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Physical Medicine and Rehabilitation

Socio-Demographic Profile Analysis of Patients with Knee Osteoarthritis: A Study in a Tertiary Care Hospital in Bangladesh

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Abstract	Original Research Article

Background: Osteoarthritis (OA) is a degenerative joint disease which affects joint cartilage. It is the most common type of rheumatic disease which is a leading cause of disability. Because of its progressive as well as chronic nature, socio-economic impacts in many developing and developed countries are enormous. In Bangladesh, we have very limited research-based information regarding the socio-demographic status of patients with knee osteoarthritis. *Aim of the study:* The aim of this study was to prepare a socio-demographic profile of patients with knee osteoarthritis. *Methods:* This was a randomized clinical trial conducted among purposively selected 55 patients suffering from knee osteoarthritis (OA) attending at the Physical Medicine and Rehabilitation outpatient department, Dhaka Medical College and Hospital (DMCH), Dhaka, Bangladesh during July 2020 to June 2021. Proper written consent was taken from all the participants before data collection. All data were processed and analyzed by using MS Office and SPSS version 23. *Results:* According to the study, the male-female ratio was 1:2.2. We observed that, 35%, 38% and the rest 27% of participants were from ≤50-, 51-60- and 61-70-years' age groups respectively. Majority of the participants were homemakers which was 65%. In this study in analyzing the BMI (Kg/m2) of the participants we found that majority of the patients were with overweight status which was 55%. Then 27% were with normal BMI and the rest 18% were obese. As per the Kellgren-Lawrence grade distribution, 95% cases were with grade 2 whereas the rest 5% were with grade 3 status. Among all of our participants, in 56% right side was involved whereas in 44% involvement of left side was found. *Conclusion:* The frequency of knee osteoarthritis among overweight people was found higher in this study, Majority of the patients from a single profession may be considered as an indicator of involving one's working environment and posture of regular activities with knee osteoarthritis.
Keywords: Socio-demographic, Profile, Knee osteoarthritis, Kellgren-Lawrence grade.

INTRODUCTION

Osteoarthritis (OA) is a degenerative joint disease which affects joint cartilage and it is the most common type of rheumatic disease which is a leading cause of disability. Osteoarthritis (OA) is by far the most common form of arthritis characterized by focal loss of subchondral osteosclerosis, articular cartilage, osteophyte formation at the joint margin, and remodeling of joint contour with enlargement of affected joints [1]. The incidence of symptomatic knee osteoarthritis in Bangladesh was 0.9%; 0.8% in men and 1.1% in women. The prevalence of knee osteoarthritis in Bangladesh was more in urban affluent population (11.5%:6.3% in male and 15.9% in female) than urban slum (9.2%:10.4% in male and 7.8% in

female) and rural population (7.5%:6.4% in male and 8.5% in female) [2]. Patients with knee osteoarthritis tend to increase their physical limitations, pain and functional restrictions with disease progression. Thus, these individuals suffer from progressive increased impact on their activities of daily living, which leads to losses in labor relations, social life and sleeping quality, leisure, leading also to important decrease in their quality of life (QOL) [3]. The current standard of care for patients with symptomatic osteoarthritis (OA) includes oral anti-inflammatory drugs, topical anti-inflammatory gels, physical therapy, and intraarticular injections [4, 5]. On the other hand, nonsurgical treatments including exercise and weight loss are recommended due to poor symptomatic as well as functional outcomes with surgical [6]. Recent clinical data have demonstrated that, the anti-inflammatory and chondroprotective actions of HA reduce pain, from 4 to 14 weeks after injection, while improving patient function [7]. Osteoarthritis is associated with aging and is likely to affect joints that have been constantly exposed to stress throughout the year [8]. Knee osteoarthritis causes severe pain and disability in patients, thus interfering with daily activities. As a result, up to 80% patients have limitations in the move and 25% of them cannot even carry out their daily activities [9].

OBJECTIVE
General Objective:
To prepare a socio-demographic profile of patients with knee osteoarthritis.

Specific Objective:
To evaluate the BMIs of the participants. To assess the general clinical status of the participants.

METHODOLOGY
This was a randomized clinical trial conducted among purposively selected 55 patients suffering from knee osteoarthritis (OA) attending at the Physical Medicine and Rehabilitation outpatient department, Dhaka Medical College and Hospital (DMCH), Dhaka, Bangladesh during July 2020 to June 2021. During this intervention, 29 patients received single dose of high molecular weight HA and designed exercise program and the rest 26 patients received same exercise program only as treatment.

RESULT
This was a randomized clinical trial conducted among purposively selected 55 patients suffering from knee osteoarthritis (OA) attending at the Physical Medicine and Rehabilitation outpatient department, Dhaka Medical College and Hospital (DMCH), Dhaka, Bangladesh during July 2020 to June 2021. During this intervention, 29 patients received single dose of high molecular weight HA and designed exercise program and the rest 26 patients received same exercise program only as treatment. In this study, among total 55 participants, 17% were male whereas 38% were female. So female participants were dominating in number and the male-female ratio was 1:2.2. In analyzing the ages of the participants, we observed that, 35%, 38% and the rest 27% were from ≤50-, 51-60- and 61-70-years' age groups respectively. Majority of the participants were home makers which was 65%. Besides this, 24% and 11% were day laborer and 'service holder and/or businessman' respectively. In this study in analyzing the BMI (Kg/m2) of the participants we found that majority of the patients were with overweight status which was 55%. Then 27% were with normal BMI and the rest 18% were obese. As per the Kellgren-Lawrence grade distribution, 95% cases were with grade 2 whereas the rest 5% were with grade 3 status. Among all of our participants, in 56% right side was involved whereas in 44% involvement of left side was found.

