

Musculoskeletal Problems of Farm Women While Performing Cotton Picking

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Abstract: *The present study was conducted in four villages of Parbhani and Beed districts of Marathwada region of Maharashtra State. Work related musculoskeletal problems and risk factors data was collected with the help of interview schedule cum questionnaire. Incidences of musculoskeletal problems of the subjects were identified by using the body map. It was found that 96.66 per cent of the selected female workers who performed the cotton picking activity had pain in neck, knees as well as in calf muscles. About 76 to 93 per cent women suffered from problem of thigh muscles, hand, wrists and shoulder. It can be concluded that maximum musculoskeletal problems of female workers while performing cotton picking activity with conventional method were very severe pain in case of lower back, knee, ankles and feet, arm and leg muscles because of many postural changes and repetitive hand movements while performing cotton picking activity continuously for 8 hrs per day during the season.*

Keywords: Musculoskeletal problems, cotton picking, ergonomic evaluation, PCW

1. Introduction

Cotton is one of the most important fiber crops in India and the share of cotton is about 70 per cent in textile industry. Cotton crop is cultivated 8.87/m ha with a 1500kg/ hectare. Nearly 60 per cent of cotton cultivation is under rain fed condition and the remaining 40 per cent as irrigated crop (Narayanan and Sundaram, 1999) is cultivated in 8.122 million ha with a production of 13.75 million bales with an average of 295 kg/ha. Women play a crucial role in cotton picking and their role in cotton farming operations is very significant as they contribute about three-fourth of the total labour requirement in cotton cultivation. The use of traditional method for the work of cotton picking adds further to their drudgeries. Excessive physical strain has been associated with injury events in women. The farm women adopt bending postures and repetitive motion of body part for cotton picking activity which increases the musculoskeletal problems so they perform the activity in their own convenient postures without realizing the harmful effect on the body. Unnatural postures when adopted for any work induces hazards on the supporting system of the spine. As per recent findings, women in India are major producers, of food in terms of value, volume and number of hours worked (Dash 2000). Furthermore, management and involvement of India women in farming enterprise has been on rise recent yrs especially in better endowed rural regions (Praveena et al. 2005). Therefore this study was focused on musculoskeletal problems faced by farm women while performing cotton picking activity in the selected production system.

2. Methodology

The present study was conducted in four villages of Parbhani and Beed districts of Marathwada region of Maharashtra State. The selected 30 farm women who were engaged in cotton picking activity since 5 yrs belonging to age groups of 20 – 50 yrs were selected for the experiment. Incidence of musculoskeletal problems of the subjects were identified by using the body map viz. eye, neck, shoulders, wrists, elbows, fingers, upper back, lower back, hip and

thigh muscles, knee joint, calf muscle, ankles and feet. The incidence of pain was recorded after the completion of the activity. The intensity of pain in the above stated parts of the body was recorded by using following scale having a five point's scale: very severe- 5, sever- 4, moderate- 3, light -2, very light -1.

3. Results and Discussion

Assessment of musculoskeletal Problems while performing cotton picking activity by conventional method

The musculoskeletal problems while performing the cotton picking activity with conventional method are presented in table 1 and 2.

Frequency and percentages of farm women having musculoskeletal problems while performing the cotton picking

Musculoskeletal problems experienced by farm women were assessed with the help of body map while performing the cotton picking activity in conventional method which are presented in table 1 and 2. It can be observed from table 1 that all women expressed pain in upper arm, upper and lower back and ankles and feet. It was followed by 96.66 per cent of the selected female workers who performed the cotton picking activity had pain in neck, knee as well as in calf muscles. About 76 to 93 per cent women suffered from problem of thigh muscles, followed by pain in hand, wrists and shoulder.

It was observed from table 2 that major musculoskeletal problems in the cotton picking activity in conventional method as reported by selected female workers (56.66 %) were very severe pain in lower back, knee and calf muscles followed by upper arm, upper back, lower back, knee, calf muscles, ankles and feet. It is also clear from table that 36.66 per cent farm women experienced moderate pain in thigh muscles, buttocks and neck. About 50 per cent farm women experienced light pain in hands and wrists.

Table 1: Frequency and percentage of farm women having musculoskeletal problems while performing the cotton picking

Sr. No.	Name of body part	Frequency and percentage
1	Neck	29(96.66)
2	Shoulders	23(76.66)
3	Upper arm	30(100)
4	Elbows	19(63.33)
5	Hands and wrists	25(83.33)
6	Upper back	30(100)
7	Lower back	30(100)
8	Thigh muscles	28(93.33)
9	Knee	29(96.66)
10	Calf muscles	29(96.66)
11	Ankles and feet	30(100)

Note: Figures in parenthesis indicates percentage

Table 2: Assessment of musculoskeletal problems of farm women while performing the cotton picking activity by conventional method

Musculoskeletal Problems	Severity of pain					Total score	Mean \pm SD	Ranking
	5	4	3	2	1			
Neck	6(20)	9(30)	11(36.66)	3(10)	1(3.33)	106	3.53 \pm 1.04	III
Shoulders	3(10)	3(10)	10(33.33)	12(40)	2(6.66)	83	2.76 \pm 1.07	IV
Upper arm	14(46.66)	11(36.66)	4(13.33)	1(3.33)	Nil	122	4.26 \pm 0.82	II
Elbows	3(10)	3(10)	10(33.33)	12(40)	2(6.66)	83	2.76 \pm 1.07	IV
Hands and wrists	1(3.33)	3(10)	9(30)	15(50)	2(6.66)	78	2.53 \pm 0.86	V
Upper back	14(46.66)	11(36.66)	4(13.33)	1(3.33)	Nil	122	4.26 \pm 0.82	II
Lower back	7(56.66)	9(30)	4(13.33)	Nil	Nil	136	4.43 \pm 0.72	I
Hips/thighs and buttocks	Nil	3(10)	11(36.66)	13(43.33)	3(10)	76	2.46 \pm 0.81	VI
Knee	7(56.66)	9(30)	4(13.33)	Nil	Nil	136	4.43 \pm 0.72	I
Calf muscles	7(56.66)	9(30)	4(13.33)	Nil	Nil	136	4.43 \pm 0.72	I
Ankles and feet	3(10)	17(56.66)	6(20)	3(10)	1(3.33)	122	4.26 \pm 3.85	II

Note- Figure in parenthesis indicate percentage

Scale 5: Very severe, 4- Sever, 3- Moderate, 2- Light, 1-Very light

4. Conclusion

After the analysis of the entire data, their findings and discussion, it can be concluded that maximum musculoskeletal problems of female workers while performing cotton picking activity with conventional method were very severe pain in case of lower back, knee, ankles and feet. Maximum farm women experienced musculoskeletal problems in back, arm and leg muscles because of many postural changes and repetitive hand movements while performing cotton picking activity continuously for 8 hrs per day during the season.

References

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