

## Original Research Article

# Prevalence of musculoskeletal disorders in elderly population in a rural community of Bangladesh

Moinul Hasan<sup>1\*</sup>, Md. Zilan Miah Sarker<sup>2</sup>, Md. Shamim Ahmed<sup>3</sup>, Md. Tanvir Islam<sup>2</sup>

<sup>1</sup>Department of Internal Medicine, Chattogram International Medical College and Hospital, Chattogram, Bangladesh

<sup>2</sup>Department of Internal Medicine, <sup>3</sup>Department of Rheumatology, BSMMU, Dhaka, Bangladesh

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### \*Correspondence:

Dr. Moinul Hasan,

E-mail: [sabrinaemz25@gmail.com](mailto:sabrinaemz25@gmail.com)

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## ABSTRACT

**Background:** Musculoskeletal disorders are a leading source of physical impairment in elderly, and the frequency of these disorders is anticipated to increase rapidly as the population ages. In Bangladesh, musculoskeletal disorders among the elderly are on the rise, causing them immense misery. The aim of this study to find out prevalence of musculoskeletal disorder in this age group in a rural community of Bangladesh.

**Methods:** A descriptive cross-sectional study was conducted over the period of one year from April 2017 to March 2018 in a few villages of Mokshedpur union of Dohar Upazila in Dhaka district of individuals with 60 and above. Modified COPCORD (Community Oriented Program for Control of Rheumatic Disorders) questionnaire was used to detect positive respondents.

**Results:** The prevalence of musculoskeletal pain was 52.10%. Prevalence was higher in women, 113 (56.6%) than men, 85 (43.4%). Most of the patient belongs to age group 60-69 (79.3%). Higher prevalence rates were observed in housewife (42%), retired person (24%) and cultivators (17%). Most of the individual had no smoking habit, 145 (73.2) and 42.9% are daily smokeless tobacco users. Lower back pain (42.4%) and knee pain (37.4%) were prevalent among the study group. Non-specific low back pain (28.8%) and osteoarthritis in the knee (26.3%) were prevalent among the study group. Among all the disorder, female is prevalent than male.

**Conclusions:** Musculoskeletal disorders are common causes of morbidity and disability in rural communities of Bangladesh. Women are affected more frequently than men. Mechanical disorders are more common than inflammatory arthropathies.

**Keywords:** COPCORD, Musculoskeletal disorder, Rheumatoid arthritis

## INTRODUCTION

Musculoskeletal conditions are a major cause of physical disability in elderly people and the prevalence of this condition is expected to rise dramatically as the population ages. Impairment of physical function among older people has been shown to have a greater influence on level of disability and ability to continue independent living than either sight or hearing impairment.<sup>1</sup>

Impairment of neuromuscular performance evidenced by muscle weakness, slowing of movement, loss of muscle power and early muscle fatigue is a prominent feature of old age in humans. This impairment is often accompanied by inactivity or chronic diseases that will further impair neuromuscular performance. As a result, many elderly men and women have functional limitations on walking, lifting and maintaining postural balance and on recovering from impending falls, leading to disability.<sup>2</sup>

Musculoskeletal pain and rheumatic disorders are as old as human civilization and most incapacitating illness in clinical practice. These are among the most relevant health issues worldwide owing to the human sufferings they impose, in addition to their increasing social and economic costs.<sup>3</sup> Yet this specialty remained under-represented in the medical curricula and in the health research initiatives.

According to the World Health Organization (WHO), one of the major disabling conditions among the elderly population is musculoskeletal (MSK) disorders.<sup>4</sup> WHO has specifically identified four major disabling MSK conditions: Osteoarthritis (OA), Rheumatoid Arthritis (RA), Osteoporosis (OP), and Back Pain (BP).<sup>5</sup> A study on prevalence of musculoskeletal problems in the elderly population in developed countries- A systematic critical literature review showed that the most commonly reported MSK condition (i.e., number of prevalence estimates) was back pain (29%), osteoarthritis and osteoporosis (17%), followed by RA (8%), ankle/foot pain (8%), knee pain (6%), hip pain (5%), shoulder pain (5%), hand/wrist pain (3%), and elbow pain (3%).<sup>6</sup>

