

# ASSESSMENT OF NURSE'S KNOWLEDGE REGARDING RISK FACTORS FOR OSTEOPOROSIS IN HAWLER AND RIZGARY TEACHING HOSPITAL IN ERBIL CITY

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## ABSTRACT

### *Background*

Osteoporosis is one of the main cause of mortality, disability and impaired quality of life among population especially older people. It also causes premature death. It has a major effect and economic burden on health services, preventing and treating osteoporosis requires many billions of dollars annually worldwide .

### *Objectives*

This study aimed to assess nurse's knowledge regarding risk factors of osteoporosis in Hawler and Rizgary Teaching Hospital in Kurdistan Region/Iraq.

### *Methods*

A descriptive cross-sectional study was undertaken with 160 nurses of Hawler and Rizgary Teaching Hospital. Knowledge was assessed by using a face-to-face interview with semi-structured questionnaire. A purposive sampling was used for data collection. The data were analyzed through using SPSS, for calculating descriptive (Frequency and Percentage) and inferential (Chi-square and Fishers exact tests) to determine the association between socio-demographic characteristics and overall levels of knowledge of the study sample.

### *Result*

Out of 160 samples 35% of them were in age between 34-52 years old and 86.2% were females. The majority of the study sample didn't have enough knowledge regarding some risk factors of osteoporosis such as: diabetes mellitus (87.5%), alcoholism (79.4%), high caffeine intake (78.1%), menopause (72.5%), smoking (68.8%), hormonal change (66.9%), low intake of calcium and vitamin (65%), corticosteroid (63.8%), and female sex (60%).

### *Conclusion*

Nurses had a poor knowledge regarding risk factors for osteoporosis. On findings, more education and seminars are required about osteoporosis for nurses.

**Keywords:** *Risk Factors, Osteoporosis, Teaching Hospital, Erbil City.*

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## INTRODUCTION

Osteoporosis (OP) have been one of the major quality of life threatening diseases for old population, regardless of race or ethnicity, and is a major public health problem. It has been defined by the World Health Organization (WHO) "as a disease characterized by low bone mass and bone matrix deterioration leading to increased fragility and risk of fracture" <sup>(1)</sup>.

In Iraq, Osteoporosis are recognized as a major health problem and the government has approved guidelines and developed health professional training<sup>2</sup>. There is no data on the incidence of osteoporotic fracture but the physicians argue that 20 % of vertebral fracture, and 40 % of other fractures are managed and treated by doctors. It is expected that the cost that expended for treating osteoporotic fracture directly by the hospital are 1000-3000 USD while indirect hospital cost are nearly about 500- 1500 USD per hip fracture <sup>(2)</sup>.

The incidence of osteoporosis among population especially women increased from past century, despite of having a high level of sunshine. It may be argued that this is because Iraq does not have enough health resources that provide women and men with information and knowledge about risk factors and preventing osteoporosis <sup>(2)</sup>. Osteoporosis includes several controllable and uncontrollable risk factors; the controllable risk factors (environmental) include low activity level, sedentary lifestyle over many years, smoking, alcohol abuse and inadequate diet including eating disorders, low calcium intake, and low vitamin D intake. Excessive consumption of soft drinks and caffeinated drinks cause calcium loss via the kidney. Caffeine use of more than three cups of coffee every day might increase calcium excretion in the urine and it affects bone health. The uncontrollable factors include gender, family history, ethnicity and race, advancing age, postmenopausal status and body frame size <sup>(3)</sup>. As osteoporosis is a silent disease, it is intuitive that primary preventive measures including early detection of risk factors for osteoporosis, educating the individuals at risk on preventive measures, and timely intervention with regard to treatment will reduce the morbidity and mortality and cut down the cost of treatment <sup>(4-5)</sup>.

The Objectives of this study is:

1. Identify nurse's socio-demographic characteristics that work in Hawler and Rizgary Teaching Hospital.
2. Assess nurse's knowledge regarding osteoporosis risk factors.

3. Determine the association between nurse's socio-demographic data and levels of knowledge regarding risk factors for osteoporosis.

## MATERIALS AND METHODS

A quantitative descriptive cross sectional study design has been used to gather data for conducting this study in Hawler and Rizgary Teaching Hospitals in Erbil City.