Table 1: Age distribution of participants (N=55)

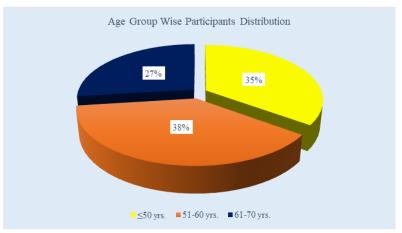| Age (Years)	n	%
≤50 yrs.	19	35%
51-60 yrs.	21	38%
61-70 yrs.	15	27%

Figure 1: Age wise participant's distribution (N=55)

Table 2: Occupational status of participants (N=55)

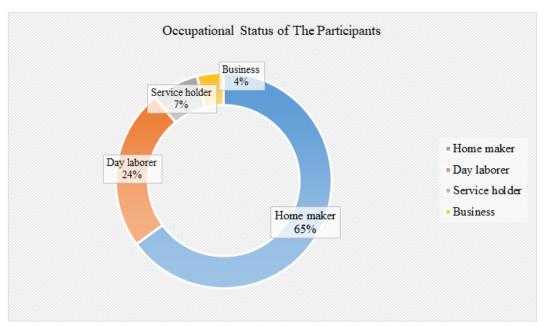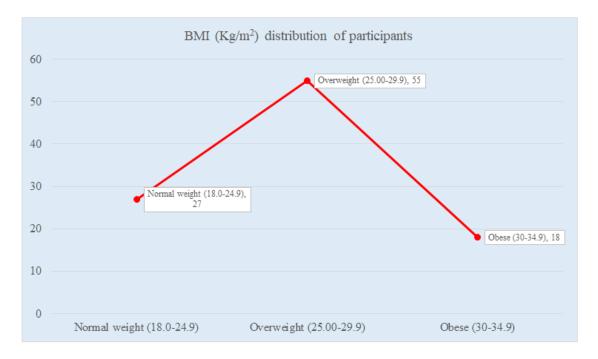| Occupational status	n	%
Home maker	36	65%
Day laborer	13	24%
Service holder	4	7%
Business	2	4%

Figure 2: Occupational status wise Patient's distribution (N=55)

Table 3: BMI (Kg/m^2) distribution of participants (N=55)

BMI (Kg/m^2)	n	%
Normal weight (18.0-24.9)	15	27%
Overweight (25.00-29.9)	30	55%
Obese (30-34.9)	10	18%

DISCUSSION

The aim of this study was to prepare a socio-demographic profile of patients with knee osteoarthritis. Osteoarthritis is a degenerative joint disease which occurs primarily in older individuals, characterized by erosion of the articular cartilage, subchondral sclerosis, hypertrophy of bone at the margins, and a range of biochemical and morphologic alterations of the synovial membrane and joint capsule [12]. In a study [13] it was reported that age is the most potent risk factor for OA. In analyzing the ages of the participants, we observed that 35%, 38%, and the rest 27% were from ≤50-, 51-60- and 61-70-years' age groups respectively. The mean age of the patients was more than 50 years which matched the Bangladeshi study of Moniruzzaman *et al*., (2018) [14] where they also found that the mean age of the patients was more than 50 years. A similar finding was also reported in other studies [15, 16]. In our study, among total 55 participants, 17% were male whereas 38% were female. So female participants were dominating in number and the male-female ratio was 1:2.2. These findings matched other studies [17, 18]. Women are about twice as likely as men to develop OA. The reason for the difference between females and males may be multifactorial and related to less cartilage volume and greater cartilage wear, overall differences in mechanical alignment, and other gender and social factors [19]. The majority of our participants were homemakers which was 65%. Besides this, 24% and 11% were day laborers and 'service holders and/or businessmen' respectively. A systematic review reported that physical work activities (especially kneeling, lifting, squatting, and climbing) can cause and/or aggravate knee OA [20]. Moniruzzaman, *et al*., (2018) [14] observed that 60.0% of their study participants were housewives, followed by sedentary worker (33.3%). In this study, as per the Kellgren-Lawrence grade distribution, 95% of cases were with grade 2 whereas the rest 5% were with grade 3 status. Other studies had patients with grade 1 OA knee according to Kellgren-Lawrence grade which the present study missed due to the purposive selection criteria of patients [21, 22]. In this study in analyzing the BMI (Kg/m2) of the participants, we found that majority of the patients were with overweight status which was 55%. Then 27% were with normal BMI and the rest 18% were obese. These findings matched other studies [15, 16].

Limitation of the study

This was a single centered study with a small sized sample. So, the findings of this study may not reflect the exact scenario of the whole country.

CONCLUSION AND RECOMMENDATION

The frequency of knee osteoarthritis among overweight people was found higher in this study, Majority of patients from a single profession may be considered as an indicator of involving one's working environment and posture of regular activities with knee osteoarthritis. As per the Kellgren-Lawrence grade, frequencies of grade 2 knee osteoarthritis were very high. Besides this, the right-side involvement in knee osteoarthritis was also higher. For getting more specific findings we would like to recommend for conducting similar more studies with larger sized samples in several places.

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