# A STUDY TO ASSESS THE KNOWLEDGE REGARDING PREVENTIVE MEASURES OF OSTEOPOROSIS AMONG FEMALES IN SELECTED COLLEGES AT REWA  (M.P.) WITH A VIEW TO DEVELOP AN INFORMATION BOOKLET

*Dr. Pushpa Singh Patel*

E- Mail – pushpasinghpatel62@gmail.com
JJTU, India.

ABSTRACT –

Introduction and back ground of study : The specialized connective tissue known as bone serves as the body's cell and system in higher animals. As a result, its main functions are mobility, defense, and mineral homeostasis. Its biological components include osteoblasts, cells that line the bone, osteocytes, and osteoclasts. Both a natural and an inorganic element make up its matrix. Based on its form, bone can be compact or spongy. Functionally, spongy bone is more closely linked to metabolic abilities than compact bone, which frequently gives higher mechanical strength. Although bone exhibits high mechanical strength at a minimum weight, the biomechanical characteristics of bone allow for great flexibility without surrendering this mechanical strength. (Patricia A Downey, 2006) The musculoskeletal system helps in maintaining each body movement of our body and providing structural support, storing minerals, protecting internal organs, etc. In osteoporosis also bone mass loss increases which cause weakened bone and leads to sudden and unexpected fractures. Osteoporosis is a metabolic disease but it is related to age and mostly affect older peoples. But it can also affect young women in premenopausal age in their 20s or 30s. A decreased bone mineral content in women at this age increases the possibility of osteoporosis in later stages of life.  So the best ways to prevent bones from weakening build strong bones in the childhood and adolescence stages.

Osteoporosis   is a chronic, systematic skeletal disease that leads to decreased bone mass and the degeneration of the tiny bone structures that make the bone brittle and much more susceptible to breakage. Osteoporosis affects over 200 million people worldwide yearly, which leads to more around 8.9 million cracks (Babhulkar et al., 2021), (2017) (Gayathripriya N et al.).

Bone fractures compression fractures (ORF) place a significant financial, morbidity, and death burden. Worldwide, it is predicted that 70% of women will have hip, spinal column, or forearm osteoporosis mostly by the age of 80, and 60% of osteoporosis women will still have one or more osteoporotic fractures. (2018) (Dr. Utkarsh Shahi)

Understanding osteoporosis can aid in preventing and minimizing problems like fragility fractures. Then, increasing younger women's understanding is viewed as a component of early prevention of osteoporosis.

The objectives of the study were:

1] To assess the knowledge regarding preventive measures of osteoporosis among females in selected colleges at Rewa (M.P.).

2] To find out the association between knowledge scores of females with selected demographic variables.

3] To prepare and distribute information booklet regarding preventive measures of osteoporosis.

The research hypothesis formulated was:

H0 – There will not be significant association between the selected sociodemographic variables and knowledge score of females regarding preventive measures of osteoporosis.

H1 – There will be significant association between the selected sociodemographic variables and knowledge score of females regarding preventive measures of osteoporosis at p> 0.05 level of significance.

Material and methods:

The conceptual framework based on Health Promotion Model (Pender). An extensive review of literature was done and organized under various aspects related to knowledge on preventive measures of osteoporosis. In the present study a quantitative research approach was found suitable to assess the knowledge regarding preventive measures of osteoporosis among females. In the present study Non experimental exploratory research design was adopted. In the present study the sample size consist of 500 female students studying in selected government colleges Rewa (M.P.). The sample was selected using a non probability convenient sampling procedure.

The tool used for the study was a self structured Questionnaire to assess the knowledge regarding preventive measures of osteoporosis. Content validity of the tool was ensured by verifying it with 11 experts. A pilot study was conducted in Government College of education, Rewa. The data for the main study was collected from 5 selected government colleges of Rewa (M.P) (GOVT GDC COLLEGE, GOVT. MSG COLLEGE, GOVT TRS COLLEGE, GOVT MODEL SCIENCE COLLEGE, GOVT. ENGINEERING COLLEGE). The data collection for the study was carried out from 28/11/22 to 14/2/23. The data collected was analyzed in terms of frequency, percentage, Median, mean, mean %, SD and presented in the form of tables and graphs.

Assessment of knowledge of females regarding preventive measures of osteoporosis depicts that maximum 293 (58.6%) females had poor knowledge, 153 (30.6%) females had average knowledge and only 54 (10.8%) females had good knowledge. This data signifies that majority of females having poor knowledge regarding preventive measures of osteoporosis. With this regard information booklet was prepared and distributed to all females.

