## RESEARCH ARTICLE

## ASSESSMENT OF KNOWLEDGE AND PRACTICE TOWARD OSTEOPOROSIS IN RIYADH, KSA.

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| *Manuscript Info* | *Abstract* |
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**Background:** Osteoporosis is considered as a major worldwide health problem. Little is known about its definition, risk factors and prevalence in KSA.
**Objectives:** Evaluation of the knowledge and practice pattern of patients attending to orthopedic department in primary health care (PHC) centers in Riyadh.
**Methods:** This was a randomized descriptive study. A reliable questionnaire was distributed among 531 patients attending 40 PHC centers in Riyadh from January 2017 to March 2017.
**Results:** Sixty patients were rated as suffering from osteoporosis. The majority of them had college degree and were employed. Most of subjects had low knowledge score (68.7%). The practice score was good in only 31.5% of subjects with a high association between good knowledge and suffering from osteoporosis.
**Conclusion:** A substantial level of poor knowledge and practice was found among included subjects however good knowledge was associated with female gender and young age. Educational programs should be adopted allover KSA as the low KAP levels would result in improper application of preventive programs.

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## Introduction:-

Osteoporosis is defined as a systemic disease of bones which is a symptomatic and characterized by low density of bone (2.5) than the standard deviation and descent of the bone architectural tissue resulting in fragility of the bone and being more vulnerable to fracture [1].

Recent studies have shown that not only old age of women is thought to be a prominent risk factor for osteoporosis but also young women must be screened [2, 3]. The most common type of osteoporosis is primary type which is 6 time prevalent in women than men due to estrogen withdrawal in cases of ovarian failure, oophorectomy, PCO and menopause [4, 5]. Osteoporosis patients usually don't recognize the disease until a fracture of a bone occurred even with small falls [6].

Globally, osteoporosis impacts around millions of people with increasing age as proposed by the International Osteoporosis Foundation women at risk than men as 12.5%of women at 60 years old, 20% of women at 70 years old [7, 8]. In kingdom of Saudi Arabia, females were more prevalent than males where in postmenopausal women aged from 50-80 years old, 39.55 of them had osteoporosis and males were 21.4% [9, 10].

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The awareness and practice about osteoporosis risk factors will influence the preventive programs and can aid in decreasing its prevalence [11]. Thus KAP studies could assess the personal perception, increasing the level of knowledge and generating guidelines for prevention of osteoporosis in KSA [12, 13]. This study aimed at evaluating the knowledge and practice toward osteoporosis in Riyadh, KSA.

## Methods:-
*Type of study:* Randomized descriptive study.
*Setting:* primary health care centers in Riyadh.
*Sample:*

Riyadh was divided into two parts north and south then 20 PHC centers were randomly chosen from each part. All patients of both genders admitted to the orthopedic department from 18-80 years old were included during the study period. A total of 531 questionnaires were included in the study.

### Study tool:-
A self-administrated questionnaire was distributed to each patient alone that consists of 3 parts: including demographics of patients (age, gender, education), the 2$^{nd}$ part is 9 questions about osteoporosis and the third part was 6 questions about practice pattern.

### Statistical analysis:-
The coded data of each questionnaire were fed into IBM SPSS software package version 20.0. The data were described as number and percent and the significance level was 0.05.

## Results:-
### Demographics of the studied subjects:-
The socio-demographic characteristics of the included subjects were shown in Table. 1. The age of the included subjects was 18-45 in 103 of subjects, 46-69 years old in 233 patients and 195 patients were above 70 years old. The majority of participants were females (69.11%) and only 30.89 % of them were males. The most of participants had collage degree (55.9%), 30.3% had high school and 13.8% had post-graduate degree.

