

# Risk Factors of Osteoporosis among Post Menopausal Women

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## ABSTRACT

**Introduction:** Osteoporosis amongst post-menopausal females is regarded as an important public health matter associated with significant socioeconomic burden and morbidity. It is generally divided into primary type and secondary type depending upon its underlying causation. The present study was conducted with the aim to determine the risk factors of osteoporosis amongst postmenopausal women reporting to the Hospital.

**Material and methods:** The present cross sectional survey was conducted amongst 270 post-menopausal females reporting to the Hospital for a period of 1 year. It was a multiple choice questionnaire in which the subjects were made to select the most related terms. The variables in the questionnaire had information regarding exercise, family history, alcohol and smoking history etc. Student t test was used for the purpose of comparison. Probability value of less than 0.05 was considered significant.

**Results:** The present study was conducted using 270 subjects. The mean age of the study subjects was 59.76±9.82 years and the mean duration of menopause was 8.96±6.21 years. There were 20.7% subjects with osteoporosis, 27.3% with osteopenia and 30% normal subjects indulged in regular exercise. There were only 0.9% subjects with osteopenia that had a habit of smoking

**Conclusion:** Osteoporosis is increasing at an alarming rate amongst post menopausal women. The prime reason behind it is the diagnosis at later stage and very subjects are aware about it.

**Keywords:** Alcohol, Menopausal, Osteoporosis, Smoking.

## INTRODUCTION

Osteoporosis amongst post-menopausal females is regarded as an important public health matter associated with significant socioeconomic burden and morbidity.<sup>1,2</sup> It is a kind of skeletal disease, which is characterized by weak bones, leading to increased chances of fractures.<sup>3</sup> It is generally divided into primary type and secondary type depending upon its underlying causation.<sup>4,5</sup> The prevalence and impact of osteoporosis varies amongst different nations due to difference in the availability of resources and population variation. The incidence of fracture and prevalence increases with advancing age.<sup>6</sup> This condition has affected more than 75 million subjects in United Nations, Japan, and Europe. Similar to coronary cardiac disorder, the estimated long-term risk of vertebral, hip, and forearm fracture is around 40%.<sup>7</sup> Osteopenia is yet another public health issue, in which is associated with content of mineral and protein. In this disease, it is reduced within the bone tissue; however, this disorder is less severe as compared to osteoporosis. Postmenopausal osteoporosis is a chronic disorder that needs proper planned

chronic management protocol.<sup>8</sup> But since this condition produces little clinical features therefore it goes undiagnosed until fracture happens.<sup>9</sup> In these subjects BMI and bone mineral density should be measured for early diagnosis and preventive measures should be initiated at the earliest.<sup>10</sup> Identification of risk factors for osteoporosis risk factors can also help health care physicians in detecting subjects that are at high risk. The present study was conducted with the aim to determine the risk factors of osteoporosis amongst postmenopausal women reporting to the institute.

## MATERIAL AND METHODS

The present cross sectional survey was conducted amongst 270 post-menopausal females reported to Hospital for a period of 1 year. The study was conducted in a private hospital and all the subjects were informed about the study and a written consent was obtained from all in their vernacular language. All the subjects were made to fill a predesigned and pre tested questionnaire that contained information related to demographics and lifestyle habits. Information regarding past drug and medical history was also contained in the questionnaire. It was a multiple choice questionnaire in which the subjects were made to select the most related terms. The variables in the questionnaire had information regarding exercise, family history, alcohol and smoking history etc. A thorough medical evaluation of all the subjects was also performed by trained physicians.

## STATISTICAL ANALYSIS

All the data obtained was arranged in a tabulated form and analyzed using SPSS software. Student t test was used for the purpose of comparison. Probability value of less than 0.05 was considered significant.

## RESULTS

The present study was conducted using 270 subjects. The mean age of the study subjects was 59.76±9.82 years and the mean duration of menopause was 8.96±6.21 years.