The Chi-square test was used to analyze the relationship between women's awareness of osteoporosis prevention strategies and the demographic factors they chose. Applying the demographic variable for the chi-square test the amount of awareness of osteoporosis prevention methods among females is strongly influenced by factors such as level of education (31.42), family income (14.29), eating habits (9.18), and exercise frequency (47.36). Hence H1 i.e., there is a significant association between knowledge level regarding preventive measures of osteoporosis among females and demographic variable, variable (Educational status, Family income, food habits , frequency of exercises) is accepted.

Nursing practice, nursing administration, and nursing research all stand to benefit from the study's findings in a number of ways. There were suggestions for further investigation based on the findings.

Discussion:  interpretation and description of main outcome:

The majority of females have limited knowledge of osteoporosis prevention strategies, according to the research. This suggests that women need to be informed and educated about osteoporosis prevention strategies. Women can learn more about osteoporosis prevention strategies by reading written sources of information such information booklets.

**Key words:** Knowledge, preventive measures, osteoporosis, females, selected colleges

---

## INTRODUCTION:

The musculoskeletal system helps in maintaining each body movement of our body and providing structural support, storing minerals, protecting internal organs, etc. Various hormones regulate the growth and mineralization of bone. Growth hormone and thyroxin hormone help in maintaining bone growth. During puberty, the sex hormone (estrogen in girls) also plays an important role. It increases osteoblastic activity. Both phosphates and calcium are better absorbed from the digestive system thanks to the sunlight and calcitriol.

Rapid bone density growth occurs during adolescence, peaking about ten years following the end of skeletal development. In the ten years following menopause, women lose over fifty percent of the cortical mineral content as a result of increased loss of bone brought on by hormonal deficiencies. (Patricia A Downey, 2006)

In osteoporosis also bone mass loss increases which cause weakened bone and leads to sudden and unexpected fractures. Osteoporosis is a metabolic disease but it is related to age and mostly affect older peoples. But it can also affect young women in premenopausal age in their 20s or 30s.  A decreased bone mineral content in women at this age increases the possibility of osteoporosis in later stages of life. So the best way to prevent bones from weakening builds strong bones in the childhood and adolescence stages.

One out of three women & one out of five men with Over 50 develop fractures, similar to the rate for men in the same age group. **(AI Muraikhi H et al, 2017).** Several studies in India indicate that the frequency of osteoporosis in women ranges between 8% to 62 percent. This demonstrates the huge disparity in prevalence rates in India. According to a study done in North India, women were more likely to have osteoporosis than males (zero and 5.6 percent for such two categories of age, respectively) (3 and 36.4 percent of women aged Thirty to 39; and >65 years of age). Further research revealed that women (40.3 percent) still had a higher incidence of osteopenia than men (29.9 percent). **(Babhulkar, 2021)**

Despite the fact that Caucasians are more likely to develop osteoporosis, this is predicted that only by 2050, Asia would account for more than half of all bone fractures. **(Yusura Habib Khan et al) (2014)**. Indian women of Asian descent have been identified as having 5–15 percent poorer mineral content in their bones than women of other races. **(Sanjay K Bhadada)**

There are a variety of causes for reduced mineral content of bones in India, including genetic variations, lesser frames, and poor nutrition. These causes are especially prevalent in regions that have limited per-person milk intake. Osteoporosis has lately been listed by the Indian government to be one of the non-communicable disorders with the highest priority.

Osteoporosis is thought to affect 26 million people in the Indian population and by 2013, that number is expected to rise to 36 million. Women have a 30-to-50 percent higher danger of osteoporotic fractures, compared to 15-to-30 percent for men. As a result, osteoporosis is a problem for both genders. **(Nidhi Kadam et al, 2019)**

Millions of individuals experience osteoporosis in entire world, a major health issue. Osteoporosis disease has become a growing, significant global health problem with medical, financial, and social repercussions as a result of a demographic transition's continued rise in lifespans. Osteoporosis affects patients physically and psychologically since 40% of survivors of fragility fractures become dependent, and 60 percent still need help a year later.

There hasn't been enough information about osteoporosis in India up to now. Consequently, the current study's objectives are to evaluate female students' awareness of osteoporosis prevention methods along with to look into the relationship between different sociodemographic factors and awareness of those methods in particular institutions.

