

Prevalence of Osteoarthritis among Ethnic Communities in Bangladesh

Abu Sadath MM Islam¹, Md Belayet H Akanda², Md Bakhtiar³, Md Monoarul Haque^{4*}, Ropak Chandra Roy⁵, Atia Arefin⁶ and Abu Saleh Musa⁷

¹Consultant, Physiotherapy, Mirpur Digital Diagnostic Center, Dhaka, Bangladesh

²Physiotherapist, Community Based Medical College Hospital, Mymensingh, Bangladesh

³Senior Research Officer, Exercise Physiology, Bangladesh Krira Shikkha Protishtan, Bangladesh

⁴Publication Secretary, Bangladesh Physiotherapy Association, Bangladesh

⁵Lecturer of Physiotherapy, Gonoshasthya Samajvittik Medical College, Bangladesh

⁶Master of Public Health, North South University, Bangladesh

⁷Assistant Professor, Gonoshasthya Samajvittik Medical College, Bangladesh

***Corresponding Author:** Md Monoarul Haque, Publication Secretary, Bangladesh Physiotherapy Association, Bangladesh.

Received: March 25, 2016; **Published:** April 21, 2016

Abstract

Osteoarthritis affects specific joints more than others in certain ethnic groups. Genetic differences in joint structure may account for some differences found among ethnic groups. Osteoarthritis is also among the most common causes of pain and disability in older people. The aim of the study was to assess prevalence of osteoarthritis among ethnic communities in Bangladesh. A cross sectional descriptive study was done among purposively selected 384 ethnic people from hilly area of Bangladesh. History of patient, X-ray and physical examination was used to diagnoses osteoarthritis. Mean±SD age of respondents was 53.71±1.20 years. Most of them were house wife 34.1% followed by service 27.1%. About 89.6% respondents had no osteoarthritis and 10.4% respondents were diagnosed as osteoarthritis. About 72.7%, 15.1%, 6.5% and 5.7% of respondents were Chakma, Marma, Tripura and Tanchyanga respectively. Most of the respondents (87%) suffered from knee osteoarthritis and 13% from hip osteoarthritis. No significant association was found between age group and osteoarthritis. The prevalence of osteoarthritis among ethnic communities is increasing trend. To lead healthy and productive life every ethnic people should conscious about osteoarthritis.

Keywords: Osteoarthritis; Ethnic Community

Introduction

Osteoarthritis (OA) is the most prevalent of the chronic rheumatic diseases and is a leading cause of pain and disability in most countries worldwide [1]. The prevalence of OA increases with age and generally affects women more frequently than men. Most of the OA disability burden is attributable to the hips and knees [2]. Osteoarthritis of the knee and non-specific low back pain (NSLBP) are among the most common rheumatic disorders in the Asia-Pacific region. Studies have shown the prevalence of knee osteoarthritis (KOA) to be 7.50%, 10.9% and 13.6% in China [3]. In India and Bangladesh, it is reported to be 5.78% and 10.20% respectively [4,5]. A study in Pakistan has shown that 28.00% of the urban and 25.00% of the rural population have knee osteoarthritis (KOA) [6]. Although ample studies have been conducted on knee osteoarthritis worldwide, but scanty data is available in ethnic communities in Bangladesh. The extensive literature search did not show any local study exploring frequency of factors associated with osteoarthritis. The results of this study would definitely make a foreground for future studies to be conducted on developing preventive strategies and ultimately reducing the morbidities and mortalities associated with osteoarthritis.

Methods

An observational analytical study with cross-sectional design was conducted to assess prevalence of osteoarthritis among ethnic communities in selected area of Bangladesh. Patients were selected from different clinics/ hospitals/ physiotherapy center attending for

