

## Research Article

# A study on knee joint osteoarthritis among the women aged above 40 years, residing in the urban field practice area at tertiary care centre, Bangalore, Karnataka, India

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## ABSTRACT

**Background:** Osteoarthritis (OA) is a chronic degenerative joint disease. Prevalence of knee osteoarthritis is reported to increase in females during premenopausal age and remains high throughout menopause. The Indian elderly population has increased to 8.6% in 2011 census, with life expectancy of 68.2 years. This has led Indian women to live with problem of osteoarthritis for long time as compared to other countries. Osteoarthritis is also associated with decreased physical activity and in turn affecting health related quality of life. Hence this study is taken up to estimate the prevalence of osteoarthritis and to assess the treatment seeking behavior of women in the community.

**Methods:** A community based cross sectional study was conducted on 120 women above the age of 40 years from January to March 2015 in urban field practice area of BMCRI. Data collection was done by house to house visit. Information was collected by using a pre-tested, semi-structured questionnaire.

**Results:** The estimated prevalence of knee osteoarthritis among women aged 40 years and above was 55% (66). Out of 66 women who had osteoarthritis 68.2% were currently on treatment. We also found that 65.2% (43) of the women had difficulty in doing daily routine activities.

**Conclusion:** The high prevalence of knee osteoarthritis is due to majority of women is developing osteoarthritis at a younger age. This is leading to decrease in quality of life of women at a younger age group in the community.

**Key words:** Knee joint, Osteoarthritis, Prevalence

## INTRODUCTION

Osteoarthritis (OA) is a chronic degenerative joint disease. The development of osteoarthritis is dependent on age, sex, genetic predisposition and previous trauma to the joint and abnormal mechanical forces caused primarily by obesity. Biochemically, there is an imbalance in the enzyme of cartilage degradation and

cartilage regeneration that is involved in pathogenesis of osteoarthritis.<sup>1</sup>

Prevalence of Knee osteoarthritis is reported to increase in females during premenopausal age and remains high throughout menopause. The reason for this is revealed in many studies that, loss of oestrogen at the time of menopause increases a woman's risk of getting osteoarthritis.<sup>2</sup>

Average menopausal age in Indian women is 46.3 years as compared to 51 years in western countries.<sup>3</sup>

The Indian population is projected to age faster than the populations of countries around the world. The Indian elderly population accounted for 7.4% of total population in 2001 census. This figure increased to 8.6% in 2011 census. It is further projected to rise to 11.1% by the year 2025; women tend to live longer than men, with life expectancy of 68.2.<sup>4</sup>

Increase in life expectancy, aging population and gender disparities have led Indian women to live with problem for long time as compared to other countries. This predisposes Indian women to the risk of developing osteoarthritis at an earlier age compared to their western counterparts.

Osteoarthritis of the knee is very common in the women and 25.7% of women are in the age group 40 to 80 years. Apart from being a major contributor of pain, it is also associated with decreasing physical activity, and may lead to limitation of one's independence and affect health related quality of life.<sup>5</sup> and also leads to loss of productivity.

Hence it's very much necessary to improve knowledge and awareness about osteoarthritis among women. Furthermore, it is important to know treatment-seeking behavior of women about osteoarthritis to plan interventions for its prevention and management.

Therefore, this study was taken up to estimate the prevalence of osteoarthritis and also to assess the treatment seeking behavior of women aged above 40 years in urban field practice area of Bangalore Medical College and Research Institute.

Objectives of the study are to study the prevalence of osteoarthritis of knee joint among women and to study the treatment seeking behavior of women with osteoarthritis.

## METHOD

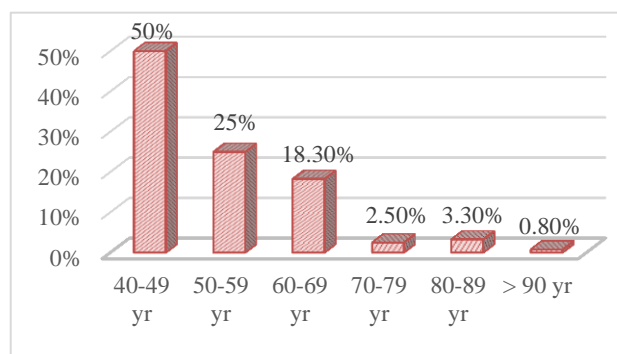
A community based cross sectional study was conducted on 120 women above the age of 40 Years from January to March 2015 in urban field practice area of BMCRI. Data collection was done by house to house visit with the help of Link workers. Information was collected by using a pre-tested, semi-structured questionnaire after obtaining informed oral consent. Relevant data was collected. Osteoarthritis was diagnosed by using clinical criteria given by American College of Rheumatology for diagnosis of Idiopathic Osteoarthritis of knee joints. Data was analysed using Epi info version 7. Descriptive statistics in the form of percentages, tables and charts are used wherever necessary.

