

Educational Booklet Effect on Knowledge and practice of Osteoporotic Patients

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Abstract

Osteoporosis is a common and asymptomatic disease. Fifty percent of men and 70% of women over 50 years are affected by osteoporosis or osteopenia. The disease and its complications can be prevented by raising society knowledge throughout education. The aim of this study was determining the effect of educational booklet on Knowledge & Practice of osteoporotic patients who were referred to Shariati Hospital. This was an experimental and self-control study in which the knowledge and practice was determined by standard questionnaire (face to face interview before education and telephone-route after education). Data were analyzed by Mann-Whitney U test. Three hundred and forty patients coming to Shariati Hospital osteoporosis clinic were investigated. Educational booklet raised society knowledge and practice up to 24% and 16%, respectively. The results showed that educational booklets were not effective tools to increase knowledge and practice of the patients. We recommend other educational tools like meetings, posters, and Philip charts, to enable patients to take care of themselves optimally.

Keywords: *Education, Osteoporosis, Knowledge, Practice*

Introduction

Osteoporosis International Federation names this disease as silent disease; because bone mass and stability is lost insidiously without any significant symptoms and the patient realizes his or her disease after sudden fracture (1). Osteoporosis makes different costs, directly or indirectly, due to harmful effects on life style (physical, psychological and social status).

Hospital and home-nursing surveys have assumed the cost of osteoporosis about 14 billion \$ in one year versus 5-6 billion \$ in 10 y ago.

Osteoporosis is also common in Iran, 50% of men and 70% of women over the age of 50 years have osteoporosis (2).

Inadequate intake or incomplete absorption of Calcium and vitamin D are risk factors of osteo-

porosis. 79.6% of people between ages 20 and 69 years have vitamin D deficiency (3).

Since osteoporosis is highly prevalent and there is no significant symptom other than fracture or decreased BMD which is measured by bone absorptimetry, it is necessary to educate people, specially osteoporotic patients to change their life style and decrease risk factors. To plan the educational programmes Society knowledge should be evaluated.

Unfortunately there is not enough information about the disease in different countries. For example, American women do not know osteoporosis complications and can not evaluate their risk factors. As shown in one study, 75% had positive family history, over 80% did not know the direct relationship between the disease and femoral fracture, and 60% know none of the

risk factors (Age, Sex, BMI, Race, Nutritional values of Calcium and Vit D) (4).

American Endocrine Society study on women's knowledge about osteoporosis showed 50% of 404 women over age of 50 years did not know the reason of a fracture due to a light trauma as osteoporosis (4).

Osteoporosis is very common in Iran, but there is no data to show how the society knows about that to plan educational programs. Education is very important because spending 1\$ for education, can save 4-5% of treatment costs (5).

Different ways have been recommended such as: group training, discussion, presentation, experimental work and its consequences, educational moulages, role playing, case education of disease, self monitoring and lecturing; each one has benefits and defects. For example, in lecturing, patients with auditory defects can not listen or participate well; so for selecting the best way, we should use especial educational tool for especial groups.

In chronic diseases, in which it is necessary to carry out all the educational instructions throughout life, patients should participate actively in educational sessions; moreover we should prepare a space for their questions and discussion. One of the most available educational tools for these patients is educational classes, including groups of people (6-8 in each group).

In addition, not only the best educational way is important to increase the knowledge, but also the type of the selected tool is; including booklets, cassettes, anatomic models, educational posters, Philip charts, slides, video cassettes, educational CD, closed circuit TVs, and computer. Regarding our culture and possibilities, the modest and most available educational tool is educational booklets (6).

Researches in different countries showed that this way had not enough efficacies to increase knowledge and practice of patients who suffer suffering from chronic diseases (7). No study has been done to evaluate the efficacy of booklets in Iran; so we decided to determine the ef-

fect of educational booklet on knowledge and practice of osteoporotic patients, referred to osteoporosis clinic.

Materials and Methods

This was an experimental and self control study. Sample size was 340 persons due to changes of expected knowledge (30%). The Subjects were selected from patients referred to Shariati Hospital's osteoporosis clinic by sequential sampling. Then a questionnaire was completed for each patient by researchers.

Questionnaire included two sections. First section included: 1/Demographic information (name, family name, ...), 2/socioeconomic status (education, marital status, economic status, job, family size, monthly income, house status, residential status in Tehran, type of living house, smoking history, alcohol history, any sport or hiking, consumption of coffee) 3/ Medical history (Femur fracture, ankle or wrist fracture, hyperthyroidism and so on), drug history like corticosteroids, anti-inflammatory drugs and history of spontaneous fracture or light trauma induced fracture 4/ Specific questions for women (age of menarch, menstrual problems, gynecologic diseases, marriage age, number of pregnancies, OCP intake history and menopause).

