

An Explorative Study to Assess the Risk Factors Regarding Osteoporosis Among Pre-Menopausal Women Residing in The Selected Rural Communities of Bagalkot District, With A View to Develop an Information Booklet Regarding Prevention and Management of Osteoporosis

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Abstract—Background of the study: Osteoporosis is a systemic skeletal disorder characterized by low bone mass, micro-architectural deterioration of bone tissue leading to bone fragility, and consequent increase in fracture risk. A woman's chances of getting the bone thinning disease osteoporosis go up with age, especially after menopause. But it's not uncommon for women to get the condition before menopause, called pre-menopausal osteoporosis or bone loss. As bones become thinner with osteoporosis, they break more easily. Aim: An explorative study to assess the risk factors regarding osteoporosis among pre-menopausal women residing in the selected rural communities of Bagalkot district, with a view to develop an information booklet regarding prevention and management of osteoporosis. Method: It was a cross sectional study with Descriptive approach. 70 pre-menopausal women residing in selected rural communities of Bagalkot were selected with convenient sampling technique. A structured questionnaire was developed to collect the demographic information; a checklist was developed to assess the level of risk and data collected was analyzed using descriptive and inferential statistics.

Results: Assessment of risk factors regarding osteoporosis reveals that, about 4.29% women are at high risk of getting osteoporosis, about 10% are at medium risk and 85.7% are at low risk for getting osteoporosis. The findings regarding association of risk

for osteoporosis scores with the socio-demographic variables of pre-menopausal women revealed that a significant association was found between risk of osteoporosis and age and occupation ($p < 0.05$) of premenopausal women. Conclusion: After obtaining the results from the present study, the researcher noticed that most of the women were at low risk of osteoporosis.

Index Terms—premenopausal women, osteoporosis, knowledge, rural area, risk of osteoporosis.

I. INTRODUCTION

Osteoporosis is the most common bone disease in humans, representing a major public health problem and is a silent disease until fractures occur, which causes important secondary health problems and even death.¹ Osteoporosis has been defined by the World Health Organization (WHO) as 'low bone mass and micro architectural deterioration of bone tissue, leading to enhanced bone fragility and a consequent increase in fracture'.² Over 50% of postmenopausal women will have an osteoporotic-related fracture. Only 33% of senior women who have a hip fracture will be able to return to independence.³ According to National Health and Nutrition Examination survey

(NHANES III), an estimated 14 million American women over age 50 years are affected by low density at the hip.⁴

According to WHO statistics, one out of eight men and one out of three women in India are affected by osteoporosis.⁵

Established risk factors for women include: increased age, Caucasian or Asian ethnicity, postmenopausal status, late menarche or early menopause, low peak bone mass, family history of osteoporosis or fracture, low dietary intake of calcium and vitamin D, lack of physical activity, smoking, excess alcohol consumption, and long-term use of certain medications, such as steroids, anticonvulsants, immunosuppressant and heparin.⁶ Premenopausal osteoporosis may be associated with chronic glucocorticoids therapy, prolonged amenorrhea, anorexia nervosa, rheumatoid arthritis, and diseases that affect calcium and vitamin D metabolism. Lesser degrees of bone loss may be associated with common conditions such as dieting, low calcium intake, smoking, and oligomenorrhea.⁷

Osteoporosis is less common in premenopausal women than in postmenopausal women. However, both fractures and low bone mineral density do occur in the premenopausal years, and young women with these conditions require specialized clinical considerations.⁸ The lifetime risk of dying from hip fracture is same as that from breast cancer. One out of three women between age group of 50-60 years in India suffers from osteoporosis.⁹ The World Health organization reveals that one out of three adult females in India suffers from osteoporosis, making India one of the worst affected countries in the world.¹⁰ It has been estimated that Low education and being housewife were shown to be risk factors for osteoporosis among Indian and Iranian women. The reason probably is the effect of education on lifestyle, nutrition, and economic status.¹¹

Hence it is crucial that the women at risk must be aware of risk factors that can make them susceptible to osteoporosis. They should know the risk factors they are possessing and the measure with which it can be prevented. From all this information, researcher found that pre-menopausal women are greater risk for developing morbidity and mortality related to osteoporosis. Hence the researcher is

interested to create awareness regarding risk factors and knowledge regarding osteoporosis among pre-menopausal women.

