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The Effect of Work Posture on Work Fatigue in Furniture Workers in the East Jakarta Furniture Industry Center

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ABSTRACT
Indonesia's Micro, Small, and Medium Enterprises sector in 2022 will reach 9.1 million. One of the MSMEs developing in Indonesia is furniture at the East Jakarta Furniture Industry Center. Based on researchers' observations of furniture workers at the East Jakarta Furniture Industry Center, many workers still work without personal protective equipment, and the working environment conditions are poor. Testing has been carried out. In tidying work activities such as sanding, the worker's body posture can cause work fatigue, which causes accidents and work-related illnesses that cause losses. They are proving the effect of work posture on work fatigue of furniture workers in the furniture industry center**.** This research design was cross-sectional, and the sample size in this study was 127 respondents, with data collection using a reaction timer and questionnaire. Data analysis uses univariate tests, bivariate tests, and multivariate tests. Multivariate analysis results show that work posture factors (p=0.002) have an influence on work fatigue after being controlled by work climate factors (p=0.012), history of illness (p=0.06), and workload (p=0.09) with a value of 0R = 4.061. Entrepreneurs/employers should provide short chairs, drinking water, and exhaust fans, conduct regular health checks, and regulate workload. The government strengthens labor supervision and makes regulations that require periodic health checks and company compliance to participate in BPJS.

1. Introduction

Work fatigue can occur in workers while doing work and increase the risk of work accidents; fatigue that occurs when workers do work can increase errors that can cause work accidents. As seen from the national K3 profile (2022), work accidents in Indonesia tend to grow. The number of workers who received the work accident insurance program from the Social Security Organizing Agency (BPJS) Employment from 2019 to 2021 was recorded at 210,789 people, 221,740 people, and 234,370 people, respectively. Globally, every year, as many as two million workers die due to fatigue. The survey results in the USA show that fatigue is a big problem because as many as 24% of the

workforce experience accidents due to work fatigue, and in Indonesia, around 65% of the workforce experience work fatigue (Maurita, 2013; Mulyadi & Nurwinda, 2019). According to data from the Ministry of Manpower in 2014, in Indonesia, every day, there are an average of 414 work accidents, 27% of which are caused by high work fatigue (Atiqoh, Wahyuni, & Lestantyo, 2014). Work Posture is one of the leading causes of work fatigue where work there are some unnatural Work Postures such as bending, twisting, squatting, and lifting. These attitudes can occur for 8 hours a day when the workforce is doing work and potentially cause a decrease in labor productivity, while through interviews with respondents, they are required to complete the product goods according to the target time. Work in the MSME sector, especially furniture, is vulnerable and at risk to occupational safety and health (K3) (Lady & Wiyanto, 2019), where workers interact with various tools and materials used for furniture purposes. K3 regulations for the furniture sector have yet to be regulated in detail, so there is no strict supervision or obligation of the owner to maintain K3 in the workplace to avoid work accidents such as scratches, cuts, crushes, bumps, crashes, etc. In the East Jakarta Furniture Industry Center, there are repetitive movements and various work postures on the job, for example, in the sanding section for a specific duration of time, which can cause work fatigue (Agustin & Sariah, 2018; Amri, Erliana, & Fairuza Lubis, 2019; Cristiyanti, Wahyu, & Muis, 2022). Control of occupational safety and health risks can follow a hierarchical approach. Risk control hierarchy is the stages in risk prevention and control to reduce or eliminate the level of risk until it is acceptable to humans or workers (Ergonomi Industri Tarwaka, 2015; Sholichul Tarwaka & Sudiajeng, 2004). In the hierarchy of risk control, there are two approaches, namely, the long-term approach and the short-term approach. The approach must be done clearly to avoid consequences that arise, either permanent or temporary.

2. Materials and Methods

This research is quantitative and cross-sectional. It was conducted at the East Jakarta Furniture Industry Center involving 127 furniture workers. The sample was calculated using the proportion estimation sample formula and will be conducted in August 2023.

The instruments used to measure work fatigue are reaction timer tools and Rapid Entire Body Assessment (REBA) questionnaires for work posture, then for work climate using thermal monitors, disease history, questionnaires, and workloads, namely SNI 7269: 2009. Measuring work fatigue using a reaction timer is objective because respondents are given light stimulation and asked to respond by pressing a button. Work posture assessment using the Rapid Entire Body Assessment (REBA) questionnaire is designed to assess overall posture when performing work such as neck, back, and legs. The data was carried out by multivariate analysis using logistic regression analysis of risk factor models and using the odds ratio value to see the magnitude of the opportunity for work fatigue in workers who have risky postures.