Second section of questionnaire was more important because it was related to the aims of the study (evaluating knowledge and practice before and after education). This section had two parts, first one included 10 questions about nutritional knowledge of Osteoporotic patients; each question had 1 mark. Second part has 15 questions about nutritional practice of Osteoporotic patients; each had 1 mark.

Through nutritional knowledge section, we asked patients which materials stabilized bones and which prevented and treated osteoporosis; also we asked about the predisposing factors of osteoporosis.

Through nutritional practice section, we asked the patients about intake of dairy products, fish,

drinks, use of antisolar creams, and sun exposure. Questionnaire reliability was counted by α Krunbach value, 0.69 and the questionnaire validity was referred to Endocrine and Hygiene educational professors (8).

Firstly, these two sections were completed for each patient by researchers then educational brochures were delivered to them.

Illiterate people could participate if they had some literate companion who read and explained the brochure for them. After one month, second section of questionnaire (evaluation of nutritional knowledge and practice) was asked again.

In first session, questionnaires were completed by blue or black pen and in second session they were completed by red pen. In first session questionnaires were completed face to face and in second session they were completed by phone, because some of patients were not agree to refer again because of their business (House-keeping, long distance to hospital, inability to walk and waste of time).

Questions were straight forward and closed. Researchers were trained and blind to the aim of the study, hence the bias was minimized.

Educational instructions were prepared by a search in International Osteoporosis Federation site in two brochures of 8 pages: "What's osteoporosis?" and "Nutritional instructions for osteoporosis". They were edited by professors (9, 10).

Some informations in the brochures were modified due to our culture. For example, alcohol intake is a major risk factor in many countries (11); or the nutritional regimens full of calcium and vitamin D were modified according to the country's nutritional culture. Data were entered to computer and the results before and after

education were compared by Mann-Whitney U test.

Results

This study has been done from January 2003 to June 2003. Three hundred and fourty patients of Shariati Hospital osteoporosis clinic were participated, 325 were females (95.6%) and 15 were males (4.4%). The mean of age was 44.05 ± 12.84 years.

Some of participants had diploma or under that. (Illiterate 17.9%, primary school 27.6%, guidance and high school 33.8%, university education 10.9%).

Also most of them were married (5.3% single, 77.4% married, 1.2% divorced and 14.7% widows) and had a fair income (23.8% no fixed income, 41.2% between 100\$ and 300\$, 30.9% less than 100\$ and 3.8% had other rates. Most of them were housewife (78.5% housewife, 12.4% employed, 1.8% unemployed and 0.9% others).

The mean family size was 4.5 ± 1.7 persons. More than 85% lived in Tehran (35% were born and lived in Tehran, 51.2% were born out of Tehran but lived in Tehran for years, 1.8% lived in Tehran temporarily and 12.1% as hosts in Tehran). 48.9% lived in villas, 7.9% in apartments (ground floor), 41.8% in apartment (upper floors) and 1.8% in other places. Mean area of houses was 101.78 m^2 . Duration of sun exposure in 30.3% was zero, 22.6% 5-10 minutes, 20% 30 minutes and 27.1% more than 30 minutes a day.

22.4% of subjects had no hiking, 20% less than 0.5 km, 25.3% and 20.3% 1-2 km and 12.1% had other rates. 64.7% of subjects had any exercise activity, 23.2% exercised just for recreation, 12.1% exercised regularly.