In Bangladesh musculoskeletal complaints among elderly people increasing gradually which causes a massive suffering of them. Though several studies have been done to know the prevalence of musculoskeletal disorders including COPCORD study in Bangladesh in adult population (age more than 18 years), there is no exact statistics on prevalence of musculoskeletal disorder and their pattern of involvement in elderly population. So for proper planning and distribution of resources as well as implementation of national budget for improving the health condition of elderly in our country, it is very essential to know the exact prevalence and distribution of musculoskeletal disorder and specific rheumatic diseases in this age group. The aim of this study to find out prevalence of musculoskeletal disorder in this age group in a rural community of Bangladesh.

## METHODS

A descriptive cross-sectional study was conducted over the period of one year from April 2017 to March 2018 in a villages of Mokshedpur union of Dohar Upazila in Dhaka. A total 380 individuals aged 60 years or more were included from the community. Individual with severe co-morbid condition like stroke, heart failure, severe dementia, unable to talk and those who were not willing to participate in this study were excluded.

### Data collection

Extensive training was conducted before data collection by investigator, guide and co-guide in BSMMU and thereafter was evaluated on administering validated Bengali version of COPCORD questionnaire. The study involved collection of data in two phases- Phase A and Phase B. Phase A involved two stages. Stage 1-

collection of house hold data and Stage 2- to find out the positive respondents who have musculoskeletal pain complaints with some elaboration of complaints as well as to collect socio-demographic data using COPCORD (community oriented program for control of rheumatic disorders) questionnaire. Phase B involved structured history taking and physical examination by research physicians using COPCORD examination sheet.

Initial data for first phase was completed in 10 days. In phase A-stage1, total 380 geriatric population were surveyed from 6 villages of Mokshedpur union of Dohar Upazila using consecutive sampling technique and in phase A- stage 2 total 270 geriatric person was identified having MSK complain. In phase B, research physician interviewed and examined these 270 respondents with a given time scheduled. After clinical examination, 198 geriatric people who have actual MSK pain and disorder were identified. 72 respondents were excluded because of vague symptoms by the research physician. In confusing situation where needed, diagnosis was reviewed by rheumatologist.

### Statistical analysis

The data analysis was performed in the program Statistical Package for social science (SPSS) version 22. The presentation was performed in SPSS and in Microsoft office word 2010. Prevalence of MSK pain and disorder was determined for the selected population and for sex and residence variation.

## RESULTS

Table 1 shown the sociodemographic characteristics of individuals with MSK disorder. In this survey, a total 380 individuals aged 60 years or more were selected from the community. Total 198 geriatric person found to have MSK pain and disorders. The prevalence of musculoskeletal pain was 52.10%. Prevalence was higher in women, 113 (56.6%) than men, 85 (43.4%). Most of the patient belongs to age group 60-69 (79.3%). Higher prevalence rates were observed in housewife (42%), retired person (24%) and cultivators (17%). Most of the individual had no smoking habit, 145 (73.2) and 42.9% are daily smokeless tobacco users.

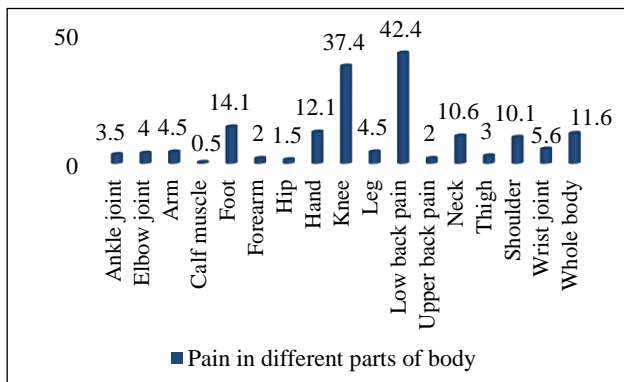
Figure 1 shows pain endured in different parts of the body. Lower back pain (42.4%) and knee pain (37.4%) were prevalent among the study group. Prevalence of pains endured in other parts of the body are; foot (14.1%), hand (12.1%), neck (10.6%), shoulder (10.1%), whole body (11.6%).

