



**EMPOWERING WOMEN AND STRENGTHENING COMMUNITY HEALTH: A STUDY  
ON “OSTEOPOROSIS” IN DIFFERENT AGE GROUPS OF PEOPLE IN ELURU,  
W.G.DT, A.P**

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**ABSTRACT**

Menopause is described as a period of psychological difficulties that changes the lifestyle of women in multiple ways. Menopausal women require more information about their physical and psychosocial needs. Empowerment during the menopause can contribute to improving the perception of this stage and the importance of self-care. The National osteoporosis Foundation says that one in two women and one in eight men over 50 will have an osteoporosis related fracture in their life time. This study can help to understand, recognize about the causes, symptoms, treatment and prevention of Osteoporosis. The aim of this study was to promote women’s empowerment for better health outcome of community.

**KEYWORDS:** Osteoporosis, Menopause, Women Empowerment.

**INTRODUCTION**

The fundamental right to the highest attainable standard of health including physical, mental and social well being has been recognized in many global, regional and national declarations and charters. There is now substantial evidence that healthy populations are a foundation for sustainable social, economic and environmental development and for peace and security and vice versa.

Osteoporosis is often called the Silent disease, because bone loss occurs without symptoms. People often don’t know that they have the disease until a bone breaks, frequently in a minor fall that wouldn’t normally cause a fracture. Many people confuse osteoporosis with arthritis and believe they can wait for symptoms such as swelling and joint pain to occur before seeing a doctor. It should be stressed that the mechanisms that cause arthritis are entirely different from those in osteoporosis which usually becomes quite advanced before its symptoms appear. The National osteoporosis Foundation says that one in two women and one in eight men over 50 will have an osteoporosis related fracture in their life time. Thirty-three percent of women over 65 will experience a fracture of the spine and as many as 20% of hip fracture. This is a major health problem for older adults, who comprise an increasingly greater proportion

of the general population. Over 10 million adults in the United States are estimated to have osteoporosis and an additional 43 million to have low bone mass.<sup>[7]</sup> Osteoporosis poses a serious worldwide health economics issue, though secular and temporal trends differ considerably by region.<sup>[2]</sup>

**LITERATURE**

“Osteoporosis” meaning “porous bones”, is a disease that causes structural deterioration of the bone tissue with no detectable symptoms. It is related to the loss of bone mass that occurs as a part of the natural process of aging. It results in conditions where there is excess bone loss without adequate replacement. It becomes apparent in a dramatic fashion, causing fractures even after a normal activity such as bending or twisting or falling from the standing position. The broken bones, affect the daily life causing disability to do the daily tasks. Women of all ages and men over age 50 suffer from this disease. Millions of women and men are already at risk for osteoporosis. This is a major health problem for older adults, which comprise an increasingly greater proportion of the general population.<sup>[6,8]</sup>

**Pathophysiology of bone loss and fractures**

Low bone mass is a major feature of Osteoporosis. An inverse relationship exists between “Bone mass Density”

(B.M.D) and susceptibility to fracture. B.M.D is the primary indicator of fracture risk in patients. The overall architecture of bone is divided into cancellous bone (also called as trabecular bone) and cortical bone. The cortical bone forms a compact shell around the more delicate cancellous bone. It is formed by an interconnective lattice work of trabecular. In general, the appendicular skeleton is composed of cortical bone and the axial skeleton is composed of both cancellous bone and cortical bone. The surface area of cancellous bone is more than that of cortical bone, and is metabolically active. So the cancellous bone is severely affected. During the accelerated period of bone loss, immediately after menopause, cancellous bone loss increases three fold, while rates of cortical bone loss are slower. The vertebrae are rich in cancellous bone. So vertebral fractures are common in the early postmenopausal years, while hip fractures occur in later years. Bone strength is related to bone mass density (BMD) and other factors such as remodelling frequency (Bone turn over), bone size and area, bone micro architecture and degree of bone mineralization.