II. METHODOLOGY

Considering the purpose of the study, descriptive cross-sectional survey was used to assess the risk factors regarding osteoporosis among pre-menopausal women in Kelavadi and Timmasagar villages of Bagalkot. Sample consisted of 70 pre-menopausal women between the age group of 35-50 years. Convenient sampling technique was used to collect the data.

SAMPLE SIZE ESTIMATION

The sample size was estimated by using the Conchran's formula. The data for calculating sample size was used from findings of pilot study on outcome variables.

Formula

$$\text{Sample size} = \frac{Z\text{value}^2 \times SD^2}{d^2}$$

Were,

Z is critical value at 5% level of significance i.e., 1.96

SD is Standard deviation

D is margin of error.

variable: Knowledge regarding Osteoporosis

Using the pilot study data on the outcome variables, the sample size was calculated, Z=1.96, SD= 0.205, d=5 % (0.05).

$$\text{Sample size (n)} = 3.84 \times 0.042 = 0.0025 = \frac{(1.96)^2 \times (0.205)^2}{(0.05)^2}$$

The desired sample size was found to be 64. Including 10% attrition and considering the availability of subjects and to increase the effectiveness of the study final sample size was increased to 70. Hence n = 70

CRITERIA FOR SAMPLE SELECTION:

INCLUSION CRITERIA

Study includes the premenopausal women who are,

- between the age group of 35-50 years

- willing to participate
- available at the time of data collection
- know either Kannada or English

EXCLUSION CRITERIA

- Women who have undergone hysterectomy
- Women who are diagnosed with osteoporosis
- Women who are mentally ill
- Women who are deaf and dumb.

VARIABLES:

a. INDEPENDENT VARIABLE

Risk factors of osteoporosis among pre-menopausal women.

b. SOCIO-DEMOGRAPHIC VARIABLES

Age, educational status, marital status, family monthly income, occupation.

Data was collected using socio-demographic Performa and structured questionnaire to assess the risk factors of osteoporosis among premenopausal women through self-report method and data was analyzed using descriptive and inferential statistics.

III. RESULTS

Mean age of participants was 40.01 years + 2.64 years.

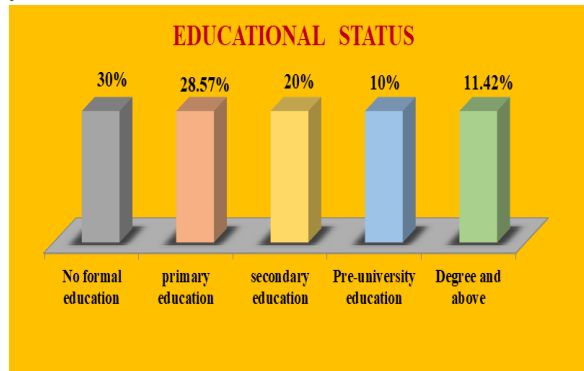


FIG.1 BAR DIAGRAM SHOWS PERCENTAGE WISE DISTRIBUTION OF PRE-MENOPAUSAL WOMEN ACCORDING TO THEIR EDUCATIONAL STATUS.

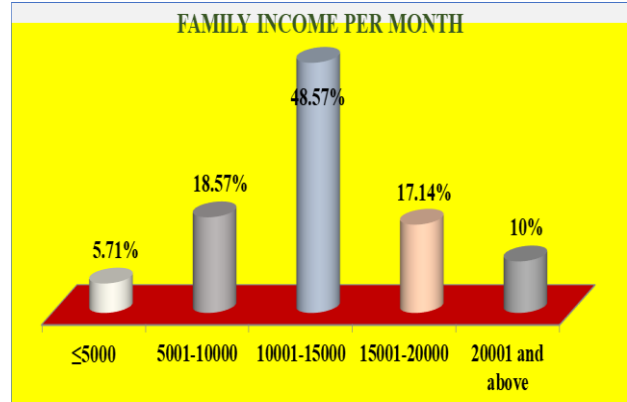


FIG.1.1 BAR DIAGRAM SHOWS PERCENTAGE WISE DISTRIBUTION OF FAMILY MONTHLY INCOME OF PRE-MENOPAUSAL WOMEN.