**NEED FOR THE STUDY:** Bone is a strong and flexible tissue that can regenerate during a person's life, particularly within the first 2 decades. The rate of renewal is reportedly 20 percent in youngsters and 3 percentage to 5 percentage in adults. Bones can store ca, phosphorous, and other ions required for homeostasis, hence it is important to increase bone toughness and flexibility to safeguard the body. Yet, osteoporosis poses a lifelong threat to bone density. Reduced bone density is a hallmark of osteoporosis, which is more prevalent in postmenopausal women. Together with cancer, cardiac arrest, and cerebrovascular disease, among the four is osteoporosis greatest enemies in humanity. The risk of death from osteoporosis is around four times larger than that of the chance of uterine cancer and is comparable to the risk of death from breast cancer. **(2017) (Maghimi J et al)**

Even though the probability of developing the disease rises with age, osteoporosis really can develop at any age. Nonetheless, girls & women of various ages have to take precautions to safeguard their bones against osteoporosis because it can affect younger women.

In evaluating the dangers of osteoporosis in postmenopausal women, Jyoti Thulkar et al. (2014) carried out an extensive literature review of Asian nations such as India, China, Korea, and Japan. The results of this investigation show that whereas the global prevalence of porous bone in postmenopausal women is 41%, it is 53 percent in India solely. In comparison to other nations, China studies a variety of risk variables. Many exercises and a sufficient micronutrient intake were discovered to be helpful modifiable factors.

The likelihood of acquiring osteoporosis is higher in women. Compared to men, women have a higher risk of developing osteoporosis because their lower lifetime calcium intake, reduced bone mass due to their typically smaller frames, earlier onset of bone resorption in women, depletion of a woman's skeletal reserve during pregnancy, and lactation without adequate calcium intake, and an increased risk of osteoporosis due to age. **(2011) Chintamani et al.**

In light of the fact that women constitute up roughly half the human population worldwide and tend to be more likely to develop osteoporosis than males, regardless of age, they must maintain their health. As a result, osteoporosis prevention in the general public is essential. Colleges are good places to provide instruction on health-related topics. **(2017) (Maghimi J et al)**

Many surveys conducted among women reveal that they have little understanding of osteoporosis. It is well established that understanding osteoporosis influences behaviors that improve osteoporosis prevention. Many elements have been identified as essential for enhancing bone health. They include both changeable and non-modifiable elements, such as genetic makeup and calcium intake. Age, female gender, early menopause, family background of osteoporosis, smoking, heavy alcohol use, and some medications are some of the known risk factors.

Osteoporosis develops as a result of inadequate bone mineralization at its peak during infancy, adolescence, and early adulthood. Early detection of vulnerable young adults and adolescents, increased calcium intake, frequent weight-bearing exercise, and lifestyle changes are a few examples. The potential for osteoporosis, broken bones, and later-life impairment can be reduced by cutting less on alcohol, cigarettes, carbonated soft drinks, and alcohol.

Evidence recommends that awareness of osteoporosis performs a main role in osteoporosis prevention. In our country, the information on osteoporosis prevention is minimal due to less effort taken in creating awareness amongst the general public. Awareness about osteoporosis is taken into consideration to be a great contributor to mortality and morbidity among middle-aged ladies. Because of the high clinical charges for the treatment of fractures, it will lead to economic crises for both men and women and their families. This is a major issue for the community and the healthcare system. It is far more important to assess current understanding and take steps to close gaps in osteoporosis prevention. The current study's findings and recommendations will assist physicians and other healthcare professionals in regularly planning prevention programs by raising public awareness about osteoporosis.

## RESEARCH OBJECTIVE:

1] To assess the knowledge regarding preventive measures of osteoporosis among females in selected colleges at Rewa (M.P.).

2] To find out the association between knowledge scores of females with selected demographic variables.

3] To prepare and distribute information booklet regarding preventive measures of osteoporosis.