After linear growth stops, bone is in a constant state of remodelling with repeated cycles of bone resorption followed by deposition of new bone. In normal conditions bone resorption followed by bone formation is sequential without over loss of bone. This bone turn over is necessary for general bone health as it repairs micro fractures and remodels the bone architecture. Bone has remodelling units. They combine the sequential action of osteoclasts which resorb bone, leaving a cavity or lacuna and the subsequent action of osteoblasts synthesise new bone. When there are aberrations in bone remodeling, thinning of trabeculae occurs and they become disrupted. It is also described as loss of connectivity. It weakens the structural integrity of the bone. Bone is a major reservoir of calcium. In various physiological and pathological conditions, bone mass may be sacrificed to satisfy intracellular and extracellular calcium needs. Because of all these reasons, bones become weak, fragile and porous leading to osteoporosis.

### Types of Osteoporosis

Osteoporosis can be classified in various ways, based on diagnostic categories, etiology. Osteoporosis can be classified as primary osteoporosis and secondary osteoporosis. Primary osteoporosis includes age, gender, race, figure type, life style, diet and lack of sunlight. Secondary osteoporosis includes genetic disorders, hypogonadal states, endocrine disorders, hematological disorders, nutritional deficiencies, drugs.

### Factors that cause osteoporosis

- Osteoporosis is related to the loss of bone mass that occurs as part of the natural process of aging.
- It results when there is excess bone loss without adequate replacement.

- It is far more prevalent in women after menopause due to the loss of the hormone estrogen.
- It is common in persons.
  - Having small thin body.
  - Having a family history of osteoporosis.
  - Being over 65 years old.
  - Not getting enough exercise.
  - Long term use of some medicines like glucocorticoids, antiseizure medicines, thyroid hormone replacements etc.

### Consequences of osteoporosis

Though osteoporosis is often called as a silent disease, there are some symptoms like.

- Increased risk of fractures with minor trauma.
- Pain in the bones and muscles.
- Breaks in the hip, wrist, spine.
- Sloping shoulders.
- Back pain
- Compressed vertebrae.
- Protruding abdomen
- Hunched posture.
- Person becomes stooped with a bent back called Called dowager's hump (kyphosis)

### Diagnosis

The diagnosis of osteoporosis is usually made by the doctor using a combination of a complete medical history and physical examination. In order to properly diagnose osteoporosis the bone density must be measured. This can be done using a test measuring the density of the bones in the areas most likely affected by the disease such as spine, hip and wrists.

There are tests that can get to find out the bone density. This is related to how strong or fragile the bones are. One test is called dual-energy x-ray absorptiometry (DXA). A DXA scan takes x-rays of the bones.

### Treatment

Treatment for osteoporosis includes eating a diet rich in calcium and vitamin D, getting regular exercise, and taking medication to reduce bone loss and increase thickness. In men Alendronate and triparatide have been approved to treat osteoporosis in men. Calcitonin may work in men, treatment with testosterone increases bone density. In women, the non hormonal bisphosphonate drugs, alendronate and risedronate prevent and treat postmenopausal osteoporosis. Raloxifene is approved for preventing and treating osteoporosis. A class of drugs called estrogen agonists antagonists; commonly referred to as Selective Estrogen Receptor Modulators-SERMs are approved for the prevention and treatment of postmenopausal osteoporosis. They help to slow the rate of bone loss.

Calcitonin: Calcitonin is a naturally occurring hormone that can help slow the rate of bone loss.

Menopausal Hormone Therapy (M H T):- These drugs which are used to prevent bone loss.

Parathyroid Hormone or Triparatide:- Triparatide is an injectable form of human parathyroid hormone. It helps the body build up new bone faster than the broken old bone.

### Prevention

Building strong bones during childhood and teen years is one of the best ways to keep from getting osteoporosis later. As the person gets older, the bones don't make new bone fast enough to keep up with the bone loss. And after menopause, bone loss happens more quickly. But there are steps that can be taken to natural bone loss with aging and to prevent the bones from becoming weak and brittle.

