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Ergonomics Awareness as Efforts to Increase Knowledge and Prevention of Musculoskeletal Disorders on Fishermen

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Abstract

The fisheries sector is one of the high risk jobs. Fishermen often have to face the fatigue risks. The main cause that emerge the impact of their workloads is the way they behave, that pay less attention to ergonomic principles. The purpose of this study is to explain the effect of counseling ergonomic work towards a working knowledge of musculoskeletal disorders and complaints at Saijaan Fishermen Association. The research used a method of Pre- Experimental with one group pre-test-post-test design. This design used a single group, with the main characteristic was to compare the group and individual without any group comparison. The research population was the Fishermen Association Saijaan. Samples were taken from 186 fishermen. Wilcoxon test results showed that there were differences in the Fisherman knowledge before and after the counseling activities with the p value of 0.021 and differences in musculoskeletal disorders at Fisherman's complaints before and after the counseling activities with p value 0.013.

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Keywords: Counseling; ergonomics; knowledge; musculoskeletal; fishermen.

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1. Introduction

Occupational Health and Safety (K3) is an effort to create a safe and comfortable working atmosphere to achieve highest productivity. Therefore, K3 is a mandatory to be implemented on any kind of field work without exception. K3 effort is expected to prevent and reduce the risk of accidents and occupational diseases. K3 is an important aspect as supporting welfare and increased productivity. K3 is considered to reduce the emerge risk of Occupational Diseases (PAK) (Salim, 1999).

One of the activities that have a job hazard the K3 is diving in fishing activities. Fishermen are considered as Traditional divers in Indonesia that dive to get the catches (COREMAP, 2009). In Indonesia, most residents work as fishermen. Fishing activities that they have to carry out need to be supported by optimum body condition and power, possessed by each individual. There must be a balance between these two things because it will have direct impact on their health and performance. Fishermen have to work continuously and perform continuous movements during the work, thus they can experience muscle fatigue. Ergonomic working attitude will directly leads to fatigue and various disorders of the skeletal muscle system, while require greater energy in performing similar efforts, for example in the process of fishing that resulted fatigue occurs sooner (Manuaba, 1990). Such conditions might result accidents and occupational diseases (Sutjana, 2006).

According to Dharmawirawan et al. (2012), on preparatory fishing activities, they discovered the dangers of ergonomic form of noise, slipped risk caused by slippery floor, mechanical dangers like thorn fish, blow of high air pressure in the tube compressors, chemicals such as oil and fuel, rust, pressure fire hoses corrosive, high air pressure. They also have to face the dangers while checking ocean currents, ex being scratched by coral, extreme pressure, freezing temperatures, bites by marine lives, sting fish, coral toxic, gas poisoning of carbon monoxide (CO), carbon dioxide (CO_2), and nitrogen, shortage of air intake of the compressor, poor vision, strong currents, propeller spinning and hot temperature (Dharmawan and Modjo, 2012).

All the works performed by human in their life have to be done in accordance with their body condition and the energy that they have. This conformity is related to maintain the balance between work stations and the condition of the human body, to follow the ergonomics principles. This balance will have a big impact on the health and human performance at work (Nugroho et al., 2013).

Ergonomics according to the Occupational Safety and Health Administration (OSHA) is a relationship between human and work environment that does not cause a disturbance. In outline conclusion, ergonomics means the occurrence of a healthy, safe, and convenient working environment for humans (Andayasari and Anorital, 2009). Working attitude that was not in accordance with the condition of the body could cause physical complaints such as pain / muscle disorders / musculoskeletal. Musculoskeletal disorder is the condition that the muscles suffered load from the static and repetitive activities that happened consecutively for quite long period of time that lead to complaints of damage to the joints, ligaments and tendons. This is caused as the result of unnatural working postures caused by the characteristics of the task demands, work tools and work stations that are not in accordance with the capabilities and beyond the workers limitations (Masrah, 2009).

European Foundation for the Improvement of Living and Working conducted a survey on 235×10^6 workers in 31 European countries in 2007. This survey obtained the results as follows: 25 % experienced back pain and 23 % muscle aches, that was caused by musculoskeletal disorders. In Indonesia, according to the Ministry of Health survey, it indicated that about 40.5 % of workers illnesshave an interconnection relation with their work. Based on the study of 482 workers in 12 cities in Indonesia, health problems experienced by workers are generally in the form of musculoskeletal disorders, about 16 % (Masrah, 2009).

Indonesian fishermen in general are still using the traditional way of working, in form of physical energy, rather than using the modern tools as a substitute for human labor. Types of activities that they carried out starting from the preparation of the net and the necessary equipment, net stocking, as well as the removal of nets and other fishing supporting equipment (Dharmawan and Modjo, 2012).

A person that keeps perform the same movements continuously for a quite long period of time will feel physical fatigue. This fatigue was caused by constantly body movements that without being noticed, leads to a decrease in the muscular system. Decrease that appears on the muscular system is caused by muscle tension, as a result of movements performed, resulted the decrease of muscle strength of the lower extremities that leads to motion slackness, short steps, un firmly foot stepping firmly and more easily swayed (Wijayanti, 2013). According to