Assessment of Health Beliefs Related to Osteoporosis in a Sample of Iraqi Population

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Abstract

Osteoporosis is one of the most progressive metabolic bone diseases that affecting millions of people worldwide. The purpose of this study was to assess osteoporosis health beliefs using Osteoporosis Health Belief Scale- Arabic version (OHBS-A) among sample of Iraqi adult men. The study is crosssectional community based study design, involved 138 participants with different age groups. The results showed th0.e mean age of the participants was 40.78±13.05 years. The tool showed a good reliability with the Cronbach's alpha test 0.97 for the forty-two items in OHBS-A. For the test-retest reliability the results demonstrated an accepted reliability and stability with Pearson's correlation coefficient (r = 0.59, P < 0.01). The results showed adequacy for factor analysis and with seven factors, with eigenvalues greater than 1, which explained 75.65% of the variance. The OHBS seven subscales are perceived susceptibility, seriousness, perceived benefits of exercise, perceived benefits of calcium intake, perceived barriers to exercise, perceived barriers to calcium intake and health motivation to take preventative actions. The Kaiser-Meyer-Olkin (KMO) value was 0.93 which indicated that the data set was appropriate for factor analysis. The Bartlett's Test of Sphericity was significant ($\chi 2$ (861) = 5474.535; P < 0.001). The mean scores (M±SD) of the OHBS-A was 149.98±36.54, which were considered low scores. Furthermore, only 35.5% of the study population was found to have high OHBS-A level. results of this study highlight the need for education awareness programs regarding osteoporosis targeting different aspects of belief perceptions at community and specific risk population.

Keywords: Osteoporosis, Health Belief, Iraqi Population.

P-ISSN: 2664-0562 E-ISSN:2664-0554 تقييم المعتقدات الصحية المتعلقة بهشاشة العظام لدى عينة من السكان العراقيين

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الكلمات المفتاحية: هشاشة العظام ، المعتقدات الصحية ، السكان العر اقيون.

Introduction

Osteoporosis (OP) is consider as a global public health concern that leading to disability, prolonged hospital stay and fracture as a consequence of decreasing bone mineral density (BMD) [1-4]. OP is an important skeleton disease that characterized by low bone mass, tissue and quality with disruption of bone microarchitecture leading to increase the bone fragility and fracture. According to World Health Organisation (WHO), OP is defined as a BMD value less than or equal to 2.5 standard deviations below the mean BMD of the young adult reference population [5]. The bone mineral density and bone mass increase during the childhood and adolescence in both sexes, and usually the peak of bone mass occurred during the youth [6]. Although, OP is incurable disease but the key for management of OP is the prevention strategy including adaption a healthy life style by increase the intake of diet rich in calcium and vitamin D intake, suitable exercise, and alcohol and smoking

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cessation [7:8]. Osteoporosis is consider a public health issue among men, however, it is still underestimated as most of research studies focus on OP in women. Many studies in Iraqi among premenopausal and postmenopausal showed a high prevalence of osteoporosis in a range from 27% to 49% [9-11]. Furthermore, many studies showed that the participant knowledge about OP is essential for prevention the disease and adapt a healthy life style behaviours, however, it is just not enough for changing their health behaviour [12-15]. Hence, increasing health belief regarding osteoporosis is crucial for the healthcare professionals and should be one of priority for future development of education program to halt the progress of OP [16-19].

The health belief model theory is one of the most widely used psychosocial frameworks theory in health behaviour and education promotion program in research and practice. It is also the most widely applied conceptual theory for evaluating the personal beliefs towards the disease and their relationship to the preventive strategy to ensure the disease-related health behaviours [20]. Therefore, the aims of this study were to assess the osteoporosis health belief among men in a sample of Iraqi population using the Osteoporosis Health Belief Scale-Arabic version (OHBS-A).

