Assessment of the knowledge and attitudes on osteoporosis among female students at the College of Applied Medical Sciences, Taif City, Saudi Arabia

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Abstract:

Background: Osteoporosis is an increasing chronic health problem that could lead to mortality and a bad quality of life. Awareness about osteoporosis and the conditions that contribute to it is of major benefit and an important health challenge.

Purpose: This research was conducted to assess the awareness and attitudes about the osteoporosis among female medical students at the College of Applied Medical Sciences, Taif University.

Materials and methods: Design of an osteoporosis questionnaire. One hundred questionnaires were distributed to faculty female students to evaluate their knowledge of osteoporosis. Questionnaires were gathered, findings were tabulated and SPSS was used to properly assess the information.

Results: There was a high level of knowledge on osteoporosis associated with the period of study at the College of Applied Medical Sciences. The fourth-year nursing students had a high level of knowledge on osteoporosis (66 percent) followed by third-year laboratory students (64 percent) and followed by second-year students of radiology (48 percent).

Conclusion: We concluded from this study that raising the knowledge about osteoporosis and its risk factors is an important and effective tool in preventing osteoporosis.

Keywords: osteoporosis, knowledge, awareness, attitude.

Introduction

Osteoporosis is one of the main public health concerns [1]. It affects millions of people all over the world and increases with age [2]. Osteoporosis characterized by decreased bone density/mass and deterioration of the micro-architecture of bone tissue [3].

One of three females and one of 12 men suffer osteoporosis after the age of 50 years [4]. The significance of osteoporosis develops from the frequency of associated fractures [5]. However, according to studies and research, a 10% rise in bone mass would decrease the risk of osteoporotic fractures by up to 50% in older ages [6]. At present, osteoporosis is regarded to be one of the five most serious problems causing disability and extended hospital stay in elderly people [7].

A proper diet that involves the daily caloric need and the daily supply of calcium and vitamin D necessary, is the main factor in attaining optimal bone mass during the transition from adolescence to adulthood and lowering the rate of bone loss in the elderly [8].

Hypovitaminosis D is regarded to be a worldwide health problem. In addition, vitamin D deficiency among Saudis has been discovered to be high. Saudi females have the greatest incidence of vitamin D...
deficiency. Lifestyle, eating and drinking behaviors contribute markedly to vitamin D deficiency [9]. In this context, the range of nutrients in bone health is grouped into major nutrients such as proteins, carbohydrates, fats and micronutrients such as minerals and vitamins. However, attention should be paid to the idea that there is a direct relationship between varying nutrients and bone health encountered only in regard to calcium and vitamin D [10].

The risk factors that cause primary and secondary osteoporosis are categorized as environmental risk factors which include low activity levels, long-term sedentary lifestyles, smoking, alcohol abuse, and insufficient diet, including eating problems, low calcium, and vitamin D consumption. Non-changeable conditions include gender, family history, ethnicity and race, advanced age, postmenopausal status, and body size. Genetics also plays a major part in the emergence of osteoporosis [11]. Knowledge about osteoporosis and the conditions that contribute to it is an important public health challenge. From an economic aspect, the primary prevention of osteoporosis is the most efficient way to minimize financial and social problems. Primary prevention can be accomplished, firstly, through the education of nurses and health caregivers [12]. Such data can contribute positively to any community-based prevention strategy and attitude [13]. However, the absence of scientific work on such information in Saudi Arabia is a significant barrier to awareness-raising campaigns [11]. This study was conducted to assess the knowledge and attitudes of medical female students in the College of Applied Medical Sciences about osteoporosis.

Materials and Method

The descriptive study was done among one hundred female medical students at the College of Applied Medical Sciences, Taif University, KSA. One hundred female medical students were divided into three groups: Group (1) includes 25 students in the 4th year of the Nursing Department, Group (2) include 50 students in 3rd year at Laboratory Department, Group (3) include 25 students in 2nd year at the Radiology Department.

Data collection

The purpose of this study was explained to students before the collection of data and written consent was obtained before completing the questionnaire. The study was approved by the Ethical Research Committee of the College of Applied Medical Sciences-Taif University.

The tool of the study

One hundred structured questionnaires were developed based on reviewing the literature, each questionnaire consisted of fifteen questions; composed of different pattern, seven of them answered by yes or no but the remaining have other different answers. The covering parts of questions related to family and disease history, knowledge and attitude about osteoporosis. Furthermore, the questions evaluated the awareness of the students by asking them about the possible causes, risk factors and bone fractures related to osteoporosis.

The questionnaires were randomly spread between students and after the reply, the questionnaires were obtained, the findings were tabulated and the statistical analysis was carried out.

Statistical Analysis

Data entry and analysis were performed using the SPSS version 20 statistical software program. Data were provided in the form of percentages and mean ± standard deviations.