**Table 1:-**Socio-Demographic Characteristics of Respondents (n = 531)

|  | N. | Percentage (%) |
|---|---|---|
| **Age (Year)** |  |  |
| **18 - 45** | 103 | 19.4% |
| **46.00 - 69** | 233 | 43.9% |
| **70+** | 195 | 36.7% |
| **Gender** |  |  |
| **Female** | 367 | 69.11% |
| **Male** | 164 | 30.89% |
| **Education level** |  |  |
| **High School** | 161 | 30.3% |
| **Collage degree** | 297 | 55.9% |
| **Post-graduate** | 73 | 13.8% |

**Prevalence of osteoporosis and genetic risk factor:**
Among the studied population, 60 patients had osteoporosis and only 29.4% of them had members of the family suffering from osteoporosis (Table. 2).

**Table 2:-**Responses to questions on prevalence of osteoporosis

|  | No | Yes | Don't Know |
|---|---|---|---|
| **I am suffering from osteoporosis** | 348 (65.5%) | 60 (11.3%) | 123 (23.2%) |
| **There are members of my family who is suffering from osteoporosis** | 286 (53.9%) | 156 (29.4%) | 89 (16.7%) |

**Assessment of knowledge of participants regarding to osteoporosis:-**
Most of included subjects had no knowledge about the concept of osteoporosis (80%) and only 20% of them have knowledge. Regarding the symptoms of osteoporosis 29% of patients had knowledge about symptoms but the majority of them don't know (71%). 40.9% of patients have knowledge about the seriousness of osteoporosis and about 59.1 don't know. The female predominance and old age were thought as risk factors by 42.4% and 57.8% respectively of the subjects. The lack of exposure to sun was believed as a risk factor for osteoporosis in 54.7% of patients. On the other hand, only 31.8% of participants have knowledge about the impacts of using steroids on osteoporosis (Table. 3).

**Table 3:-**Assessment of osteoporosis knowledge in included respondents

|  | No | Yes |
|---|---|---|
| **I understand the concept of osteoporosis:** | 425 (80%) | 106(20%) |
| **Know the symptoms of osteoporosis** | 377 (71%) | 154 (29%) |
| **Know the seriousness of osteoporosis** | 314 (59.1%) | 217 (40.9%) |
| **Female predominance in osteoporosis cases** | 306(57.6%) | 225 (42.4 %) |
| **Old age is a major risk factor for osteoporosis** | 224 (42.2%) | 307(57.8%) |
| **Lack of exposure to the sun radioactive impacts the disease state** | 241(45.3%) | 290 (54.7%) |
| **Steroids as risk factor for osteoporosis** | 362 (68.2%) | 169 (31.8%) |

**Knowledge score:-**
Table. 4 indicated that the knowledge score was good in 31.3% of patients while the most of them (68.7%) had poor knowledge about osteoporosis and its risk factors (Figure. 1).

**Table 4:-**Knowledge of osteoporosis score

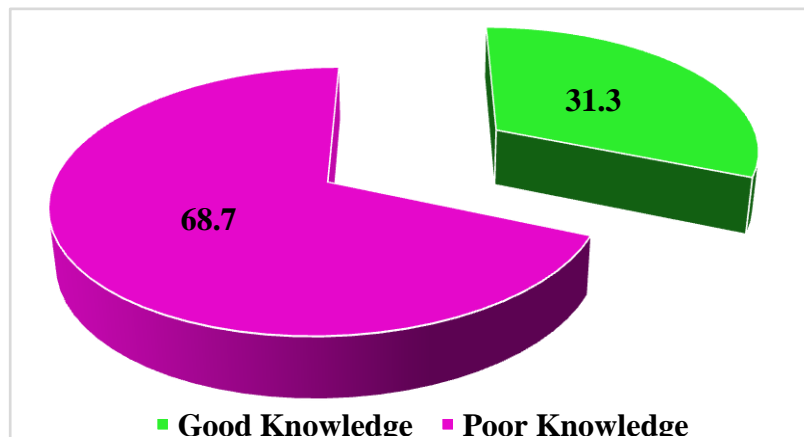|  | Knowledge Score |
|---|---|
| **Good Knowledge** | 166 (31.3%) |
| **Poor knowledge** | 365 (68.7%) |



**Figure 1:-**Respondent's Knowledge about osteoporosis

**Association between knowledge and demographics of included participants:-**
The association between the level of knowledge with patients demographics showed that age showed no correlation with osteoporosis incidence. The male gender and low education level were associated with poor knowledge (Table. 5).