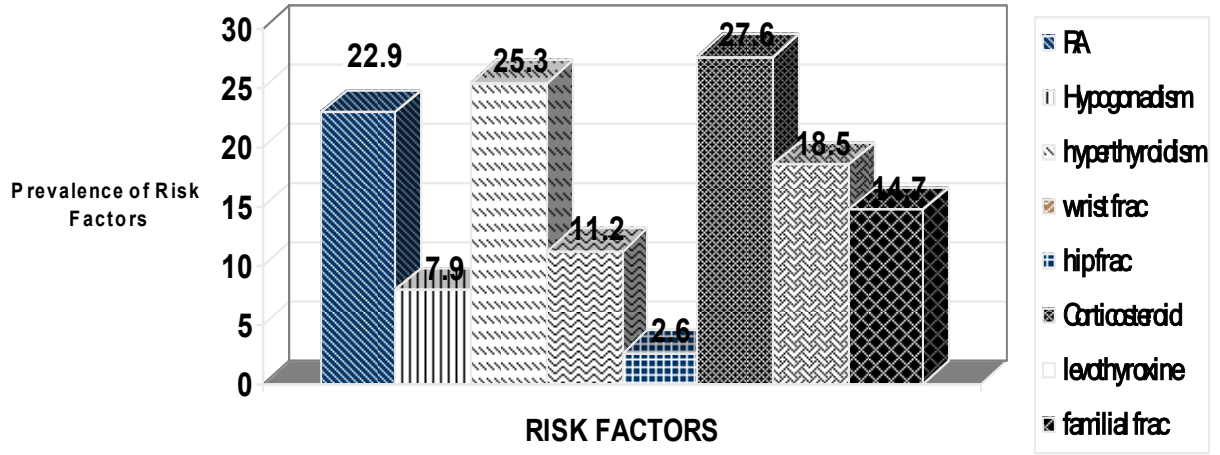


Fig 1: Prevalence of osteoporosis risk factors

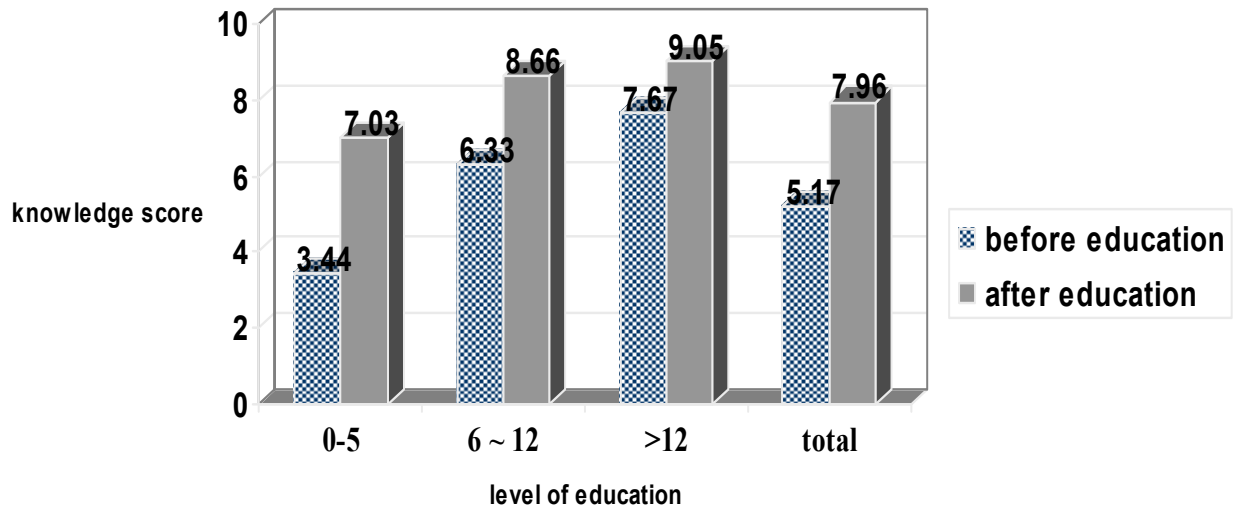


Fig 2: Comparing pretest and post test scores of knowledge.

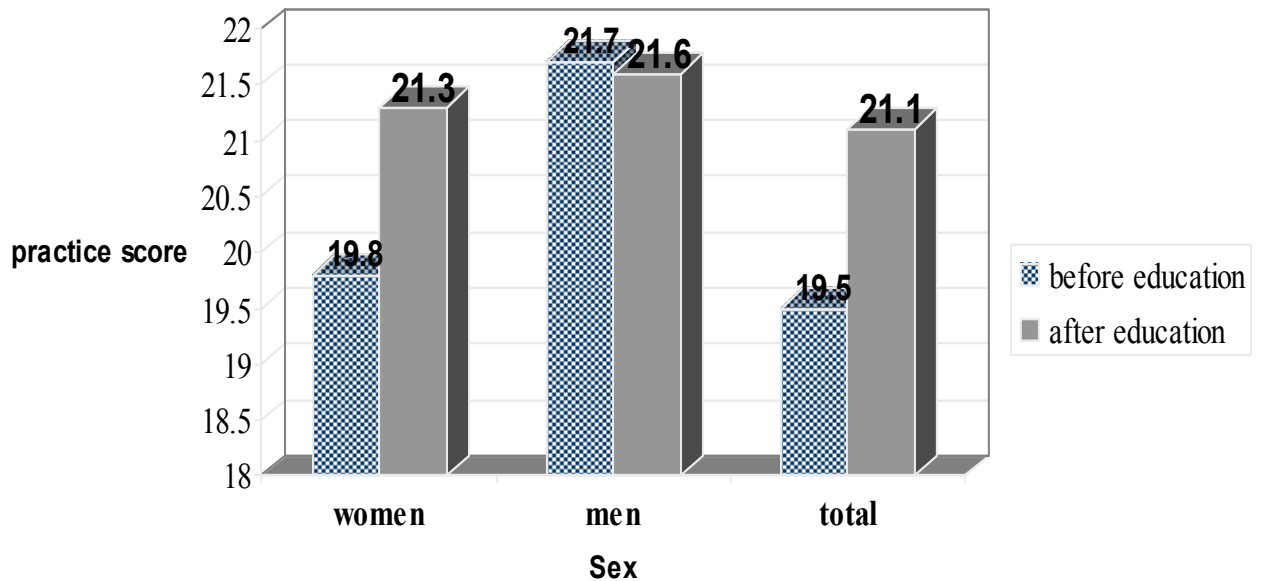


Fig 3: Comparing pretest and post test scores of practice.