treatment in Rangamati Sadar Upazilla. Duration of this study was three year (July 2011 to June 2014) protocol rising was done in the first month other activities including literature review, budget, training, questionnaire, pretesting and data collection were done from July 2011 to May 2012 rest of time was required for data entry, processing, analysis and report writing. The detail work schedule has shown in annexure section. All patients with pain in spine, hip, neck, knee and ankle joint who were registered and taken physiotherapy treatment in OPD of selected centers/ hospitals during the period of data collection. All suspected cases of OA were included and very sick, mentally retarded, pregnant and not willing to participate in the study were excluded. Sample size was 384. Non probability convenient sampling was used to collect data. All the patients who attendant the health care center. Data were collected by pre tested semi structured questionnaires and in face to face interview. Information about clinical history, physical examination, radiological examination, life style along with socio demographic characteristics was also be obtained. The field work was conducted for 1 year. The respondents were selected consecutively who will meet the inclusion and exclusion criteria. Four assistant interviewers were trained for four days by the author. The training was consisted of lectures on how to fill up the questionnaires and mock interviews between participants. Pre-testing of questionnaire was performed to gather information about understand ability, time consumed by each question, consistency among related variables and acceptability and also to remove errors and ambiguities of data. After reviewing the outcome of pre-testing, changes were incorporated accordingly with the help of supervisor and co-supervisor. Data collection tool and instrument were a semi-structured questionnaire, Visual analogue pain scale (VAS), Medical records. Collection data was rechecked at the evening on the same day for accuracy. Sometime consultation taken by supervisor or co-supervisor. Data was analyzed by using appropriate statistical techniques. Computer technology (SPSS 17) version was used for classification, presentation and analysis of data.

Results

Variables	Number	Percentage
Age (in years)		
20-29	13	3.4
30-39	32	8.3
40-49	57	14.8
50-59	167	43.5
60-69	81	21.1
>70	34	8.9
Mean±SD	53.71±1.20	
Sex		
Male	234	61.0
Female	150	39.0
Occupation		
Housewife	131	34.1
Service	104	27.1
Business	66	17.2
Day labor	32	8.3
Farmer	32	8.3
Others	19	4.9
Monthly family income in BDT		
<10000	67	17.4
10001-20000	137	35.7

20001-30000	51	13.3
30001-40000	25	6.5
>40000	104	27.1

Table 1: Sociodemographic characteristics of respondents (n = 384).

Table 1 show that mean±SD age of respondents was 53.71±1.20 years. About 43.5%, 21.1% and 14.8% of study subjects' age was 50-59 yrs, 60-69 yrs and 40-49 yrs respectively. Male and female was 61% and 39% respectively. Most of them were house wife 34.1% followed by service 27.1%. About 35.7%, 27.1% and 17.4% respondent's monthly income was 10001-20000, >40000 and <10000 BDT.

Osteoarthritis	n	%
Present	40	10.4
Absent	344	89.6
Total	384	100.0

Table 2: Prevalence of osteoarthritis (n = 384).

Table 2 shows 89.6% respondents had no osteoarthritis and 10.4% respondents were diagnosed as osteoarthritis.

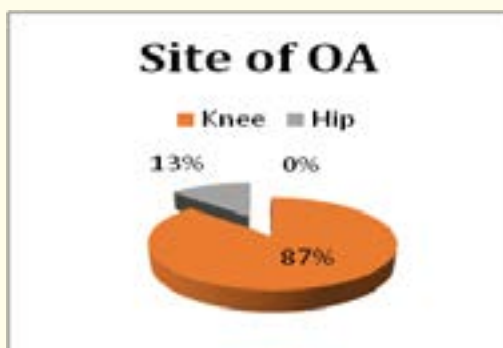


Figure 1: Site of osteoarthritis.

Figure 1 shows that most of the respondents (87%) suffered from knee osteoarthritis and 13% from hip osteoarthritis.

Ethnicity	Present	Absent
Chakma	29	250
Marma	6	52
Tripura	2	23
Tanchyanga	3	19
Total	40	344

Table 3: Distribution of osteoarthritis according to ethnicity.

Table 3 shows that 29 Chakma, 6 Marma, 2 Tripura and 3 Tanchyanga suffered from osteoarthritis.