#### 1. Get enough calcium each day

Bones contain a lot of calcium. It is important to get enough calcium in the diet. The person can get calcium through foods and calcium pills. For age group 9-18, the requirement of calcium is 1300mg./day, for 19-50, requirement is 1000 mg./day, and for 51- and above age group the requirement is 1200 mg./day.

#### 2. Get enough vitamin 'D' each day

It is also important to get enough vitamin - D, which helps the body absorb calcium from the food taken. Vitamin "D" is produced in the skin when it is exposed to sunlight. The person needs 10 to 15 minutes of sunlight to the hands, arms and face, two to three times a week to make enough vitamin D. The amount of time depends on how sensitive the skin is to light. It also depends on the use of sunscreen, the skin colour, and the amount of pollution in the air. The person can also get vitamin D through foods or by taking vitamin pills. The daily Vitamin D requirement for age group 19-50 is 200IU per day, for 51-70 age group, the requirement is 400 IU per day.

#### 3. Eat a healthy diet

Other nutrients (like vitamin K, vitamin C, magnesium, and Zinc, as well as protein) help build strong bones too.

Fish, green leafy vegetables, oranges, and milk contain many of the nutrients.

#### 4. Exercise

Exercise is very important for slowing the progression of osteoporosis.

#### 5. Don't smoke

Smoking raises the chances of getting osteoporosis. It harms the bones and lowers the amount of estrogen in the body.

#### 6. Drink alcohol moderately

Alcohol makes it harder for the body to use the calcium taken in.

#### 7. Make your home safe

Reduces the chances of falling by making the home safer. Use a rubber bath mat in the shower or tub. Keep the floors free from clutter. Make sure that have grab bars in the both or shower.

#### 8. Lactose intolerance

If the person is lactose intolerant, it can be hard to get enough calcium. Lactose is the sugar that is found in dairy products like milk. Lactose intolerance means the body has a hard time digesting foods that contain lactose. The symptoms like gas, bloating, stomach cramps, diarrhea and nausea. Lactose intolerance can start at any age but often starts in older age. Lactose- reduced and lactose-free products are sold in food stores.

### METHODOLOGY

A survey was conducted to collect the required information from patients suffering from osteoporosis. The data was collected from one orthopedic hospital for a period of one month in Eluru. The data was collected from 50 patients of different age groups by questionnaire method and the results are tabulated.

### RESULTS AND DISCUSSION

Table 1: Percentage of the samples.

S.No	Sex	Percentage of the samples
1	Female	90%
2	Male	10%

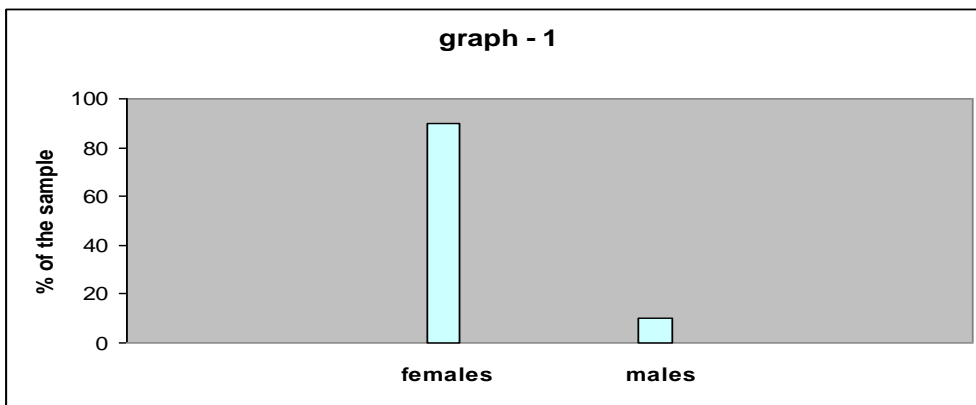


Table 2: Percentage of different age groups suffering.

