Original Article

Frequency Of Osteopenia And Its Association With Marital Status And Parity Among Female Population Aged 18-60 Years

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ABSTRACT:

Osteoporosis and Osteopenia has become a frequent health concern among Pakistani women in recent times. Towards the end of puberty, the skeletal mass grows at double the rate. As women age, their bone density decreases and declines even further during menopause. There are limited studies dedicated to the association of osteopenia with marital status and parity. **Objectives:** To find the frequency of osteopenia and its association with marital status and parity among female population aged 18-60 years old **Methods:** It was a cross sectional as well as an analytical study which was conducted in Niaz Medicure Clinic Faisalabad. QUS machine was used to measure the BMD. Participants were selected on the basis of non-purposive sampling. Pregnant women and those with disability were excluded from the study. The ANOVA test was applied to the results and it was analyzed using the SPSS 24 software. **Results:** Osteopenia was relatively higher among unmarried females with the ratio of 68.4% than the married females with the ratio of 47.6%. About 30% married females had a normal BMD. Data analysis showed positive association of marital status with Osteopenia. The p value was found to be 0.001. High prevalence of Osteopenia was observed among both nulliparous and multiparous women. The results should 68.4% of the women with nullparity had Osteopenia while the ratio for women with 1-2 and 3-6 parity was 48% and 57.1% respectively. **Conclusions:** Osteopenia was frequent among married females. Osteopenia had a significant association between parity (0.005) and marital status (0.001).

INTRODUCTION

Osteoporosis and Osteopenia have become a major health concern in Pakistani women these days. Towards the end of puberty, the skeletal mass grows at double the rate [1]. It is important to increase bone health during puberty by forming an environment which allows attainment of maximum bone mass, maintaining this bone health throughout the life cycle and finally taking precautionary measures to prevent bone loss during after menopause

[2]. As women age, their bone density decreases and declines even further during menopause. In research done in Brazil, it was found out that about 50% of the female population had osteopenia [3]. According to different estimations, about 4% of the population of Pakistan is older than 65 years [4]. Greater life expectancy would mean increased risk of osteopenia as it is also one of the diseases associated with age [5]. Some of the local researches suggest 47 years to be the average age of menopause in Pakistan whereas the life expectancy of females is 64 years which is low compared to other countries in Asia (70 years) [6].

An annual seminar regarding Osteoporosis held in Pakistan found out that around 40.18 million people have osteopenia which include about 21 million women and nearly 19 million men. In addition to this, it was predicted that the ratio will increase up to almost 13 million by the year 2050 [5]. People living in Punjab have higher rates of osteopenia (41.2%) [7]. Similarly, a study carried out in India revealed that about 62% of the female population had osteopenia [8]. One of the types of research conducted among Kuwaiti women revealed that more than half the population had incidences of Low BMD of femur and spine (55.6%) [9]. The practice of not getting their BMD checked until it leads to a fracture is common among people living in developing countries [10]. There have been predictions that there would be a rise in the occurrence of fractures around the world and more than half of these incidences would occur in Asia by 2050 owing to its growing population [11].

Women tend to be at greater risk for osteoporosis than men because they gain lesser bone mass during adolescence and during aging, face a sharp decrease in estrogen levels in comparison with men [12]. According to a study, the frequency of osteopenia among women aged 50 and above is two times higher than men [13]. The low body weight among women is also a risk factor for bone fractures [12]. In Asia, the frequency of osteopenia is very high specifically among younger females [14]. It was previously believed that Osteopenia is an old age disease but now it has found its way into the younger generation. The growing rate of low-risk fractures is an alarming situation [15]. Osteopenia is becoming fairly common among females in Pakistan which requires immediate attention.

Methods:
A total of 323 females participated in this study. It was a cross sectional as well as an analytical study which was conducted in Niaz Medicure Clinic Faisalabad. QUS machine was used to measure the BMD. Pregnant women and those with disability were excluded from the study. The ANOVA test was applied to the results and it was analyzed using the SPSS 24 software.

Results:
The total number of female participants in this study was 323. The BMD of each participant was categorized as normal, osteopenia and osteoporosis. Osteopenia was relatively higher among unmarried females with the ratio of 68.4% than the married females with the ratio of 47.6%. About 30% married females had a normal BMD. Data analysis showed positive association of marital status with Osteopenia. The p value was found to be 0.001.
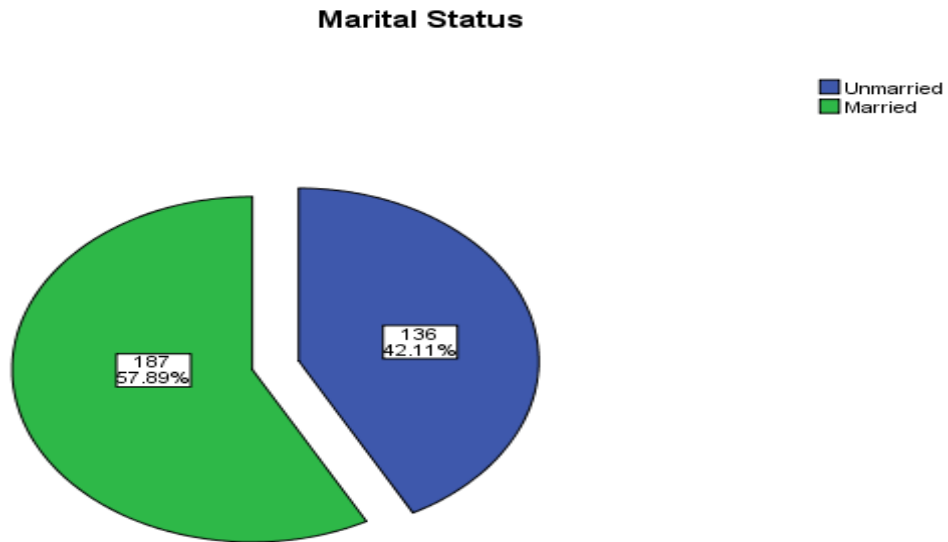
Marital Status