Age category	Osteoarthritis		Chi-square	p value
	Present	Absent		
20-29	1 (0.3)	12 (3.1)	6.85	0.23
30-39	6 (1.6)	26 (6.8)		
40-49	6 (1.6)	51 (13.3)		
50-59	11 (2.9)	156 (40.6)		
60-69	12 (3.1)	69 (18.0)		
>70	4 (1.0)	30 (7.8)		
Sex				
Male	28 (7.3)	206 (53.6)	1.54	0.21
Female	12 (3.8)	138 (35.9)		
Occupation				
Housewife	9 (2.3)	122 (31.8)	6.35	0.27
Business	14 (3.6)	90 (23.4)		
Service	10 (2.6)	56 (14.6)		
Day labor	1 (0.3)	31 (8.1)		
Farmer	4 (1.0)	28 (7.3)		
Others	2 (0.5)	17 (4.4)		
Income				
<10000	7 (1.8)	60 (15.6)	3.24	0.51
10001-20000	16 (4.2)	121 (31.5)		
20001-30000	6 (1.6)	45 (11.7)		
30001-40000	0 (0)	25 (6.5)		
>40000	11 (2.9)	93 (24.2)		

Table 4: Association between sociodemographic conditions and osteoarthritis.

Table 4 shows that no significant association was found between age group and osteoarthritis, sex and osteoarthritis, occupation and osteoarthritis, income and osteoarthritis.

Physical activity	Osteoarthritis		Chi-square	p value
	Present	Absent		
Sedentary	10 (2.7)	101 (26.9)	4.18	0.12
Moderate	29 (7.7)	209 (56.6)		
Hard working	0 (0)	27 (7.2)		

Table 5: Association between physical activity and osteoarthritis.

Table 5 shows that no statistical significant association was found between osteoarthritis and physical activity.

Discussion

We have demonstrated differences in the prevalence of musculoskeletal symptoms among different ethnic minority groups in Bangladesh. It is reasonable to equate this practice based study with the population, because the great majority of people from ethnic minority communities are known to be registered with primary care practices [7]. Joint pain lasting for more than one month in the past month

was slightly more prevalent among ethnic minorities. The present study found that 89.6% respondents had no osteoarthritis and 10.4% respondents were diagnosed as osteoarthritis. Besides 29 Chakma, 6 Marma, 2 Tripura and 3 Tanchyanga suffered from osteoarthritis. Few studies of the prevalence of musculoskeletal symptoms among ethnic minority populations in the UK have been published.

Comparison is possible with results from other countries, although methodology and case definitions differ and the focus of some studies has been radiological abnormality rather than symptoms. Bremner *et al.* noted a similar prevalence of radiological osteoarthritis between a white British population and one from rural Jamaica, although they reported that symptoms and incapacity were lower among Jamaicans [8]. Gibson *et al.* found similar levels of joint disease in Pakistan and in white European populations [9]. In the USA, levels of self reported arthritis have been found to vary little by ethnicity [10] and musculoskeletal disability was similar in African- American and white populations [11]. A telephone study of acute back pain in North Carolina, USA, found a slightly lower prevalence in non-white

