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PREVALENCE OF FRACTURE AND OSTEOPOROSIS AND AWARENESS OF OSTEOPOROSIS AMONG GENERAL POPULATION OF MAJMAAH CITY IN 2018

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Abstract
The study examined the importance of fracture and osteoporosis as one of the most common diseases in the medical field with its spread around the world. This is because osteoporosis is a disease characterized by low bone mass and a delicate architectural deterioration in the bone tissue, leading to increased osteoporosis and an increased risk of fractures.
Method: *This study is a cross-sectional study. An online questionnaire was sent to the participants in order to estimate the prevalence of osteoporosis and the ratio of the fractures. Data was collected using online questionnaire and analyzed using Statistical Package for Social Science (SPSS 22).*
Results: *The data was collected from 593 individuals. The female participants dominated the results as they represented 82% of the sample. Moreover, the majority (97%) were Saudi. Concerning the prevalence of fracture, the analysis shows that approximately 24% of the sample had a bone fracture. The results show that 7.9% of the sample suffer from osteoporosis. 63.7% of the sample are aware of what is osteoporosis. Moreover, 59.3% of the sample have a good level of knowledge about osteoporosis, while 36.5% have moderate knowledge. The analysis show that the age is the only factor that affects the level of knowledge on osteoporosis (p-value 0.002). The level of good knowledge is higher among females rather than males.*
Conclusion: *the prevalence of the diseases among population of majmaa is relatively moderate.*
Keywords: *Fracture, Osteoporosis, Awareness, Majmaah City.*

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INTRODUCTION:

Fracture and osteoporosis are one of the most common diseases encountered in medical field with an increasing incidence and prevalence worldwide. Osteoporosis is a disease characterized by low bone mass and micro-architectural deterioration of bone tissue, leading to enhanced bone fragility and an increase in fracture risk. The internationally agreed description of osteoporosis is 'a 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 fractures. According to the World Health Organization (WHO), osteoporosis is defined as a bone mineral density (BMD) at the hip and/or the spine at least 2.5 standard deviations (SD) below the mean peak bone mass of young healthy adults as determined by dual energy X-ray absorptiometry (DEXA)

Osteoporosis is in an increasing in prevalence worldwide mostly attributed to the raise in the elderly population in the world which estimated by 200 million people who affected by the disease. [1]

Scanty of researches were done in Majmaah city to overlook the scope of the problem in terms of how many people are affected and how many people perceived osteoporosis as a disease. Burden of both conditions are interconnected as both of the conditions can give rise to each other.

Hopefully, by enforcing the hospitals by this data a prevention plan can be made to decrease the incidence and prevalence of both of them.

By taking the BMD as the main criteria for the diagnosis of osteoporosis, a study was done in 2012 in Austria among woman who were older than 40 years old. Out of 99.399 woman 13% were found to have osteoporosis. [2] However, in a study done in Saudi Arabia in October of 2015 of people aged 50-79 revealed the 34% of healthy women and 30.7% of healthy men were osteoporotic. While the osteoporosis is a rising issue, the cost of its complication is a worldwide health burden.

The most important and prevalent complication of osteoporosis is a bone fracture. In addition, it is considered a major contributor to morbidity, mortality, and high cost of treatment. [3] Apart from osteoporosis the bone fracture is one of the most prevalent injuries encountered in a lifetime estimated by 50% of middle-aged men and 40% of woman over age of 75 in England. [4]

The bone fracture is defined as Break in bone or cartilage, which can result from an injury or caused by bone disease such as Osteoporosis. [5] The incidence of all types of fractures in 2017 was 21 fractures per 1000 in the US. Fractures were more prevalent in male then female with similar result reported in UK.

For scarce research was done in Saudi Arabia we wish to identify the magnitude of this problem alongside the prevalence and awareness of osteoporosis and fractures. Since the prevalence of both problems are escalating, we would like to investigate the scope the conditions in Al-Majmaah city.

To know if there are factors that related to Osteoporosis in our community Scanty of data regarding this condition in Saudi Arabia as well as in Majmaah city.

METHODOLOGY:

This study is a Cross-sectional study. An online questionnaire was sent to the participants, in order to estimate the prevalence of Osteoporosis and the ratio of the fractures.

The study is conducted over Sudair area which includes (Majmaah and Tumaer). Sudair is a historical region in Najd in the central of Saudi Arabia, and is located approximately 150 km north of the Saudi capital, Riyadh. The area lies in a valley directly to the east of the Tweig escarpment, which runs across Najd starting from Sudair in the north and ending near Wadi ad-Dawasir in the south. Sudair area includes Majmaah, which is a city and a governorate in Riyadh Province. Majmaah has an area of 30,000 square kilometers is the capital of the Sudair area. The population of the town is around 48,000. Tumaer is a part of Sudair area which is a city in Riyadh Province in central Saudi Arabia, about 140 kilometers northwest of Riyadh. The population of the town is around 9406.

The study includes All Saudis and non-Saudis above 15 years of age belonging to both genders of Majmaah city will be eligible to participate in the study.