Figure 1: Descriptive statistics of marital status

High prevalence of Osteopenia was observed among both nulliparous and multiparous women. The results should 68.4% of the women with nullparity had Osteopenia while the ratio for women with 1-2 and 3-6 parity was 48% and 57.1% respectively.
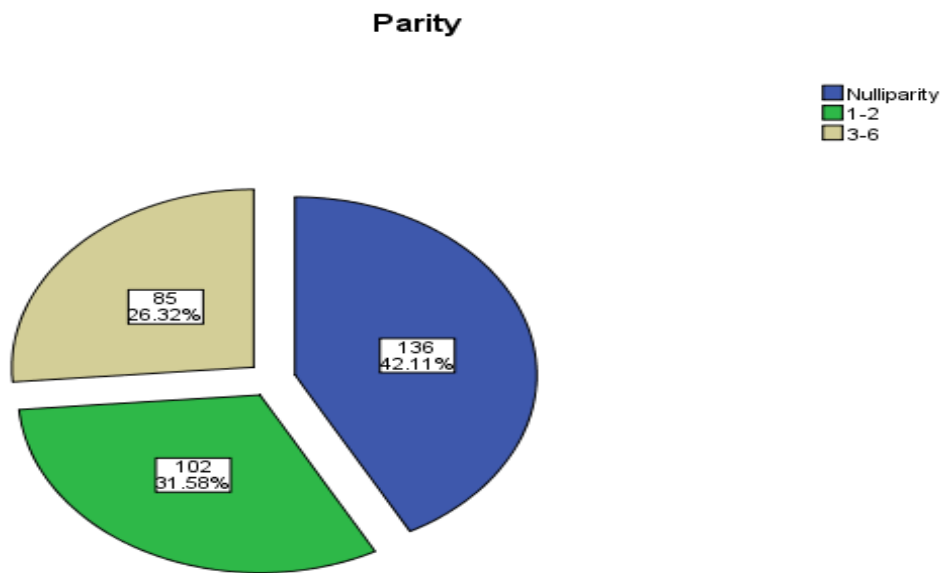
Parity

Figure 2: Descriptive statistics of parity

		BMD			Total
		Osteopenia	**Osteoporosis**	**Normal**	
Marital Status	***Unmarried***	93(68.4%)	22(16.2%)	21(15.4%)	136(100%)
	Married	89(47.6%)	43(23%)	55(29.4%)	187(100%)

Table 1: Bone Mineral Density with respect to marital status

Chi-square = 14.389
P-value = 0.001 (Significant)

		BMD			Total
		Osteopenia	**Osteoporosis**	**Normal**	
Parity	*Nullparity*	93 (68.4%)	22 (16.2%)	21 (15.4%)	136(100%)
	1-2	49 (48.0%)	22 (21.6%)	31 (30.4%)	102 (100%)
	3-6	40 (47.1%)	21 (24.7%)	24 (28.2%)	85 (100%)

Table 2: Association of Bone Mineral Density with parity

Chi-square = 14.71
P-value = 0.005 (Significant)

Discussion:

BMD results of unmarried and married females reflected that 68.4% unmarried females and 47.6% married females had osteopenia. The results showed that the marital status had statistically significant correlation with osteopenia (p=0.001) and is common among both groups. Indian researchers attributed osteopenia due to lack of knowledge about health and practices among young females in developing and underdeveloped countries [16]. Inmarried females, factors like age, multiparity, breastfeeding, unbalanced diet and others contribute to increasing risk of osteopenia and osteoporosis [17].

In this study it was observed that parity had a statistically significant association with osteopenia and osteoporosis (p =0.005). The incidence of Osteopenia increased with parity. However, women with null parity had greatest prevalence of Osteopenia since the number of women with null parity was greater than rest of the two in this study. This, however, doesn't take away from the fact that the ratio of Osteopenia and Osteoporosis was still high among women with 1-2 parity and 3-6 parity. Similar researches indicate towards parity greater than 3 being associated with low BMD levels [18]. According to a study, with increasing parity frequency of osteopenia and osteoporosis increased mainly due to lactation, lack of intake calcium supplements and milk intake according to researchers who conducted their research on adult women. (p< 0.001) [19]. Similar results were noted and frequency of osteopenia was higher than those with parity. It was also observed that the incidence of Osteopenia among females with 3 to 5 children was 2.89 times higher than those females who had less than 3 children [20].

CONCLUSIONS:
Ostopenia has been significantly associated with marital status and parity.

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