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# A Study to Assess the Effectiveness of Planned Teaching Programme on Knowledge Regarding Osteoporosis among the Women Residing in Selected Rural Areas

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## Abstract

A study was carried out to assess the effectiveness of planned teaching programme on knowledge regarding osteoporosis among the women residing in selected rural areas. This study was based on the quantitative approach. The samples were 60 women (30 in experimental group and 30 in control group) residing in selected rural areas during the study period. Non probability purposive sampling technique was used. In this study, the comparison of the knowledge scores of the experimental and control group reveals that the mean difference knowledge score of the experimental group was 10 and the mean difference knowledge score of the control group was 0.8. The calculated 't' value is 23.08, which is greater than the tabulated 't' value 2 at 5% level of significance. Thus it was statistically interpreted that the planned teaching programme regarding osteoporosis was effective in the women in the experimental group, and the level of knowledge is significantly increased in the experimental group than in the control group.

**Keywords:** Planned Teaching Programme; Osteoporosis; Women.

## Introduction

Our bones support us and allow us to move. Our bones store minerals such as calcium and phosphorous, which help keep our bones strong, and release them into the body when we need them for other uses. Osteoporosis is a disease characterized by weakened and fragile bone tissue, leading to an increased risk of bone fracture. Women can lose up to 20 % of their bone mass in the five to seven years after menopause. According to World Health Organization (WHO), osteoporosis is second only to cardiovascular disease as a global healthcare problem and medical studies show a 50-year-old woman has a similar lifetime risk of dying from hip fracture as from breast cancer.

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Osteoporosis is a global problem. Worldwide, lifetime risk for osteoporotic fractures in women is 30-50%. In men risk is 15-30%. 1 in 3 women over 50 will suffer a fracture due to osteoporosis. Approximately 1.6 million hip fractures occur each year worldwide, the incidence is set to increase to 6.3 million by 2050. Based on 2001 census, approximately 163 million Indians are above the age of 50; this number is expected to increase to 230 million by 2015. Centre for Osteoporosis Management and Research, Sushrut Hospital, Research Centre and Postgraduate Institute of Orthopaedics, Nagpur conducted a study, revealed that 29.9% of women and 24.3% of men between the age of 20 and 79 years had low bone mass.

So, after going through the statistics, the increased incidence and risk of the osteoporosis made the researcher to conduct the planned teaching programme on knowledge regarding osteoporosis among the women, so that women become more aware of the changes that takes place in the bones as a part of ageing and will be able to take successful measures to prevent osteoporosis.

*Statement of the Problem*

"A study to assess the effectiveness of planned teaching programme on knowledge regarding osteoporosis among the women residing in selected rural areas."

*Objectives of the Study*

- To assess the pre test knowledge regarding osteoporosis among the women in the experimental and control group.