The sample covered all males and females who replied to the questionnaire within one week.

The data was collected from the participants through filling the online questionnaire. Accordingly, the data was analyzed by the computer using SPSS software.

RESULTS:

The results show that the data was collected from 593 individuals. The female participants dominated the

results as they represented 82% of the sample, while males represented only 18% (Figure 1). Moreover, the majority (97%) were Saudi, while only 3% of the participants were non-Saudi (Figure 2).

The dominant age group was of those who are over 50 years, as they represented 32.4%. on the other hand, only 7.3% of the sample were 20 years old or less (Figure 3).

• **Prevalence of fracture**

Concerning the prevalence of fracture, the analysis shows that approximately 24% of the sample had a bone fracture (Figure 4), while the remaining 76% did not have.

Table (1) show that around 66% of those who had a bone fracture had it only once, while 21.4% had it twice. On the other hand, Table (2) shows that 37.9% of them were first broken when they were between 10-19 years old.

?Table (1): How many times have you broken bones		
Number of times	Frequency	Valid Percent
1	92	65.7
2	30	21.4
3	12	8.6
4	4	2.9
5	1	7.
7	1	7.
Total	140	100.0

Table (2): How old were you when you first broken?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	10 >	18	3.0	12.9	12.9
	19 – 10	53	8.9	37.9	50.7
	29 – 20	18	3.0	12.9	63.6
	39 – 30	18	3.0	12.9	76.4
	40 =<	33	5.6	23.6	100.0
	Total	140	23.6	100.0	

The most prevalent cause after the fracture among the sampled individuals was falling as it represented 54.3% of the causes. It worth noting that 25% reported that having accident is the cause of fracture.

?Table (3): What was the cause of the fracture		
cause of the fracture	Frequency	Percent
Falling	76	54.3
Playing / exercising	20	14.3
Accident (sliding / traffic accident / hit something solid)	35	25
Not remembered	9	6.4
Total	140	100

The results represented in Figure (5) show that 32.1% reported that their condition required physical therapy or rehabilitation.

Around 64% reported they did not suffer from any complications after fracture (Figure 6).

The majority of the respondents (74.2%) also reported that they have a family member who had broken bones (Figure 7).

- **Prevalence of osteoporosis**

The results show that 7.9% of the sample suffer from osteoporosis, while 60.4% reported they do not suffer from it. However, 39% of the sampled individuals reported they have family member who suffer from osteoporosis.

- **Awareness of osteoporosis:**

63.7% of the sample are aware of what is osteoporosis, while 36.3% are not. Moreover, the results show that 59.3% of the sample have a good level of knowledge about osteoporosis, while 36.5% have moderate knowledge.

The analysis show that the age is the only factor that affects the level of knowledge on osteoporosis (p-value 0.002). The level of good knowledge is higher among females rather than males.

Background characteristic		Knowledge			P-value
		Week	Moderate	Good	
*Age	20 =>	10.50%	63.20%	26.30%	0.002
	30 - 21	8.20%	27.90%	63.90%	
	40 - 31	5.50%	49.10%	45.50%	
	50 - 41	4.70%	38.30%	57.00%	
	50 <	0.70%	30.10%	69.10%	
Gender	Male	6.60%	41.00%	52.50%	0.388
	Female	3.80%	35.60%	60.60%	
Nationality	Saudi	4.40%	36.30%	59.30%	0.735
	Non-Saudi	0.00%	41.70%	58.30%	

DISCUSSION:
There are several studies tackled the same topic across different countries, the results also were different. These variances can be explained by differences in populations studied like genetic background, age categories and sample sizes. In a community-based study covered 620 Turkish people, the prevalence of osteoporosis was 15.1% among women and 10.7% among men. [6]
In North Iran, out of 788 women from a population based analysis, 18.5% were reported as having osteoporosis. [7]
In Iraqi postmenopausal females the incidence of osteoporosis reached 22.8%.[8] The prevalence of osteoporosis in Saudi women, aged 20-80 years, was reported to be 27.2% and 29.8 %, respectively.[9] A systematic review showed that the prevalence of low bone mass (OP and osteopenia) in Saudi Arabia is 70.5% at an average age of 56 years.[10]
Concerning the level of awareness, a study conducted in Saudi Arabia concluded that only 36.2% had a sufficient level of awareness about osteoporosis. Moreover, the results showed that younger participants had higher awareness scores, which supports our study that the age significantly affects the level of awareness among Saudi population.[11] On the other hand; another study also conducted in Saudi Arabia concluded that 60.66% of participants have

moderate general knowledge about osteoporosis. While only 25.33% have good general knowledge about osteoporosis.[12]

CONCLUSION:
Compared to other similar studies that were conducted in Saudi Arabia and relatively similar countries, the level of awareness of population concerning the osteoporosis in Majmaa is relatively moderate as it exceeded 63% compared to an average of 66%.
Awareness about osteoporosis among Saudi in Majmaa is considered relatively sufficient. However, to promote bone health, prevent osteoporosis and improve the economic implications of osteoporosis, educational and awareness programs should be established targeting the whole population especially the young.

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