

## AWARENESS OF DELAYED HEALING IN POST-OPERATIVE FRACTURE CONDITIONS IN OSTEOPOROTIC PATIENTS

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### ABSTRACT

**Objectives:** The study aimed to determine the knowledge of delayed healing in postoperative fracture conditions in osteoporotic patients.**Method:** In this observational study, 60 subjects were taken between the age group 50–80 years, which consisted of 52% of females and 48% of males. The study was done with self-made questionnaires.**Result:** A sample of 60 people was taken; out of this, only 11% were aware of the relationship between osteoporosis and fracture healing, and the other 89% lacked the awareness of the relationship between osteoporosis and fracture healing.**Conclusion:** In this study, it was found that there was 11% of people aware of fracture healing and osteoporosis.**Keywords:** Age, Delayed healing, Elders, Fracture, Osteoporosis© 2024 The Authors. Published by Innovare Academic Sciences Pvt Ltd. This is an open access article under the CC BY license (<http://creativecommons.org/licenses/by/4.0/>) DOI: <http://dx.doi.org/10.22159/ajpcr.2024v17i6.50642>. Journal homepage: <https://innovareacademics.in/journals/index.php/ajpcr>

### INTRODUCTION

Elderly persons, especially those over the age of 50, are more likely to suffer fractures, particularly osteoporotic fractures. The prevalence of bone fractures in those over the age of 60 is reported to be 29% in men and 56% in women [1]. Osteoporosis is a bone condition that raises the risk of fracture. Many people with this chronic illness will experience many fracture episodes over many years [2]. The drawback of osteoporosis is that it goes unnoticed or ignored until a brittle fracture occurs. The amount of bone mineral density (BMD) is decreased in osteoporotic situations, and the number of proteins is also changed [3]. Due to menopause, osteoporosis is a global problem that disproportionately affects women [4,5]. Two-thirds of women over the age of 80 and one-third of women in the 60–70 age range are afflicted [6]. The low bone density occurs from postmenopausal women's decreased levels of collagen in their bones. In comparison to the normal bone, the afflicted bone is very weak [7,8]. Due to the decreased bone mass in this illness, the bones are more brittle, so a fracture can be caused by a fall or even minor strains. Hence, the mechanism of fracture healing goes like the procallus formation. In this comes *hematoma*: This occurs due to the bleeding from torn blood vessels surrounding the fracture area. There will be a meshwork formed by blood and the fibrin clot that acts as a framework for the upcoming granulation tissue formation. Local inflammatory response: This occurs at the site of injury with fibrin exudation, polymorphs, and macrophages (clear away the RBCs, fibrin, inflammatory exudate, and debris). Ingrowth of granulation tissue: This begins with neovascularization and proliferation of mesenchymal cells from the periosteum and endosteum. A soft tissue callus then forms and joins to the ends of the fractured bones without enough strength. Callus, composed of *woven bone* and *cartilage*, starts within the first few days. The cells of the inner layer of the periosteum have osteogenic potential and lay down collagen and osteoid matrix in the granulation tissue. This woven callus gets covered at the fractured ends and its units fill the gap between the ends, giving it a fusiform appearance. The procallus acts as scaffolding on which the osseous callus is formed. The woven bone is eliminated by the increasing osteoclasts and the calcified cartilage breaks breakdown. In their place, the new blood vessels and osteoblasts invade. Remodeling: During the lamellar bone formation, osteoblastic laying and osteoclastic removal are happening remodeling the united bone ends [9,10].

### Aim

The study aimed to be aware of the knowledge of delayed healing in post-operative fracture conditions in osteoporotic patients.

### METHODS

It was an observational study comprised over 3 months. A random sampling method was used to calculate the sample size. As per the sample size calculation, 60 subjects were included using a random sampling method for data collection. We had selected only those subjects who were capable of doing household work on their own, subjects who had one or more trivial traumas like falls. Subjects who are bedridden or dependent, subjects who are <50 years old, were excluded from the study. This study was conducted after receiving clearance from the Institutional Human Research Committee of Krishna Vishwa Vidyapeeth "Deemed to be University." All participants provided informed written consent. Sixty participants who were capable of doing household work on their own, had experienced one or more minor traumas, such as falls, and were aged between 50 and 80 years old, were included in the study. After obtaining consent, the participants were asked to fill out questionnaires that included information about their age, knowledge about osteoporosis, exercise levels according to the perceived exertion scale, and specific criteria for females such as awareness of female hormonal deficiencies and reproductive organ removal—taken from all the subjects. Sixty subjects fulfilling the inclusion criteria, that is, subjects are capable of doing household work on their own, and subjects who had one or more trivial traumas like falls and at the ages of 50–80 years old were included in the study. After obtaining consent and necessary questionnaires, including age, knowledge about osteoporosis, exercise level according to the perceived exertion scale, and particular criteria for females, including awareness of female hormonal deficiency and reproductive organ removal are enquired.

