

Complaints Of Musculoskeletal Disorders (MSDs) In Terms Of Work Posture And Work Period In The Polishing Section Of Terazzo Craftsmen In The Sodo Village, Pakel District, Tulungagung Regency

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ABSTRACT

Musculoskeletal Disorders are disorders related to muscle tissue, tendons, ligaments, and nerves. Factors that can lead to the formation of complaints of the musculoskeletal system are an odd form of work posture and a long work period. The purpose of this study was to determine the effect of work posture and work period on complaints of musculoskeletal disorders in terazzo craftsmen polishing workers in Sodo Village, Pakel District, Tulungagung Regency. This research is a quantitative study, with a cross sectional approach. The population is 45 workers in the polishing section of craftsmen. A sample of 40 respondents with the sampling technique using simple random sampling technique. This study uses the REBA observation sheet to assess work posture, interviews to determine work period, and the NBM questionnaire sheet to assess complaints of musculoskeletal disorders. Data analysis technique using multiple linear regression test. The result of multiple linear regression tests show that the proportion of the effect of work posture and work period is 45% on complaints of musculoskeletal disorders. Variable work posture had an effect on complaints of musculoskeletal disorders with a p value of 0,042. Work period variable also affects musculoskeletal disorders complaints with a p value of 0,001. To reduce complaints of musculoskeletal disorders, workers are advised to learn about the dangers of musculoskeletal disorders and how to overcome them, rest for a few minutes when the body begins to feel muscle fatigue, and business owners of terazzo craftsmen are advised to provide training to workers about the dangers of musculoskeletal disorders and how to overcome them, collaborating with health workers, providing ergonomic work facilities so as to avoid awkward postures.

Keywords : Musculoskeletal disorders, Work period, Work posture

INTRODUCTION

The development of science and technology is currently developing very rapidly. This technology can be applied in various sectors, one of which is in the industry. Advanced industries or micro, small and medium enterprises often use the latest and modern technologies to support their business processes, but this can lead to a mismatch between machines / equipment and workers. Technological advances have also caused various adverse effects, namely an increase in environmental pollution, work accidents and the emergence of various occupational diseases (Ginanjari, Fathimah and Aulia, 2018). Health problems that often occur include skeletal muscle disorders or musculoskeletal disorders (MSDs), eye disorders and skin health problems (Mahakam et al., 2019).

The 2018 National Institute of Occupational Safety and Health (NIOSH), musculoskeletal disorders (MSDs) are soft tissue injuries caused by repetitive movements, forces, vibrations and awkward positions. Can affect muscles, ligaments, nerves, tendons and joints (Mahakam et al., 2019). Musculoskeletal complaints experienced by someone ranging from very mild

complaints to very sick. Factors that can lead to the formation of complaints of the musculoskeletal system include an odd form of work posture, frequent repetitive movements, and a long working period (Sari, Handayani and Saufi, 2017).

According to the ILO in 2018, data on Musculoskeletal complaints in Indonesia showed that workers suffered muscle injuries in the lower neck (80%), shoulders (20%), back (40%), back hips (40%), back hips (20%) , buttocks (20%), thighs (40%), knees (60%), and calves (80%). The polishing work process is polishing / sanding to make it smooth and shiny which consists of 2 parts of the process, namely coarse polish and fine polish. In this process using a hand grinding machine.

Based on data from the Central Statistics Agency (BPS) in 2016, musculoskeletal diseases were recorded as one of the 10 largest diseases in Tulungagung Regency with a total of 33,142 cases. This disease is the second highest disease in Tulungagung Regency after acute upper respiratory tract infection

The terrazzo craft industry consists of several processes including mixing ingredients, printing, coarse polish, putty, fine polish, and applying polishing drugs. Based on the results of preliminary observations and interviews on September 30, 2020, terrazzo craftsman workers from the initial raw material activity to the finished product process, found a high level of muscle complaints in the polishing section. These activities are carried out repeatedly, and for a long time. In 10 polishing workers, it is known that 90% of workers complain of pain and stiffness in the shoulders and arms, 80% of workers on the hands, 60% of workers on the back, 30% of workers on the neck, and 20% of workers on the waist. Based on this, the authors are interested in conducting research on complaints of musculoskeletal disorders (MSDs) in terms of work posture and tenure of workers in the polishing section of terrazzo craftsmen in Sodo Village, Pakel District, Tulungagung Regency.

