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# Prevalence and Factors Associated with Musculoskeletal Pain among Rural Handloom Weavers in Sirajganj, Bangladesh

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**Abstract**

The loom industry is the traditional industry in Bangladesh. It is situated especially in rural areas. Many weavers are working in the handloom industry. The study aims to determine the prevalence rate of musculoskeletal pain and its associated factors. This study is a cross-sectional study, including open-ended and close-ended questionnaires. Two hundred fifty (250) handloom weavers have participated in this study. Frequency analysis and Chi-square test were done by R software. A total of 82.4% of weavers have musculoskeletal pain. Among them, 50% have lower back pain, 48.4% have shoulder pain, and 46.4% have knee pain. Some factors are associated with those pain. Age of respondents and number of working days are associated with lower back pain and shoulder pain. Only age is associated with thigh, ankle and elbow pain. Types of treatment that weavers have taken are associated with arm pain. The weavers with musculoskeletal pain are mostly illiterate and have not taken physical exercise. Notably, 67.2% of weavers have taken treatment, and 21.6% of the participants reported that they have improved upon the treatment. Among those who have taken treatment, only 21.6% of weavers have got improved. As the highest portion of weavers has musculoskeletal, proper knowledge should be implemented for them and need to improve their quality of life. Bangladesh government and any Non-Governmental Organizations (NGOs) or institutions should implement consciousness about musculoskeletal pain.

**Key words:** Musculoskeletal pain, lower back pain, shoulder pain, handloom, weavers, Bangladesh.

## Introduction

The handloom industry is the greatest handicraft industry in our country; after agriculture, it is the second-largest source of rural employment. In addition, around 20 million people are employed in this business as a whole (Ahmed, 1999). In the same way, it has taken good care of our country's cultural heritage. It is mainly common in Bangladesh's northern regions.

A handloom is a machine or tool made out of wood and some iron that is used to weave fabric. Handlooms don't have electric motors; instead, people use their hands and feet to move them (Khan and Momin, 2013). Approximately 1.5 million weavers, dyers, hand spinners, embroiderers, and related craftspeople use over 0.3 million operational looms to produce 620 million meters of cloth every year (Westgaard and Winkel, 1997). Weavers are at risk for work-related musculoskeletal diseases (WMSDs), particularly low back pain (LBP), because of their long work hours and rigorous activity. WMSDs are a significant health concern for workers

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in both developed and developing nations (Westgaard and Winkel, 1997; Banerjee and Gangopadhyay, 2003).

Musculoskeletal pain, also known as MSP, is widely recognized as a major public health concern worldwide and has been linked to a decline in both a person's ability to work and their quality of life. Musculoskeletal pain is also associated with increased rates of sick leave and enormous direct and indirect financial costs for both individuals and society (Chaman *et al.*, 2015). Several occupational variables, including repeated employment, uncomfortable static postures, and noise pollution, have been linked to upper extremity pain and discomfort.

According to the findings of the research that was done in the past, the incidence of MSP is rather high among carpet weavers in Iran. (Afshari *et al.*, 2014; Motamedzade and Moghimbeigi, 2012). Additionally, poor design of hand tools and workstations (such as seats, weaving heights, and looms), maintaining an uncomfortable position of the neck, shoulders, arms, wrists, and knees for extended periods of time, and engaging in repetitive actions are the most common known risk factors for musculoskeletal pain in weavers (Motamedzade and Moghimbeigi, 2012; Choobineh *et al.*, 2004).

According to the findings of a study that was conducted by Choobineh *et al*. on 1,439 carpet weavers, there were a total of 15,368 days that were recorded as being missed from work due to illness, the vast majority of which were brought on by the MSP. According to the conclusions of that study, 2.2 million of Iran's carpet weavers suffer from musculoskeletal problems (Choobineh *et al.*, 2004). A study conducted by Neeraja *et al.* found that 86% of weavers reported musculoskeletal pain, with the greatest frequency rate finding in the neck (58%) (Neeraja *et al.*, 2016). Another study found female weavers are more likely to get upper and lower back pain (Nag *et al.*, 2010).