### RESULTS

1. Distribution of participants according to age.

Among the inclusion criteria of age, 43% of the population from the total is 50–60 years old, and the least population (25%) included in the study is 61–70 years old.

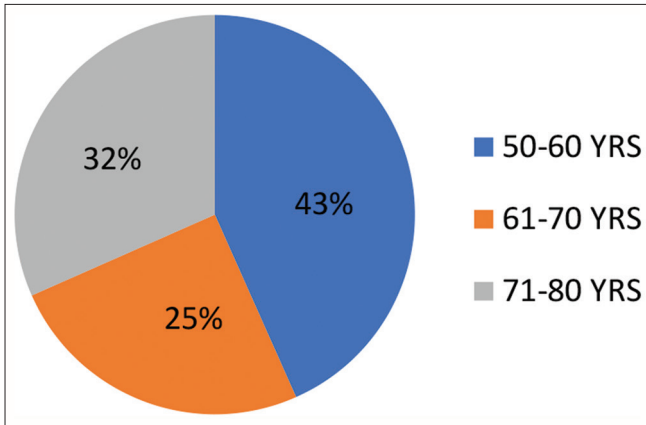


Fig. 1: Distribution of participants according to age

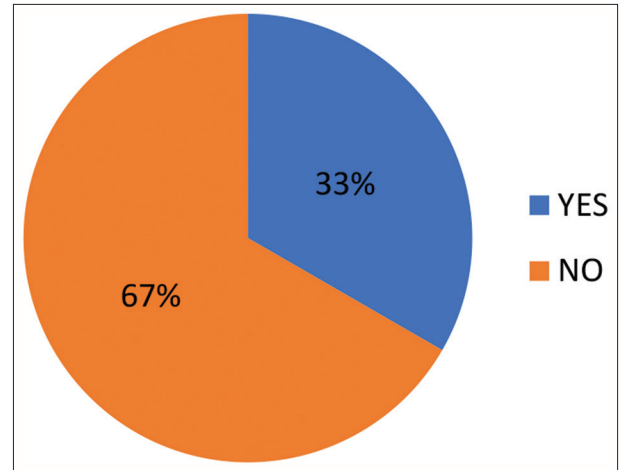


Fig. 4: Previous history of mild fractures

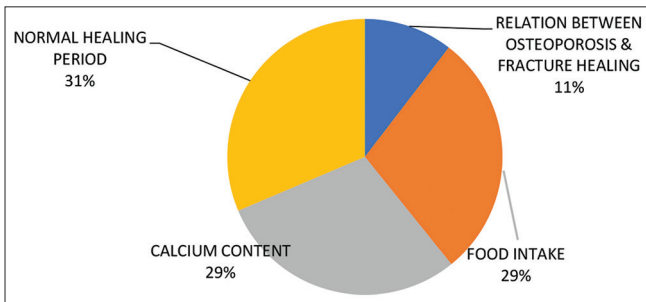


Fig. 2: People's Knowledge about Osteoporosis

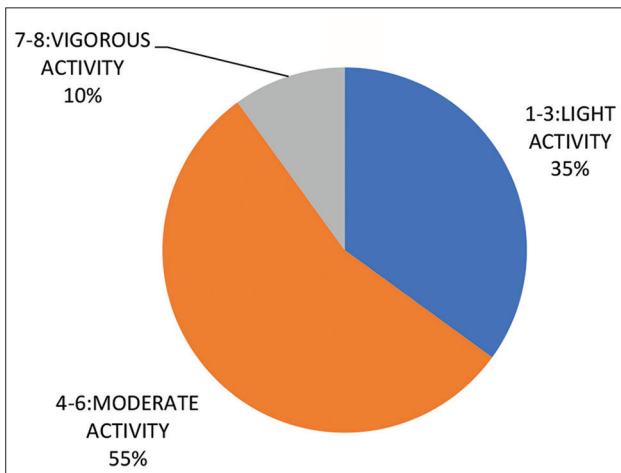


Fig. 5: Exercise level according to the Perceived Exertion Scale

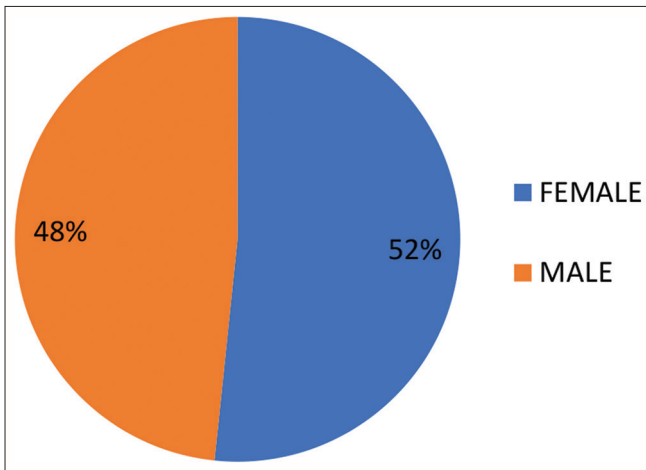


Fig. 3: Distribution According to Sex

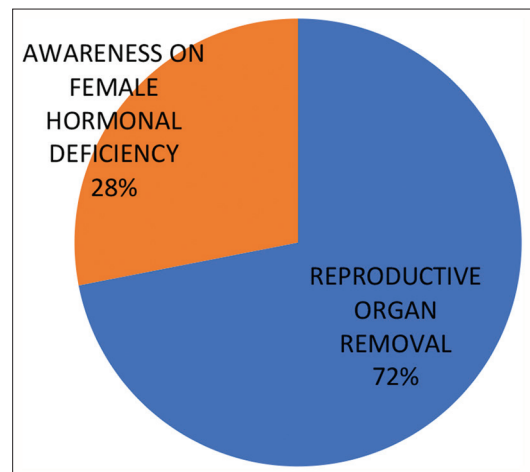


Fig. 6: Criteria included for Females

2. People's knowledge about osteoporosis.
3. Distribution according to sex.
4. Previous history of mild fractures.
5. Exercise level according to the perceived exertion scale.

Of the total population, 55% engage in moderate activity daily, while the smallest group engages in vigorous activity.

6. Criteria included for females.

Among the questionnaires that included the criteria for females, only 28% of women who participated in the study had an awareness of estrogen and/or progesterone deficiency as a reason for osteoporosis.

**Interpretation**

The above charts demonstrate a lack of awareness regarding the relationship between osteoporosis and fracture healing. Out of a sample

size of 60, only 11% were aware of this relationship, while the other 89% lacked this knowledge. In addition, only 28% of female participants were aware of the potential link between hormonal deficiency and osteoporosis.

**DISCUSSION**

The study's findings indicated that elderly people who are diagnosed with osteoporosis have little understanding of the relationship

