

Title of paper: PREVALENCE OF MUSCULOSKELETAL PROBLEMS AMONG COBBLERS IN FOOTWEAR REPAIRING WORK

Abstract

Cobbling or shoe-repairing is one of the aged old occupations belonging to unorganized sector. Majority of workers are dependent on this occupation for livelihood. The cobblers work in sitting position mainly on the busy routes with congested surroundings. The present study was conducted among 100 cobblers working in Uttarakhand State, India with an objective to find out the musculoskeletal pain or discomfort faced by them during their work. The data was collected using Standardized Nordic Musculoskeletal Questionnaire. Results revealed that the cobblers suffered from pain or discomforts in different body regions especially lower back, neck and lower leg. Sitting with folded legs and continuous bending of neck during work were the major reasons of pain/discomfort. Various muscle relaxing exercises can help the cobblers to overcome the risk of developing musculoskeletal disorders. Further, an ergonomic workstation design will help in improving their workplace wellbeing.

Keywords: Musculoskeletal disorder, poor posture, back pain, shoe-workers, work environment.

Introduction

Cobblers are involved in their ages old profession of repairing footwears. Along with the repairing of all variety of footwears, they repair leather and other articles as well. Their work include prolonged sitting with forward inclined posture. Studies among different unorganized sector population have showed that low back pain has been a common problem in informal sector. The postures adopted during any work have a great impact on the health of workers. A poor posture adopted for a longer period may lead to the development of chronic back pain, neck pain or other musculoskeletal symptoms that can affect the upper as well as lower extremity (Gangwar and Kiran, 2014). Low back pain has been associated with the awkward postures, which include non-neutral position of trunk caused due to forward bending or twisting of trunk (Lis *et al.*, 2007). Body posture adopted during a particular task depends upon the nature and nature of workplace (Sahu *et al.*, 2013). Cobblers during their work have their head and trunk inclined forward to have a better vision of their point of operation while sitting on floor with folded knees and ankle. Sitting for most of the working hours have resulted in the development of pain and discomfort in neck, shoulder and back which gradually leads to the alteration in normal curve of spine causing pressure on discs. This alteration can cause compression resulting in chronic pains and nerve damage (Ghosh *et al.*, 2010). The aim of this investigation was to find out the musculoskeletal risk and discomforts encountered by the cobblers.

Materials & methods

Selection of subject: The study was conducted in Uttarakhand, India. A total of 100 male cobblers working in different locations of two different districts were selected purposively.

Selection of tools: A self-developed questionnaire was used to assess the socio-demographic characteristics of the cobblers. The Standardized Nordic Musculoskeletal Questionnaire developed by Kuroinka *et al.* (1987) was used to assess the musculoskeletal problems faced by the cobblers. It addressed perceived body discomfort, activities causing pain and health surveillance of the respondents. The data collection was done using face-to-face communication.

Statistical analysis: Data collected was analyzed using SPSS. The chi-square test was used to find an association between work experience and occurrence level of musculoskeletal discomforts. Both the variables were operationalized into three categories.

Results & Discussion

The results pertaining to the socio-demographic parameters showed that majority of the cobblers (44%) belonged to age group of 31 – 45 years. The mean age was observed to be 41.59 ± 12.53 years. It was found that most of the cobblers, 32%, were illiterate while 13% were functionally literate, i.e. knew how to sign. 85% were married and it was found that most of the respondents (38%) had been in this occupation for 1 – 15 years while 25% were found to be working from past 31 – 45 years and rest 37% had an experience of 16 – 30 years. A report by Mondal (2015) on a cobbler community revealed that majority (54%) of the respondents belonged to 26 – 45 years of age group and 38% were found to be illiterate. The prevalence of musculoskeletal discomforts among the respondents was analyzed using Standardized Nordic Questionnaire. The results, as depicted in table 1, showed that only 18% of the respondents had knowledge about the musculoskeletal pain/discomforts. Further 59% were being prevented from doing the normal activities when they had any musculoskeletal pain/discomforts but it was found that only 37% reported to have stayed away from normal work activities when they had these pain/discomforts. This implies that the respondents continued to do their work activities despite of the discomfort occurring to them. Becoming habitual to these discomforts kept them working even during the occurrence of pain/discomfort.