Methods

A cross-sectional community based study was conducted in Baghdad capital city of Iraq from November 2016 to February 2017. Each participant was interviewed individually by the researcher (face to face interview) using structured interview-administered questionnaire including sociodemographic data and the translated osteoporosis health belief Arabic-version questionnaire (OHBS-A). The original OHBS is in English language and designed to assess health beliefs about developing osteoporosis [21]. The OHBS consist of forty-two items with seven subscales items namely: perceived susceptibility, perceived seriousness, benefits of exercise, benefits of calcium intake, barriers to exercise, barriers to calcium intake, and health motivation.

The total sample size of eligible men was 138 using convenient sampling method and all eligible participants were enrolled after verbal and/or written consent form was signed. The inclusion criteria were adult men (age 18 years old and above), able to read and write in Arabic language and accepted to participate in the study. Descriptive statistics, percentages and frequencies were used as needed. In addition, the assessment of the reliability and validity of the tool using Cronbach's alpha test, test-retest reliability and factor analysis. For the face validity, a panel of eight professionals in pharmacy field who invited for tool translation by forward–backward–forward translation method to ensure the readability of the instrument. Data were analysis using Predictive analytics software (PASW) version 19.0 was the significance level was set at a P value less than 0.05.

Results

The mean age of the participants was 40.78±13.05 years (range from 16 to 87 years). The results showed that the majority were married 73.9%, had educational level more than 12 years 72.5%, not smoking 58.70% and around 58.7% had monthly income more than 500,000 thousand Iraq dinner (ID). About 92% of the participants had previously heard about osteoporosis and 21% reported a positive family history, as shown in Table 1. For the face validity, the results from the panel of experts in pharmacy field who reviewed the questionnaire format showed good readability of the instrument and ready for testing.

The tool showed a good reliability with the Cronbach's alpha test 0.97 for the forty two items in OHBS-A, and it's within the recommended acceptable result for reliability. For the test-retest reliability (the sample size=24) the results demonstrated an accepted reliability and stability with Pearson's correlation coefficient (r = 0.59, P < 0.01). The construct validity was assessed using Exploratory factor analysis (EFA) and the results showed a correlation larger than 0.3. The Kaiser-Meyer-Olkin (KMO) value was 0.93 which indicated that the data set was appropriate for EFA as it was greater than 0.5. The Bartlett's Test of Sphericity was significant ($\chi 2$ (861) = 5474.535; P<0.001). In addition, the results showed adequacy for factor analysis and with seven factors, with eigenvalues greater than 1, which explained 75.65% of the variance. The mean scores (M±SD) of the OHBS-A was 149.98±36.54, which were considered low scores. A cut-off point (169) was used to categorize the osteoporosis health belief scores into two levels: low and high OHBS-A [22]. Only 35.5% of the study population was found to have high OHBS-A level, while 64.5% were found to have low OHBS-A level. The average perceived susceptibility for osteoporosis, perceived seriousness for osteoporosis, perceived benefits of exercise, perceived benefits of calcium intake, perceived barriers to exercise, perceived barriers to calcium intake and health motivation scores were 20.58±5.66, 22.03±6.36, 22.97±6.64, 22.26±5.86, 19.43±8.31, 19.66±7.40 and 23.05±6.41, respectively. Furthermore, the results showed that participating had moderate perceived susceptibility and perceived seriousness toward osteoporosis. In contrast, the average perceived benefits to exercise and calcium intake scores represent a highly positive view of both constructs. In addition, the average scores of perceived barriers to exercise and calcium intake indicated few barriers to either exercise or calcium intake. Furthermore, the health motivation score indicated a high positive health motivation.

The results showed only significant difference between the total OHBS-A scores and employment status. In addition, there were insignificant associations between all the demographic characteristics and with OHBS-A scores.