One of the investigated risk factors was smoking: 95.9% never used to smoke, 1.2% smoked occasionally, 1.2% used to smoke and 1.8% were smoker. The other risk factor was drinking coffee: 81.2% never drink coffee and 18.8% were in the habit of drinking.

Among participants, 2.6% had history of pelvic fracture, 4.2% ankle or wrist fracture (16 cases under 5 y), 25.3% hyperthyroidism (49 cases under 40 y), 7.9% hypogonadism (8 cases under 30 y), 22.9% Rheumatic Arthritis (27 cases under 35 y), 1.4% adrenal disease and 62.9% other diseases.

Drug histories were as follow: 27.6% corticosteroids and its derivatives, 2.1% Phenobarbitals, 18.5% levothyroxine and 32.9% anti inflammatory drugs. 14.7% had family history of light trauma induced fracture (Fig. 1).

Mean knowledge difference in low literacy (group 1) was 3.57, in mid literacy (group 2) 2.53 and in high literacy (group 3) 1.37.

The difference between group 1 and group 2-3 was significant ($P < 0.001$) but between group 2 and 3 was not significant because the knowledge mark in group 1 before education was 3.34 and after that was 7.03, but in group 2 it was 6.33 before education and 8.66 after that. In group 3 it was 7.67 before education and 9.05 after education.

Marks of group 3 before education was high, so it had not significance difference but in group 1 significant difference because was seen there were low marks before education (Fig. 2). Mean women's practice before education was 19.8% (SD±5.9) and after that up to 21.3 (SD±5.3), so the difference was significant ($P < 0.001$).

Mean of men's practice before was 21.7 (SD±5.9) and 21.6 (SD±6.8) before and after education respectively. There was no significant difference after between them.

Mean of practice mark for each person in the society was 19.5 (SD±5.7).

After education it reduced to 21.1 (SD±5.3). Mean difference in whole the society was 1.63 (SD±3.4).

Society practice did not improve conspicuously because only 2 marks was added to practice marks and women practices has not differ significantly before and after education.

According to their education level men's practice did not differ significantly before and after education. Regarding education level whole society practices did not differ significantly before and after education.

Women's practice mark after education had significant difference ($P = 0.046$). Women who had diploma had a higher practice mark than illiterate ones (Fig. 3).

Discussion

In first section of this study, related to referred patients' knowledge about osteoporosis, risk factors and preventive policies before education, women's knowledge before education was 51% of the ideal knowledge, men's knowledge was 47% of ideal knowledge and society's knowledge was 49% of ideal knowledge.

Result of study which was carried on 270 Turkish women, showed that 90% subjects had no knowledge about osteoporosis (12), so our society knowledge has a good level.

In this study, women's total score before education was higher than men, possibly because they had more free time to read booklets and watch TV programs.

A similar study in Norway was done in order to assess the knowledge and practice of 1514 men and all the women aged 16-79 y and the results were the same as our study results (7).

In our study, patients were grouped as low literacy (group 1), middle literacy (group 2), and high literacy (group 3). Knowledge before education between group 1 and group 2 and 3 had significant difference ($P < 0.001$), but no significant difference was seen between group 2 and group 3. Illiterate group had lower knowledge about the disease than other groups knowledge; but no obvious difference was seen between other two groups (group 2 & 3). In Norwegian study, there was direct relationship between

knowledge and education level (7). Knowledge score difference (before and after education) in illiterate group was 3.57, in the middle literacy (under diploma) were 2.33 and in high literacy group was 1.37. The other important notice in this study was increasing trend of score. In group 1 from 3.42 to 7.03, in group 2 from 6.33 to 8.66 and in group 3 from 7.17 to 9.05. In group 1 and 2, booklet has increased the scores because first score was low. It was seen that booklet education in group 2 (diploma) was suitable, but group 1 could not use booklets independently because they were illiterate or low literacy. In group 3, with high literacy, brochure instructions did not help significantly. No significant difference was seen between women's and men's practice before and after education. In conclusion, booklets as an educational can increase knowledge 24% and improve practice 16% (Fig. 2). Consequently, this educational tool is not suitable for our country. For knowledge and practice improvement in chronic diseases, we offer other educational tools like posters, Philip charts, anatomic models, for optimizing self care in chronic disease patients.

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