between fracture healing and osteoporosis. All age groups participating in this study are from Karad. A bone disorder called osteoporosis raises the risk of fracture. Osteoporosis is a bone condition that raises the risk of fracture. Many people with this ailment will have it for many years, and they may experience several fractures throughout that time. The drawback of osteoporosis is that it goes unnoticed or ignored until a brittle fracture occurs. The amount of the bone mineral density (BMD) is decreased in osteoporotic situations, and the number of proteins is also changed. Osteoporosis is prevalent throughout the world and affects more women than men. Two-thirds of women over the age of 80 and one-third of women in their 60s and 70s are impacted.

The study shows how much understanding elderly people have based on fracture healing about osteoporosis. To the best of our knowledge, no such study has been conducted to observe awareness among the elderly population.

A self-made questionnaire contains 13 questions for general and two questions especially for females. Among the 60, 29 are female.

### CONCLUSION

Most of the patients are not aware of the relationship that has between osteoporosis and fracture conditions and that there is a delay in fracture conditions in osteoporotic patients than the normal people. In this study, it was found that only 11% of people were aware of fracture healing and osteoporosis.

### AUTHORS FUNDING

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### CONFLICTS OF INTERESTS

There are no conflicts of interest.

### AUTHORS CONTRIBUTION

Dr. Mayuri. R. Shah contributed to the interpretation of data.

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