A purposive sampling of 160 nurses was selected from all six departments in Hawler and Rizgary Teaching Hospitals and was conducted from 1<sup>st</sup> December to 20<sup>th</sup> January 2015. Data was collected through a face-to-face interview with using semi structure questionnaire and it was taken 15-20 minutes for each nurse during interview. Researcher did the Interview and collecting data. The sample population was selected according to the following inclusion criteria such as: all ages, both genders. The questionnaires were prepared on excessive reading of literature in nurse's knowledge on osteoporosis risk factors. It includes two parts; the first part was about nurse's socio-demographic characteristics, which includes; age, sex, level of education, residence, and marital status. The second part of questionnaire included questions about risk factors for osteoporosis and after answering the questionnaire; it was corrected by researchers to determine correct and incorrect answers. The answers to the questions were labelled as either incorrect (0), and correct (1). The calculation of overall levels of knowledge (14 items) was categorized to three groups of Poor knowledge (0-4), Fair knowledge (5-9), and Good knowledge (10-14).

The content validity of the questionnaire was determined initially through a panel of experts. Before gathering the data, the researcher obtained approval from the Ethical Committee at the College of Nursing /Hawler Medical University. As well as the informal oral consent was obtained from the nurses and the researcher has promised to keep the information confidential and used these data for purpose of this study only. The participants were re assured about the anonymity of the study without having any impact on their career. They were also given the liberty dropout from the study at any time. The data were analyzed through using SPSS software for statistical analysis Version 20, for calculating descriptive (Frequency and Percentage) and inferential (Chi-square and Fishers exact tests) to determine association between socio-demographic characteristics and overall levels of knowledge of the study sample.

## RESULTS

### 1. Socio-demographic characteristics of study sample

Table 1 shows the socio-demographic characteristics of the 160 nurses. The highest percentage of the study sample was at age between 34-52 years old (35%),

while the lowest percentage (4.4%) was 72-90 years old. Regarding the gender the majority of the study sample were female (86.2%); most of them were married (80.6%)

**Table 1 Socio-demographic characteristics of sample.**

Socio-demographic characteristics n=160		F	%
<b>Age group (years)</b>	14-33	49	30.6
	34-52	56	35
	53-71	48	30
	72-90	7	4.4
<b>Gender</b>	Male	22	13.8
	Female	138	86.2
<b>Marital Status</b>	Single	21	13.1
	Married	129	80.6
	Divorced	2	1.2
	Widowed	8	5

### 2. Nurse's knowledge regarding risk factors of osteoporosis

Table 2 shows the questions regarding risk factors for osteoporosis. The highest percentage of the study sample didn't have enough knowledge regarding some risk factors of osteoporosis from (higher rate to lower rate) such as: diabetes mellitus (87.5%), alcoholism (79.4%), high caffeine intake (78.1%), menopause (72.5%), smoking (68.8%), hormonal

change (66.9%), low intake of calcium and vitamin D (65%), corticosteroid (63.8%), and female sex (60%). Furthermore, more than half of the study sample didn't have enough knowledge regarding other risk factors of osteoporosis such as: lack of sun exposure (57.7%), physical inactivity (54.4%), and high impact exercise (51.9%), but more than half of them have knowledge regarding insufficient exercise (weight training) is a risk factor of osteoporosis (51.9%).

**Table 2. Nurse's knowledge regarding risk factors of osteoporosis**

Risk factors of osteoporosis	Incorrect		Correct	
	F	%	F	%
<b>Physical inactivity</b>	87	54.4	73	45.6
<b>Insufficient exercise, (weight training)</b>	77	48.1	83	51.9
<b>Alcoholism</b>	127	79.4	33	20.6
<b>Menopause</b>	116	72.5	44	27.5
<b>High caffeine</b>	125	78.1	35	21.9
<b>Corticosteroid</b>	102	63.8	58	36.2
<b>Lack of sun exposure</b>	92	57.5	68	42.5
<b>Hormonal change</b>	107	66.9	53	33.1
<b>Low intake of calcium and vitamin D</b>	104	65	56	35
<b>Smoking</b>	110	68.8	50	31.2
<b>Diabetes Mellitus</b>	140	87.5	20	12.5
<b>Female gender</b>	96	60	64	40

**3. Overall levels of participant’s knowledge about osteoporosis risk factors**

Regarding the overall levels of participant’s knowledge about osteoporosis risk factors, table

3 shows that more than half of the study sample had poor knowledge (53.1%), while 36.3% had fair knowledge. About 10.6% of the participants had good knowledge.