An investigation of the ergonomics of handloom weaving in Uttarakhand found that the weavers reported the highest incidences of discomfort and musculoskeletal disorders in the following locations: right wrist, left wrist, hip/thigh, neck, and lower back (Naz *et al*., 2015). According to the information, since the beginning of the previous year, a total of 76.56% of employees have had pain and discomfort in their right hand, and 73.44% of workers have experienced pain and discomfort in both of their elbows. Because of uncomfortable working postures, 73.44% of workers had pain and discomfort in their upper back over the previous month. On the other hand, 59.38% of workers reported experiencing pain in their lower back during the previous week (Naz *et al*., 2015). Common musculoskeletal problems that motivate primary care visits include neck pain, limb discomfort, low back pain, joint pain, and chronic generalized pain (Main and de C Williams, 2002).

Sirajganj district is a district in the North Bengal region of Bangladesh, located in the Rajshahi division**.** There is a paucity of information available concerning the postural strain experienced by weavers in this area. Because this employment is performed by many people living in rural areas, reducing the risks associated with it by enhancing the ergonomics of the workplace would enhance not only the employees' quality of life but also their level of productivity at work. Therefore, this study aimed to determine the level of musculoskeletal discomfort and the degree of practice among handloom weavers in the Sirajganj district, Bangladesh. This might be a baseline report about the handloom weavers in Bangladesh and several potential factors associated with musculoskeletal pain. The demographic profile, the body part concerns and the practice level were the primary focuses of this research.

## Materials and Methods

*Study design:* This study is a cross-sectional survey including 36 open-ended and close-ended questions. This questionnaire has demographic characteristics of respondents, the status of their musculoskeletal pain and their practice level. This research was done to investigate the prevalence rate of musculoskeletal pain among handloom weavers and their practice level. All questions are adopted

from some published research papers (Hossain *et al*., 2018; Durlov *et.al*., 2014; Islam *et.al*., 2014). All questions were in the English language. Musculoskeletal pain is determined by lower back pain, shoulder pain, finger pain, thigh pain, arm pain, ankle pain, knee pain, upper back pain, wrist pain, elbow pain and neck pain in this research.

*Study population, sampling, and data collection:* A random sampling has been adopted in the study (Hossain *et al*., 2021a; Hossain *et al*., 2021b). A total of 250 respondents participated in the study. This research has been conducted at some upazilla in Sirajganj district, Bangladesh, including Chawhali, Shahzadpur, Raiganj, Kazipur, and Ullapara. The handloom weavers who are doing full-time jobs are selected for this study. In different industries, some weavers were randomly interviewed face-to-face by a questionnaire (Akhter *et al.*, 2022). The data collector first explained the purpose of the study, and those willing to respond to the questionnaire were chosen. The respondents were assured that their personal information would be secret. Besides, the study followed all the guidelines and protocols described in the World Medical Declaration of Helsinki (Hossain *et al*., 2022a; Hossain *et al*., 2022b). The inclusion criteria of the respondents include being adults and interested in this study. The respondents' exclusion criteria are related to their mental illness. This data was collected from March 14, 2022 to April 02, 2022.

*Data analysis:* R software was used to analyze all the data. Frequency analysis and Chi-square ($\chi^2$) test were done during the analysis. Respondent's demographic profile and question's frequency analysis were done. Chi-square has been done to determine the association of a respondent's working days, age and types of treatment with their pain. Also, Chi-square has been done to determine the association of respondent's age, duration of treatment and efficacy of treatment. Besides, Chi-square test has been done to determine the association between the duration of pain and types of treatment (Hossain *et al*., 2021c; Islam *et al*., 2021; Qusar *et al*., 2022).

**Results and Discussion**

This study determined the prevalence of musculoskeletal pain and associated factors and practice level among HANDLOOM weavers in the Sirajganj district. Among 250 respondents, 82% of weavers have musculoskeletal pain. Besides, only 18% of weavers are free from this pain (Figure 1). Similarly, the frequency analysis of all data is shown in table 1.