American College of Rheumatology criteria for classification of idiopathic osteoarthritis of knee joints<sup>5</sup>

1. Knee pain + 5 other symptoms and signs.
2. Age > 40 years
3. Stiffness < 30 min
4. Crepitus
5. Bony tenderness
6. Bony enlargement
7. No palpable warmth

## RESULTS

In our study mean age of the participants were 52.09±11.05 years, majority (50%) were in the age group of 40-49 Years, followed by 25% who were in the age group of 50-59 years.



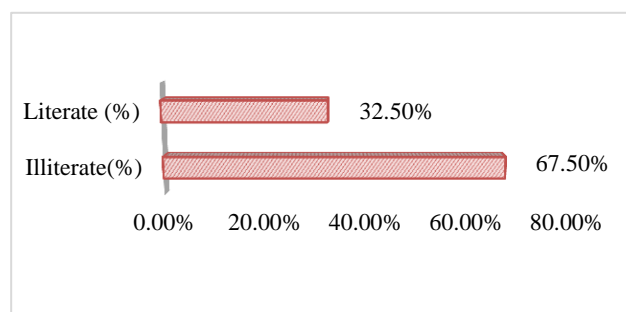
**Figure 1: Depicting age wise distribution of study participants.**

Out of 120 study participants, 67.50% were illiterate and 32.50% were literates as depicted in Figure 2. Among the study participants 67.50% were housewives and 32.50% of women were working. Majority of the study participants (57.50%) belong to upper lower class, followed by 22.50% belonging to lower middle and 20% belonging to upper middle according to modified Kuppuswamy scale.

Based on American College of Rheumatology criteria for classification of idiopathic osteoarthritis of knee joints, The estimated prevalence of knee osteoarthritis among the study participants aged above 40 Years was found to be 66 (55%).

As per the criteria, 3 out of 120 (69.16%) had knee pain as a presenting complaint, tenderness was present in 66 (55%) individuals, followed by crepitation's and bony enlargement were found in 38 and 22 individuals respectively (31% and 18%).

Estimated prevalence of knee osteoarthritis among women aged 40 Years in our study was 55%. Prevalence of knee osteoarthritis according to age group as illustrated in Table 1 which shows that 26 (43.3%) individuals in age group of 40-49 years had osteoarthritis, followed by 19 (63.3%) women who were in age group of 50-59 years had knee osteoarthritis.



**Figure 2: Illustrating literacy status of participants.**

**Table 1: Prevalence of KOA according to age groups.**

Age group	Osteoarthritis		Total
	Yes	No	
40-49 years	26 (43.3%)	34 (56.7%)	60
50-59 Years	19 (63.3%)	11 (36.7%)	30
60-69 Years	14 (63.6%)	8 (36.4%)	22
70-79 Years	3 (100%)	0 (0%)	3
80-89 Years	3 (75%)	1 (25%)	4
≥ 90 Years	1 (100%)	0 (03%)	1
	66 (55%)	54 (45%)	120 (100%)

In our study we found that Prevalence of osteoarthritis was higher among illiterate women 42 (52.5%) and it was also found to be higher among women belonging to upper lower socioeconomic class 36 (55.2%) as per modified Kuppuswamy scale as shown in Table 2.

**Table 2: Prevalence according to SES\*.**

SES	Diagnosis		Total
Upper middle	13 (54.2%)	11 (45.8%)	24(20%)
Lower middle	17 (63%)	10 (37%)	27(22.5%)
Upper lower	36 (52.2%)	33 (47.8)	69(57.5%)
Total	66 (55%)	54 (45%)	120(100)

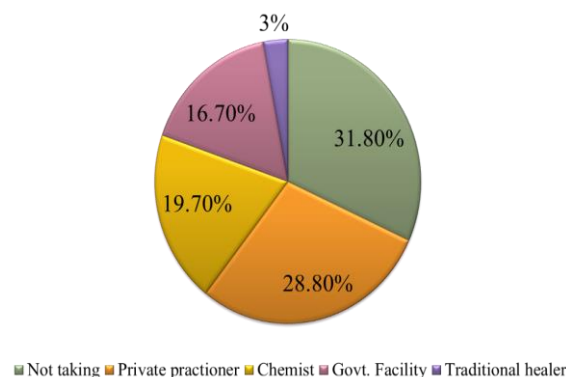
There was significant association between prevalence of knee osteoarthritis and BMI of study participants ( $p=0.04$ ). It was found that 55.4% (46) of women who were obese were found to have knee osteoarthritis, followed by which 57.7% (15) of women were over weighted.

