Poor Knowledge About Osteoporosis in Learned Indian Women


Abstract
Objectives: The present study was done to assess knowledge about osteoporosis in learned Indian women, identify their source of knowledge and to study the correlation of level of knowledge with other variables.

Methods: A total of 73 female staff members (average age 44.7 years) of a teaching institute completed the Osteoporosis Questionnaire (OPQ). The mean ± SD of total score for the sample was 4.1 ± 4.1 (range -8 to 15; maximum possible score 20).

Results: The correct definition of osteoporosis was given by 74%, but there was general lack of awareness in all the areas assessed. There was statistically significant difference in the total score depending on the faculty of education, with staff members from the science faculty having the maximum mean score (p < 0.05). We found no influence of age, menopausal status, previous history of fracture and family history of osteoporosis on the level of knowledge. Media (74%) was the commonest source of knowledge followed by friends (49%) and doctors (25%).

Conclusions: This study highlights the general lack of knowledge about osteoporosis in learned Indian women and also the need for increased involvement of medical professionals in patient education. ©

INTRODUCTION
Osteoporosis is now recognised as a major problem of health care in India with an estimated 50 percent of healthy women over 50 years of age having low bone mass.1

Education of women has been suggested to increase appropriate evaluation, prevention and treatment of osteoporosis.2 It has been demonstrated the educating patients’ about their condition, most often through patient education programs, increases knowledge, improves compliance, changes behavior and decreases levels of a variety of disease symptoms.3

The present study was performed with the aim of assessing knowledge about osteoporosis in learned Indian women with the help of a self-administered, multiple choice Osteoporosis Questionnaire (OPQ), to identify their sources of knowledge about osteoporosis and to study the correlation of knowledge levels with other variables including age, menopausal status, past history of fragility fractures, family history of osteoporosis and faculty of education.

MATERIAL AND METHODS
A total of 73 female staff members of a teaching institute were approached and completed a self-administered questionnaire (OPQ). This study had the approval of the hospital Ethics committee. All the approached participants provided consent for participation in the study.

Additional information was obtained including patients’ age, menopausal status, family history of osteoporosis, history of fragility, fractures and faculty of education.

As a qualification for recruitment in their job, all participants required a post-graduate degree in their respective subject and hence were classified as ‘learned’. The sample was divided into different categories according to their faculty of junior college, arts, commerce and science.

We hypothesized that the knowledge levels would be different depending on the faculty as the participants would have interest and access to different reading materials. Also women, who have reached menopause, have sustained a fragility fracture or have a family member diagnosed as having osteoporosis would know more about osteoporosis.

The Osteoporosis Questionnaire (OPQ): The OPQ is a reliable and validated questionnaire to assess patient’s
knowledge about osteoporosis. The 20 item OPQ assesses the patient’s knowledge in four areas comprising i) General knowledge (5 questions), ii) risk factors (7 questions), iii) treatment (4 questions) and iv) consequences of osteoporosis (4 questions).

Scoring of the OPQ: There are four responses for each question of which only one is correct. One of these is a ‘don’t know’ option, which has been included to improve patient compliance and scored 0 points. Each correct response scored 1 point and an incorrect response scored -1. The maximum and minimum score on the OPQ is 20 and -20 respectively.

Sources of patient knowledge: Patients were asked to identify their sources of knowledge under 6 headings comprising family, friends, family doctor, magazine and newspaper, television and radio and other sources.

The statistical analysis was done using the SPSS for Windows version 10. The total score on OPQ is expressed as mean ± SD (Standard Deviation) and was confirmed to have a normal distribution. The t test was used to study the differences in total scores in different groups of variables. The ANOVA was used to study the difference in the total scores between different faculties. A p value < 0.05 was taken as significant.

RESULTS

The results of the OPQ were available on all 73 participants. The average SD age of the samples was 44.7 years (range 27 to 59).

Osteoporosis Questionnaire (OPQ)

The results of the OPQ are shown in Table 1. The mean total score (± SD) of the 73 patients was 4.1 ± 4.1. The highest and the lowest score were 15 and -8 respectively.

