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Research Article

To Evaluate the Awareness and Prevention of Osteoporosis in Patients Attending Orthopaedics Outdoor Clinics in a Tertiary Level Hospital

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ABSTRACT

Background: Purpose of this study was to assess the mindfulness about osteoporosis in patients visiting orthopedic outdoor department. Osteoporosis is known as a "Silent disease predominant among older population.

Materials and Methods: This study was done between March to August, 2021 in All India Institute of Medical Sciences, Rishikesh among Orthopedic OPD patients, chosen by comfort Sampling Technique. A self-directed and pre-tested survey was ready to gather data about mindfulness in these patients and information was analyzed utilizing Excel software and programming utilizing suitable statistical tests. **Results:** In current study, larger parts of patients were over 40 years about 68% (340) and 32% (160) of the patients were under 40 years old. Males were about 54% (270) and 46% (230) were female having M: F proportion of 1.17. Among the total patients, 235 (47%) have absence of mindfulness about risk components of osteoporosis. 225 (45%) had communicated about inadequate measures of dietary calcium, which is trailed by physical inactivity in 225 (45%) and low vitamin D intake by 272 (54.5%). About 240 (48%) know the danger of eating less calcium-rich food varieties, trailed by calcium and vitamin D enhancements by 210 (42%) and getting vitamin D by sunlight exposure by 175 (38.5%) helps in forestalling osteoporosis. 235 (47%) patients didn't think about the preventive variables of osteoporosis.

Conclusion: According to this study, larger part of patients' needs mindfulness about the danger just as preventive variables of osteoporosis.

KEYWORDS

Osteoporosis, mindfulness, silent

INTRODUCTION

Osteoporosis in a real sense signifies 'bones with openings' which is additionally called a "Quiet" infection. Osteoporosis and fragility fractures are modifiable causes of mortality and morbidity in elderly population¹. It happens when bones lose minerals, for example, calcium more rapidly than the body can supplant them. They become less thick, lose strength and break all the more effectively and presents as a rule with no particular signs or symptoms. It is generally normal among elderly individuals, particularly more established elderly women in their middle and later years^{2,3}. This is an asymptomatic condition which usually manifests with acute pain secondary to low trauma/insufficiency fracture of hip, spine or pelvis⁴. Notwithstanding, it expands the danger of pathological fractures which are in some cases hard to oversee in these old patients. Way of life adjustment and medications can forestall these fractures and incapacitating conditions. There is inescapable obliviousness and restrictions are available in individuals identified with this condition. As per

report, every 8th elderly male and 3rd elderly female is osteoporotic and lead to fragility fracture in this population⁵. This condition is treatable due latest advancements and save the human beings. WHO has developed a T scoring for osteoporosis which is measures bone mineral density by dual energy x-ray absorptiometry? A Z-score is also used to calculate osteoporosis in younger population⁶:

- T score of -2.5 or less in postmenopausal women or men aged >65 years
- T score ranging between -1 to -2.5 is termed osteopenia
- T score >-1 is normal

Porous bones in elderly due to osteoporosis can cause broken and weaken bones which led to various disabilities in this population⁷. Osteoporosis causes one in 5 and 1 in 3 women above age of 50 prone to fracture fragility. A year long campaign is launched on 20th October every year to raise awareness for prevention, diagnosis and treatment of this silent disease. "Save up Bone Strength" was the theme of this year. There are modifiable as well as non-modifiable risk factors for osteoporosis^{8,9}. Non modifiable risk are family history of osteoporosis, past history of osteoporosis fractures, old age, menopause, gender, certain disease like, Rheumatoid and diabetes. Modifiable risk factors are smoking, alcoholism, underweight, inactive life style, calcium and vitamin D deficiency, medications like glucocorticoid's. Life style modifications like avoid smoking and alcohol intake, taking adequate calcium and vitamin D and regular exercise are factors to prevent the osteoporosis^{10,11} (Fig. 1). Since the North American Menopause Society (NAMS) has submitted his report on 2010, various advancements in treatment as assessments and managements has been made. In 2021, NAMS again submitted, risk factors and available risk assessment tools for identifying the osteoporosis in women. The study aims to assess the mindfulness and counteraction of osteoporosis in patients going to Ortho OPD in a tertiary level.

MATERIALS AND METHODS

The present study is of descriptive type conducted at Orthopaedics OPD of tertiary hospital. The study was performed from March to July, 2021 on all OPD patients visiting at orthopaedics clinic. The technique used in

sampling is "Convenience Sampling Technique" and the patients were randomly chosen from patients visiting Ortho OPD consistently subsequent to clarifying the motive behind the study. Informed consent was taken and confidentiality of members was kept up with.

Inclusive criteria

During the day of data collection in study setting and who were willing to participate in the study.

Exclusion criteria

Patients who were not willing to participate in the study, development of tool-knowledge related questionnaires.