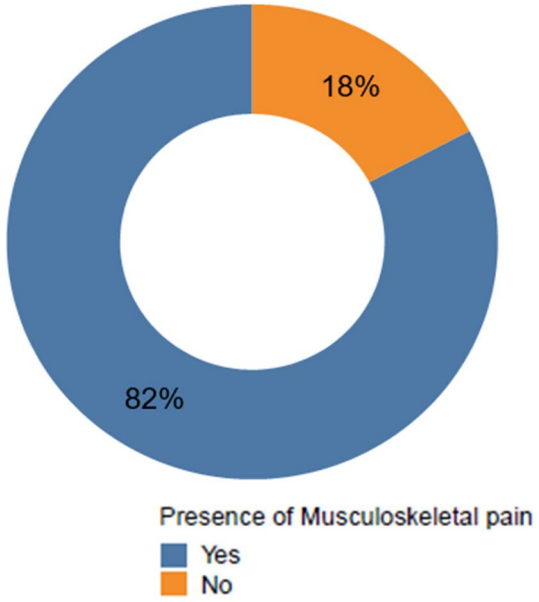


Figure 1. Presence of musculoskeletal pain among rural handloom weavers in Sirajganj, Bangladesh.

Table 1 shows that a maximum number of weavers are illiterate, which is 62.4% and 37.6% were primary and secondary education level. 90.8% of weavers do not take exercise regularly. From this analysis, the most shocking matter is that 82.4% of weavers have reported that they have musculoskeletal pain. Among them, 43.2% of weavers have mild, 29.6% have moderate pain and 8.4% have severe pain. 77.2% of weavers suffer from pain for below five months. From this table, we can see that maximum weavers (50%) are suffering from lower back pain. Among them, 28.4% of weavers have mild pain, and 6.4% have severe pain. 22.4% of weavers have neck pain. Among those, 14.8% have mild pain, and 2.4% have severe pain. 48.4% of weavers are suffering from shoulder pain.

**Table 1. Percentage and frequency distribution of the study variables.**

| Variables | Number (N) | Percentage (%) |
|---|---|---|
| ***Education*** | | |
| Illiterate | 156 | 62.4 |
| Primary and secondary | 94 | 37.6 |
| ***Taking exercise*** | | |
| Yes | 23 | 9.2 |
| No | 227 | 90.8 |
| ***Presence of musculoskeletal pain*** | | |
| Yes | 206 | 82 |
| No | 44 | 18 |
| ***Duration of pain*** | | |
| <5 months | 193 | 77.2 |
| 5-10 months | 17 | 6.8 |
| ***Lower back pain*** | | |
| Yes | 125 | 50.0 |
| No | 115 | 46.0 |
| ***Pain level*** | | |
| Mild | 71 | 28.4 |
| Moderate | 38 | 15.2 |
| Severe | 16 | 6.4 |
| Undecided | 07 | 2.8 |
| ***Neck pain*** | | |
| Yes | 56 | 22.4 |
| No | 183 | 73.2 |
| ***Pain level*** | | |
| Mild | 37 | 14.8 |
| Moderate | 12 | 4.8 |
| Severe | 6 | 2.4 |
| Undecided | 20 | 8.0 |
| ***Shoulder pain*** | | |
| Yes | 121 | 48.4 |
| No | 118 | 47.2 |
| ***Pain level*** | | |
| Mild | 75 | 30.0 |
| Moderate | 41 | 16.4 |
| Severe | 6 | 2.4 |
| Undecided | 8 | 3.2 |
| ***Elbow pain*** | | |
| Yes | 59 | 23.6 |
| No | 176 | 70.4 |
| ***Pain level*** | | |
| Mild | 31 | 12.4 |
| Moderate | 19 | 7.6 |
| Severe | 8 | 3.2 |
| Undecided | 16 | 6.4 |
| ***Wrist pain*** | | |
| Yes | 85 | 34.0 |
| No | 156 | 62.4 |
| ***Pain level*** | | |
| Mild | 50 | 20.0 |
| Moderate | 30 | 12.0 |
| Severe | 6 | 2.4 |
| Undecided | 8 | 3.2 |
| ***Upper back pain*** | | |
| Yes | 76 | 30.4 |
| No | 162 | 64.8 |
| ***Pain level*** | | |
| Mild | 43 | 17.2 |
| Moderate | 30 | 12 |
| Severe | 6 | 2.4 |
| Undecided | 17 | 6.8 |
| ***Knee pain*** | | |
| Yes | 116 | 46.4 |
| No | 125 | 50.0 |
| ***Pain level*** | | |
| Mild | 78 | 31.2 |
| Moderate | 22 | 8.8 |
| Severe | 14 | 5.6 |
| Undecided | 7 | 2.8 |
| ***Ankle pain*** | | |
| Yes | 62 | 24.8 |
| No | 176 | 70.4 |
| ***Pain level*** | | |
| Mild | 31 | 12.4 |
| Moderate | 22 | 8.8 |
| Severe | 8 | 3.2 |
| Undecided | 15 | 6.0 |
| ***Arm pain*** | | |
| Yes | 94 | 37.6 |
| No | 145 | 58.0 |