Out of 66 women who had osteoarthritis 68.2 % were currently on treatment, out of which 16.70% were receiving treatment from government facility, 28.80% from private practitioners and 19.70% and 3% from chemist and traditional healers respectively. Among the

study participants 31.80% did not receive any treatment as depicted in Figure 3.

**Table 3: Association between the BMI and OA.**

BMI	Diagnosis		Total
Normal	5(45.5%)	6(54.5)	11(9.2%)
Over weight	15(57.7%)	11(42.3%)	26(21.6%)
Obese	46(55.4%)	37(44.6%)	83(69.2%)
Total	66(55%)	54(45%)	120(100%)



**Figure 3: Depicting the treatment seeking behavior of knee osteoarthritis affected individuals.**

4 out of 66 women who were diagnosed to have knee osteoarthritis had trauma to knee joint (80%).

In our study we found that there was a significant association between osteoarthritis and activities of daily living ( $\chi^2=38.7$  df- 1  $p<0.001$ ). From Table 5 we can depict that 43 (65.2%) of women who had knee osteoarthritis had difficulty in carrying out her daily routine work.

**Table 4: Showing the relation between OA and trauma to knee.**

H/O trauma	Diagnosis		Total
Yes	4 (80%)	1 (20%)	5 (4.2%)
No	62 (53.9%)	53 (46.1%)	115 (95.8%)
Total	66 (55%)	54 (45%)	120 (100%)

**Table 5: Relation between the OA and affecting daily work.**

Diagnosis	Affecting daily routine work		Total
Yes	43 (65.2%)	23 (34.8%)	66 (55%)
No	5 (9.3%)	49 (90.7%)	54 (45%)
Total	48 (40%)	72 (60%)	120(100%)

$\chi^2=38.7$  df- 1  $p<0.001$ .

## DISCUSSION

In our study the estimated prevalence of knee osteoarthritis among women aged 40 years and above was 55% as compared to a study conducted by Salve H et al from Delhi showed prevalence of 47.3%.<sup>8</sup>

Prevalence of osteoarthritis was higher among illiterate women 42 (52.5%) and it was also found to be higher among women belonging to upper lower socioeconomic class 36 (55.2%) as compared to study conducted by Salve H et al. from Delhi which showed that the prevalence of osteoarthritis was found to be high in illiterate women as compared to literate women and it was also found to be higher among low socioeconomic class 32 (55.2%).<sup>8</sup>

We also found that, among 66 women who had osteoarthritis, 68.2 % were currently on treatment and 16.70% were receiving treatment from government facility, 19.70% and 3% were seeking treatment from chemist and traditional healers respectively, 31.80% did not receive any treatment as compared to study conducted by Salve H et al. from Delhi which showed that out of 123 women with osteoarthritis only 53 (43%) were currently on treatment, out of which 40 (78.4%) are receiving treatment from government facility whereas remaining participants were seeking treatment from private practitioners, chemist and traditional healers. More than half of women (57%) who were suffering from osteoarthritis did not seek any kind of treatment.

In our study we also found there was significant association between prevalence of knee osteoarthritis and BMI of study participants ( $p=0.04$ ) and also there was a significant association between osteoarthritis and activities of daily living ( $\chi^2=38.7$ ,  $df=1$ ,  $p<0.001$ ).

## CONCLUSION

In our study we conclude that 120 women were interviewed and 83 individuals were examined, Majority were illiterates and house wives belonging to socio economic status of upper lower class. The estimated prevalence of knee osteoarthritis among the study participants aged 40-50 years was 55%, followed by 63% of women who were in the age group of 50-70 years. Maximum population was seeking treatment from private facilities and chemist and few of the participants had belief in faith healers. Hence we can conclude that majority of women are developing osteoarthritis at a younger age and leading to decrease in quality of life in community. Thus, osteoarthritis is a major public health issue.

The major limitation of this study was that the author used clinical criteria with sensitivity of 95% and specificity of 69% for diagnosis of osteoarthritis because of limited availability radiological and laboratory services in this community and a small sample size.

There is need for immediate attention toward this issue in the form of estimation of problem of osteoarthritis and various risk factors responsible for the development of osteoarthritis especially in premenopausal women in the country. There is need to take appropriate steps in order to increase awareness regarding osteoarthritis in the community regarding importance of daily exercise, proper positioning of the knee joint during daily activities and also control over the other modifiable known risk factors such as obesity. Adequate treatment and rehabilitative services in the form of physiotherapy and advanced therapy such as joint replacement could be made more easily available in affordable cost for patients with osteoarthritis in the community.

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