S.No	Age – group	Percentage effected
1	40 -45	4%
2	46 -50	28%
3	51 -55	30%
4	56 -60	20%
5	61 -65	12%
6	66 – 70	6%

GRAPH - 2

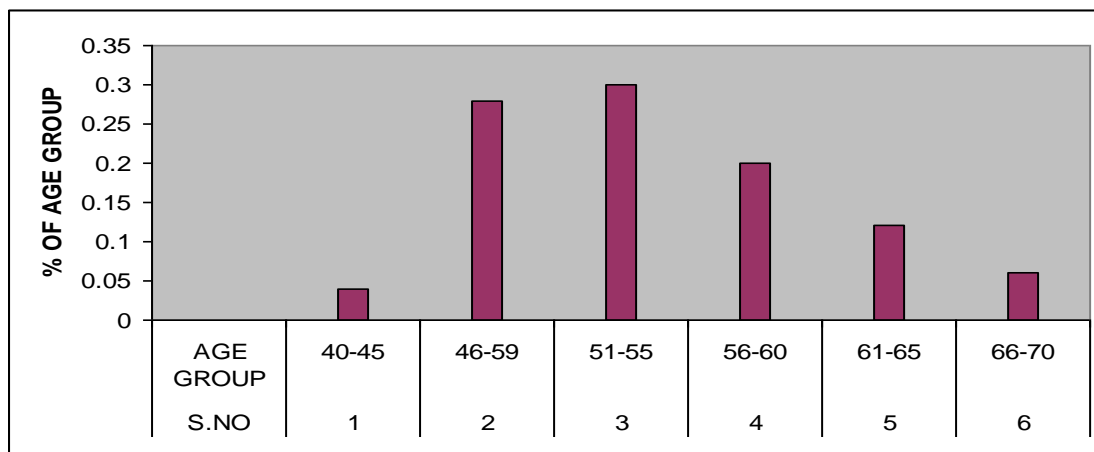


Table – 3: Percentage of the subjects with or without family history.

S.No	Family history	Percentage
1	With family history	20%
2	With out family history	80%

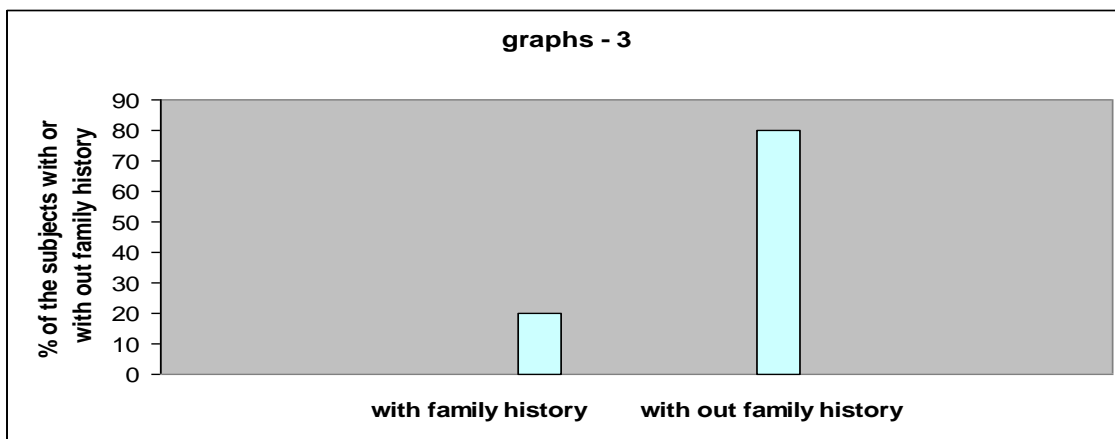
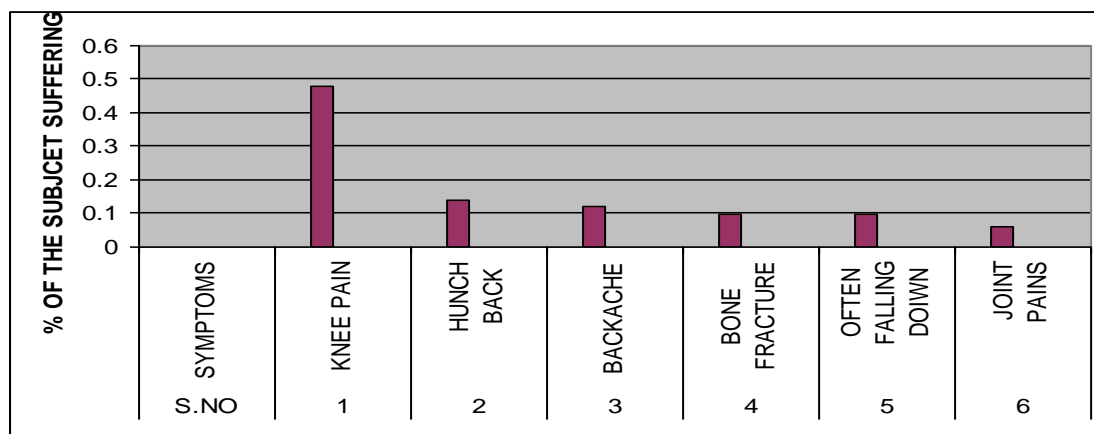