| | | |
|---|---|---|
| ***Pain level*** | | |
| Mild | 49 | 19.6 |
| Moderate | 37 | 14.8 |
| Severe | 9 | 3.6 |
| Undecided | 18 | 7.2 |
| ***Thigh pain*** | | |
| Yes | 53 | 21.2 |
| No | 183 | 73.2 |
| ***Pain level*** | | |
| Mild | 31 | 12.4 |
| Moderate | 17 | 6.8 |
| Severe | 4 | 1.6 |
| Undecided | 18 | 7.2 |
| ***Finger pain*** | | |
| Yes | 49 | 19.6 |
| No | 192 | 76.8 |
| ***Pain level*** | | |
| Mild | 42 | 16.8 |
| Moderate | 6 | 2.4 |
| Severe | 1 | 0.4 |
| Undecided | 19 | 7.6 |

| | | |
|---|---|---|
| ***Taking of treatment*** | | |
| Yes | 168 | 67.2 |
| No | 72 | 28.8 |
| ***Duration of treatment*** | | |
| <5 months | 164 | 65.6 |
| 5-10 months | 14 | 5.6 |
| ***Type of treatment*** | | |
| Massage | 0 | 0.0 |
| Medication | 169 | 67.6 |
| Surgery | 0 | 0.0 |
| None | 9 | 3.6 |
| ***Efficacy of treatment*** | | |
| Improved | 54 | 21.6 |
| Partially IMPROVED | 95 | 38.0 |
| Not improved | 19 | 7.6 |
| Undecided | 11 | 4.4 |

Among them, 19.6% of weavers' pain is mild, and 3.6% of respondents have severe pain. Only 21.2% of weavers suffer from thigh pain; among them, 12.4% of weavers have mild pain, and 1.6% of respondents have severe pain. 19.6% of weavers have finger pain. Among them, 16.8% of weavers have mild pain. Among 250 weavers, only 67.2 % weavers have gone under treatment. Of the weavers who have taken treatment among them, 65.6% weavers were taking treatment for below five months. Among the weavers with musculoskeletal pain, 67.6% of weavers have taken medication. 38% of weaver's pain has been partially improved. 21.6% have been improved. According to table 2, age and number of working days are significantly associated with lower back pain among handloom weavers. But there had no significantly associated factor with neck pain among handloom weavers. Moreover, age and number of working days are significantly related to shoulder pain among weavers. Only the age of weavers was significantly associated with elbow pain among handloom weavers.

According to table 3, there were no significantly related factors with wrist pain of handloom weavers and no significantly associated factors with upper back pain of handloom weavers. There has no significantly associated factor with knee pain of weavers. But the association between respondents' age and handloom weavers' ankle pain was significantly associated.

From table 4, treatment type is significantly associated with arm pain of weavers. Age of respondents is related substantially to the thigh pain of handloom weavers. There has no significant relationship with finger pain among handloom pain.

From table 5, the age of respondents and duration of treatment are significantly related to the efficacy of treatment. Besides, according to table 6, there has a significant association between treatment types and duration of treatment.

