Pattern of osteoarthritis among ethnic people residing hilly area: a cross sectional ethnic community based study

Abstract

Background: Osteoarthritis (OA) a common disease of aged population and one of the leading causes of disability. Osteoarthritis affects specific joints more than others in certain ethnic groups.

Objective: The aim of this study was to assess the pattern of osteoarthritis among ethnic people in Khagrachari of Bangladesh.

Methods: This was a descriptive type of cross sectional community based study. A pre-tested structured questionnaire was used to collect the data among conveniently selected 200 samples. History of patient, X-ray and physical examination was used to diagnoses osteoarthritis. Data were entered and analyzed by using SPSS software. Verbal consent was taken from community Head as well as respondents before initiation of interview.

Results: Maximum was in the age group of 51-60 years. Forty two percent were illiterate. About 30% were housewives and 32% were engaged in agriculture. Among the respondents 58% were from middle income group. Knee was the most affected (85%) organ of osteoarthritis. Most of the respondents (42%) suffered >12 month pain. Almost all of them feel pain during walking long distance.

Conclusion: Most prevalent age to develop osteoarthritis was above 50 year. Most frequent affected joint was knee. Hill climbing may be aggravated factor.

Keywords: Pattern of osteoarthritis, ethnic people, hilly area

Introduction

Osteoarthritis (OA) is one of the most prevalent conditions resulting to disability particularly in elderly population. OA is the most common articular disease of the developed world and a leading cause of chronic disability, mostly as a consequence of the knee OA and/or hip OA. The economic costs of OA are high, including those related to treatment, for those individuals and their families who must adapt their lives and homes to the disease, and those due to lost work productivity. The prevalence of OA increases with age and generally affects women more frequently than men. It has been estimated that the percentage of people aged 65 years or over in Asia will more than double in the next two decades, from 6.8% in 2008 to 16.2% in 2040. In most of the developed world, demographic change was a gradual process following steady socioeconomic growth over several decades. In many Asian countries, the change is being compressed into two or three decades. For example, during the period of 2008-2040, it is estimated that Singapore will increase the proportion of people aged 65 and over by 316%, India by 274%, Malaysia by 269%, Bangladesh by 261% and the Philippines by 256%. Apart from aging, there is much evidence from mostly North American or European cohorts that obesity or heavy occupational physical activity, such as carried out by many people in rural communities within the Asian region, are clear risk factors for symptomatic knee and hip OA. Although ample studies have been conducted on knee osteoarthritis worldwide, but scanty data is available in ethnic communities in Bangladesh.

Methodology

It was a descriptive type of cross sectional study. Patients were selected from different clinics/hospitals/physiotherapy center attending for treatment in Khagrachari sadar upazilla. All suspected cases of OA were included in the study. Non probability convenient sampling was used to collect data. Sample size was 200 and all were Tripura. The duration of the study was 6 months and conducted from December 2014 through May 2015. Data were collected by pre tested structured questionnaires and in face to face interview. Diagnosis of osteoarthritis was confirmed by medical records, radiological examination as well as physical examination. After collection of data, all responses checked for their completeness, correctness and internal consistency in order to exclude missing or inconsistent data. Corrected data was entered into the computer. The data was analyzed by using the statistical software namely SPSS (Statistical Package for Social Science).

Results

Maximum were in the age group of 51-60 years. Male and female distribution was 54% and 46%. Forty two percent were illiterate. About 30% were housewives and 32% were engaged in agriculture. Among the respondents 35%, 58% and 7% were from lower income group (<10000), 58% middle income group (10001-20000) and 5% high income group (>20000). All were Tripura (Table 1 & 2) (Figures 1-3).

![Affected joint](http://medcraveonline.com/images/100.png)

**Figure 1** Affected joint (n=200).
**Table 1** Socio-demographic characteristics of respondents (n=200)

| Variables          | Number | Percentage |
|--------------------|--------|------------|
| **Age (in years)** |        |            |
| 21-30              | 8      | 4          |
| 31-40              | 18     | 9          |
| 41-50              | 34     | 17         |
| 51-60              | 80     | 40         |
| >60                | 60     | 30         |
| **Sex**            |        |            |
| Male               | 108    | 54         |
| Female             | 92     | 46         |
| **Education**      |        |            |
| No schooling       | 84     | 42         |
| Primary            | 52     | 26         |
| Secondary          | 25     |            |
| Higher-Secondary & Above | 14 | 7 |
| **Occupation**     |        |            |
| Housewife          | 60     | 30         |
| Agriculture        | 64     | 32         |
| Business           | 52     | 26         |
| Others             | 24     | 12         |
| **Ethnicity**      |        |            |
| Tripura            | 200    | 100        |
| **Monthly Income (BDT)** | | |
| Lower Income       | 70     | 35         |
| Middle Income      | 116    | 58         |
| High Income        | 14     | 7          |

Knee was the most affected (85%) organ of osteoarthritis followed by hip (12%) and both knee & hip (3%).

**Discussion**

Osteoarthritis (OA), the most common form of arthritis, can affect many different joints in the body, and may be silent (found on x-rays only) or symptomatic (causing symptoms like pain, aching, or stiffness on most days). These investigators wondered if there might be a pattern (called phenotype) of which joints are affected. A study examined whether the patterns of symptomatic OA involving 4 joint sites (hands, knees, hips, and lumbosacral spine) might differ by race and sex. In a sample of 1,650 participants in the Johnston County Osteoarthritis Project (age 45 and older; 36% men; 32% African American) analysts found that overall 11% had symptomatic hip OA, 13% had symptomatic hand OA, 25% had symptomatic knee OA, and 28% had symptomatic lumbosacral spine OA. When they examined patterns of multiple joint symptomatic OA, they found that women more often had hand involvement, men more often had lumbosacral spine involvement, African Americans more often had knee involvement, and Caucasians more often had hand involvement. These differences may need to be considered when researchers are defining multijoint, or generalized, OA. The present study found that knee was the most affected (85%) organ of osteoarthritis followed by hip (12%) and both knee & hip (3%). Those who did moderate type of activity, 63% of them suffered from osteoarthritis followed by sedentary activity (32%) and hard worker (5%). The present study found more than half (54%) of respondents did vigorous hill climbing activity. Most of the patients in the study were in the age group of 40 to 59 years. There was a significant positive association between age, radiographic severity, and pain severity. This finding supports the fact that OA is a common health problem in middle and old age and this is consistent with previous studies. Age is considered as a strong risk factor for KOA, but the underlying mechanism remains obscure. Whereas tensile stiffness of knee articular cartilage and proteoglycan content decrease with age advanced glycation end products and cartilage turnover markers increase with age. These biomechanical and biochemical changes in articular cartilage may have a role in age related OA, but age related morphological alterations in articular cartilage and subchondral bone are potential further explanations for OA. But present study found that most of the patients (40%) were suffering from osteoarthritis in 51-60 years age group.

**Conclusion**

Most prevalent age to develop osteoarthritis was above 50 year. Most frequent affected joint was knee. Hill climbing may be an aggravating factor.

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**Conflicts of interest**

Authors declare there is no conflicts of interest.
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