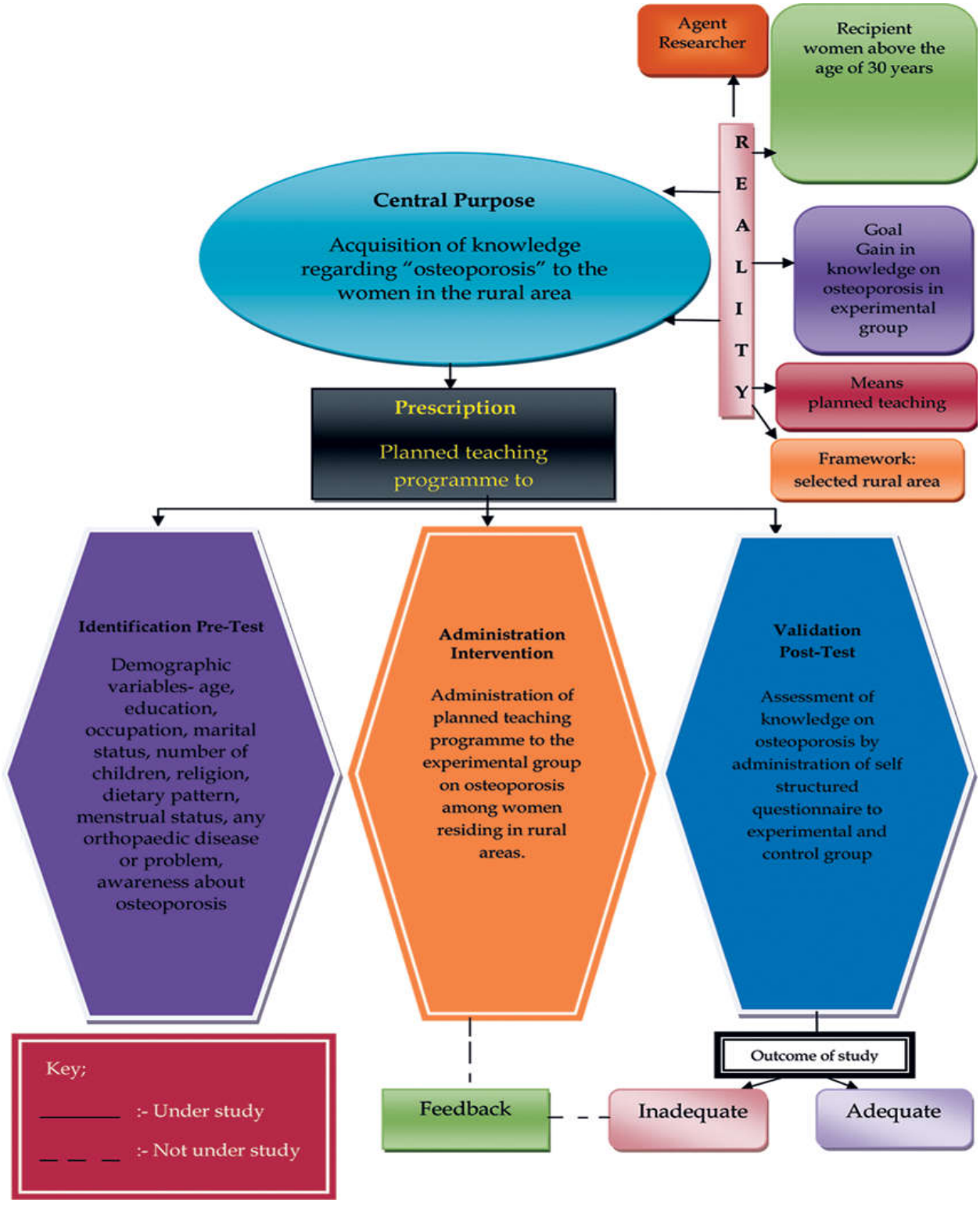


**Fig. 1:** Conceptual framework on Erniestiene Weidenbach's Theory

- To assess the post test knowledge regarding osteoporosis among the women in the experimental and control group.
- To compare the pre test and post test knowledge scores regarding osteoporosis among the women in the experimental and control group.
- To associate the post- test knowledge scores with selected demographic variables in the experimental and control group.

*Hypothesis*

Hypothesis was tested at 0.05 level of significance

- $H_0$ - There will be no significant difference in knowledge regarding osteoporosis among the women in the experimental and control group.
- $H_1$ - There will be significant increase in knowledge regarding osteoporosis among the women in the experimental group than in control group.

*Ethical Aspect*

The study proposal was accepted by the ethical committee of the institution. Permission was obtained by the concerned authorities before conducting the study. Consent letter was obtained by individual samples after explaining them the research process in their own language. Confidentiality regarding the samples information was maintained by using code numbers by the investigator.

*Conceptual framework*

Conceptual Frame Work presents logically constructed concepts to provide general explanation of the relationship between the concepts of the research study. The conceptual framework used in this study is "Ernestine Wiedenbach's prescription theory".

## Review of Literature

An extensive review of, the research and the non research literature, related to the present study was done to broaden the understanding and gain insight into the selected problem. The attempt was made through Journal review, Textbooks, Medline, Pubmed, Google, Wikipedia, Mendeley, etc. in order to widen the understanding of the research problem and the methodology of the study. It helped in developing the instruments of the study and in selection of the variables to be included in the study.

In the present study, the reviewed publications have been organized and presented as follows.

1. Literature related to the knowledge on osteoporosis.
2. Literature related to the management and prevention of osteoporosis.
3. Literature related to the effectiveness of planned teaching programme.

## Research Methodology

*Research Approach*

Quantitative approach

*Design*

Quasi- experimental Non- randomized control group design.

*Setting*

Rural area

d) Variables of the study

*Independent Variable*

Planned teaching programme

*Dependent Variable*

Knowledge regarding osteoporosis**.**

*Demographic Variables*

age, education, occupation, marital status, number of children, religion, dietary pattern, menstrual status, any orthopedic disease or problem, and awareness about osteoporosis

*Population:* women

*Target Population:* women in rural areas

*Accessible Population:* women above 30 years of age residing in selected rural areas

*Sample:* women above 30 years of age in selected rural areas who were available during data collection

*Sample size:* 60 women (30 in experimental group and 30 in control group)

*Sampling Technique:* Non probability purposive sampling technique

*Criteria for the Sample*

*Inclusion Criteria*

The women who are-

1. Above 30 years of age.
2. Willing to participate in the study.
3. Present at the time of data collection.

*Exclusive Criteria*

Women who are-

1. Not willing to participate.
2. Women who have attended similar programme earlier.
3. Women who belongs to any health profession

*Tools*

The tools used in this study consist of two sections:

- *Section I:* Consist of questionnaire on demographic data
- *Section II:* Consist of questionnaire on knowledge regarding osteoporosis.
- Planned teaching programme

## Method of Analysis

The data obtained was analyzed and interpreted by descriptive and inferential statistics based on the objectives of the study.