**Table 2. Chi square ($\chi^2$) test for finding potentially associated factors with lower back pain, neck pain, shoulder pain and elbow pain among rural handloom weavers in Sirajganj, Bangladesh.**

| Variables | Lower back pain | | | Neck pain | | | Shoulder pain | | | Elbow pain | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Yes | No | P-value | Yes | No | P-value | Yes | No | P-value | Yes | No | P-value |
| ***Age*** | | | | | | | | | | | | |
| Below 30 years | 12(9.6%) | 29(25.2%) | **<0.001** | 7(12.5%) | 35(19.1%) | 0.484 | 29(24.0%) | 13(11.0%) | **0.002** | 3(5.1%) | 37(21.0%) | **0.007** |
| 31-40 years | 35(28.0%) | 52(45.2%) | | 20(35.7%) | 65(35.5%) | | 48(39.7%) | 38(32.2%) | | 20(33.9%) | 64(36.4%) | |
| 41 years and above | 78(62.2%) | 34(29.6%) | | 29(51.8%) | 83(45.4%) | | 44(36.4%) | 67(56.8%) | | 36(61.0%) | 75(42.6%) | |
| ***Number of working days*** | | | | | | | | | | | | |
| 2 | 1(0.8%) | 0(0.00) | **0.036** | 0(0.00) | 1(0.5%) | 0.317 | 0(0.0%) | 1(0.8%) | **0.003** | 0(0.0%) | 1(0.6%) | 0.107 |
| 3 | 6(4.8%) | 5(4.4%) | | 2(3.6%) | 9(4.9%) | | 3(2.5%) | 8(6.8%) | | 5(8.5%) | 6(3.4%) | |
| 4 | 96(78.8%) | 102 (89.5%) | | 47(83.9%) | 150(82.5%) | | 110(91.7%) | 87(73.7%) | | 43(72.9%) | 150(85.7%) | |
| 5 | 22(17.6%) | 7(6.1%) | | 7(12.5%) | 22(12.1%) | | 7(5.8%) | 22(18.6%) | | 11(18.6%) | 18(10.3%) | |
| ***Type of treatment*** | | | | | | | | | | | | |
| Medication | 94(96.9%) | 74(92.5%) | 0.325 | 47(100.0%) | 120(93.0%) | 0.141 | 93(94.9%) | 74(94.9%) | 1.000 | 42(95.5%) | 122(94.6%) | 1.000 |
| None | 3(3.1%) | 6(7.5%) | | 0(0.0) | 9(7.0%) | | 5(5.1%) | 4(5.1%) | | 2(4.5%) | 7(5.4%) | |

**Table 3. Chi square ($\chi^2$) test for finding potentially associated factors with wrist pain, upper back pain, knee pain, and ankle pain among rural handloom weavers in Sirajganj, Bangladesh.**

| Variables | Wrist pain | | | Upper back pain | | | Knee pain | | | Ankle pain | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Yes | No | P-value | Yes | No | P-value | Yes | No | P-value | Yes | No | P-value |
| ***Age*** | | | | | | | | | | | | |
| Below 30 years | 17(20.0%) | 25(16.0%) | 0.647 | 10(13.2%) | 32(19.8%) | 0.246 | 16(13.8%) | 26(20.8%) | 0.318 | 9(14.5%) | 32(18.2%) | **0.001** |
| 31-40 years | 28(32.9%) | 59(37.8%) | | 25(32.9%) | 60(37.0%) | | 42(36.2%) | 45(36.0%) | | 12(19.4%) | 74(42.0%) | |
| 41 years and above | 40(47.1%) | 72(46.2%) | | 41(53.9%) | 70(43.9%) | | 58(50.0%) | 54(43.2%) | | 41(66.1%) | 70(39.8%) | |
| ***Number of working days*** | | | | | | | | | | | | |
| 2 | 1(1.2%) | 0(0.0%) | 0.269 | 0(0.0%) | 1(0.6%) | 0.163 | 0(0.0%) | 1(0.8%) | 0.388 | 0(0.0%) | 1(0.6%) | 0.229 |
| 3 | 6(7.1%) | 5(3.2%) | | 3(3.9%) | 8(5.0%) | | 3(2.6%) | 8(6.4%) | | 3(4.8%) | 8(4.6%) | |
| 4 | 67(78.8%) | 132(85.2%) | | 59(77.6%) | 138(85.7%) | | 97(84.3%) | 102(81.6%) | | 47(75.8%) | 149(85.1%) | |
| 5 | 11(12.9%) | 18(11.6%) | | 14(18.4%) | 14(8.7%) | | 15(13.0%) | 14(11.2%) | | 12(19.4%) | 17(9.7%) | |
| ***Type of treatment*** | | | | | | | | | | | | |
| Medication | 62(92.5%) | 107(6.4%) | 0.432 | 54(98.2%) | 114(93.4%) | 0.338 | 89(95.7%) | 80(94.1%) | 0.890 | 43(95.6%) | 123(94.6%) | 1.000 |
| None | 5(7.5%) | 4(3.6%) | | 1(1.8%) | 8(6.6%) | | 4(4.3%) | 5(5.9%) | | 2(4.4%) | 7(5.4%) | |