Table 1: Results of the OPQ: Total score and score in the various sub-sections of knowledge

<table>
<thead>
<tr>
<th></th>
<th>Maximum Possible score</th>
<th>Mean SD Score</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>20</td>
<td>4.1 ± 4.1</td>
<td>-8</td>
</tr>
<tr>
<td>General knowledge</td>
<td>5</td>
<td>1.4 ± 1.9</td>
<td>-4</td>
</tr>
<tr>
<td>Risk factors</td>
<td>7</td>
<td>2.6 ± 2.3</td>
<td>-3</td>
</tr>
<tr>
<td>Treatment</td>
<td>4</td>
<td>0.1 ± 1.3</td>
<td>-3</td>
</tr>
<tr>
<td>Consequences</td>
<td>4</td>
<td>0.2 ± 1.3</td>
<td>-4</td>
</tr>
</tbody>
</table>

A: General knowledge: Osteoporosis as a condition characterised by fragile bones was correctly identified by 74% of patients and 54% were aware that osteoporosis and osteoarthritis are different conditions with few similarities. However, only 37% were aware that our bones are strongest between the ages of 20 and 50 years. Almost one in five (18%) incorrectly believed that osteoporosis is more common in men than in women. Seventy nine percent of patients had an incorrect impression about how common osteoporosis is in an elderly women compared to osteoarthritis and bone tumor.

B: Risk factors: An early menopause, excessive intake of alcohol and excessive dieting as risk factors for osteoporosis were correctly recognised by 50%, 47%, 67% of patients respectively. The relationship between lack of exercise and development of osteoporosis was appreciated by 78% of patients. Only 46% of participants were aware of the role genetic factors in the causation of osteoporosis. Only 50% of participants were aware that the chances of developing osteoporosis are higher in the presence of a positive family history. Thirty percent of patients recognised the association between an ‘overactive thyroid’ and osteoporosis.

C: Treatment: A large number of women (46%) were unaware that all types of HRT help prevent progression of osteoporosis. Breast cancer was recognized as a contraindication to HRT by only 25% of women. Only 12% knew that clots in the leg veins could be a side effect of HRT. The role of weight-bearing exercise was unclear in 46% of patients and 37% believed that swimming (a non-weight bearing exercise) could help strengthen bones.

D: Consequences: Low back pain and loss of height was correctly recognised by only 21% of patients as a common complaint in patients with osteoporosis. Only 12% of patients appreciated that the chances a subsequent fracture are high after sustaining a fragility fracture. Fifty three percent of patients correctly identified the association between muscle weakness and possibility of fractures, while only 41% appreciated the effect of benzodiazepines (e.g. diazepam) on the likelihood of a fall.

Correlation with other variables

Age: To study this relationship we divided the sample into those below (n=24) and above (n=49) 40 years of age. There was no significant difference in the level of knowledge in the two groups (4.77 ± 3.78 vs 3.67 ± 4.28).

Menopausal status: Data on menopausal status was available on 69 subjects. There was no difference in the total scores on OPQ in pre- (n=46) and Post-menopausal (n=23) women (4.87 ± 3.70 vs 3.70 ± 3.83). None of the post-menopausal women were using hormone replacement therapy (HRT).

Previous history of fragility fractures: Only 67 subjects responded to the question about previous fragility fracture. There was no difference in the total scores on OPQ in patients who did (n=23) and did not (n=55) have previous history of fragility fractures (4.75 ± 4.18 vs 4.47 ± 3.63).

Family history of osteoporosis: Six participants gave a positive family history of osteoporosis. There was no difference in the total scores in patients with or without family history of osteoporosis (4.17 ± 5.42 vs 4.87 ± 3.64).

Faculty of education: The scores for the sample according to the faculty are presented in Table 2. There

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Table 2: Results of the OPQ: Total score and score in the various sub-sections of knowledge

<table>
<thead>
<tr>
<th>Faculty</th>
<th>Maximum Possible score</th>
<th>Mean SD Score</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family of education</td>
<td>20</td>
<td>4.1 ± 4.1</td>
<td>-8</td>
</tr>
<tr>
<td>General knowledge</td>
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<td>-3</td>
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<td>4</td>
<td>0.1 ± 1.3</td>
<td>-3</td>
</tr>
<tr>
<td>Consequences</td>
<td>4</td>
<td>0.2 ± 1.3</td>
<td>-4</td>
</tr>
</tbody>
</table>

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Seventy nine percent of patients had an incorrect impression about how common osteoporosis is in an elderly women compared to osteoarthritis and bone tumor.
was statistically significant difference in the total scores according to the faculty of education (p < 0.05). Staff members from Junior College has the lowest mean score while those from the Science faculty had the highest mean score.

Sources of patients’ knowledge: Table 3 gives details of the patients’ sources of knowledge. More than one source of knowledge was identified by 44% of patients.

