

Overview Of Musculoskeletal Disorders Conditions At The Leather Wallet Craftsman At UD. Nanan

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ABSTRACT

Introduction: The characteristic of working conditions for leather craftsmen is sitting cross-legged with a cushion in front of the work table. This job is a job with low mobility. Such working conditions can trigger occupational diseases such as muscle complaints which are commonly known as musculoskeletal disorders (MSDs). To find out musculoskeletal complaints experienced by craftsmen before and after work. **Methods:** This research uses an evaluative research design with a sample of 30 people. Data was obtained by interviews and using the Nordic Body Map questionnaire to measure musculoskeletal complaints before and after work. Data before and after work from variables were statistically analyzed with SPSS version 26.0. **Results:** The results of data analysis showed that there was a significant increase in musculoskeletal complaints before and after work, $p = 0.00$. **Conclusion:** musculoskeletal complaints increased by 25.45% after undergoing work processes that were not ergonomic or without considering the capacity of the worker

Keywords: *Musculoskeletal Disorders (MSDs), Occupational Health*

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INTRODUCTION

The fashion industry in Indonesia is growing rapidly, this is in line with the high level of public interest in changes in clothing styles. Fashion made from leather is a fairly large choice of commodity to support your appearance. Ubud is one of the sub-districts in Gianyar City, Bali Province which has many art craftsmen, one of which is leather crafts which produces wallets, bags, belts and accessories which not only collaborate with the local market but also include the international market.

To produce quality leather crafts, several stages are required until the product can be marketed. The production process starts from cutting out the pattern, forming the stitching pattern using a pencil for light-colored leather and a silver pencil for dark-colored leather, cutting through to the sewing and finishing process. This entire process is carried out manually using special leather craft tools.

The characteristic working conditions of leather craftsmen are sitting cross-legged with a cushion in front of the work table. This job is a job with low mobility. Such working conditions can trigger occupational diseases such as muscle complaints commonly known as musculoskeletal disorders (MSDs) (Fauzia, 2015).

Long and continuous periods of time will cause muscle complaints or what are commonly known as musculoskeletal disorders (MSDs). Musculoskeletal disorders (MSDs) are disorders that affect the normal function of the musculoskeletal system due to repeated exposure to various risk factors in the workplace.

During the production process, each craftsman works in a sitting position on a sitting cushion or on a small stool for eight hours over six working days. Based on the results of interviews conducted with craftsmen, each craftsman was able to complete a large-sized



leather bag within \pm two working days, with a monthly wage system.

The musculoskeletal system includes tendons, tendon pads, ligaments, bursa, blood vessels, joints, bones, muscles, and innervation. Musculoskeletal complaints occur when there is continuous fatigue and tiredness caused by frequency or long periods of time of muscle effort in receiving static loads. In addition, musculoskeletal complaints can arise from sudden damage caused by heavy activity or unexpected movements (Prastowo et al., 2023).

The dominance of MSDs as a major health problem related to work can also be seen from the results of research in various countries which state that MSDs occupy the first position. This statement is supported by data from the U.K. Labor Force Survey (LFS), which shows that MSDs in workers are very high, namely 1,144,000 cases with a distribution of cases affecting the back of 493,000 cases, the upper limbs or neck of 426,000 cases, and the lower limbs. under 224,000 cases (Zanuto et al., 2020). A study from the Ministry of Health on the profile of health problems in Indonesia shows that around 40.5% of illnesses suffered by workers are work-related. Health problems experienced by workers based on research conducted on 9,482 workers in 12 districts/cities in Indonesia showed that the highest figures were musculoskeletal disorders (16%), followed by cardiovascular disorders (8%), nervous disorders (5%), respiratory disorders (3 %) and ENT disorders (1.5%) (Mlfianda & Mauled, 2021).

MSDs cause significant work problems due to increased health compensation costs, decreased productivity, and lower quality of life. Globally, MSDs contribute to 42%–58% of all work-related illnesses and 40% of all work-related health costs. The cost of losses due to MSDs is estimated at an average of 14,726 dollars per year or around 150 million rupiah. So, if MSDs problems are not immediately treated and prevented, it can cause the work process to be hampered and not optimal (Zanuto et al., 2020).

Occupational diseases in the leather craft industry usually occur because the equipment is used as is without meeting ergonomic requirements, static work attitudes, uncomfortable work attitudes, repetitive

movements and monotonous work. As an effort to prevent the occurrence of musculoskeletal complaints among workers, it is of course necessary to provide education regarding working positions, ergonomics and other factors that can trigger complaints.

METHODS

This research uses an evaluative research design. The research sample was all leather craftsmen who worked at UD. Nanan as many as 30 people. The data source obtained is primary data obtained by interviews and using the Nordic Body Map questionnaire to measure musculoskeletal complaints felt by workers before and after work. The data obtained was then processed and analyzed with the help of the Statistical Package For The Social Science (SPSS) computer program Version 26.0. The variable musculoskeletal complaints before and after work were tested to determine the nature of the data distribution using the Shapiro-Wilk Test with a significance level of $\alpha = 0.05$. Then the data obtained from before and after work will be subjected to a parametric statistical test using the Paired Sample T-Test if the data is normally distributed, whereas if the data is not normally distributed, it will be tested using the Wilcoxon Signed Rank Test with significance $\alpha = 0.05$, this test aims to see description of MSDs complaints in leather craftsmen before and after work activities.