**Table 4. Chi square ($\chi^2$) test for finding potentially associated factors with arm pain, thigh pain, knee pain, and finger pain among rural handloom weavers in Sirajganj, Bangladesh.**

| Variables | Arm pain | | | Thigh pain | | | Finger pain | | |
|---|---|---|---|---|---|---|---|---|---|
| | Yes | No | P-value | Yes | No | P-value | Yes | No | P-value |
| ***Age*** | | | | | | | | | |
| Below 30 years | 21 (22.3%) | 21 (14.5%) | 0.296 | 5 (9.4%) | 36 (19.7%) | **0.004** | 11 (22.4%) | 31 (16.1%) | 0.115 |
| 31-40 years | 32 (34.0%) | 55 (37.9%) | | 13 (24.5%) | 73 (39.9%) | | 12 (24.5%) | 75 (39.1%) | |
| 41 years and above | 41 (43.6%) | 69 (47.6%) | | 35 (66.0%) | 74 (40.4%) | | 26 (53.1%) | 86 (44.8%) | |
| ***Number of working days*** | | | | | | | | | |
| 2 | 0 (0.00%) | 1 (0.7%) | 0.118 | 0 (0.0%) | 1 (0.5%) | 0.809 | 1 (2.1%) | 0 (0.0%) | 0.215 |
| 3 | 3 (3.2%) | 8 (5.5%) | | 3 (5.7%) | 8 (4.4%) | | 3 (6.2%) | 8 (4.2%) | |
| 4 | 84 (90.3%) | 114 (78.6%) | | 42 (79.2%) | 153 (83.6%) | | 28 (79.2%) | 161 (83.9%) | |
| 5 | 6 (6.5%) | 22 (15.2%) | | 8 (15.1%) | 21 (11.5%) | | 6 (12.5%) | 23 (12.0%) | |
| ***Type of treatment*** | | | | | | | | | |
| Medication | 84 (100.0%) | 83 (92.2%) | **0.009** | 38(100.0%) | 126 (93.3%) | 0.222 | 39 (100.0) | 130 (93.5%) | 0.223 |
| None | 0 (0.00%) | 9 (7.8%) | | 0 (0.0%) | 9 (6.7%) | | 0 (0.0%) | 9 (6.5%) | |

**Table 5. Background of characteristics of efficacy of treatment.**

| Variables | Efficacy of treatment | | | | P-Value |
|---|---|---|---|---|---|
| | Improved | Partially improved | Not improved | Undecided | |
| ***Age*** | | | | | |
| Below 30 years | 16 (29.6%) | 8 (8.4%) | 2 (10.5%) | 5 (45.5%) | **<0.001** |
| 31-40 years | 28 (51.9%) | 24 (25.3%) | 8 (42.1%) | 4 (36.4%) | |
| 41 years and above | 10 (18.5%) | 63 (66.3%) | 9 (47.4%) | 2 (18.2%) | |
| ***Duration of treatment*** | | | | | |
| < 5 months | 51 (96.2%) | 94 (98.9%) | 18 (100.0%) | 0 (0.00) | **<0.001** |
| 5-10 months | 2 (3.8%) | 1 (1.1%) | 0 (0.0%) | 11 (100.0%) | |

**Table 6. Association between type of treatment and duration of treatment.**

| Variables | Type of treatment | | P-Value |
|---|---|---|---|
| | Medication | None | |
| *Duration of treatment* | | | |
| < 5 months | 148 (94.3%) | 2 (22.2%) | **<0.001** |
| 5-10 months | 9 (5.7%) | 7 (77.8%) | |

In this research, we have introduced 11 handloom weavers' musculoskeletal pain types. Most types of pain are lower back pain (LBP), shoulder pain, and knee pain. These are respectively 50%, 48%, and 46% (Figure 2).