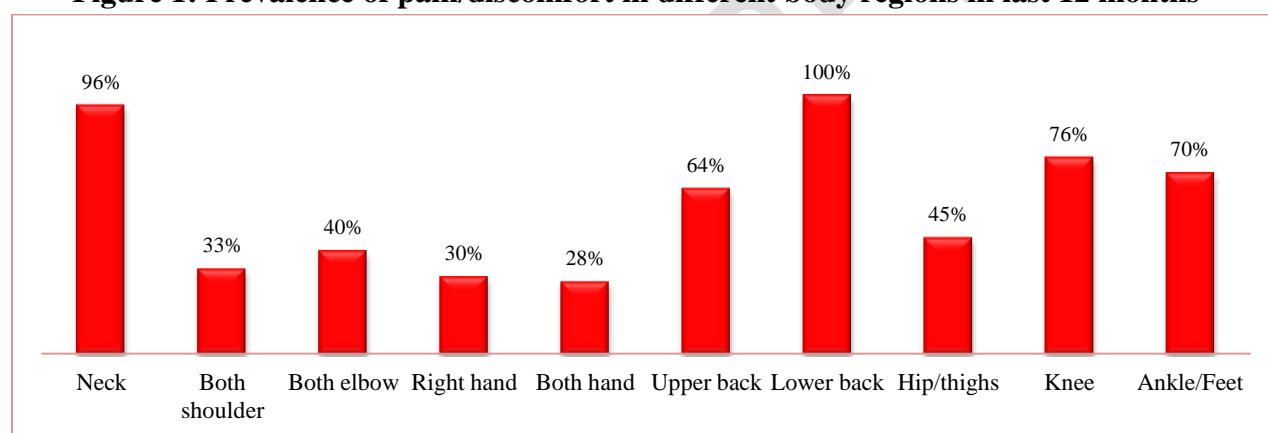
Table 1: Pain and discomfort with locomotive organs

S.No.	Parameters	Frequency
1	Do you know about musculoskeletal pain/discomfort?	18
2	Have you ever been prevented from normal activities because of musculoskeletal pain/discomfort?	59
3	Do you stay away from normal work activities because of pain/discomfort?	37
4	Activities causing pain/discomfort at work?	
	Neck bending	85
	Folded legs	50
	Sitting in uneven surface	32
	Load carrying	24

When asked about the activities causing pain/discomfort, it was found that 85% of the respondents felt pain due to continuous bending of neck during repairing works and their job requires sitting on floor with folded legs which was also the reason of discomfort as reported by

50% of the respondents. It was also found that 32% of the respondents faced discomfort due to sitting in uneven surface or due to congested surroundings. The tool box carried by the respondents weighed 18-20 kg which was also one of the reasons of pain/discomfort as stated by 24% of the respondents. In a similar study done on carpet weavers by Choobineh *et al.* (2014), weavers worked with folded or cross legged position leading to a poor posture which was an identified risk factor. The respondents were further asked questions about perceived body pain/discomforts, which lasted for atleast 24 hours. The figure 1 shows prevalence of pain in different body regions that was reported for past 12 months. It was observed all the respondents had suffered from low back pain and 96% had suffered from neck pain in past 12 months. Further it was observed that more than half of the respondents had suffered from pain/discomfort in knee, ankle/feet and upper back regions. More than one-third of the respondents had complained of pain/discomforts in hip/thighs, both elbows and shoulder. Choobineh *et al.* (2004), in their study stated that 81.17% of the weavers had complained of musculoskeletal symptoms in various body regions including neck, back, shoulders etc. during last 12 months.