Figure 2 shows the prevalence of MSK disorder according to the gender. Non-specific low back pain (28.8%) and osteoarthritis in the knee (26.3%) were prevalent among the study group. Rheumatoid arthritis (4.0%), nonspecific inflammatory (4.0%) are showed to be least common among the group. Among all the

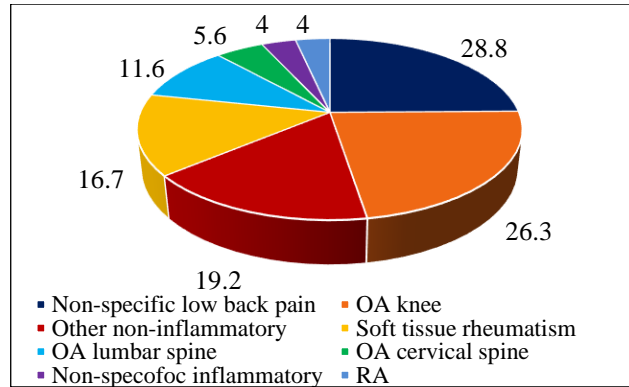
disorder, female is prevalent than male, Table 2. No significant association was found with MSK disorder and gender.

**Table 1: Sociodemographic characteristics of the study subject with musculoskeletal disorder.**

| Variables                                     | Frequency n= (198) | %            |
|---|--------------------|--------------|
| <b>Total surveyed population</b>              | <b>380</b>         |              |
| <b>Prevalence of musculoskeletal disorder</b> | <b>198</b>         | <b>52.10</b> |
| <b>Age (years)</b>                            |                    |              |
| 60-69   | 157                | 79.3         |
| 70-79   | 25                 | 12.6         |
| ≥80   | 16                 | 8.1          |
| <b>Gender</b>                                 |                    |              |
| Male  | 85                 | 43.4         |
| Female  | 113                | 56.6         |
| <b>Education level</b>                        |                    |              |
| No formal education                           | 107                | 54.0         |
| Primary level                                 | 55                 | 27.8         |
| Secondary level                               | 33                 | 16.7         |
| Above secondary                               | 3                  | 1.5          |
| <b>Occupation</b>                             |                    |              |
| Cultivate land owner                          | 35                 | 17.7         |
| Housewife                                     | 83                 | 41.9         |
| Unemployed                                    | 13                 | 6.6          |
| Retired                                       | 47                 | 23.7         |
| Professional                                  | 7                  | 3.5          |
| Businessperson                                | 7                  | 3.5          |
| Others  | 6                  | 3.0          |
| <b>Smoking</b>                                |                    |              |
| Daily   | 21                 | 10.6         |
| Occasional                                    | 4                  | 2.0          |
| Ex-smoker                                     | 28                 | 14.1         |
| Never smoked                                  | 145                | 73.2         |
| <b>Smokeless tobacco</b>                      |                    |              |
| Daily   | 85                 | 42.9         |
| Occasional                                    | 24                 | 12.1         |
| Previously taken                              | 11                 | 5.6          |
| Never taken                                   | 78                 | 39.4         |



**Figure 1: Pain in different parts of the body (n=198).**



**Figure 2: Prevalence of MSK disorder.**

**Table 2: Prevalence of musculoskeletal disorders according to gender (n=198).**

| Variable                   | N = 198 (%) | Gender       |               | P value |
|----------------------------|-------------|--------------|---------------|---------|
|                            |             | Male = n (%) | Female= n (%) |         |
| Soft tissue rheumatoid     | 33 (16.7)   | 16 (48.5)    | 17 (51.5)     | 0.521   |
| RA                         | 8 (4.0)     | -            | 8 (100)       | 0.011   |
| Other non-inflammatory     | 38 (19.2)   | 17 (44.7)    | 21 (55.6)     | 0.856   |
| OA lumbar spine            | 23 (11.6)   | 9 (39.1)     | 14 (60.9)     | 0.657   |
| OA knee                    | 52 (26.3)   | 21 (40.4)    | 31 (59.6)     | 0.605   |
| OA cervical spine          | 11 (5.6)    | 5 (45.5)     | 6 (54.5)      | 0.889   |
| Non-specific low back pain | 57 (28.8)   | 26 (45.6)    | 31 (54.4)     | 0.694   |
| Nonspecific inflammatory   | 8 (4.0)     | 3 (37.5)     | 5 (62.5)      | 0.729   |