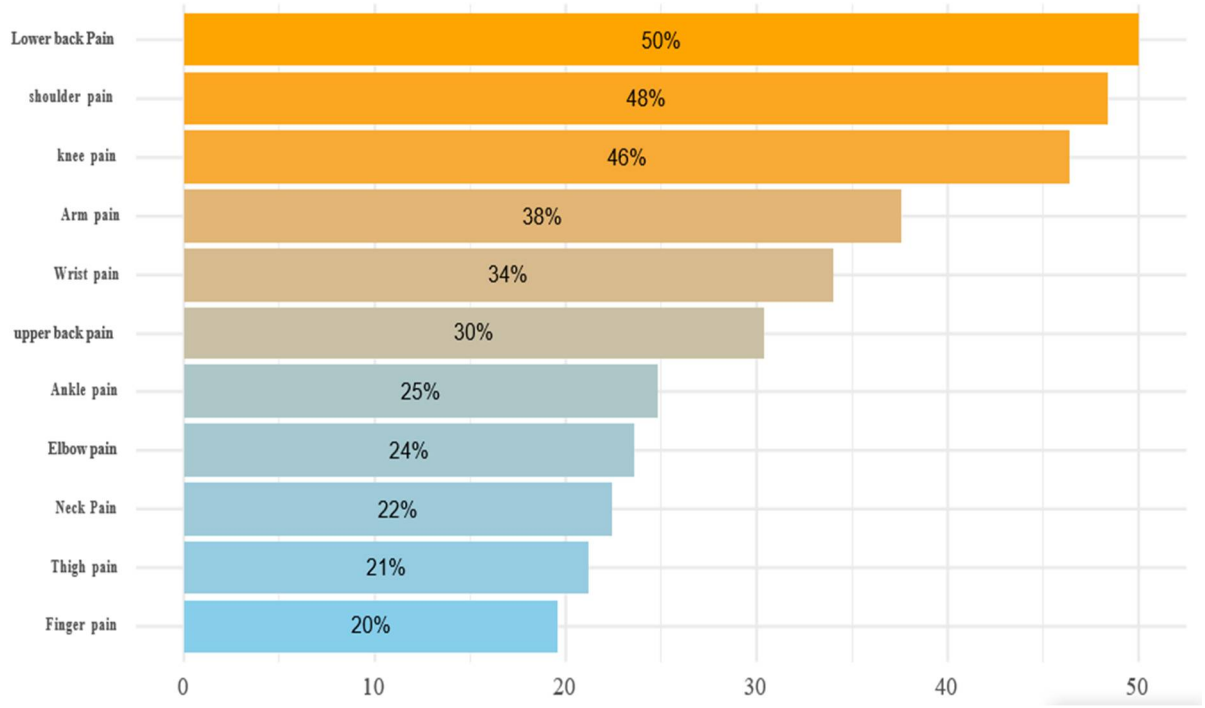


Figure 2. Distribution of respondents by anatomical site of musculoskeletal pain.

In Japan, Nakamura *et al*. reported that 15.4% of respondents suffer from musculoskeletal pain, while 70% are taking treatment for more than one year (Nakamura *et al.*, 2011). But in our study, 65.6% of weavers have taken treatment for less than five months. In Iran, 51.7% of respondents have musculoskeletal pain, where the prevalence of lower back pain (LBP) was 27.4%, and shoulder pain was 20.1% (Chaman *et al*., 2015). But in our study, LBP is 50%, and shoulder pain is 48%. In India, Siddiqui *et al*. reported that 82% of handloom weavers have lower back pain (LBP), 48% have shoulder pain, and 60% have knee pain (Siddiqui *et al*., 2021). On the other hand, 84% of weavers have upper back pain (Siddiqui *et al*., 2021), whereas only 30% of weavers have upper back pain, according to our report. Another research has been conducted by Neeraja *et al.* They reported that 86% of handloom weavers suffer musculoskeletal pain (Neeraja *et al.*, 2016). Hossain *et al.* elicited in their research that the prevalence of musculoskeletal pain is 27.4% only (Hossain *et al*., 2018).