METHODS

This research is a quantitative study, with a cross sectional approach. The population is workers in the polishing section of the terrazzo craftsmen with a total of 45 workers. Sample of 40 respondents with the sampling technique using simple random sampling technique. This study uses the REBA observation sheet to assess work posture, interviews to determine tenure, and the NBM questionnaire sheet to assess complaints of musculoskeletal disorders. The data analysis technique used multiple linear regression test.

RESULTS

1. Variable Characteristics

Table 1 Variable Characteristic

No	Characteristics	Frequency	percentage (%)
1.	Work Posture		
	Low	4	10
	Medium	36	90
2.	Work Period		
	< 5 years	29	72,5
	> 5 years	11	27,5
3.	Complaints of Musculoskeletal Disorders		
	Low	10	25
	Moderate	30	75

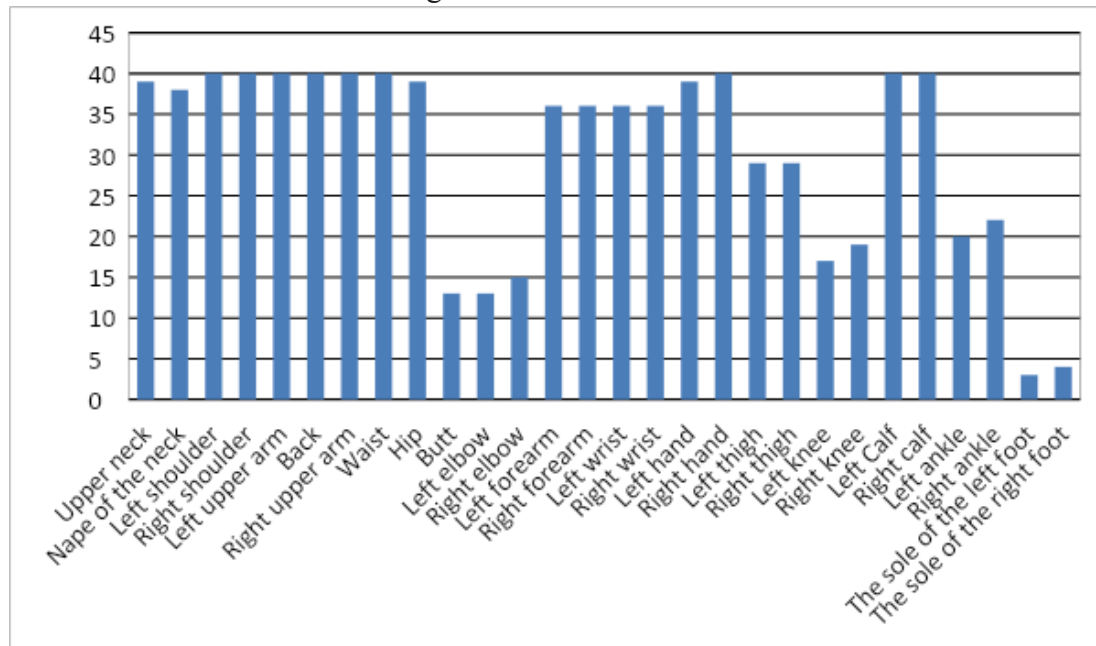
Based on the results of research conducted on 40 respondents who work in the polishing section of terrazzo craftsmen in Sodo Village, Pakel District, Tulungagung Regency, it is known that most of the respondents in the risk category of medium work

posture were 36 respondents (90%). The working period of the workers in the polishing section of the terrazzo craftsmen is mostly less than 5 years, as many as 29 respondents (72.5%). The majority of respondents with Musculoskeletal Disorders (MSDs) complaints of moderate Musculoskeletal Disorders (MSDs) were 30 respondents (75%).

2. Complaints of Musculoskeletal Disorders (MSDs)

Graph 1

MSDs Complaints Frequency Distribution Based on Body Parts of Workers in the Polishing Section of Terrazzo Craftsmen



From the graph above, it is known that the majority of workers experience complaints on the left shoulder, right shoulder, left upper arm, back, right upper arm, waist, right hand, left calf and right calf. While the least complaints are felt on the sole of the left foot and the sole of the right foot.