## Results

**Table 1 (a):** Table showing the percentage wise distribution of women according to their demographic characteristics n=30

| Demographic Variables | Experimental Group | | Control Group | |
|---|---|---|---|---|
| | Frequency (n) | Percentage (%) | Frequency (n) | Percentage (%) |
| **Age** | | | | |
| 31- 40 years | 15 | 50% | 15 | 50% |
| 41- 50 years | 9 | 30% | 7 | 23.30% |
| 51- 60 years | 4 | 13.30% | 7 | 23.30% |
| 61 years and above | 2 | 6.70% | 1 | 3.30% |
| **Education** | | | | |
| Primary | 7 | 23.30% | 3 | 10% |
| Secondary | 8 | 26.70% | 11 | 36.70% |
| Higher secondary | 13 | 43.30% | 10 | 33.30% |
| Graduate and other | 2 | 6.70% | 6 | 20% |
| **Occupation** | | | | |
| Government | 0 | 0% | 0 | 0% |
| Private | 0 | 0% | 2 | 6.70% |
| Business | 1 | 3.30% | 5 | 16.70% |
| Housewife | 29 | 96.70% | 23 | 76.70% |
| **Marital status** | | | | |
| Married | 27 | 90% | 27 | 90% |
| Unmarried | 0 | 0% | 0 | 0% |
| Widow | 3 | 10% | 3 | 10% |
| Divorced | 0 | 0% | 0 | 0% |
| **Number of children** | | | | |
| None | 2 | 6.70% | 1 | 3.30% |
| One | 4 | 13.30% | 9 | 30% |
| Two | 14 | 46.70% | 15 | 50% |
| Three and above | 10 | 33.30% | 5 | 16.70% |
| **Religion** | | | | |
| Hindu | 28 | 93.30% | 21 | 70% |
| Muslim | 0 | 0% | 4 | 13.30% |
| Christian | 2 | 6.70% | 5 | 16.70% |
| Any other | 0 | 0% | 0 | 0% |
| **Dietary pattern** | | | | |
| Vegetarian | 21 | 70% | 11 | 36.70% |
| Non- vegetarian | 9 | 30% | 19 | 63.30% |

Table 1(a) shows that majority of the women 15 (50%) belonged to 31- 40 years in both the experimental and control group whereas, 2 (6.7%) in experimental and 1 (3.3%) in control group were of age 61years and above. Majority of the women 13 (43.30%) in the experimental group had higher secondary education and 11 (36.70%) in the control group had secondary education whereas, 2 (6.70%) women were graduate and other in the experimental group and 3 (10%) had primary education in the control group. Majority of the women, 29 (96. 7%) in experimental and 23 (76.7%) in control group were housewives whereas, none of the women had government occupation in the experimental and control group, and none had private occupation in the experimental group. Majority of the women, 27 (90%) in the experimental and control group were married and none of the women is unmarried or divorced in the experimental and control group. Majority of the women, 14 (46.7%) in the experimental group and 15 (50%) in the control group had two children whereas, 2 (6.7%) women in the experimental group and 1 (3.30%) woman in the control group had no child. Majority of the women, 28 (93.3%) in experimental and 21 (70%) in control group were Hindus, none of the women in the experimental group were Muslims and none of the women belonged to any other religion. Majority of the women, 21 (70%) in the experimental group were vegetarian and 19 (63.3%) in the control group were non vegetarian whereas, 11 (36.7%) in control group were vegetarian and 9 (30%) in the experimental group were non vegetarian.

