A descriptive study of prevalence of musculoskeletal illnesses among farmers in Faisalabad, Pakistan

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Abstract

Background/objectives: The farming employs about half the world’s entire workforce. In most countries, farming is recognized as one of the most hazardous industries. Farming activities lead to awkward physical postures. These postures are: leaning, kneeling, crawling, bending, twisting to one side and repeated work that can result in physical stress and traumatic injuries. This study aimed to evaluate the ergonomic conditions and musculoskeletal symptoms among farmers in Faisalabad, Pakistan.

Methods/statistical analysis: This descriptive study was conducted on 80 farmers from different regions of Faisalabad who were between 25 to 80 years old and harvesting traditionally. Nordic Questionnaire (NMQ) was used for determining prevalence rate of musculoskeletal disorders.

Results: The obtained results indicated that the most reported musculoskeletal disorders in farmers are neck, wrist, low back with 75%, 77.5%, 66.25% respectively. We checked prevalence of MDS in different phases of harvesting, in 1st phase low back, neck, wrist with 88.75%, 87.5%, 82.5% respectively have the most musculoskeletal problems in farmers during sedentary picking up with hand. In 2nd phase low back, ankle, knee with 90%, 85%, 73.75% respectively have the most musculoskeletal problems in farmers during standing picking up with sickle. In 3rd phase knee, low back, hip with 93.75%, 90%, 73.75% respectively have the most musculoskeletal problems in farmers during collecting harvests from farm. In 4th phase hip, low back, ankle with 96.62, 92.5%, 77.5% respectively have the most musculoskeletal problems in farmers during packing.

Conclusion: Low back pain is the major problem among farmers caused by harvesting harvests from farming, according to the results. Results indicate that harvesting plays a major role in the prevalence of musculoskeletal disorders in the various parts of the body of the farmer. In the prevalence of musculoskeletal disorders of farmers, the height and age of farmers have a major role. The research showed that the working conditions of the studies farmers are unsustainable and need to be changed. As most farming practices are historically carried out priority based solution steps to minimize musculoskeletal disorders can be classified as training of ergonomics concepts in farming activities regular inspection and replacement of technical farming methods.

Introduction

Musculoskeletal Disorders (MSDs) are basically a number of disorders that are the results of abnormal posture and prolonged sitting and standing [1–3]. Workers about half of workforce of the world is affected by the musculoskeletal disorders by farming orders. Farming is considers as the one of the most hilarious industry which affects the most of the muscles,
tendons, ligaments and blood vessels. Rather than any other occupational activities, there is a huge risk of work related musculoskeletal disorders in farming [4–6]. This is basically due to the nature of activity of farming that farmers are the one that is most affected by this [7,8]. There are so many abnormal activities and motions are present in farming such as kneeling, leaning, crawling, twisting to one side, crawling, lifting and carrying weight and repeated motions that leads towards the mechanical strain and abnormal stress to the body and causes trauma [9,10]. There are about 3 main risk factors in the activities of farmers that causes the MSDs in farmers that are lifting and carrying different weights, repetition occurs in whole body such as bending and highly repetition of work by hands [11,12]. According to one study, there are the following disorders that are cussed in farmers are shoulder disorders [13], hip joint osteoarthritis [14], low back pain [15], disorders related to hand and wrist such as carpel tunnel syndrome [16], forearm disorders [17], knee osteoarthritis, disorders of upper limb, trauma like fractures, sprain and dislocations9. Prevalence of MSDs in farmers are about more than 50% than other people [18]. There are about 60% of work related MSDs are reported during previous 12 months in Kansas farmers of southeassto. The study on Netherlands farmers by Hartman and et al showed that the MSDs are the basic and important reason of sick leave by self–employed farmers [19,20]. The main purpose of this study which is done in Eastern Azerbaijan’s and Iran’s farmers is to assess the prevalence of MSDs related to farming and harvesting activities and to know the risk factors of MSDs in this population.

Materials and methods

The descriptive study was conducted with farmers in parts of Pakistan. Total 80 farmers were included in the study who worked customarily. Nordic Musculoskeletal Questionnaire (NMQ) was used for data collection. Prevalence rate of musculoskeletal disorders through determining NMQ. It was 6 month study from July–01-2020 to December–22-2020 by last year students. 1st we discussed demographic features of farmers. The rest part of questionnaire is about musculoskeletal symptom in different parts of body. It was completed after accessing musculoskeletal disorders form formers. Totally harvest activities were divided into 4 phases: sedentary picking up with hand, standing picking up with sickle, collecting harvests from farm and packing phase. A statistical analysis was performed with SPSS for Windows (version 23).