3. Statistical Test Results

Table 2

The Results of Multiple Linear Regression Analysis

Variable	Stand Coefficients	t-count	Sig.	Information
(Constant)	0,348			
Work posture (X1)	2,353	2,106	0,042	Significant
Work period (X2)	2,962	3,470	0,001	Significant
Fcount			15,161	
Ftable			3,24	

DISCUSSION

A. Work Posture of the Workers of the Polishing Section of Terrazzo Craftsmen

Based on the results of research conducted on 40 respondents from the polishing section of the terrazzo craftsmen in Sodo Village, Pakel District, Tulungagung Regency, it is known that the work posture of the workers in the polishing section of the terrazzo craftsmen, most of the respondents have a work posture in the medium category, namely as many as 36 respondents (96%). Some types of work will require a certain work posture which is sometimes not ergonomic. Working conditions like this force workers to always be in an unnatural work posture and last for a long time. (Andriani, Dewiyana and Erfani, 2017). A worker involves several muscle forces, so that improper work posture will cause health problems in the muscles which in the short term results in physical fatigue but in the long term will result in damage to muscles, joints, ligaments and tendons. (Pramestari, 2017). Activity conditions that include awkward postures are repetitions or long periods of time in reaching, twisting, tilting, kneeling, squatting, holding in a static state and pinching with your hands. (Purbasari, Azista and Siboro, 2019) In the polishing section of the terrazzo craftsmen in Sodo Village, Pakel District, Tulungagung Regency, it was found that most of the workers had a moderate working posture risk. This means that further investigation is needed as well as an immediate change in the working posture of the polishing workers of the terrazzo craftsmen in Sodo Village, Pakel District, Tulungagung Regency. An awkward work posture if not handled immediately will cause various health problems in the muscles which can have a negative impact on workers, thereby reducing the worker's performance.

B. Working Period of Workers in the Polishing Section of Terrazzo Craftsmen

Based on the results of research conducted on 40 respondents from the polishing section of terrazzo craftsmen in Sodo Village, Pakel District, Tulungagung Regency, it is known that most of the working period for workers in the polishing section of terrazzo craftsmen is less than 5 years, as many as 29 respondents (72.5%).

New workers usually do not know in depth the ins and outs of their work and safety, besides that new workers often attach importance to the completion of a number of jobs assigned to them, so that safety does not get enough attention. In a company, new workers who lack experience often get work accidents. A person's tenure can be related to the experience gained in the workplace. The longer a person works, the more experience and the higher their knowledge and skills. (Andriyanto, 2017)

The working period of the worker in the polishing section of the terrazzo craftsman can have a positive effect on performance if the worker becomes more experienced in carrying out his duties. Conversely, it has a negative effect on performance when workers feel used to the situation and underestimate their work and cause boredom. In addition, the negative effect of tenure is that it can cause various kinds of health problems.

C. Complaints of Musculoskeletal Disorders (MSDs) on Workers of the Polishing Section of Terrazzo Craftsmen

Based on the results of research conducted on 40 respondents from the polishing section of terrazzo craftsmen in Sodo Village, Pakel District, Tulungagung Regency, it was found that 30 respondents (75%) had moderate Musculoskeletal Disorders (MSDs) complaints. The majority of workers experienced complaints of Musculoskeletal Disorders (MSDs) on the left shoulder, right shoulder, left upper arm, back, right upper arm, waist, right hand, left calf and right calf as many as 40 respondents (100%), upper neck, and The left hand of 39 respondents (97.5%), nape of 38 respondents (95%), left forearm, right forearm, left wrist, and right wrist of 36 respondents (90%).

According to OHSCO (2007) activities with a high repetition rate can cause fatigue in muscles, damage to tissues to pain and discomfort. If the muscles receive static loads repeatedly and for a long time, it will also cause complaints in the form of damage to joints, ligaments and tendons.

Various areas of complaints experienced by workers in the polishing section of terrazzo craftsmen in Sodo Village, Pakel District, Tulungagung Regency occur because of the work attitude that ducks with a tilting motion of the waist area, neck with circular movements in the shoulder area, upper arm, forearm, wrist and repetitive movements without adequate rest.