Description of tool

- **Section A:** Socio-demographic characteristics of the patients (age, gender etc.)
- **Sections B:** Questions regarding awareness and preventive factors for osteoporosis
- **Validity of tool:** By the experts in this field, data analysis was done by using Excel software with appropriate statistical test in terms of frequencies and percentage

RESULTS

The current study consisting of 500 patients was non-experimental descriptive study completed to assess information on hazard and preventive elements for osteoporosis in tertiary emergency clinic. In our study, 32% (160) of the patients fall were under 40 years while 68% (340) were over 40 years. 54% (270) of patients were male and 46% (23) were female.

Among the total patients, 235 (47%) didn't know about any risk factor of osteoporosis. 235 (45%) respondents told that Inadequate amounts of dietary calcium is the risk factor of osteoporosis followed by, Lack of physical activity by 225 (45%), low vitamin D intake by 272 (54.5%), cigarette smoking by 125(25%), excessive alcohol intake by 66 (16.5%), long-term use of medication such as corticosteroids by 50 (10%), excessive coffee/tea by 175 (35%), early menopause by 35 (7%) and certain disease like asthma, arthritis, liver and kidney disease by 25 (5%) respondents (Fig. 2).

Among the total patients, maximum 240 (48%) told that eating calcium-rich foods help in preventing osteoporosis followed by calcium and vitamin D supplements by

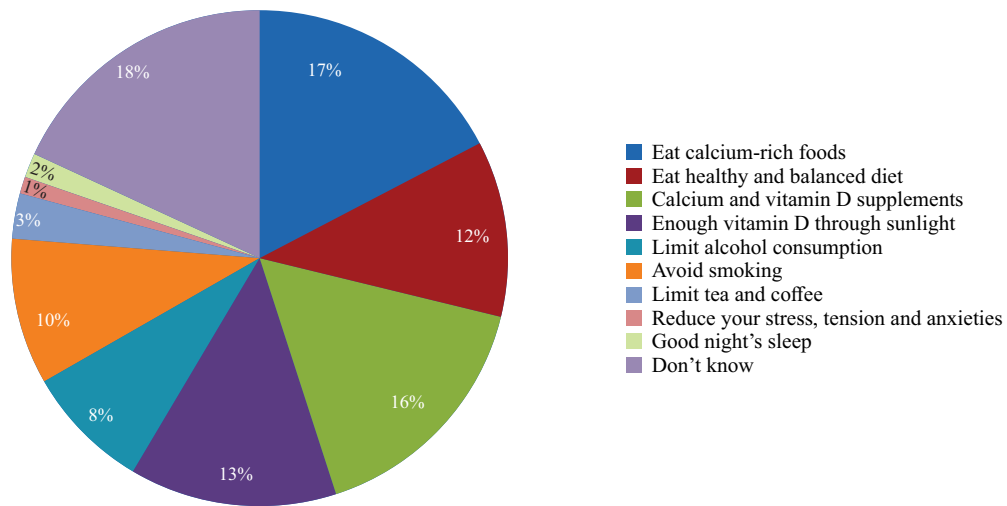


Figure 1: Various factors of osteoporosis

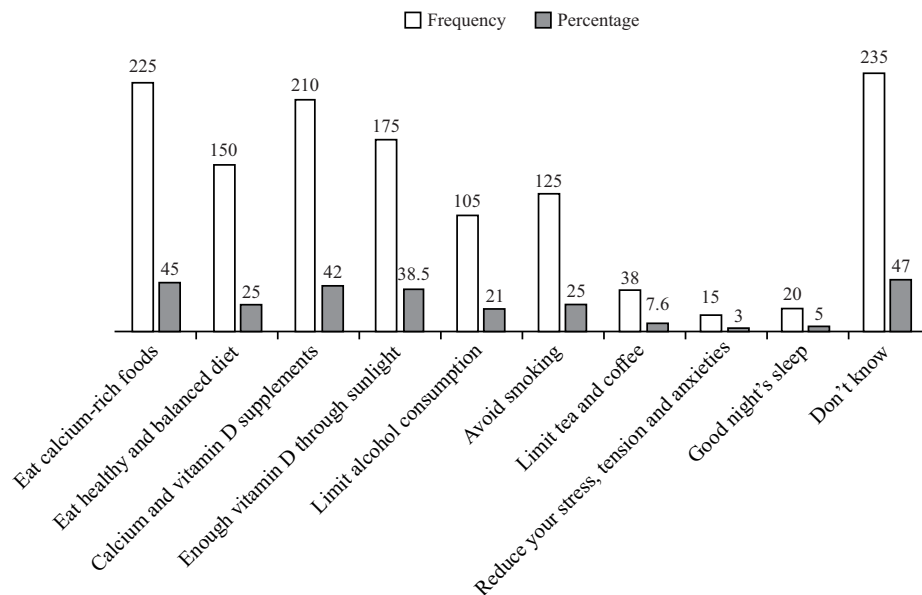


Figure 2: Knowledge of participants towards prevention of osteoporosis

Table 1: Knowledge about risk factors of osteoporosis among participants

Practices	Frequency	Percentage
Inadequate amounts of dietary calcium	225	45
Low vitamin D intake	272	54
Cigarette smoking	150	30
Excessive alcohol intake	225	45
Excessive coffee/tea	50	10
Lack of physical activity	275	55
Early menopause	35	7
Long-term use of medication such as corticosteroids	68	13.6
Certain disease like asthma, arthritis, liver and kidney disease	15	3
Don't know	235	47