Figure 1: Prevalence of pain/discomfort in different body regions in last 12 months



A chi-square test was carried out to find an association between the work experience of the respondents and occurrence level of musculoskeletal discomforts. It was observed that there was a significant association ($\chi^2=9.591$, $p<0.05$) between both the variables.

The data corresponding to the health surveillance of the respondents was also analyzed and the results as depicted in table 2 shows that only 13% had noted the problems (either pain or discomfort) before they started working while 87% said to have noticed the problem while working. It was further found that 60% were taking medical treatment for the pain or discomfort which occurred to them during their work. Most of the respondents (42%) took treatment (medicines) either on their own without the prescription of doctors or as advised by their near ones. Only 11% were consulting government hospitals and 7% were taking local advice. When asked about the problems for which the treatment is being taken it was found that 30% took for cough/cold/fever and only 10% took for shoulder pain. 9% were found to be taking treatment for lower body regions and 7% for skin allergies. The treatment for external injuries (cuts and

wounds caused due to use of tools) was reported to be taken by only 10% of the respondents. It was analyzed that, becoming habitual of their working environment, respondents left these injuries to be self-healed. It was further reported that the treatment helped for only 44% of the respondents.

Table 2: Health surveillance of the respondents

Parameters	Frequency
1. When the problem was first noticed?	
• Before you started working	13
• While working	87
2. Is the medical treatment taken?	60
3. The treatment is taken from:	
• Doctor of government hospital	11
• Local doctor	7
• Self/others	42
4. Treatment taken for*	
• Body pain/back ache	4
• Shoulder pain	10
• Visual discomfort (vision related)	9
• Skin allergy	7
• Cough/cold/fever	30
• Cuts and wounds	10
5. Was the treatment effective?	44

*multiple responses

The results of this present investigation revealed that workers who are involved in the job of repairing footwears are sitting with folded legs continuously when carrying out their activity. Moreover, the workers in this occupation are working by sitting beside the roadside of a busy route which makes their workstation to be in a confined area. It has been reported by Prakasam (2014) that the environmental factors affect the roadside service providers (cobblers, bicycle repairers and barbers) to a larger extent. There are evidences that workers who need to be seated for majority of their work hours had complained of discomforts. It has been found that overall discomfort and pain in neck, back and shoulders are the common symptoms prevalent in workers who sit for most of their workday. Sitting in awkward position in a confined area leads to the development of musculoskeletal symptoms. A study done by Ghosh *et al.* (2010) revealed that 80% of the goldsmiths had feeling of discomfort while they were at work while 30% reported to have faced discomfort during rest. The discomforts found were pain at neck (80%), lower back (75%), wrist (45%) and shoulder (20%). These were caused due to working in poor environmental conditions with neck and back inclined forward in sitting posture. Being highly repetitive, hand sewing tasks requires coordination of hand and vision while sitting for longer duration. This makes the head and trunk to remain forward inclined causing excessive load on the body of the workers.

Conclusion

Cobbling is the only source of income for majority of the workers in India. Their earning depends only on the mending or repairing work (footwear and other articles). They work on the streets and sitting for most of the work time leads to the developing of low back pain. In addition to it, the posture adopted during sitting causes musculoskeletal discomforts as assessed using Nordic tool in the present study. It was found that the cobblers were suffering from pain and discomforts in various body regions. Due to lack of knowledge about the long term impact of these discomforts, the cobblers continued to work in their present state which could lead to the development of musculoskeletal disorder in a longer run, if not corrected. The work environment in which a worker works also affects the health and safety of that worker. Muscle relaxing exercises can help the workers to release the pain/discomfort caused due to continuous sitting posture. There is a need to design an ergonomically approved workstation which will help the cobblers to reduce the risk of developing musculoskeletal disorders besides providing an aesthetic environment.

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