**DISCUSSION**

In our study, the prevalence of musculoskeletal pain in elderly population is 52%, female has slightly higher prevalence than male counterpart. Female (56.6%) and male (43.4%). The prevalence of musculoskeletal pain in elderly people in rural Dibrugarh in India results were quite similar finding to our study result (50.67%).<sup>7</sup> From COPCORD study in 2005, we found that prevalence of musculoskeletal disorders among male was 48% and female 65%.<sup>8</sup> Our study result also showed higher female prevalence than male.

Age may be an important risk factor for development of MSK pain. Like previous Bangladesh study the prevalence of pain increased with the increasing age. Aging and increase in life expectancy is projected to make the degenerative joint disease the leading cause of disability by the year 2040.<sup>9</sup> Occupations demanding heavy physical work like homemaking and cultivation has higher rate of complaints. Kar and Dhara, 2007

reported that MSK problems were more common in subjects who performed heavy physical work and particularly in those in jobs that involve kneeling and squatting.<sup>10</sup> Moreover, higher prevalence in housewife includes the tradition of performing most of the household works in squatting position, high work load, improper posture, anxiety level, low peer support and poor mental status.

Low back pain (42.4%) and knee joint pain (37.4%) were the most common site of pain complaint. There are many factors for high prevalence of low back pain. The most frequently reported factors are heavy physical workload such as lifting, awkward posture, lack of exercise and obesity.<sup>11</sup> Aging may be a risk factor for LBP. Age above 35 years seems to increase the risk 9 times compared to those under 35.<sup>11</sup> Unidentified causes of high prevalence of LBP in developing country may be vitamin D deficiency due to limited sun exposure and multiparty.<sup>12</sup>

The most common rheumatic disorder in the study was Nonspecific low back pain (29%). The social culture of domestic and professional activities in bending posture may be responsible for higher prevalence of low back pain in our community. Moreover, rapid urbanization, transition to sedentary work and weight gain may also contribute.<sup>13</sup> In our study, prevalence of knee osteoarthritis was 26.3%. Mendhe et al, 2016 showed overall prevalence of knee osteoarthritis was 31%. Female has higher prevalence than male.<sup>14</sup> It may be related to a higher degree of knee usage (during work, leisure, prayers and activities of daily living) in our community. Repetitive joint use and working in squatting position for prolonged time may be responsible for the high prevalence of knee osteoarthritis among homemakers and cultivators.

The prevalence of rheumatoid arthritis was 4% All the patient diagnosed as a case of RA are female (100%) and it is statistically significant as well. In the study of Mendhe et al, 2016 prevalence of RA was 2% among all the positive respondents.<sup>14</sup>

According to an epidemiological study of correlates of osteoarthritis in geriatric population of Union Territory Chandigarh, it was found that osteoarthritis was more common in women as compared with men, 70.1% vs. 41.6%.<sup>15</sup> In this study also, it was found that osteoarthritis was more common in women (28%) than in men (24%) but was not found to be statistically significant. Prevalence of non-inflammatory arthritis was 19.2% and non-specific inflammatory arthritis was 4%. Our study result has higher prevalence in both segments. It may be due elderly patient and nonspecific musculoskeletal complaints in elderly population. But it is obvious that elderly patient has higher non inflammatory pain than nonspecific inflammatory pain.

Our study has several limitations. A small sample size limited the generalization of the study findings. It was not

done between various places of Bangladesh from different regions. This shows the need for longitudinal studies with more respondents.

## CONCLUSION

Almost half of geriatric population in a rural community of Bangladesh suffer from different types of rheumatic disorders at any given point of time. Early recognition of symptoms and diagnoses with proper treatment may prevent disability related to musculoskeletal disorders. Prioritization of rheumatology education in different medical schools, program planning and resource allocation to combat this group of crippling disorders is essential.

Musculoskeletal disorders are common causes of morbidity and disability in rural communities of Bangladesh. Women are affected more frequently than men. Mechanical disorders are more common than inflammatory arthropathies.

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