Results

Analysis of the questionnaires revealed the highest level of knowledge about osteoporosis was observed in 66% of the student of the Nursing Department followed by 64% of the Laboratory Department and 48% of students of the Radiology Department (Table1)

Table (1): Relation of knowledge and studying level of students in all departments

<table>
<thead>
<tr>
<th>College of Applied Medical Sciences</th>
<th>know osteop.</th>
<th>don't know</th>
<th>Total number of student</th>
<th>Mean of knowledge</th>
<th>Percent of Knowledge</th>
<th>Percent of who do not know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laboratory students (Third year)</td>
<td>32</td>
<td>18</td>
<td>50</td>
<td>0.64</td>
<td>64%</td>
<td>36%</td>
</tr>
</tbody>
</table>
For lack of knowledge about osteoporosis such as causes, complications, family history and nutritional causes, the highest percentage was found in the Radiological Department (52%) followed by the Laboratory Department (36%) and (34%) of students of the Nursing Department (Figure 1). Table 1: Percentage of students who had knowledge about osteoporosis

<table>
<thead>
<tr>
<th>Department</th>
<th>12</th>
<th>13</th>
<th>25</th>
<th>0.48</th>
<th>48%</th>
<th>52%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radiology students</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Second year)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nursing students</td>
<td>18</td>
<td>7</td>
<td>25</td>
<td>0.66</td>
<td>66%</td>
<td>34%</td>
</tr>
<tr>
<td>(Fourth year)</td>
<td></td>
<td></td>
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</tbody>
</table>

Figure (1): lack of knowledge about osteoporosis

The results of this study showed a lack of knowledge and understanding of osteoporosis among female students in the Radiology Department as well as students in the Laboratory and Nursing Departments, thus highlighting the need for educational measures to increase female students’ knowledge of osteoporosis.

Discussion

Osteoporosis is one of the significant health problems [1], it is no longer limited to the older population but has consequences for all age categories [14]. In order to promote specific cognitive approaches to the preventive measures of osteoporosis, improving awareness of osteoporosis should, therefore, be a priority for future intervention educational programs. Our results showed a lack of background awareness about osteoporosis among radiology students (48 percent) compared to those in the laboratory and nursing departments (64 percent & 66 percent) respectively in the College of Applied Medical Sciences; this decrease in knowledge among radiology students who may contribute to the level of study in the second year. This concept was also revealed by the results obtained between female students in El-Menia secondary school by Isma'il et al. [15], and Turkish females [16], and among Taiwan's young teen females [17]. On the other hand, higher percentages were observed by Alexandraki et al. [18], and Yeab et al., [19], who carried out their studies in Greece and Malaysia, respectively.

In Abha City, KSA, a clinical study on the evaluation of the osteoporosis knowledge test among the community population found that overall knowledge in Abha City was good in 52 percent of people. The study showed that there was poor knowledge for preventive measures, while the majority had adequate knowledge of risk factors, symptoms and radiological investigations [9]. Knowledge of osteoporosis and its risk factors is of great benefit and is a major public health challenge. Such awareness can make a positive contribution to any community-based preventive measures and strategy [13]. University students are considered to be a strategic target of any community. Knowing about osteoporosis among university students will help to adopt living and nutritional standards that will help prevent such bone-reducing disease. In addition, university students with good knowledge of osteoporosis are important factors in raising society's knowledge of this disease [11]. It is very exciting to assume that students with a high level of study showed a higher level of osteoporosis awareness in our study, fourth-year Nursing Department students were more informed about osteoporosis, followed by third-year Laboratory and second year Radiology Departments students, so it is well known that the student level play a key role in their awareness of osteoporosis.

Conclusion

The current study indicated that low-level study at the College of Applied Medical Sciences revealed a lack of knowledge of osteoporosis among female students so that the study could serve as a stimulus for further researchers to assess knowledge and other preventive actions among low-level students.

Recommendation:

1- More studies should be conducted between non-medical students and other individuals. It is also...
important to combine knowledge with risk factors for osteoporosis, such as nutritional and economic factors, family history and lifestyle.

2- Continuing osteoporosis awareness courses and programs have been seen as an important tool for raising awareness and knowledge about osteoporosis. In addition, extending the campaign to other people in the community will promote the transfer of information about osteoporosis and hence reduce the incidence of this disease.

3- Programs are required to improve knowledge and encourage healthy behaviors to prevent osteoporosis. In addition, media and electronic information media should be used to support raise public awareness of osteoporosis.

Declarations

Ethical Approval: All procedures performed in studies involving human participants were in accordance with the ethical standards of Taif University Ethical Committee and with the 1964 Helsinki Declaration and its later amendments. Formal consent is was taken before filling the questionnaire.

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Conflict of Interest: The authors declared no conflicts of interest with respect to the research, authorship, and/or publication of this article.

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Appendix

**A questionnaire about osteoporosis**

1. What do you know about osteoporosis?
   - Lightening in bone
   - Hardness in bone

2. What is the main source of formed vitamin D?
   - Dietary
   - Sun exposure

3. In your opinion what is the suitable time for sun exposure?
   - Early in the morning
   - At midday time

4. How is the importance of the disease for you?
   - I care too much
   - I don’t know anything about it

5. In your opinion who is the most affected by osteoporosis?
   - Female
   - Male

6. Have you ever attended any awareness programs on osteoporosis?
   - Yes
   - No

7. What do you practice to protect yourself from osteoporosis?
   - Playing sport
   - Exposure to the sun
   - All of the above

8. In your opinion what is the cause of fractures which make osteoporotic people suffer from it?
   - Age
   - Weakness of the bone
   - Immunity

9. Do you have a family member at risk of or developing osteoporosis?
   - Yes
   - No

10. Is there a relation between calcium, vitamin D and osteoporosis?
(11) Is there a relation between parathyroid hormone and osteoporosis?
  o Yes
  o No

(12) Is there a relation between giving glucocorticoids (Prednisone) for three months or longer and osteoporosis?
  o Yes
  o No

(13) In your opinion, smoking and alcohol abuse have an effect on bone health?
  o Yes
  o No

(14) Do you have any information about the necessary nutrients for bone health?
  o Yes
  o No

(15) What is the main dietary source of vitamin Ds?
  o Fresh juice and vegetables
  o Diary products