RESULTS

Musculoskeletal complaints were measured on leather craftsmen twice, namely before and after work, using the Nordic body map instrument, and the following results were obtained:

Table 1. Data on leather craftsmen

Variable	Total	Mean \pm SD
Gender		
Man	12	
Woman	18	
Age		40.1 \pm 5.49
Work experience		6.6 \pm 5.34



Data on musculoskeletal complaints before and after work were tested for normality with Shapiro-Wilk at a significance level of $\alpha = 0.05$. The results of the normality test are shown in Table 2.

Table 2. Normality Test for Musculoskeletal Complaints

Variable	Total	Mean±SD
Pre	38.1±3.2	0.72
Post	47.8±5.5	0.14

From the results of the normality test, it was found that data on musculoskeletal complaints before and after work had a p value > 0.05 . This means that all data on musculoskeletal complaints obtained both before and after work has a normal distribution, so that parametric tests can be carried out using the Paired Sample T-Test.

Table 3. Comparability Test of Musculoskeletal Complaints

Variable	Total	Mean±SD
Pre	38.1±3.2	0.00
Post	47.8±5.5	

From the results of Table 3, it can be seen that the musculoskeletal complaint score before work is 38.1 ± 3.2 , while after work with a musculoskeletal complaint score of 47.8 ± 5.5 which is in the moderate category, corrective action may be needed. The statistical test results for differences in musculoskeletal complaints between before and after work have a p value < 0.05 , this means that there is a significant difference between musculoskeletal complaints before and after work. Based on the data obtained, after undergoing work activities, all leather wallet craftsmen at UD. Nanan experienced the most musculoskeletal complaints in the waist area with a percentage of 32%, buttocks 22%, neck 18%, calves 15%, arms 8% and wrists 5%. all of which were painful complaints that would disappear if work activities were stopped.

DISCUSSION

Musculoskeletal complaints will begin to be felt at the age of 30 years and will continue to increase with age due to tissue degeneration,

namely that some tissue will be replaced with scar tissue and reduced fluid content resulting in reduced tissue elasticity which has a high risk of injury to the musculoskeletal tissue (Mlfianda & Mauled, 2021).

Another factor that is of concern to researchers is that long work duration without adjustments to rest periods and nutritional needs will have an impact on the occurrence of musculoskeletal complaints. The reason is that work duration that is not managed wisely can cause workers to carry out work activities continuously so that the tissue involved will exceed the threshold for pressure and friction in the tissue, thereby causing vulnerability to tissue injury (Alan, 2017). Another factor that is also of concern in the involvement of musculoskeletal complaints in workers is the period of work. Apart from working time being a positive factor in increasing a person's work ability and productivity, working time also has a negative impact on workers, namely the emergence of musculoskeletal complaints (Saputra et al., 2020).

Musculoskeletal complaints are related to the working period if during the course of work the worker is exposed to unergonomic working conditions such as awkward work attitudes, high workloads, inappropriate rest periods for the nature of the work, use of work tools that are not in accordance with the worker's anthropometry, inadequate nutritional availability. bad, as well as extreme environmental conditions. Thus, workers who have long working periods will be exposed routinely for long periods of time, up to years, resulting in an accumulation of musculoskeletal complaints (Alan, 2017; Fauzia, 2015; Putra & Rusni, 2022). Work-related musculoskeletal complaints that are allowed to occur in workers will have a negative impact on work productivity, quality and cause expenses for the company and the workers themselves (Mualim & Yusmiarti, 2020; Saputra et al., 2020).

Individual characteristics of workers, age has a role in increasing work fatigue because the older a worker is, the body's physiological functions change which affects a person's endurance and work capacity (Sahara & Prisyta, 2020; Wicaksono et al., 2022). Furthermore, the duration of work undertaken by workers at UD. Nanan has a long working duration and has



exceeded the stipulated provisions which should be 6 working days per week, i.e. not exceeding 7 hours per day (Menaker, 2018). This long work duration will have an impact on disrupting the body's circadian cycle, where the body should rest at certain times, but is still forced to work so that the production of lactic acid in the body will increase and cause musculoskeletal complaints. Apart from that, long duration of work will increase the heart load. This is directly proportional to the increase in workload. By increasing the workload without getting enough rest, fatigue will increase and there will be an accumulation of fatigue which will result in a decline in the craftsman's health (Karina et al., 2021; Wicaksono & Adiputra, 2021).

CONCLUSION

This research concluded that musculoskeletal complaints increased by 25.45% after undergoing work processes that were not ergonomic or without considering the worker's capacity.

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