Comparison is possible with results from other countries, although methodology and case definitions differ and the focus of some studies has been radiological abnormality rather than symptoms. Bremner *et al.* noted a similar prevalence of radiological osteoarthritis between a white British population and one from rural Jamaica, although they reported that symptoms and incapacity were lower among Jamaicans [8]. Gibson *et al.* found similar levels of joint disease in Pakistan and in white European populations [9]. In the USA, levels of self reported arthritis have been found to vary little by ethnicity [10] and musculoskeletal disability was similar in African- American and white populations [11]. A telephone study of acute back pain in North Carolina, USA, found a slightly lower prevalence in non-white subjects [12]. My results are compatible with these studies in that we have shown only small differences in overall pain prevalence between ethnic minority and white populations. As far as we know, our finding of markedly increased prevalence of "pain in most joints" has not previously been reported. The difficulties associated with any study of this type mean that some caution must be expressed. Extrapolation outside the four ethnic groups studied is not possible. The response rate was far higher among south Asian subjects than among the African Caribbean community and, inevitably, the sample sizes in most age-sex groups were small, given the population age structure of ethnic minorities in the UK. There was good equivalence between interviews and questionnaires. Precise estimates of the effects of the administration method used and non-response were not possible, but there was no evidence of large systematic differences that might have altered prevalence estimates or odds ratios greatly. Also, case note analysis showed that responders and non-responders had a reasonably similar profile. We have used responders as the denominator population for prevalence estimates and so assumed that responders and non-responders had a similar prevalence of pain. I might have used the entire study group as the denominator, assuming that non-responders had no pain, but because pain prevalence between responders and non-responders appears similar, this would have underestimated the overall pain prevalence. However, it is still possible that there were some systematic differences between the different samples. Self reported pain is likely to have major cultural influences, but it is the symptoms that are presented in clinical consultations and differences in symptomatology which are worthy of note, even if the underlying objective morbidity is similar. Using the Townsend score to represent socioeconomic deprivation has limitations and other socioeconomic factors may contribute to the results. However, despite its limitations, this study presents important evidence of clinically significant differences among ethnic groups. Further research examining other ethnic minority populations in other locations would be valuable. It would also be of great interest to look more closely at the relation between symptoms and objective measures of morbidity, and at the phenomenon of widespread musculoskeletal pain among people from ethnic minority communities. There are several possible explanations for the differences in pain reporting by different ethnic groups. These include pain thresholds and the experience of pain, the effect of change of culture and migration, and mental health issues. Widespread pain might, for example, be an indication of mental distress and, possibly, migration, rather than ethnicity, is a key factor. A review of published reports of these issues has recently been carried out with an emphasis on South Asian subjects [13]. The authors of the review call for further work to investigate the extent and nature of musculoskeletal disease among ethnic minorities.

Conclusion

Osteoarthritis is one of the most common rheumatologic problems. The prevalence of osteoarthritis among ethnic communities is increasing trend. About 89.6% respondents had no osteoarthritis and 10.4% respondents were diagnosed as osteoarthritis. About 72.7%, 15.1%, 6.5% and 5.7% of respondents were Chakam, Marma, Tripura and Tanchyanga respectively. No statistical significant association was found between osteoarthritis and physical activity. No significant association was found between age group and osteoarthritis.

Bibliography

1. World Health Organization and World Health Report 2002. "Reducing Risks, Promoting Healthy Life". Geneva, WHO.
2. Australian Orthopedic Association. "Hip and Knee Arthroplasty". *National Joint Replacement Registry Annual Report* (2009).
3. Wigley RD., et al. "Rheumatic diseases in China: ILAR-China study comparing the prevalence of rheumatic symptoms in northern and southern rural populations". *Journal of Rheumatology* 21 (1994): 1484-1490.
4. Chopra A., et al. "The Bhigwan (India) COPCORD: methodology and first information report". *APLAR Journal of Rheumatology* 1 (1997): 145-151.
5. Haq SA., et al. "Prevalence of rheumatic diseases and associated outcomes in rural and urban communities in Bangladesh: a COPCORD study". *Journal of Rheumatology* 32 (2005): 348-353.
6. Farooqi A and Gibson T. "Prevalence of the major rheumatic disorders in the adult population of north Pakistan". *British Journal of Rheumatology* (1998): 491-495.
7. Rudat K. Black and minority ethnic groups in England: health and lifestyles. London: HEA, 1994.
8. Bremner JM., et al. "Degenerative joint disease in a Jamaican rural population". *Annals of the Rheumatic Diseases* 27 (1968): 326-332.
9. Gibson T., et al. "Knee pain amongst the poor and affluent in Pakistan". *British Journal of Rheumatology* 35 (1996): 146-149.
10. Anonymous. "Prevalence and impact of arthritis by race and ethnicity - United States". 1989-1991". *MMWR* 45 (1996): 373-378.
11. Jordan JM., et al. "Ethnic differences in self-reported functional status in the rural south: The Johnston county osteoarthritis project". *Arthritis Care & Research* 9 (1996): 483-491.
12. Carey TS., et al. "Acute severe low back pain. A population-based study of prevalence and care-seeking". *Spine* 21 (1996): 339-344.
13. Njobvu P., et al. "Pain amongst ethnic minority groups of south Asian origin in the United Kingdom: a review". *Rheumatology (Oxford)* 38 (1999): 1184-1187.

Volume 3 Issue 2 April 2016

© All rights reserved by Md Monoarul Haque., et al.