**Table 5:-**Association between osteoporosis knowledge and socio-demographic variables:

|  | Good Knowledge(n=166) | Poor Knowledge(n=365) | P-value |
|---|---|---|---|
| **Age** |  |  |  |
| **18 – 45** | 55 (51.4%) | 48 (46.6%) | 0.195 |

| 46.00 - 69 | 51 (21.9%) | 182 (78.1%) | |
| 70+ | 60 (30.8%) | 135 (69.2%) | |
| **Gender** | | | |
| **Female** | 126 (47.3%) | 241 (52.7%) | 0.05 |
| **Male** | 40 (24.4%) | 124 (75.6%) | |
| **Education Level** | | | |
| **High School** | 10 (6.2%) | 151 (93.8%) | < 0.0001 |
| **Collage degree** | 107 (36%) | 190 (64%) | < 0.0001 |
| **Post-graduate** | 49 (67.1%) | 24 (32.9 %) | < 0.0001 |

**Assessment of practice level:-**
As for the practice pattern, 9.4% of patients attended awareness programs about osteoporosis to prevent the disease. In addition, 33.3% and 45.4% have regular practice of sports and well exposure to sun, respectively. Only 36.7% eat foods containing vit. D and 24.55 attend to routine radiological examination for deceasing the risks of osteoporosis and complications (Table. 6).
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**Table (6):-**Assessment of practice level toward osteoporosis.

| Practice pattern | N. | (%) |
|---|---|---|
| **Attendance of osteoporosis awareness programs** | 50 | (9.4%) |
| **Practicing sports regularly** | 177 | (33.3%) |
| **Well and regular exposure to sun** | 241 | (45.4%) |
| **Eating foods containing vit. D** | 195 | (36.7%) |
| **Regular visiting doctors for early screening** | 290 | (54.6%) |
| **Routine radiological examination to decrease the risks of osteoporosis and complications** | 130 | (24.5%) |

**Practice score of included subjects:-**
The overall practice pattern score was good in 31.5% of subjects and poor in 68.5%. Also, good practice was high among patients suffering from osteoporosis than those without osteoporosis (Table. 7).

**Table 7:-**Osteoporosis score of practicing pattern

| | Good practice | Poor practice |
|---|---|---|
| **Overall practice** | 167 (31.5%) | 364 (68.5%) |
| **Practice score in osteoporosis patients (N=60)** | 56 (93.3%) | 4 (6.7%) |
| **Practice score in subjects without osteoporosis** | 111 (23.6%) | 360 (76.4%) |

## Discussion and conclusion:-
The good awareness and practice pattern toward osteoporosis is recommended for good prevention of the disease [12]. Little is known about osteoporosis among Saudi population hence further investigations are needed to assess the KAP of Saudi patients for prevention of osteoporosis and its complications [8, 9, 12].
The majority of patients had poor knowledge and practice pattern about osteoporosis and its associated risk factors and this could be attributed to low prevalence of osteoporosis in KSA. In consistence, Al-Otaibi showed that Saudi women had a deficient knowledge and practice scores about osteoporosis [14]. Also, other studies that was conducted in Assir region and Riyadh showed a poor KAP of osteoporosis [9, 12, 15, 16].

On the other hand, another study revealed conflicting results regarding to knowledge and practice pattern as 57% and 51.7 of patients had good knowledge score, correspondingly [17].

The higher levels of education as well as female gender were significantly associated with good osteoporosis knowledge. In the same line, high education and female gender correlated with osteoporosis knowledge [16]. Also, education was found to impact the knowledge score as the younger the age is, the high the knowledge is [4, 18].

## Conclusion:-

a substantial level of poor knowledge and practice was found among included subjects however good knowledge was associated with female gender and young age. Educational programs should be adopted allover KSA as the low KAP levels would result in improper application of preventive programs.

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