3. Result and Discussion

The results showed that for furniture workers at the East Jakarta Furniture Industry Center, as many as 43 respondents (33.9%) did not experience work fatigue, and 84 respondents (66.1%) experienced work fatigue. It is known that in the work posture of furniture workers in the East Jakarta Furniture Industry Center, as many as 59 respondents (46.5%) experienced a non-risky work

posture, and 68 respondents (53.5%) experienced a risky work posture. Analysis of work fatigue variables with work posture showed that work posture was risky and experienced fatigue in 53 respondents (77.9%). Work posture was not risky, and fatigue was felt by as many as 31 respondents (52.5%). According to the chi-square test results, there is a correlation between work posture and work fatigue with a variable p-value of 0.005. The p-value < 0.05 so that according to the findings of the analysis, the value of the Odd Ratio (OR) is 3.191, which shows that workers who have a risky work posture will experience a risk of 3,191 times experiencing work fatigue than workers who have a work posture not at risk. Confounding variables are Work Climate, Age, History of Disease, Education, Workload, Working Time, Noise, and Lighting (Adventina & Widanarko, 2021). From the chi-square analysis, only Work Climate, Disease History, Workload, Working Period, Working Period, and Lighting obtained a p-value of < 0.25. It was included in the Multivariate test, namely multiple logistic regression.

Discussion

This study's results align with previous research: Work posture affects work fatigue in workers at the Makassar Container terminal, South Sulawesi, with a value of p = 0.002 Cristiyanti dkk., (2022). Work posture and temperature also affect work fatigue with p = 0.011, p = 0.045, and p = 0.023 in informal sector workers in Solor village, East Nusa Tenggara Odi, Purimahua, & Ruliati (2018). Work attitude and workload affect fatigue in public service workers in Makassar with a p-value = 0.001 (Indriyani, Badri, Oktariza, & Ramadhani, 2022; Rosmiati, Abdullah, & Nurlinda, 2021). Work attitude (p = 0.009 and working period (p = 0.002) are related to work fatigue in furniture workers in Tempe District, Wajo Regency (Wahyuni, Rasman, & Khaer, 2021). Work postures vary based on the observations of furniture workers at the East Jakarta Furniture Industry Center. There are standing work postures, squatting, bent backs, and repetitive movements; this adjusts to the type of sanded furniture, such as cabinets, tables, chairs, and others. Work posture in the fire-making process varies greatly, and repetitive work with moving hands can trigger fatigue in the workers' muscles.

Some workers are also in a squatting work posture that is not natural, which will potentially press the blood vessels in the legs indirectly and can trigger obstacles to the blood vessels in the legs, which can be characterized by tingling. Work climate also affects work fatigue (0.010) (Eka, ., & DN, 2019). This can occur because workers are exposed to heat directly or indirectly from machines or sunlight. Some furniture also uses a tin roof where the absorption by the sun is high enough so that the condition of the furniture will get hotter, and when interviewed, many workers use short clothes because it is pretty hot. History of disease also affects work fatigue (p = 0.020). Physiological and psychological fatigue can occur if the worker's body is unhealthy or sick or someone complains about specific diseases. The greater the condition felt less fit workers, the more it will trigger work fatigue. Body conditions that are not fit can make or be followed by an increase in body temperature in the body and also affect the minimum energy needs in the body. Workload also affects work fatigue. The higher the workload, the greater the potential for the workforce to quickly experience work fatigue. This study showed that there was a relationship between workload and furniture worker fatigue; it was proven that as many as 72.4% of respondents experienced heavy workloads and fatigue.

4. Conclusion

In the work posture of furniture workers in the East Jakarta Furniture Industry Center, 59 respondents (46.5%) experienced a non-risky work posture, and 68 respondents (53.5%) experienced a risky work posture. Work fatigue of furniture workers at the East Jakarta Furniture Industry Center: As many as 43 respondents (33.9%) did not experience work fatigue, and 84 respondents (66.1%) experienced work fatigue. There is an influence of work posture on furniture worker fatigue, which is controlled by variables of medical history, workload, and work climate is a confounding variable in the study The Effect of Work Posture on Work Fatigue of Furniture Workers in the East Jakarta Furniture Industry Center. Suggestion: We recommend providing a short chair if the work is done in the lower area of the power zone, such as squatting, so the posture becomes less risky. Affordable drinking water is provided by workers so that workers avoid dehydration due to the hot work climate, and the provision of exhaust fans to circulate air exposes workers if in a closed workplace area. Periodic medical examinations are carried out at least once every year to determine furniture workers' occupational health conditions. They regulate workload by adjusting the workability of furniture workers, for example, by setting work targets regularly so that the intensity of work can be regular. The role of the Government is to strengthen labor supervision in the MSME sector at the East Jakarta Furniture Industry Center to ensure safe, healthy, and productive working environment conditions.

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