*HYPOTHESIS:*

1. **H0** – There will not be significant association between the selected sociodemographic variables and knowledge score of females regarding preventive measures of osteoporosis.
2. **H1** – There will be significant association between the selected sociodemographic variables and knowledge score of females regarding preventive measures of osteoporosis at $p > 0.05$ level of significance.
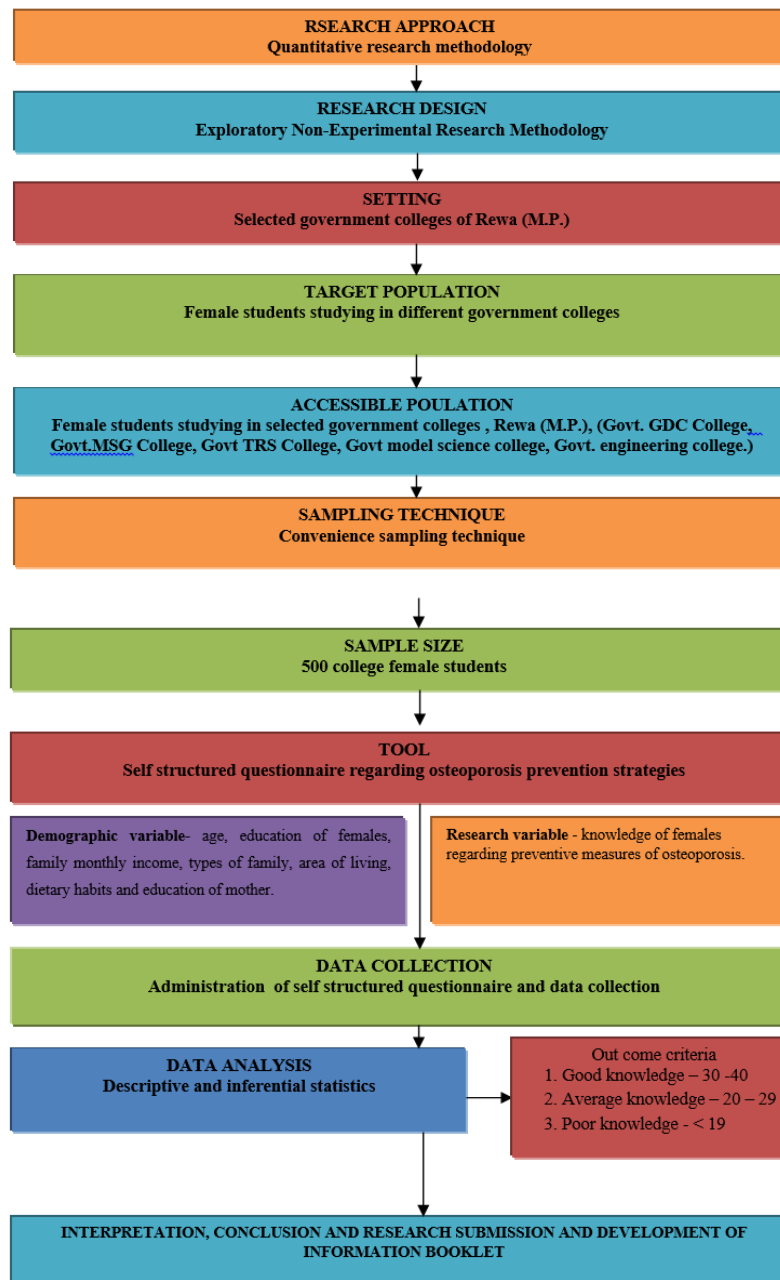
## METHODOLOGY:

**RSEARCH APPROACH**
Quantitative research methodology

**RESEARCH DESIGN**
Exploratory Non-Experimental Research Methodology

**SETTING**
Selected government colleges of Rewa (M.P.)

**TARGET POPULATION**
Female students studying in different government colleges

**ACCESSIBLE POULATION**
Female students studying in selected government colleges , Rewa (M.P.), (Govt. GDC College, Govt.MSG College, Govt TRS College, Govt model science college, Govt. engineering college.)

**SAMPLING TECHNIQUE**
Convenience sampling technique

**SAMPLE SIZE**
500 college female students

**TOOL**
Self structured questionnaire regarding osteoporosis prevention strategies

**Demographic variable-** age, education of females, family monthly income, types of family, area of living, dietary habits and education of mother.

