employed.[28]

The current study revealed that more than half of women with moderate monthly income had moderate knowledge about osteoporosis This finding is inconsisted with a study held by Al-Harthi *et al*. in Riyadh, KSA among Saudi women in 2017 showed that 75% of women with moderate monthly income had good knowledge and 34.6% of women with low income had good knowledge about osteoporosis.[26]

Conclusion

Moderate level of knowledge about osteoporosis was found among included subjects. The majority of subjects obtained their knowledge from Internet and physicians. There is a statistically significant association between moderate knowledge score and primary school education, employment, and moderate family income.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

References

1. Taghvaei R, Dimitrova D, Karaman M, Sehouli J. Knowledge and understanding risk factors and preventive measures for osteoporosis in women: Results of a survey in 502 women with and without a migration background. BMC Musculoskelet Disord 2022;23:824.
2. Jamil NF, Salman SA. Knowledge about osteoporosis among primary health care physicians in Baghdad. Iraqi Postgrad Med J 2022;21:138-47.
3. Cosman F, de Beur SJ, LeBoff MS, Lewiecki EM, Tanner B, Randall S, *et al.* Clinician's guide to prevention and treatment of osteoporosis. Osteoporos Int 2014;25:2359-81.
4. Ribeiro V, Blakeley J, Laryea M. Women's knowledge and practices regarding the prevention and treatment of osteoporosis. Health Care Women Int 2000;21:347-53.
5. Lau E. The epidemiology of osteoporosis in Asia. IBMS Bone Key 2009;6:190-3.
6. Sayed-Hassan R, Bashour H, Koudsi A. Osteoporosis knowledge and attitudes: A cross-sectional study among female nursing school students in Damascus. Arch Osteoporos 2013;8:149.
7. Williams B, Cullen L, Barlow JH. I never realised how little I knew!: A pilot study of osteoporosis knowledge, beliefs, and behaviours. Health Care Women Int 2002;23:344-50.
8. Doheny MO, Sedlak CA, Estok PJ, Zeller R. Osteoporosis knowledge, health beliefs, and DXA T-scores in men and women 50 years of age and older. Orthop Nurs 2007;26:243-50.
9. von Hurst PR, Wham CA. Attitudes and knowledge about osteoporosis risk prevention: A survey of New Zealand women. Public Health Nutr 2007;10:747-53.

Downloaded from http://journals.lww.com/ircm by BhDMf5ePHKav1zEoum1tQfN4a+kJLhEZgbsIHo4XMi0hCywCX1AWnYQp/IlQrHD3i3D0OdRyi7TvSFl4Cf3VC1y0abggQZXdgGj2MwlZLeI= on 12/06/2024

10. Kutsal YG, Atalay A, Arslan S, Başaran A, Cantürk F, Cindaş A, *et al.* Awareness of osteoporotic patients. Osteoporos Int 2005;16:128-33.
11. Khired Z, Al-Hulaibi M, Alhazemi A. Knowledge, attitude and practices of osteoporosis risk factors among Jazan university students, 2019. Int J Innov Res Med Sci 2022;7:27-32.
12. Muñoz-Garach A, García-Fontana B, Muñoz-Torres M. Nutrients and dietary patterns related to osteoporosis. Nutrients 2020;12:1986.
13. Alrashidy RI. Evaluation of knowledge about osteoporosis risk factors among adults above 40 years of age in Hafar Al-Batin region, Saudi Arabia. J Family Med Prim Care 2021;10:3089-93.
14. Committee to Review Dietary Reference Intakes for Vitamin D and Calcium, Food and Nutrition Board, Institute of Medicine. Dietary Reference Intakes for Calcium and Vitamin D. Washington, DC: National Academy Press; 2010.
15. U.S. Department of Agriculture, Agricultural Research Service. USDA National Nutrient Database for Standard Reference, Release; 2011. p. 355-38.
16. National Institute of Health. Exercise for Your Bone Health. England: National Institute of Health; 2011. p. 15-7879-E.
17. Nimitphong H, Holick M. Vitamin D status and sun exposure in South East Asia. Dermato-Endocrinol 2013;5:34-7.
18. Kamran M, Iftikhar A, Awan AA. Knowledge and behaviour regarding osteoporosis in women. Pak Armed Forces Med J 2016;66:927-32.
19. Shahi U, Al-Saleh M, Bokheder M, Albattat M, Al-Ali M, Alkishi T, *et al*. Assessment of knowledge regarding osteoporosis among female medical students at king Faisal university, Saudi Arabia. Int Healthc Res J 2018;2:253-9.
20. Winzenberg TM, Oldenburg B, Frendin S, Jones G. The design of a valid and reliable questionnaire to measure osteoporosis knowledge in women: The osteoporosis knowledge assessment tool (OKAT). BMC Musculoskelet Disord 2003;4:17.
21. Sayed-Hassan RM, Bashour HN. The reliability of the Arabic version of osteoporosis knowledge assessment tool (OKAT) and the osteoporosis health belief scale (OHBS). BMC Res Notes 2013;6:138.
22. Al-shareef SA, Alwehaibi A, Alzahrani A, Faqihi A, Alkenani A, Alfentoukh M, *et al*. Knowledge and awareness about risk factors of osteoporosis among young college women at a university in Riyadh, KSA. J Bone Res 2018;6:2.
23. Hussein RS, Wahdan MM. Knowledge about symptoms and risk factors of osteoporosis among adult women in Cairo, Egypt. Egypt J Community Med 2021;39:59-68.
24. Alhouri A, Zahrawi H, Alasaad S, Alhayek SM, Al Houri HN, Jomaa S, *et al.* Assessing the knowledge and attitude towards osteoporosis among Syrian women: A cross-sectional study. Int J Rheumatol 2022;2022:6431151.doi: 10.1155/2022/6431151. eCollection 2022.
25. Khalifa AF, Nasser A, Alhulaimi Y, Alanazi A, Alfarah M, Abdulkhaliq Y, *et al*. Knowledge and awareness about osteoporosis among Saudi adults in Riyadh, Saudi Arabia, 2016. Int J Adv Res 2017;5:1413-20.
26. Al-Harthi B, Alkhodair A, Elias A, Aleisa S, Almoumen F, Al-Yami M. Assessment of osteoporosis knowledge among Saudi females in Riyadh, KSA. Egypt J Hosp Med 2017;69:2088-92.
27. Ahmed AH, Karem FH, Saleh MF. Knowledge of osteoporosis among females attending primary health care centers in Iraq. Int J Health Sci 2022;6:11455-60.
28. Al-Muraikhi H, Said H, Selim N, Chehab MA. The knowledge of osteoporosis risk factors and preventive practices among women of reproductive age in the state of Qatar. Int J Community Med Public Health 2017;4:522-7.