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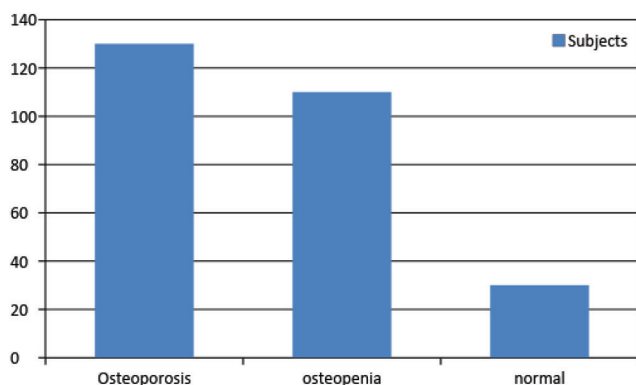
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Variable		Osteoporosis (n=130)	Osteopenia (n=110)	Normal (n=30)	P value
Exercise	Yes	27(20.7%)	30(27.3%)	9(30%)	>0.05
	No	103(79.2%)	80(72.7%)	21(70%)	>0.05
Smoking	Yes	0(0%)	1(0.9%)	0(0%)	>0.05
	No	130(100%)	109(99.1%)	30(100%)	>0.05
Alcohol	Yes	0(0%)	0(0%)	0(0%)	>0.05
	No	130(100%)	110(100%)	30(100%)	>0.05
Oral steroids	Yes	3(2.3%)	4(3.6%)	0(0%)	>0.05
	No	127(97.7%)	106(96.4%)	30(100%)	>0.05
Premature menopause	Yes	21(16.1%)	7(6.3%)	3(10%)	>0.05
	No	109(83.9%)	103(93.6%)	27(90%)	>0.05

**Table-1:** Comparison of risk factors involved in the present study.



**Graph-1:** Distribution of osteoporosis and osteopenia

Graph 1 illustrates the distribution of bone disorders amongst the study subjects. There were 130 (48.1%) cases of osteoporosis. Approximately 40.7% (n=110) subjects suffered from osteopenia. 30 females had no bone disorder. Table 1 shows the comparison of risk factors involved in our study. There were 20.7% subjects with osteoporosis, 27.3% with osteopenia and 30% normal subjects indulged in regular exercise. There were only 0.9% subjects with osteopenia that had a habit of smoking. There were no subjects with habit of alcohol consumption. 2.3% subjects with osteoporosis and 3.6% subjects with osteopenia had history of oral steroid consumption. Premature menopause was seen amongst 16.1% osteoporosis subjects, 6.3% osteopenia subjects and 10% normal subjects. There was no significant difference amongst the three groups as the p value was more than 0.05.

## DISCUSSION

Post-menopausal osteoporosis is a frequently observed healthcare issue, branded by the low bone mass, leading to amplified bone fragility amongst the postmenopausal females.<sup>11</sup> One chief part towards preventing and managing osteoporosis is the recognition of risk factors.<sup>12</sup> Studies have indicated a marked difference in the risk factors of osteoporotic fractures from country to country clearly indicating variety in factors like environmental or lifestyle factors responsible for osteoporosis.<sup>13</sup> However, amongst the Caucasian population, risk factors responsible for osteoporosis are well documented. There are limited studies indicating the diversity of osteoporosis amongst the Asian subjects, whose lifestyle and environmental factors are different from the Western subjects.<sup>14</sup> According to study

conducted by Habiba et al in the year 2002 amongst females of Peshawar around 75.3% of women were predisposed to osteoporosis.<sup>15</sup> Weight-bearing physical activities that are done against gravity like weight training, climbing and walking help in maintenance of strong bones and are required for bone remodeling.<sup>16</sup> As per the present study, there were 20.7% subjects with osteoporosis, 27.3% with osteopenia and 30% normal subjects indulged in regular exercise. There were only 0.9% subjects with osteopenia that had a habit of smoking. There were no subjects with habit of alcohol consumption. 2.3% subjects with osteoporosis and 3.6% subjects with osteopenia had history of oral steroid consumption. Premature menopause was seen amongst 16.1% osteoporosis subjects, 6.3% osteopenia subjects and 10% normal subjects. There was no significant difference amongst the three groups as the p value was more than 0.05. Age is the primary considerate in osteoporosis. A common factor amongst the studies show that increasing age is associated with augmented fracture risk and decreased BMD.<sup>17</sup> Siris (2001) conducted a observational study in USA indicating the same.<sup>18</sup> According to the present study, there were 130 (48.1%) cases of osteoporosis. Approximately 40.7% (n=110) subjects suffered from osteopenia. 30 females had no bone disorder. The mean age of the study subjects was 59.76 $\pm$ 9.82 years and the mean duration of menopause was 8.96 $\pm$ 6.21 years. The few drawbacks of the present study include small sample size and a risk incidence of fractures and other bone disorders were not evaluated. There was also no factor regarding the awareness of post menopausal women for osteoporosis. The disease was not known by a majority of females.

## CONCLUSION

Osteoporosis is increasing at an alarming rate amongst post menopausal women. The prime reason behind it is the diagnosis at later stage and very subjects are aware about it. There should be early identification of the risk factors such that the disease can be controlled at the initial stage.

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