According to our study, the main associated factors are age, number of working days and type of treatment taken by handloom weavers with musculoskeletal pain. This study discloses that age is an associated factor for lower back pain (LBP), shoulder pain, ankle pain and elbow pain. The number of working days of weavers is an associated factor for occurring lower back pain (LBP) and shoulder pain. Treatment type is associated with arm pain. In Hossain *et al.* study, there are significant factors with musculoskeletal pain: age and working experience (Hossain *et al*., 2018). Lower back pain (LBP) was the most prevalent ailment among individuals suffering from musculoskeletal diseases. The findings revealed that handloom weavers frequently experienced lower back pain (Durlov *et al*., 2014). When a man gets old, he suffers from this kind of pain. It affects his muscle and skeletal muscle pain (Hassan *et al*., 2019).

The growing incidence of musculoskeletal pain, particularly back pain, has been regarded as a pandemic. Pain is usually self-limiting, but if it becomes chronic, the repercussions can be severe

(Main and Williams, 2002). In India, another study has exposed a high prevalence of musculoskeletal pain among weavers. Among them, the maximum number of respondents is 25 years old and above, and the job duration is more than ten years (Nag *et al.*, 2009). Our study has revealed that there has no associated factors with finger pain, neck pain, knee pain, upper back pain, and wrist pain. The frequency of health complications dependent on inhabitants' surveys is heavily influenced by the methodology utilized, the precise definition of pain, and the language of the questionnaire items. However, self-reports are inescapable, particularly for assessing pain. Many nations have a high prevalence of musculoskeletal discomfort (Picavet and Schouten, 2002). In the Ontario Health Survey of Canada, 29 percent of people aged 16 and up had a musculoskeletal health condition (Badley *et al.*, 1995). As per the US Health and Retirement Survey, 62% of people aged 51–61 had at least one musculoskeletal health condition (Yelin *et al.*, 1999). Characterizing high-risk populations in the community is required to establish assumptions or reasons for health variations and design prevention initiatives. The persistence of disparities in health among demographic groups also suggests that there is a possibility for improved health outcomes (Picavet and Schouten, 2002).

According to this study, 94.3% have taken medication and have taken treatment for less than five months. 51.9% of respondents' musculoskeletal problems improved who were 31-40 years old. 98.9% of weaver's musculoskeletal problem has partially improved who have taken medication for less than five months. So, weavers who do not take exercise regularly and who are illiterate are at high risk of musculoskeletal pain.

Physical activity is a foundational component of chronic musculoskeletal pain treatment. In addition to favorable effects on the musculoskeletal system, there are impacts on pain transmission that may lessen pain symptoms (McBeth and Jones, 2007). Movement, kinesthetic awareness therapy, manipulations, and massage can all help to alleviate discomfort and enhance function (Islam *et al.*, 2014). Musculoskeletal problems influence the sick person's livelihood and psychosocial environment, and the pain that is felt is frequently not related to observations in the musculoskeletal system (Arendt-Nielsen *et al.*, 2011). Non-pharmacological therapies are frequently used as the first therapeutic option in addition to specific management for illnesses that cause regional discomfort (Hossain *et al.*, 2022c). The foundations are patient education using a positivist paradigm and physical activity (Bergman, 2007).

## Conclusion

According to our study, there has a high prevalence rate of musculoskeletal pain among handloom weavers. Lower back pain (LBP), shoulder pain, and arm pain are mostly seen among them. There have some significant associated factors with musculoskeletal pain. Associated factors are age, number of working days, and treatment types that are taken by handloom weavers. Moreover, the main cause of this problem is illiterate and not taking physical exercise. So, handloom weavers may take physical exercise regularly. As they are mostly illiterate, the government and non-governmental organizations (NGOs) must organize different kinds of seminars and workshops to increase the consciousness of musculoskeletal disorders.

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There are no conflicts of interest declared by the authors.

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