Table 4: Symptoms of Osteoporosis.

S.No	Symptoms	% of the subject suffering
1	Knee pain	48
2	Hunch back	14
3	Backache	12
4	Bone fracture	10
5	Often falling down	10
6	Joint pains	6

Graph – 4



## DISCUSSION

- From the survey, it is observed that out of 50 subjects, males are 10% and females are 90%. So the females are more prone to this disease. Prevalence of osteoporosis increases with age in women and not in men. It is reported that 42.5% women and 24.6% men above the age of 50 years suffer from osteoporosis in India(6)
- Among 40 – 45 age group, 4% are effected, 46 – 50 age group, 28% are effected, 51 – 55 age group, 30% are effected, 56 – 60 age group, 20% are effected, 61 - 65 age group, 12% are effected, 66 – 70 age group, 6% are affected. These results reveal that the incidence of osteoporosis peaks in the age group of 51-55 followed by the age group 46-50 and it was proved in earlier studies. This condition is related to menopausal stage of women.
- 20% of the subjects are with family history and 80% are without family history. So to some extent osteoporosis may be hereditary.
- 48% of the subjects are suffering from Knee pain, 14% are suffering from Hunch back, 12% are suffering from Backache, 10% are suffering from Bone fracture, 10% are falling down frequently, 6% are suffering from severe joint pains. The main constraints to optimal treatment for osteoporosis, according to the physicians who participated in the current study, are lack of consistent compliance on the part of patients and lack of knowledge. Recently published studies have shown suboptimal adherence to osteoporosis treatment in a number of countries.<sup>[4,5]</sup>

## CONCLUSION

Because it is hard to replace bone that is lost, prevention is the key. Beginning a life long commitment to exercise and nutritious, food in young age reduces the risk of developing this condition later in life. Act now to build strong bones to last a lifetime.

“Best Bones Forever” is a national education effort to encourage girls aged 9-14 to eat more foods with calcium and vitamin D and get more physical activity. There is also a website for the parents, which gives them the tools and information they need to help their daughters build strong bones, during the critical window period of bone growth that is between 9-18 years to make them empowered. Recent publications have attributed deficiencies in osteoporosis management to inadequate communication and cooperation among the physicians involved: general practitioners, orthopedic surgeons, endocrinologists and rheumatologists.<sup>[1,3]</sup> Empowerment of menopausal women will guarantee their health during the last third of their life. The results of the present study can pave the way for future research to promote women’s empowerment for better health outcome of community.

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