

# Prevalence of Musculoskeletal Disorders among Farmers

**Research Article**

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Musculoskeletal disorders (MSDs) can affect the body's muscles, joints, tendons, ligaments and nerves. Most work-related MSDs develop over time and are caused either by the work itself or by the employees' working environment. A cross sectional study was conducted among conveniently selected 200 farmers to assess prevalence of musculoskeletal problems. This study was conducted in Sengua, Sharishabari of Jamalpur district in Bangladesh. A structured pretested questionnaire was used to collect data. Face to face interview as well as physical examination was done by physiotherapist. Mean age was  $30.83 \pm$  (SD 6.064). Mean working years was  $14.58 \pm$  (SD 6.385). Among the 200 participants 78% had musculoskeletal disorders. Significant association was found between musculoskeletal disorders and age, working years, working day and working time ( $p < 0.05$ ). Low back pain was very common. More than three fourth of the respondents had musculoskeletal problem.

**Keywords:** Musculoskeletal disorders; Farmers**Introduction**

Farming is an occupation that predisposes individual to health problems including musculoskeletal disorders (MSDs) [1]. Farming is a hazardous activity [2] which presents a range of threats to health [3]. MSDs affect millions of people around the world and are the most common cause of severe long-term pain and physical disability. In addition to their physical effects, MSDs affect the psychosocial status of individual and impact on their families and careers [4]. A survey of 15 European countries showed that agriculture is one of the industries with the most exposure to heavy physical loads [5]. A number of national and international studies have shown that farming is a physically demanding occupation with work tasks that can cause musculoskeletal disorders (MSD) [1]. A Swedish study found that the odds of reporting musculoskeletal problems were 51% higher among farmers than non-farmers [6]. Farming is a physically demanding occupation with work tasks that cause MSDs and work disability such as lifting heavy objects, moving and carrying equipment and awkward working postures [7]. Many type of work cause pain and discomfort when farmers are not aware of ergonomic consideration of their work task. Muscle soreness and other discomfort with injuries sometimes also associated with using tools of agriculture, which can actually occur from performing any number of activities. Infect misuse of the same muscles during multiple activities can create a problem. A lot of studies were done in abroad regarding this topic to determine the prevalence of musculoskeletal disorder but very few study were conducted on this regard in our country. Among the few studies that were found locally not sufficient to present the real picture of the situation due to shortage of information and studies were conducted couple of year back which does not represent the present situations on this regard, so it is very much urgent to know the situation.

**Methodology****Study design: Cross sectional****Study setting:** This study was conducted in Sengua, Sharishabari of Jamalpur district in Bangladesh.**Study population:** Farmers whose age between 18 to 40 years was included in this study. Many farmers were affected in musculoskeletal disorders (MSDs).**Study duration:** The duration of the study was six months from September 2014 to March 2015.**Population size:** Total of 384 subjects was included for the study by using convenient sampling method.**Criteria for selection****Inclusion criteria**

- I. Those who gave consent and participated for interview.
- II. Only male farmer age between 18-40 years.
- III. Duration of working years was minimum 2years.

**Exclusion criteria**

- I. Refusal to give informed consent
- II. Age below 18 or above 40 years

**Data collection instrument/tools:** An interviewer administered structured questionnaire was designed to collect information on related musculoskeletal disorders (MSDs) among farmers, that was prepared in advance and evaluated by the principal supervisor before data collection.

**Data collection procedure: Data collection was performed by face to face interview.**

Data management and analysis: After collection of data, all interview questionnaires were checked for its completeness correctness and internal consistency to exclude missing or inconsistent data. Corrected data was entered into the computer. The data were analyzed by using the statistical software namely SPSS [Statistical Package for Social Sciences].

**Results**

Mean age was  $30.83 \pm (SD 6.064)$ . Distribution of age was 18-27 years: 39%; 28-37 years: 55%; 38-40 years: 6% (Table 1).