**Table 3. Overall levels of participant’s knowledge about osteoporosis risk factors.**

Overall levels of knowledge	F	%
Poor	85	53.1
Fair	58	36.3
Good	17	10.6
Total	160	100

**4. Relationship between socio-demographic characteristics and overall levels of participant’s knowledge about osteoporosis risk factors**

Table 4 shows the relationship between socio-demographic characteristics and overall levels of participant’s knowledge about osteoporosis risk factors.

There was a very highly significant relationship between overall levels of participant’s knowledge and age group, and gender (p-value > 0.001), while it was a significant relationship with marital status (p-value = 0.050).

**Table 4. Relationship between socio-demographic characteristics and overall levels of nurse’s knowledge about osteoporosis risk factors.**

Overall levels of knowledge		Poor		Fair		Good		P-value
		F	%	F	%	F	%	
Socio-demographic Characteristics	Age group (years)							
	14-33	36	73.5	11	22.4	2	4.1	
	34-52	30	53.6	22	39.3	4	7.1	< 0.001*
	53-71	12	25	25	52.1	11	22.9	VHS
	72-90	7	100	0	0	0	0	
Gender	Male	4	18.2	11	50.0	7	31.8	< 0.001
	Female	81	58.7	47	34.1	10	7.2	VHS
Marital Status	Single	14	66.7	7	33.3	0	0	
	Married	62	48.1	50	38.8	17	13.2	<0.050*
	Divorced	1	50	1	50	0	0	S
	Widowed	8	100	0	0	0	0	

\* Fisher’s exact test, VHS: Very Highly Significant, S: Significant

**DISCUSSION**

This study aimed to assess nurse’s knowledge regarding risk factors of osteoporosis. Regarding the socio-demographic characteristics of the 160 nurses, the highest percentage of the study sample was at age between 34-52 years old and married. This result agreed with the study done by Qalawa et al., in 2013, which showed that most of the study participants were in the age group between 30-45 years old and married (6).

In the gender, the majority of the study samples were female. In this study, significantly lesser numbers of men when compared with women were able to correctly identify some of the risk factors for OP, such as postmenopausal status. The study results supported by Vered, Werner, Shemy, and Stone, indicated that Female nurses’ knowledge regarding risk factors was found significantly higher than of male nurses (7).

Concerning the overall levels of participant’s knowledge regarding osteoporosis risk factors, this

study results show that half of the study sample had poor knowledge that is supported by a study which was done by Amre et al. in 2008 who found that only 55% of the participants have heard about osteoporosis risk factors, which is similar to the results of this study which only 53% have overall knowledge regarding risk factors of osteoporosis<sup>(8)</sup>.

Regarding risk factors of osteoporosis the majority of the study sample incorrectly answered the questions that diabetes mellitus, alcoholism, high caffeine intake, menopause, smoking, hormonal change, low intake of calcium and vitamin D, corticosteroid, and female sex as risk factors of osteoporosis. The study results are opposite to the study results were done in northern part of Israel by Vered, Werner, Shemy, and Stone<sup>(7)</sup>. The results of the study represented that more than half of the participants have knowledge regarding insufficient exercise (weight training) as a risk factor of osteoporosis. Similar results were observed from the study was carried out by Zhang and Chandran in Singapore showed that 57.1% of participants knew that high impact (weight training) exercise improves bone health<sup>(9)</sup>.

Regarding the relationship between socio-demographic characteristics and overall levels of participant's knowledge about osteoporosis risk factors. There was a significant relationship between overall levels of participant's knowledge and age group, gender, and marital status. The results of this study supported by the study, which was done by Elayeh et al. (2014) in University of Benin, Benin City, Nigeria, which they found that there was a significant relationship between overall levels of participant's knowledge and socio-demographic characteristics in gender and marital status ( $p = <0.0001$  and  $0.05$  respectively), but there it is not similar in age group which they showed that there is non-significant relationship while in this study the relationship was significant that related to the difference in the age of participants<sup>(10)</sup>.

In conclusion, the nurses had no enough knowledge and information about risk factors for getting osteoporosis in Erbil city such diabetes mellitus, menopause, alcoholism, high caffeine intake, menopause, smoking, hormonal change, low intake of calcium and vitamin, corticosteroid, and female sex.

This study suggests that osteoporosis education and prevention initiatives are needed specifically for all nurses and other health care professionals because

nurse is the primary health care provider among the community.

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