**Table 1 (b):** Table showing the percentage wise distribution of women according to their demographic characteristics n=30

| Demographic Variables | Experimental Group | | Control Group | |
|---|---|---|---|---|
| | Frequency | Percentage | Frequency | Percentage |
| **Menstrual status** | | | | |
| Menstruating | 20 | 66.70% | 18 | 60% |
| Menopausal | 10 | 33.30% | 12 | 40% |
| **If menopause, specify the age of menopause** | | | | |
| 40- 43 years | 7 | 70% | 2 | 16.67% |
| 44- 47 years | 0 | 0% | 5 | 41.67% |
| 48- 51 years | 2 | 20% | 4 | 33.33% |
| 52 years and above | 1 | 10% | 1 | 8.33% |
| **Any orthopedic disease or problem** | | | | |
| Yes | 21 | 70% | 16 | 53.30% |
| No | 9 | 30% | 14 | 46.70% |
| **If yes, specify** | | | | |
| back pain | 1 | 4.76% | 5 | 31.25% |
| joint pain | 7 | 33.33% | 2 | 12.50% |
| neck pain | 1 | 4.76% | 2 | 12.50% |
| previous H/O fracture | 2 | 9.52% | 3 | 18.75% |
| back and joint pain | 10 | 47.62% | 4 | 25% |
| **Are you aware of osteoporosis** | | | | |
| Yes | 5 | 16.7% | 10 | 33.33% |
| No | 25 | 83.30% | 20 | 66.70% |
| **If yes, source of information** | | | | |
| Family | 2 | 40% | 1 | 10% |
| Friends | 0 | 0% | 1 | 10% |
| Relatives | 0 | 0% | 0 | 0% |
| Health worker | 1 | 20% | 3 | 30% |
| Mass media | 2 | 40% | 5 | 50% |
| Others | 0 | 0% | 0 | 0% |

Table 1(b) shows that majority of the women, 20 (66.7%) in the experimental group and 18 (60%) in the control group were menstruating and 10 (33.3%) in the experimental group and 12 (40%) in the control group had attained menopause. Majority of the menopausal women, 7(70%) in the experimental group belonged to the age group 40- 43 years and 5 (41.67%) in the control group belonged to 44- 47 years

whereas, 0 (0%) in the experimental group belonged to 44- 47 years and 1 (8.33%) in the control group belonged to 52 years and above. Majority of the women, 21(70%) in the experimental group and 16 (53.3%) in the control group had any orthopaedic disease whereas, 9 (30%) in the experimental group and 14 (46.7%) in the control group had no orthopaedic disease. Majority of the women, 10 (47.62%) in the experimental group had back and joint pain, 5 (31.25%) in the control group had back pain whereas, 1(4.76%) in the experimental group had back pain and neck pain and 2 (12.50%) women in the control group had joint pain and neck pain. Majority of the women, 25 (83.3%) women in the experimental group and 20 (66.7%) in the control group had no awareness about osteoporosis, whereas 5 (16.7%) women in the experimental group and 10 (33.3%) in the control group had awareness about osteoporosis.

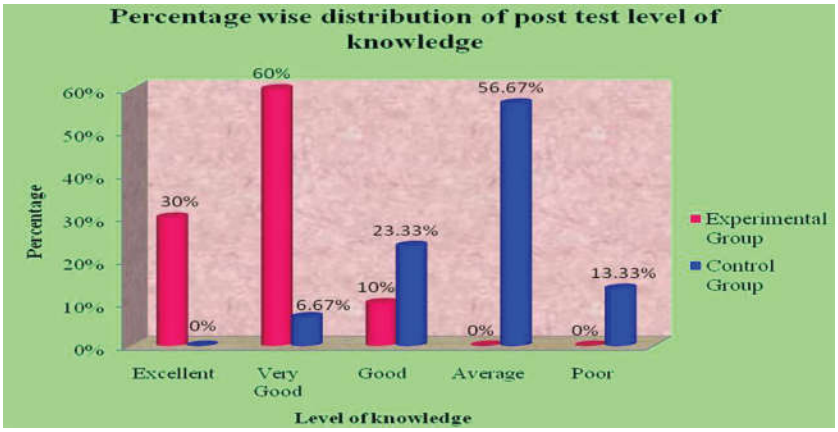


**Fig. 2:** Comparison of post test Level of knowledge score in the experimental and control group

Fig. 2 shows that in the experimental group, 18 (60%) women had very good knowledge, 9 (30%) had excellent knowledge, 3(10%) women had good knowledge and none of the sample 0(0%) were having average and poor knowledge. In the control group, 17(56.67%) women had average knowledge, 7 (23.33%) had good knowledge, 4(13.33%) had poor knowledge, 2(6.67%) women had very good knowledge and none of the sample 0(0%) had excellent knowledge.