Among the respondent mean working years was  $14.58 \pm (SD 6.385)$ . Distribution of working year was 2-11years: 32.5%;

**Table 1:** Age group of the respondents.

| Age Group | Number     | Percentage |
|-----------|------------|------------|
| 18-27     | 78         | 39         |
| 28-37     | 110        | 55         |
| 38-40     | 12         | 6          |
| Total     | 200        | 100        |
| Mean      | 30.83±6.06 |            |

**Table 2:** Work related characteristics of the respondents.

| Working Years    | Number | Percentage |
|------------------|--------|------------|
| 11-Feb           | 65     | 32.5       |
| 21-Dec           | 100    | 50         |
| 22-26            | 35     | 17.5       |
| Working Day/Week |        |            |
| 1                | 0      | 0          |
| 2                | 5      | 2.5        |
| 3                | 13     | 6.5        |
| 4                | 182    | 91         |
| Working Hour/Day |        |            |
| <8               | 11     | 5.5        |
| 8-10             | 13     | 6.5        |
| 11-12            | 138    | 69         |
| >12              | 38     | 19         |
| Total            | 200    | 100        |

**Table 3:** Distribution of risk factor of musculoskeletal disorders among respondents.

| Musculoskeletal Disorders | Number | Percentage |
|---------------------------|--------|------------|
| Neck Pain                 | 11     | 5.5        |
| Shoulder Pain             | 40     | 20         |
| Arm Pain                  | 10     | 5          |
| Elbow Pain                | 6      | 3          |
| Forearm Pain              | 4      | 2          |
| Wrist Pain                | 9      | 4.5        |
| Finger Pain               | 9      | 4.5        |
| Upper Back Pain           | 37     | 18.5       |
| Lower Back Pain           | 101    | 50.5       |
| Hip Pain                  | 18     | 9          |
| Knee Pain                 | 9      | 4.5        |
| Leg Pain                  | 10     | 5          |
| Ankle Pain                | 7      | 3.5        |
| Foot Pain                 | 11     | 5.5        |

12-21years: 50%; 22-26years: 17.5%. Among the all participants 2.5% worked once a week, 6.5% worked 2-3 days in a week and 91.0% worked 4 days per week. About 5.5% participants worked less than 8 hours in a day, 6.5% worked 8-10 hours in a day, 69.0% worked 11-12 hours and 19.0% worked more than 12 hours (Table 2).

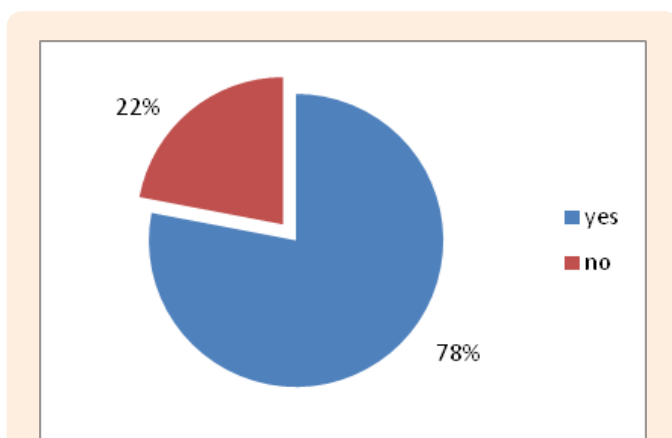
Among the 200 participants 22% had no musculoskeletal disorders and 78% had musculoskeletal disorders (Figure 1).

More than half of the respondents suffered from low back pain followed by upper back pain (18.5%), shoulder pain (20%) and foot pain (5.5%) (Table 3).

Significant association was found between musculoskeletal disorders and age, working years, working day and working time ( $p < 0.05$ ) (Table 4).