**Research variable -** knowledge of females regarding preventive measures of osteoporosis.

**DATA COLLECTION**
Administration of self structured questionnaire and data collection

**DATA ANALYSIS**
Descriptive and inferential statistics

Out come criteria
1. Good knowledge – 30 -40
2. Average knowledge – 20 – 29
3. Poor knowledge - < 19

**INTERPRETATION, CONCLUSION AND RESEARCH SUBMISSION AND DEVELOPMENT OF INFORMATION BOOKLET**

**Figure no- 1.1 Research design of present study**

## RESULT:

The present study indicates that the vast majority of females had a lack of awareness on osteoporosis prevention techniques, with 293 (58.6%) of them having the worst knowledge and only 54 (10.8%) were having the best knowledge. **This suggests that women should be taught and educated about osteoporosis prevention measures. With this regard, an information booklet was prepared and distributed to all females.**



**Knowledge level regarding preventive measures of osteoporosis among females in selected colleges**

- 10.8%
- 30.6%
- 58.6%

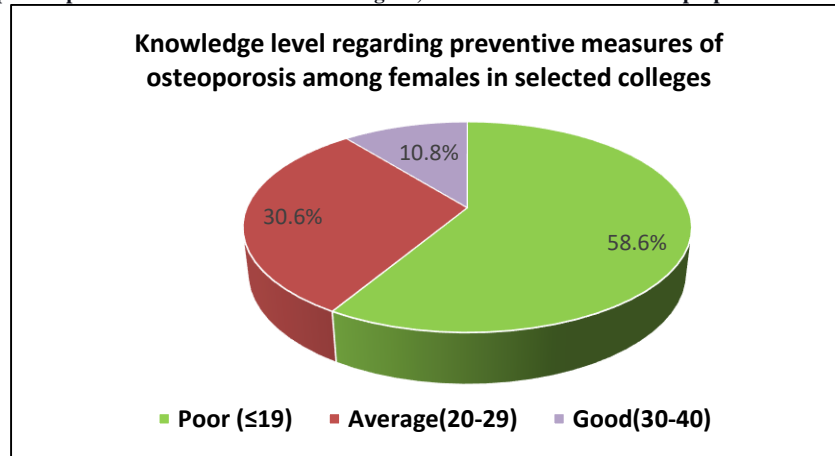■ Poor (≤19)  ■ Average(20-29)  ■ Good(30-40)

**Figure no- 1.2 Pie diagram representing the knowledge level about osteoporosis preventive strategies among females in selected colleges at Rewa (M.P.)**

## CONCLUSION:

Data on osteoporosis prevention measures were analysed, and it was discovered that the majority of females had insufficient knowledge about osteoporosis prevention measures. Women must be educated on osteoporosis prevention measures. The **H1 hypothesis** - there is a significant association between knowledge level regarding preventive measures of osteoporosis among females and demographic variable is also accepted because few factors **Educational status** (31.42**), Family income** (14.29**), food habits** (9.18**), frequency of exercises** (47.36**)** have been found to significantly correlate with women's knowledge levels.

## RECOMMENDATIONS:

- To have a broad application, the study might be repeated on larger sample sizes in diverse contexts.
- The study's pretest-posttest control group design allows for replication on a bigger sample.
- The comparison study will be done in rural & urban locations to gauge ladies' awareness of osteoporosis prevention strategies.
- Other instructional strategies, such as video-assisted teaching, can be used to carry out a comparative study.
- It is possible to do a similar comparison study on the knowledge of working men versus women concerning osteoporosis prevention strategies.
- Research can be conducted to evaluate awareness & health practices about osteoporosis prevention methods among men and women of other ages.

BIBLIOGRAPHY:

1. Ansari J. and Kaur D., (2012), Text book of Medical Surgical nursing I, PV publication, Jalandhar. 1429    ISBN – 978-93-81390-20-7
2. Basavanthappa B.T., (2014), Text Book of Nursing Research and statistics, 3rd edition, Jaypee publication, New Delhi.  400-473   ISBN – 978-93-5152-074-0.
3. Basavanthappa B.T., (2003), Text Book of Medical Surgical Nursing, 1st edition, Jaypee publication, New Delhi. 461-462  ISBN – 81-8061-173-6.
4. Chintamani. (2011), Text Book of Lewis Medical Surgical nursing (Assessment and management of clinical problems), Elsevier publication, New Delhi. 1642 – 1644   ISBN – 978-323-03690-0.

5.  Daniels R. and Nosek L., (2007), Text Book of Contemporary Medical surgical Nursing, Thomson Delmar Learning publication, Haryana. 1981- 1985    ISBN- 81-315-0352-6.

6.  Dash B., (2017), Text Book of essentials of Nursing research and biostatistics, 1ST edition, Jaypee brother publication, New Delhi. 123 – 150   ISBN – 978 – 93- 86322- 03-6.

7.  Kothari C. R., (2019),Text book of Research Methodology Methods and Techniques, 4th edition,  New Age International Publication, London. 29 -51   ISSN – 978-93-86649-22-5.