

AN ANALYSIS OF RISK AND DISCOMFORTS FACED BY COBBLERS IN REPAIRING WORKS

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ABSTRACT

It is evident from various studies that awkward postures, stress and exposure to noise & vibration at work site may lead to occupational injuries and musculoskeletal disorders. Sitting for most of the work hours leads to discomfort and pain in different body regions mainly neck, shoulder and back. This study was taken up with an objective to study the existing work conditions among the cobblers and to assess the postural risks faced by them during their work. The Workplace Ergonomic Risk Assessment tool used for postural analysis revealed that cobblers are under medium risk category and the task needs to be investigated and changed.

KEYWORDS: *Cobblers, Postural Discomfort, Musculoskeletal Pain*

Article History

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INTRODUCTION

Workers who are involved in the job of repairing and mending of footwear, popularly known as cobblers or shoe repairers; are exposed to many risk factors, which can lead to various health hazards. It includes low back pain, skin ailments and visual discomforts (Samsuzzaman et. al. 2014). Sitting for more than half of the work day is the prominent cause of low back pain among the workers and risk effects are increased with awkward postures (Lis et. al., 2007). Tools and equipment are also regarded as a source of potential threat leading to workplace hazards. A variety of tools like knives, needles, hammer, thread are used by cobblers for repairing work along with variety of dyes, adhesives and glues. Exposures to the chemicals may have an adverse affects on the physiological systems (Todd et. al. 2008). Workers exposed to the repetitive work for longer duration have higher tendency to develop musculoskeletal disorders (Muggleton et. al., 1999).

Objective

This study was taken up with an objective to identify the working conditions of the cobblers and to find out the postural risks faced by them.

Material & Methods

The study was conducted in Haldwani Block of Nanital District in Uttarakhand State, India. Thirty(30) cobblers working in the different locations of the city were selected randomly for the interview to assess the information about their working

conditions and the risks faced by them. The data was collected through personal interview schedule. For risk assessment, WERA (Workplace Ergonomic Risk Assessment) and body map tool were used. WERA (Workplace Ergonomic Risk Assessment) is an observational tool which is used to identify the risk factors that may lead to work related musculoskeletal disorders.

Results

Demographic Profile of the Cobblers

The results showed that majority of the respondents, i.e. 47% were between 40 – 60 years of age. About 13% were above 60 years and rest 40% were below 30 years of age. More than half of the respondents i.e. 53% were illiterate. Only one of the respondents was found to have attained education up to 9th standard while 27% had attained up to 5th standard. Further, it was found that 67% of the respondents were dependent only on this occupation as their major source of income. The average per day earning ranged between Rs 301 – Rs 400 for 40% of the respondents followed by 33% earning between Rs 200 – Rs 300 and 27% earning between Rs 401 – Rs 500. **Kumar (2018)** in his study among the cobblers of Tuljapur, Maharashtra found that 60% of the selected cobblers were uneducated and for 78%, it was the primary source of income. **Pal (2011)** in his study among the cobblers of Bolpur, Kolkata found two of the respondents to be studying in 9th and 10th standard, 32% having no education and 41% having attained up to 4th standard.

Work Profile of the Cobblers

The results showed that 30% of the respondents had an experience of 21 – 30 years, 27% had 11 – 20 years experience followed by 23%, with 1 -10 years of experience and rest 20% with 31 – 40 years of experience. Nearly 40% of the respondents spent 10 – 12 hours daily on the work and 23% worked for about 4 – 6 hours daily. **Samsuzzaman et al. (2014)** in his study among shoemakers in Kolkata found that near about 82% of the respondents worked for about 12 hours per day.

Analysis of Musculoskeletal Pain using Body Map

Body map was used to locate the regions of pain in body. As per the results (Figure 1), all the respondents reported to have pain in neck, shoulder, upper back, arm and lower back. Nearly 80% had pain in lower leg. More than 70% had pain in knee and fingers while about 66% had pain in thigh and hips/buttocks. The pain in wrist area was reported by 60%. **Gangopadhyay et al. (2014)** reported that workers sitting for longer duration during work had complained to have pain at lower back (87%), neck (80%) and shoulder (80%).

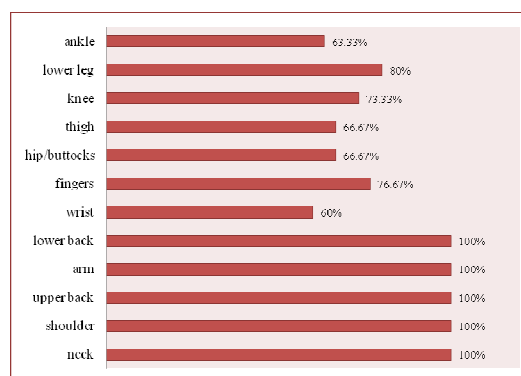


Figure 1: Percentage of Respondents Facing Pain in Various Body Parts

Correlation between Age and Frequency of Pain in Different Body Parts

To determine the relation between age and frequency of pain, correlation coefficient was calculated. The value of r obtained (Table 1) showed that there was a positive correlation between age and frequency of pain in lower back, wrist, fingers, thigh, lower leg, ankle and knee joint indicating that with increasing age, the frequency of pain increases in these body regions. A negative correlation was observed among neck, shoulder and upper back.

Table 1: Correlation between Age and Frequency of Pain

	Neck	Shoulder	Upper back	Lower Back	Wrist	Fingers	Thigh	Lower leg	Ankle	Knee Joint
r	-0.62	-0.622	-0.23	0.219	0.305	0.237	0.365	0.387	0.235	0.5239

Postural analysis of cobblers using WERA (Workplace Ergonomic Risk Assessment – an observational tool)

The scores in WERA are calculated on the basis of nine risk factors categorized under low, medium and high risk level. The scoring was done individually for each respondent. It was found that all respondents scored under medium risk level indicating the requirement for further investigation & change. (Table 2)

Table 2: WERA Scores

WERA Scores	Risk Level	n=30
18-27	Low	
28-44	Medium	30*
45-54	High	

*Task need to be further investigated & required change

CONCLUSIONS

The mean age of the respondents was found to be 40.6 ± 11.89 years. Majority of the respondents were illiterate, i.e. not attained formal education. They sat majorly for 10-12 hours daily at their workplace. This occupation is being passed on from generation to generation and hence it was the reason, majority had adapted to it. Neck, shoulder, arm, back and lower leg were major identified regions of pain in body. Postural analysis through an observational tool WERA, showed that the posture adopted by the cobblers was in the medium risk category indicating further investigations and changes accordingly.

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