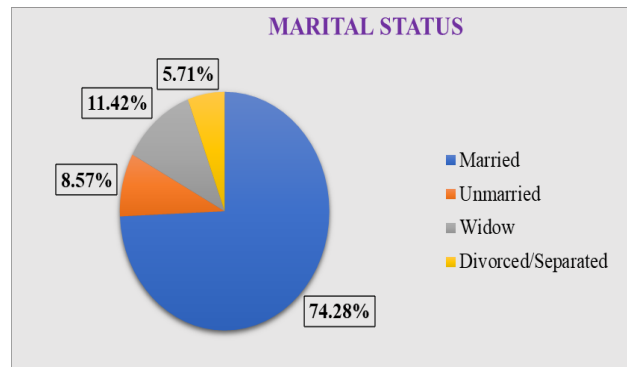


FIG.1.2. PIE DIAGRAM SHOWS PERCENTAGE WISE DISTRIBUTION OF MARITAL STATUS OF PRE-MENOPAUSAL WOMEN.

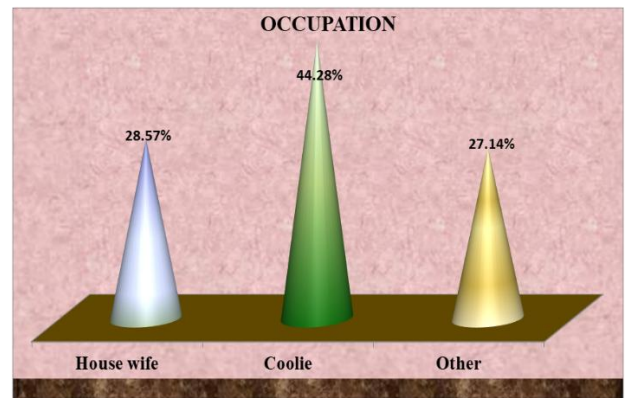


FIG. 1.3 BAR DIAGRAM SHOWS PERCENTAGE WISE DISTRIBUTION OF OCCUPATION OF PRE-MENOPAUSAL WOMEN.

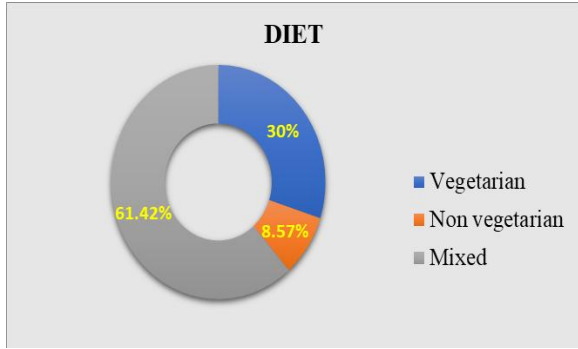


FIG.1.4 DOUGHNUT DIAGRAM SHOWS PERCENTAGE OF TYPE OF DIET OF PRE-MENOPAUSAL WOMEN.

Percentage wise distribution of items to which the chances of risk for osteoporosis among pre-menopausal women is identified, Majority (94.29%) of women feel tired after doing some physical work, about 91.43% women feel back pain and joint pain, 34.29% women’s level of physical activity was less than 30 minutes a day, 28.57% women were allergic to milk and dairy products, 25.71% chews betel with tobacco, 24.29% women’s parents were having curved back, 18.57% women were diagnosed with over reactive thyroid and parathyroid glands..14.29% women’s parents had broken bone after a minor fall. 11.43% women were taking calcium supplements, 10% were taking vitamin-D supplements, 8.57% women’s parents were diagnosed with osteoporosis, and about 4.29% were broken bone after a minor fall and were taking corticosteroid tablet for more than 3 consecutive months.

TABLE.1. LEVEL OF RISK OF OSTEOPOROSIS.