**Table 2: Score on OPQ according to the faculty of education**

<table>
<thead>
<tr>
<th>Faculty</th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
<th>Mini.</th>
<th>Maxi.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jr. College</td>
<td>17</td>
<td>1.76</td>
<td>4.15</td>
<td>-8</td>
<td>8</td>
</tr>
<tr>
<td>Arts</td>
<td>24</td>
<td>3.88</td>
<td>3.54</td>
<td>0</td>
<td>14</td>
</tr>
<tr>
<td>Commerce</td>
<td>6</td>
<td>5.33</td>
<td>3.67</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>Science</td>
<td>26</td>
<td>5.46</td>
<td>4.12</td>
<td>-2</td>
<td>15</td>
</tr>
<tr>
<td>Total</td>
<td>73</td>
<td>4.07</td>
<td>4.09</td>
<td>-8</td>
<td>15</td>
</tr>
</tbody>
</table>

*p < 0.05

**Table 3: Sources of patient’s knowledge about osteoporosis**

<table>
<thead>
<tr>
<th>Source</th>
<th>Patients (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magazine and Newspaper</td>
<td>51</td>
</tr>
<tr>
<td>Doctor</td>
<td>25</td>
</tr>
<tr>
<td>Friends</td>
<td>49</td>
</tr>
<tr>
<td>Family</td>
<td>19</td>
</tr>
<tr>
<td>TV/Radio</td>
<td>23</td>
</tr>
<tr>
<td>Others</td>
<td>7</td>
</tr>
</tbody>
</table>

He purpose of the study was to discover how much learned Indian women know about osteoporosis including the risk factors, treatment options and its consequences. We have used a valid and reliable instrument, Osteoporosis Questionnaire (OPQ) and have demonstrated deficiencies in knowledge about osteoporosis in this sample.

In agreement with the present study satisfactory knowledge about the definition of osteoporosis has been demonstrated, mainly in the elderly population, but a large number of women confuse osteoporosis with arthritis.

Ungan and Tumer found that awareness about osteoporosis was particularly low in the areas of risk factors and consequences. The finding of the present study regarding poor knowledge of risk factors and consequences is consistent with the above study. Modification of risk factors is one important management strategy in osteoporosis and it is vital for the patient to be aware of the various risk factors. None of the 23 post-menopausal women in the sample were using HRT. This may account for the poor knowledge score in the area of treatment, which contains questions about contraindication, efficacy and side effects of HRT. Ferguson et al have demonstrated that women taking HRT were more aware of its efficacy and other risk factors for osteoporosis.

Magnus et al surveyed a random sample of 1514 Norwegian women and men aged 16-79 years. This study demonstrated a high degree of general knowledge of osteoporosis and its consequences in the general population. Higher level of education and knowing someone with osteoporosis was associated with increased awareness. The sample in the present study was ‘learned’ with a postgraduate qualification. Though there were differences in the total scores according to the faculty, generally the knowledge levels were very low. We found no association between level of knowledge and a positive family history of osteoporosis or previous fragility fractures.

The OPQ has also been use in a sample of English women over 50 years of age. The total mean ± SD score was found to be 8.5 ± 5.4 with a minimum of -2 and maximum of 17. The knowledge levels were similar to those in the present sample in the areas of general knowledge and risk factors while slightly better in the areas of treatment and consequences. Popular media was identified as the commonest source of knowledge (86%) followed by their family doctors (50%).

The wide variation in the total score in the present study, between the Indian and English women and the difference in the score according to the faculty may reflect an individuals desire to know more about the condition or their access to such information. It could be a result of differing social and educational backgrounds of the population. A large number of sources of patients knowledge were identified. This may explain the variation of knowledge in different areas depending on the emphasis that is given by different sources.

Pal reported results of a questionnaire survey of patients with reference to the advice they received after sustaining a fragility fracture. Before sustaining a fracture, 42% of patients were aware of osteoporosis and its risk. The source of information was mainly from the media (70.5%) and only occasionally from their doctors (29.5%). In another study, television, newspapers and friends were identified as the main source of information with physicians ranking fifth as a source of information. The present study identifies a large number of sources of knowledge. Similar to the two studies mentioned above, media (74%) was the most common source of knowledge and 25% of patients reported family doctor as their source of knowledge in the present study.

The present study and other studies of sources of patients knowledge reveal that media is the most common source. As highlighted by Juby and Davis, this is a cause for concern as the information available in the media may be variable and inaccurate. Molnar et al assessed the quality of information available through the medical advice columns of newspapers in Canada.

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The authors found that in 50% of the articles inappropriate information was provided while in 28%, the advice given may have been dangerous and potentially life-threatening.

The present study has identified deficiencies in knowledge about osteoporosis in learned Indian women. We stress the need for careful individual assessment of knowledge using a validated tool like the OPQ. This will help in identifying areas of lack of knowledge and appropriate efforts may be instigated to educate the patient. To maintain the quality and reliability of information provided, it is recommended that the health authorities and medical fraternity be involved in the patient education efforts.

REFERENCES


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