D. Complaints of Musculoskeletal Disorders (MSDs) in Polishing Workers in terms of Work Posture and Work Period of Terrazzo Craftsmen

1. Work Posture

Based on the results of research conducted on 40 respondents from the polishing section of terrazzo craftsmen in Sodo Village, Pakel District, Tulungagung Regency, it is known that most respondents with medium work posture experienced moderate MSDs as many as 28 respondents (70%). Based on the results of the regression analysis, it was found that the work posture variable had a significant effect on the complaints of MSDs in the polishing workers of the terrazzo craftsmen in Sodo Village, Pakel District, Tulungagung Regency, which is proven by regression calculations with a significance level of 0.042. While the effective contribution (SE) of the work posture variable to Musculoskeletal Disorders complaints is 15.2%

If the work posture carried out by the worker is good and ergonomic, then it can be ascertained that the results obtained by the worker will be good. However, if the work posture of the worker is not ergonomic, then the worker will get tired easily. If workers experience fatigue easily, the results of the work done will also decrease and are not as expected. (Setiorini et al., 2019)

The effect of work posture on complaints of Musculoskeletal Disorders in the polishing workers of the terrazzo craftsmen indicated that the higher the risk of work posture in the polishing workers of the terrazzo craftsmen, the higher the complaints of Musculoskeletal Disorders (MSDs). This is because the design of the workplace is not ergonomic, forcing workers in unnatural positions.

2. Work Period

From the results of the research that has been done, the majority of workers in the polishing section of the terrazzo craftsmen who are less than 5 years old are 19 respondents (47.5%) with moderate Musculoskeletal Disorders (MSDs) complaints category. The results of the regression analysis show that the working period variable has a significant effect on complaints of Musculoskeletal Disorders (MSDs) on workers in the polishing division of terrazzo craftsmen in Sodo Village, Pakel District, Tulungagung Regency, this is evidenced by regression calculations with a significance level of 0.001 so that it states that tenure has a significant effect on complaints. Musculoskeletal Disorders (MSDs) on workers in the polishing section of terrazzo craftsmen in Sodo Village, Pakel District, Tulungagung Regency. Meanwhile, the effective contribution (SE) of the tenure variable to MSDS complaints is 29.8%. Thus, it can be concluded that the variable of tenure has a more dominant influence on MSDS complaints.

In Tarwaka (2010), musculoskeletal complaints are chronic diseases that require a long period of time in their development and manifestation. According to Tarwaka (2004) in Saleh (2018) states that when muscles receive excessive workload that is done repeatedly and for a long time, complaints will arise due to damage to joints, ligaments and tendons, these complaints are called musculoskeletal complaints.

The results of this study are supported by research conducted by Wita Handayani (2011) on factors related to complaints of Musculoskeletal Disorders among workers in the polishing department of PT. Surya Toto Indonesia. Tbk Tangerang, which found that there was a relationship between MSDs complaints and years of service to workers in the polishing department of PT. Surya Toto Indonesia. Tbk

The effect of working tenure on complaints of Musculoskeletal Disorders (MSDs) on workers in the polishing division of terrazzo craftsmen means that long working periods can cause fatigue in the endurance of muscles and bones physically and psychologically so that the accumulation of injuries from a long working period has a role in causing muscle complaints. Because the longer they work, the longer the person is exposed to the risk, the greater the risk for developing complaints of Musculoskeletal Disorders (MSDs).

CONCLUSION

After analyzing the data, several conclusions can be drawn, namely:

1. The work posture of the workers in the polishing section of the terrazzo craftsmen in Sodo Village, Pakel District, Tulungagung Regency, most of the respondents have a work posture in the medium category, namely 36 respondents (96%)
2. The working period of workers in the polishing section of terrazzo craftsmen in Sodo Village, Pakel District, Tulungagung Regency is mostly less than 5 years, as many as 29 respondents (72.5%).
3. Complaints of Musculoskeletal Disorders (MSDs) among workers in the polishing section of terrazzo craftsmen in Sodo Village, Pakel District, Tulungagung Regency, most of the respondents experienced moderate Musculoskeletal Disorders (MSDs) as many as 30 respondents (75%) with 25 to 35 years of age as many as 25 respondents (62 , 5%). The majority of workers experienced complaints of Musculoskeletal Disorders (MSDs) on the left shoulder, right shoulder, left upper arm, back, right upper arm, waist, right hand, left calf and right calf as many as 40 respondents (100%), upper neck, and The left hand of 39 respondents (97.5%), nape of 38 respondents (95%), left forearm, right forearm, left wrist, and right wrist of 36 respondents (90%).
4. There is a significant influence between work posture and tenure on complaints of Musculoskeletal Disorders (MSDs) among workers in the polishing division of terrazzo craftsmen in Sodo Village, Pakel District, Tulungagung Regency.

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