Characteristics	Frequency	Percentage (%)
Age (years)		
<44	92	66.70
≥45	46	33.30
Educational levels		
< 12 years	38	27.50
\geq 12 years	100	72.50
Marital status		
Single	36	26.10
Not single	102	73.90
Employment status ^a		
Working	118	85.50
Not working	20	14.50
Monthly income (ID)		
\leq 500,000	57	41.30

Fable(1): Characteristic	s of the study	sample according	g to demogra	ohic variables

> 500,000	81	58.70	
Family history of			
osteoporosis			
No	109	79	
Yes	29	21	
Family history of fracture			
No	86	62.30	
Yes	52	37.70	
Do you have osteoporosis			
No	132	95.70	
Yes	6	4.30	
Ever heard about			
osteoporosis			
No	11	8	
Yes	127	92	
Osteoporosis diagnosis or			
screening			
No diagnosis before	113	81.90	
Yes diagnosis	25	18.10	
Smoking habit			
Not smoking	81	58.70	
Smoking	57	41.30	
Alcohol habit			
Non alcoholic	136	98.60	
alcoholic	2	1.40	

ID: Iraq dinner; M±SD: Mean±Standard Deviation; ^a significant difference *P*<0.05.

Discussion

Osteoporosis is recognised as a silent disease and it does not have any specific clinical presentation thus it remain undiagnosed until fracture occur and this leading to a significant burden of morbidity, mortality, decreased quality of life [23]. In addition, OP is considering a multifactorial disease and their cause's results from the interaction between genetic and environmental risk factor [24]. The first preventive strategy to prevent OP is the evaluation of health belief regarding OP, therefore, this study highlight the importance of assessing the health believe in community base intervention using health belief model. The healthcare professional should have contribution to halt the progression of OP by implementing an effective educational programme to improve the awareness and modify the healthy lifestyle behaviours for population at risk. The present study showed

successful cultural adaptation by revealing accepting validity and reliability analysis of osteoporosis health Belief-Arabic version among men. Other studies showed comparable results [22, 25, 26]. The Modify healthy lifestyle, for both gender and at an early age will have a superior influence on the avoidance of OP and improve the bone quality, which include education regarding the risk factor of OP and increasing calcium intake and physical activity [27-30]. Although, recently there were many research focus on OP among women in Iraq but the magnitude of the OP is still ambiguous in men and it is consider as a neglected condition, despite the fact that a higher incidence of fragility fractures occur in men [31, 32]. In the present study more than 90% of the participants had previously heard about osteoporosis. Similarly, other studies showed that the majority of participant had heard about OP [33, 34].

The conceptual framework that used in this study was based on Health Belief Model (HBM) that helps to promote in determining which people beliefs must possess to make change and/or improve their health behaviour for their benefit of own health, and this happen only if they believe that they are at risk of a disease and comprehend the disease is serious and had a negative effect on their health, otherwise they might not encouraged to take any healthy behaviour [35]. The structures of the HBM model include the perceptions regarding susceptibility, severity, benefits of taking certain actions to reduce the risk, barriers, and strategy of health motivation to be taken [36]. The health belief total score was low in this study.

Other studies demonstrated comparable results [17, 37, 38]. The results showed that participating had moderate perceived susceptibility and perceived seriousness toward osteoporosis. In contrast, the average perceived benefits to exercise and calcium intake scores represent a highly positive view of both constructs. In addition, the average scores of perceived barriers to exercise and calcium intake indicated few barriers to either physical activity or calcium intake.

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Furthermore, the health motivation score indicated a high positive health motivation. Consequently, the results from this study can act as a conceptual framework for designing and implementing educational health program for the osteoporosis prevention in future study.

The limitation of this study is cross sectional study design, so the results cannot be generalised for all population. However, the comprehensive analysis of validation and reliability with a good sample size give a high impact for this study.

Conclusions

Osteoporosis is major public health issue and the early diagnosis and prevention is the key to reduce the impact of OP and the high risk of fracture on the healthcare system. The finding of this study showed excellent result regarding the reliability and validity analysis. In addition, the results highlight the need to increase the awareness of OP and its impact on different aspects of patients' life taking in consideration the high risk groups and targeting different aspects of belief perception. Education program for the public people at community and specific risk population regarding the health behaviours using health belief model to prevent OP is an urgent strategy.

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