**Table 2:** Comparison of knowledge of women regarding osteoporosis in the experimental and control group

| Groups | Mean difference | S.D | Calculated t- value | DF | Table value | p- value | Significance |
|---|---|---|---|---|---|---|---|
| Experimental group | 10 | 1.87 | 23.03 | 58 | 2 | 0.000 | p<0.05 |
| Control group | 0.8 | 1.12 | | | | | Significant |

This table shows the comparison of difference in the knowledge scores of experimental and control group in the pretest and post test of the women in the selected rural areas. Mean difference and standard deviation values are compared and student's unpaired 't' was applied at 5% level of significance. The tabulated value for n=(30-1)+(30-1) i.e 58 degrees of freedom (df) was 2.00. The calculated 't' value are much higher than the tabulated value at 5% level of significance which is statistically acceptable level of significance. In addition the calculated 'p' value was <0.05 which is ideal for any population. Hence it is statistically interpreted that the research hypothesis $H_1$ is accepted. Thus, the planned teaching programme regarding osteoporosis was effective in the women in the experimental group, and the level of knowledge is significantly increased in the experimental group than in control group.

Analysis reveals that, in the experimental group, there is very high association of knowledge score with education, menstrual status and awareness about osteoporosis. While, in the control group, there is association of knowledge score with education and awareness about osteoporosis.

### *Implication of the Study*

The findings of this study have implications for nursing practice, nursing education, nursing

administration, and nursing research.

*Nursing Practice*

- Nurses have a prime important role for patient education in community and hospital. The health care professional including the nurses should participate in educational interventions on osteoporosis in order to provide a foundation for their nursing practices to promote knowledge of osteoporosis and self-efficacy in their patients.
- Every nurse practitioner must possess a prepared planned teaching, to teach the women regarding osteoporosis in community or in hospital. Different A. V aids can be used in imparting knowledge to various categories of people.
- Nurses should collaborate with various health care disciplines including dieticians, physical therapists, physicians, social workers that would enhance and reinforce educational interventions with their knowledge and expertise.
- The findings of the study will help the nursing professionals working in community gaining the knowledge and helps in planning and implementation of health teaching.
- Student nurses and community nurses will use this information during their clinical posting and during their home visits to give health education to the women.

*Nursing Education*

- The present study emphasis the health education on knowledge regarding osteoporosis among the women. In order to educate the women and the community, it is essential that the nurses are competent and have sound knowledge to improve the level of understanding which can be reflected to the public through education.
- Health care personnel should be given an opportunity to update their knowledge periodically. Now days, much emphasis is given on comprehensive care in the nursing curriculum. So this study can be used by nursing teachers as an informative illustration for nursing students.
- The nurse in the community and in the hospital should be encouraged to conduct such teaching programmes.
- In the nursing curriculum, the role of the correct posture and exercises for the prevention and management of the osteoporosis should be included in the subjects like medical surgical nursing and gynaecological nursing.

*Nursing Research*

- In Indian studies, there is scarce literature and research done on planned teaching on osteoporosis. An untoward effect of providing knowledge is increasingly rapidly now- a days. This stresses a greater need for nursing research in these areas. So that the bone loss and osteoporotic fractures can be prevented.
- Nursing is to care the individual from womb to tomb. Research studies should be conducted to assess with respect to the knowledge. Prevention strategies should be taught to the public at their early stages of life because prevention is better than cure.
- The present study would help nurses and other health care personnel to understand the level of knowledge of women regarding osteoporosis. Based on this knowledge the nurse researchers can undertake similar studies among the adolescence, men and women.
- The findings of the study have added to the existing body of the knowledge in the osteoporosis. Other researchers may utilize the suggestions and recommendations for conducting further study. The tool and technique used has added to the body of knowledge and can be used for further references.

*Nursing Administration*

- Nursing administration should implement outreach teaching to make the women aware about the osteoporosis. Necessary administration support should be provided to conduct several activities in the community and in the hospitals.
- Findings of the study can be used by the Nursing Administrator in creating policies and plans for providing education to the staff nurses to promote health education programmes. It would help the nursing administrators to be planned and organized in giving continuing education to the nurses and to others for applying and updating the knowledge of osteoporosis.

## Conclusion

After the detailed analysis, this study leads to

the following conclusion that the women residing in the rural areas do not have 100% knowledge regarding osteoporosis. There was a significant increase in the knowledge of subjects in the experimental group after the introduction of planned teaching. To find the effectiveness of planned teaching, 't' test was applied and t value was calculated, post test score of the experimental group was significantly very higher at 0.05 level. And in the control group also post test was higher at 0.05 level, but very less compared to the post test of experimental group. Thus it was concluded that planned teaching programme on osteoporosis was found effective as a teaching strategy.

Hence, based on the above cited findings, it was concluded undoubtedly that the written prepared material by the investigator in the form of planned teaching programme helped the women to improve their knowledge on osteoporosis.

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