LEVELS	SCORES	PERCENTAGE
Low risk	≤5	85.7%
Medium risk	6-8	10%
High risk	≥9	4.29%

Risk of pre-menopausal women for getting osteoporosis showed that, women who scored more than 9(4.29%), are at high risk for getting osteoporosis. Women who scored 6-8(10%) are at medium risk and of who scored below 5(85.7%) are at low risk of getting osteoporosis.

TABLE.2 ASSOCIATION BETWEEN RISK SCORES OF PRE-MENOPAUSAL WOMEN WITH THEIR SELECTED SOCIO-DEMOGRAPHIC VARIABLES.

N=70

Sl. No.	Socio-demographic variables	Df	Chi-square value	Table value	Significance P value
1	Age	4	10.87	9.48	0.025*
2	Education	4	2.41	9.48	0.66
3	Family income per month	8	9.88	15.50	0.27
4	Marital status	8	4.59	15.50	0.80
5	Occupation	6	13.28	12.59	0.039*
6	Type of diet	4	3.39	9.48	0.49

Significant $\alpha=0.05$

The findings regarding association of risk for osteoporosis scores with the socio-demographic variables of pre-menopausal women revealed that a significant association was found between risk of osteoporosis and age ($\chi^2=10.87$) and occupation ($\chi^2=13.28$, $p<0.05$) of premenopausal women.

IV. DISCUSSION

Mean age of participants was 40.01 years + 2.64 years. Risk of pre-menopausal women for getting osteoporosis showed that, women who scored more than 9(4.29%), are at high risk for getting osteoporosis. Women who scored 6-8(10%) are at medium risk and of who scored below 5(85.7%) are at low risk of getting osteoporosis.

Similar descriptive exploratory study was conducted to assess the prevalence and related risk factors of osteoporosis among peri-menopausal women between 35-45 years, working in selected colleges of D.Y.Patil Vidyapeeth, Pune. A descriptive and analytical statistics were used to analyze the data. 52.6% of the peri-menopausal women had low risk (score 0-5), 46.8% of them had moderate risk (score 6-12) and 0.6% of them had high risk (score 13-19) for osteoporosis.¹²

The findings regarding association of risk for osteoporosis scores with the socio-demographic variables of pre-menopausal women revealed that a

significant association was found between risk of osteoporosis and age ($\chi^2=10.87$) and occupation ($\chi^2=13.28$, $p<0.05$) of premenopausal women. This study is supported by; a cross-sectional study conducted to determine the prevalence and related risk factors of osteoporosis in peri- and postmenopausal Indian women. A sample of 200 peri and postmenopausal women was taken. The results showed that 46.8% of the women in Group I and 33% of the women in Group II had low physical activity and there was no statistically significant difference in sunlight exposure between the groups. Multiple logistic regression analysis showed that age, exercise, menopause, and low calcium diet acted as significant predictors of low bone density.¹³

V. CONCLUSION

Study reveals that; most of the women found to be having low risk for getting osteoporosis. Prior awareness as regards osteoporosis can make women aware of potential health problems associated with ageing.

VI. RECOMMENDATIONS AND IMPLICATIONS

IMPLICATIONS FOR NURSING PRACTICE

- Nursing personnel should develop and improve the knowledge about osteoporosis among premenopausal women.
- Nurses should educate women and make them too aware about risks and complications of osteoporosis.
- Nurses who are working in community health settings should provide information to public about causes and how to manage the condition.

IMPLICATIONS FOR NURSING EDUCATION

- Nursing students should receive adequate information about osteoporosis disease condition and prevailing risk factors of the condition.
- Strengthen the curriculum for nurses to extend their knowledge and skills.
- Nursing students should identify the symptoms through the maintenance of good interpersonal relationship.

NURSING RESEARCH

- Nurses should conduct researches to improve the quality of nursing care.
- Encourage further research to be conducted on knowledge and risk factors of osteoporosis.
- Disseminate the findings of research through conferences, seminars and publishing in nursing journals.

RECOMMENDATIONS

The following studies can be undertaken to strengthen research:

- A similar study can be conducted with increase in sample size.
- A similar study can be conducted among postmenopausal women.
- A comparative study can be conducted between pre-menopausal women and post-menopausal women.
- An experimental study can be conducted on effectiveness of calcium diet among pre-menopausal women.

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