210 (42%), enough vitamin D through sunlight by 178 (38.5%), eat healthily and balanced diet 129 (32.25%), avoid smoking by 87 (21.75%), limit alcohol consumption by 69 (17.25%), limit tea and coffee by 29 (7.25%), good

night's sleep by 27 (6.75%), reduce your stress tension and anxieties by 19 (4.75%) patients. In the current study, 235 (47%) patients didn't know about the preventive factors of osteoporosis (Table 1).

Table 2: Knowledge of participants towards prevention of osteoporosis

Preventive factors	Frequency	Percentage
Eat calcium-rich foods	225	45
Eat healthy and balanced diet	150	25
Calcium and vitamin D supplements	210	42
Enough vitamin D through sunlight	175	38.5
Limit alcohol consumption	105	21
Avoid smoking	125	25
Limit tea and coffee	38	7.6
Reduce your stress, tension and anxieties	15	3
Good night's sleep	20	5
Don't know	235	47

DISCUSSION

Getting sufficient calcium and nutrient D can assist with keeping the bones solid and forestall osteoporosis. Osteoporosis makes the bones more fragile and bound to fracture¹⁰.

Vitamin D and calcium advance bone thickness. Vitamin D is significant in light of the fact that it assists the body with retaining the calcium in your eating routine. We get the majority of our vitamin D from the sun. Vitamin D can likewise be found in little amounts in food sources, for example, fatty fish (salmon, herring, mackerel), liver, eggs, sustained food varieties like low-fat milks and margarine^{11,12} (Table 2). For the vast majority, it is far-fetched that sufficient amounts of nutrient D will be gotten through diet alone. Vitamin D supplements is vital, on the off chance that anybody worried that the person isn't getting enough vitamin D¹².

Partaking in a solid, offset diet with an assortment of food sources and a sufficient admission of calcium is an essential advance to building and keeping up with solid, sound bones. In case there isn't sufficient calcium in the blood, body will take calcium from your bones¹¹. Enough calcium in the eating regimen is a significant method to save bone thickness. Dairy food varieties have the most significant levels of calcium, however there are numerous different well springs of calcium, including spinach and almonds. On the off chance that anybody incapable to get sufficient calcium from the eating routine alone, calcium supplements is vital.

Weight-bearing activity supports bone thickness and further develops balance so falls are decreased. It does not treat set up osteoporosis¹². General suggestions include: Choose weight-bearing exercises like brisk walking, running, tennis, netball or dance. While non-weight-bearing activities, like swimming and cycling are great for other medical advantages, they do not advance bone development. Counting some high-sway practice into

standard, for example, bouncing and rope skipping additionally makes a difference. Strength training (or resistance training) is likewise a significant exercise for bone wellbeing¹³. It includes resistance being applied to a muscle to create and keep up with solid strength, strong perseverance and bulk. Critically for osteoporosis prevention and the treatment, strength training can keep up with or even improve, bone mineral density.

General suggestions for way of life changes to ensure against osteoporosis likewise incorporate quit smoking as smokers have lower bone thickness than non-smokers, get some sun-exposure of some skin to the sun needs to happen on most days of the week to permit sufficient vitamin D formation, savor liquor balance as unreasonable liquor utilization builds the danger of osteoporosis and cutoff caffeinated beverages-unnecessary caffeine can influence the measure of calcium that our body retains. Drink close to a two to three cups each day of cola, tea or coffee is fitting.

CONCLUSION

Practically 50% of the respondents didn't think about the danger just as preventive components of osteoporosis. Eating calcium-rich food varieties, steadily and adjusted eating routine, calcium and vitamin D enhancements, enough nutrient D through daylight, limiting liquor utilization, avoiding smoking, limiting tea and coffee, reducing your tension and anxieties and having pleasant night's sleep helps in prevention of osteoporosis.

CONFLICTS OF INTEREST

The authors declare no conflicts of interest.

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DISCLAIMERS

The opinions expressed in this article are the authors' personal views and do not represent that of their affiliated organizations, employers or associations.

DATA AVAILABILITY STATEMENT

Not applicable

HIGHLIGHTS OF THE STUDY

- Provides excellent prevention factors to evaluate bone mineral loss
- Early treatment and prevention of osteoporotic fractures in elderly population

AUTHOR CONTRIBUTIONS

AS conceived the review idea. DS conducted the literature search. AS prepared the 1st draft of the manuscript. AS reviewed, edited and revised the manuscript substantially on the key intellectual content. KS finalized and approved the current version agreed to be accountable for accuracy and integrity and decided to submit the manuscript to Trends in Medical Research.

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