Results

In this study 80 farmers were analyzed that their mean height was 5’.7“± 3’.75” inches, body weight was 80.25 ± 5.14 kg, mean age was 29.85 ± 3.25, BMI was 22.71 ± 2.75. 6th month earlier response about musculoskeletal symptoms were recorded in Table 1. This table shows that neck, wrist, with 88.75%, 87.5%, 82.5% respectively have the most musculoskeletal problems in farmers during sedentary picking up with hand (Table 3). In 2nd phase low back, ankle, knee with 90%, 85%, 73.75% respectively have the most musculoskeletal problems in farmers during standing picking up with sickle (Table 4). In 3rd phase knee, low back, hip with 93.75%, 90%, 73.75% respectively have the most musculoskeletal problems in farmers during collecting harvests from farm (Table 5). In 4th phase hip, low back, ankle with 96.62, 92.5%, 77.5% respectively have the most musculoskeletal problems in farmers during packing (Table 6). Overall phase’s results are shown in Figure 1.

| Parts of body | Response | Total |
|---------------|----------|-------|
| Ankle         | Yes      | No    | 60   |
| Knee          | Yes      | No    | 57   |
| Hip           | Yes      | No    | 50   |
| Low back      | Yes      | No    | 45   |
| Wrist         | Yes      | No    | 40   |
| Neck          | Yes      | No    | 35   |

Table 1: Response of musculoskeletal symptoms during 6 months earlier to being interviewed.

| Parts of body | Response | Total |
|---------------|----------|-------|
| Ankle         | Yes      | No    | 60   |
| Knee          | Yes      | No    | 57   |
| Hip           | Yes      | No    | 50   |
| Low back      | Yes      | No    | 45   |
| Wrist         | Yes      | No    | 40   |
| Neck          | Yes      | No    | 35   |

Table 2: Response of musculoskeletal symptoms during 1 months earlier to being interviewed.

| Parts of body | Response | Total |
|---------------|----------|-------|
| Ankle         | Yes      | No    | 60   |
| Knee          | Yes      | No    | 57   |
| Hip           | Yes      | No    | 50   |
| Low back      | Yes      | No    | 45   |
| Wrist         | Yes      | No    | 40   |
| Neck          | Yes      | No    | 35   |

Table 3: Prevalence of MSDs in 1st phase of harvesting( sedentary picking up with hand).

| Parts of body | Response | Total |
|---------------|----------|-------|
| Ankle         | Yes      | No    | 60   |
| Knee          | Yes      | No    | 57   |
| Hip           | Yes      | No    | 50   |
| Low back      | Yes      | No    | 45   |
| Wrist         | Yes      | No    | 40   |
| Neck          | Yes      | No    | 35   |

Table 4: Prevalence of MSDs in 2nd phase of harvesting (standing picking up with sickle).

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Discussion

Through results, it is cleared that about more than 75% of farmers are associated with the pain at neck pain. 66.25% of farmer which do harvesting suffer from back pain. According to the situations, it is confirmed that the low back pain of farmers are occurred due to abnormal postures such as way of doing wirst, way of doing bend and the repeated motion are the major risk of MSDs. As a result of repeated hand and wrist motions, there are about 77.5% with wrist pain and 75% of neck pain associated farmers suffering from MSDs. After checking their musculoskeletal problems there should be rehabilitation treatments and some knowledge about after hard work and continues musculoskeletal problems. In a cohort study done by Kirkhorn, et al. it is reported that the prevalence of osteoarthritis which is occurred due to repeated motions is more in farmers than non-farmers persons. Study on MSDs in Irish farmers by Osborne, it is stated that the back pain is the most common experienced MSDs in farmers while shoulder disorders is the second one [18]. Many other studies also indicated the prevalence of shoulder disorders in farmers. In the study on Kansas farmers done by Rosecrance and et al, about 60% of farmers reported the MSDs in the preceding 12 months [10]. These parameters are also shown by many other studies [22]. Harvest season is the most busiest duration regarding work for farmer while remaining period are quite relaxing for farmer and they are busy in others activities. Due to this, the non-farming activities can also cause the prevalence of MSDs in farmers. The comparison between pain occur in body parts of last week and the pain of body parts in the last year is done to determent the role of harvest season in the prevalence of MSDs in farmers. It is found that the rate of disorders of last week is increased significantly than the rate of disorders of last 12 months [21]. The relation present between the low back pain stature and the knee pain-stature shows the effect of stature in the prevalence of MSDs in farmers. Another background factor that causes the prevalence of MSDs in farmer is age, which is shown by the relationship of age with pain occur in low back, elbow, shoulder and knee. The Osborne study indicated that the farmer’s age is not a major factor of prevalence of MSDs in Farmers [22]. In the view of REBA assessment and prioritization, all the stages and phases of farming is dangerous and have potential to lead towards the musculoskeletal disorders. All the postures are urgently be corrected by the ergonomics interventions in sedentary picking of object by hands. The posture of farmers as well as in other stages of farming should be corrected [23].

Conclusion

Low back pain is the major problem among farmers caused by harvesting harvests from farming, according to the results. Results indicate that harvesting plays a major role in the prevalence of musculoskeletal disorders in the various parts of the body of the farmer. In the prevalence of musculoskeletal disorders of farmers, the height and age of farmers have a major role. The research showed that the working conditions of the studies farmers are unsustainable and need to be changed. As most farming practices are historically carried out priority based solution steps to minimize musculoskeletal disorders can be classified as training of ergonomics concepts in farming activities regular inspection and replacement of technical farming methods. After checking their musculoskeletal problems there should be rehabilitation treatments and some knowledge about exercises for them after hard work and in continues musculoskeletal problems. It will resolve their problem and helps them for their working.

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