**Table 4:** Association between musculoskeletal disorders and variables of interest.

| Variables                    | Musculoskeletal Disorders |           | $\chi^2$ | p-value |
|------------------------------|---------------------------|-----------|----------|---------|
|                              | Yes (n=156)               | No (n=44) |          |         |
| <b>Age</b>                   |                           |           |          |         |
| 18-27years                   | 44                        | 34        | 35.254   | 0.001   |
| 38-40years                   | 12                        | 0         |          |         |
| <b>Working Years</b>         |                           |           |          |         |
| 11-Feb                       | 31                        | 33        | 67.144   | 0.001   |
| 21-Dec                       | 90                        | 10        |          |         |
| 22-26                        | 36                        | 1         |          |         |
| <b>Working Day in a Week</b> |                           |           |          |         |
| 1                            | 3                         | 2         | 19.431   | 0.001   |
| 3-Feb                        | 4                         | 9         |          |         |
| 4                            | 149                       | 33        |          |         |
| <b>Working Hour in a Day</b> |                           |           |          |         |
| <8                           | 7                         | 4         | 20.018   | 0.001   |
| 10-Aug                       | 6                         | 7         |          |         |
| 12-Nov                       | 105                       | 33        |          |         |
| >12                          | 38                        | 0         |          |         |

**Figure1:** Distribution of musculoskeletal disorders among of the respondents.

## Discussion

Musculoskeletal disorders (MSDs) refer to conditions that involve the nerves, tendons, muscles, and supporting structures of the body. The risk factors for MSDs include awkward posture, repetition, force, vibration, velocity of work, tool design, and personal factors. Musculoskeletal symptoms (MSS) include pain, sensitivity, weakness, swelling, and numbness [8]. In this study 78% farmers had MSDs and 22% had no MSDs. Among the 200 participants More than half of the respondents suffered from low back pain followed by upper back pain (18.5%), shoulder pain (20%) and foot pain (5.5%). Statistical significant association was found between musculoskeletal disorders and age, working years

and musculoskeletal disorders ,working day and musculoskeletal disorders and working time and musculoskeletal disorders ( $p < 0.05$ ). Dairy farming is physically demanding and associated with a high frequency of musculoskeletal disorders (MSD). This study investigated and compared work-related MSD, ergonomic work factors and physical exertion in farmers and employed farm workers on dairy farms in Sweden [9]. In a survey of Southeast Kansas farmers [10] nearly 60% of the respondents reported that they experienced a farm work-related MSD symptom during the last 12 months, while a survey of self-reported work-related illness in Britain during 1995 found that 43000 or 7% of the agriculture workforce ascribed MSDs to their work [11].

According to the Swedish Work Environment Authority, 70% of reported occupational diseases among people engaged in Swedish farming relate to the musculoskeletal system, compared with 55% for all other occupations [12]. In the European Union, MSD are the most commonly reported work-related health problems, with 23% of European workers reporting that they suffer from aches and pains in the musculoskeletal system [13]. In a number of studies, male farmers reported significantly more musculoskeletal symptoms than other occupationally active men in Sweden, [6] Finland [14] and other countries [15]. Recent reviews concluded that twisting, bending, manual material handling and exposure to whole-body vibrations were risk factors for low back pain [16]. However, the impact of heavy physical work in general on low back problems is still inconclusive. Moreover, high physical workload has been proposed as a contributing factor in the development of osteoarthritis of the hip [17] and the knee [18]. Neck and shoulder symptoms have also been related to working conditions, especially monotonous and repetitive work tasks [19]. In addition, psychosocial factors seem to have a large impact on neck and shoulder problems, as well as on low back pain [20]. In a

previous study, we found that farmers reported significantly more hand and forearm problems, low back pain and hip problems than non-farmers, and tended to have more neck and shoulder and knee problems [6].

## Conclusion

This study concludes that most of the farmers suffer from lower back pain followed by shoulder pain. More than three fourth of the respondents had musculoskeletal problem.

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