

## SUMMARY

### **Factors Related to MSDs Complaints in Production Workers of PT. Gold Coin Indonesia Surabaya**

The appropriate application of ergonomics in the workplace aims to ensure that workers at work are always healthy, comfortable, safe, productive and prosperous. Improper Manual Material Handling (MMH) activities can cause harm and even injury to employees. One of the result of incorrect manual material handling (MMH) activities is the occurrence of MSDs complaints in workers. Musculoskeletal Disorders (MSDs) complaints are complaints on the part of the skeletal muscle that occurs when the muscle receives a repetitive static load for a long time causing damage to muscles, nerves, joints, cartilages and intervertebral discs. In addition to manual handling activities, age, work position, length of work, employment period, workload and several environmental factors also cause MSDs complaints in workers.

Initial observations showed that workers in the production section of PT. Gold Coin Indonesia did a lot of manual material handling in an odd or non-ergonomic position, with a frequency more than 40 times a day and a working time of approximately 8 hours a day. The load during manual material handling activities was an average of 280 kg every day and sometimes the activity was carried out alone by workers, caused complaints of pain in the worker's body parts. The interview results showed that workers often experience complaints in the form of muscle pain and body aches after doing their work, there are some complaints about pain that did not go away even after resting, so researcher was interested in conducting research on factors associated with complaints of musculoskeletal disorders (MSDs) of workers in the production section at PT. Gold Coin Indonesia Surabaya.

This study aimed to analyze the factors associated with MSDs complaints in production workers at PT Gold Coin Indonesia Surabaya. This research was a quantitative study with observational research and a cross-sectional approach because all variables are independent (independent) and dependent (dependent) will only be assessed once at the time of the study. The study was conducted at PT Gold Coin Indonesia Surabaya in January-June 2019. The study population was 32 workers in the production department of PT. Gold Coin Indonesia with sampling techniques was using simple random sampling. The sample size was calculated using the Lemeshow formula (1997) resulting in 30 respondents.

Characteristics of respondents were having an average age of 38 years with an average work period of 9 years, BMI of workers were dominated by normal and for physical fitness of the respondents were dominated in high category. The workload was dominated by high or heavy workloads, and the work climate was measured based on the work area of the respondents showing varied results, ranging from 28.7.8-31.6°C.

The results showed there was no relationship between personal factors which included: age, years of service, nutritional status and physical fitness with complaints of MSDs. There is a relationship between workload and work posture with MSDs complaints. Suggestions for workers are working using mechanical aids during manual handling activities. Suggestions for companies are eliminates excessive reach by placing work materials and equipment at optimal reach, to increase the knowledge of all workers related to causative factors and efforts to prevent musculoskeletal disorders, setting a break time of 5-10 minutes / 1 hour of work so that workers can stretching muscles periodically, follow up on the results of MSDs complaints assessment of workers through clinical examination so that appropriate treatment and prevention efforts can be made.

## RINGKASAN

### **Faktor yang Berhubungan dengan Keluhan MSDs pada Pekerja Bagian Produksi PT. Gold Coin Indonesia Surabaya**

Penerapan ergonomi yang benar di tempat kerja bertujuan agar pekerja dalam bekerja selalu dalam keadaan sehat, nyaman, aman, produktif dan sejahtera. Aktivitas *Manual Material Handling (MMH)* yang tidak tepat dapat menimbulkan kerugian bahkan kecelakaan pada karyawan. Akibat yang ditimbulkan dari aktivitas MMH yang tidak benar salah satunya adalah munculnya keluhan MSDs pada pekerja. Keluhan *Musculoskeletal Disorders (MSDs)* adalah keluhan pada bagian otot skeletal yang terjadi apabila otot menerima beban statis secara berulang dalam waktu lama sehingga menyebabkan kerusakan pada otot, syaraf, persendian, kartilago dan discus intervertebralis. Selain aktivitas *manual handling*, umur, posisi kerja, masa kerja, lama waktu bekerja, beban kerja dan beberapa faktor lingkungan juga menyebabkan terjadinya keluhan MSDs pada pekerja.

Hasil observasi awal menunjukkan bahwa pekerja di bagian produksi PT. Gold Coin Indonesia Surabaya banyak melakukan penanganan barang secara manual dengan posisi yang janggal atau tidak ergonomis, dengan frekuensi lebih dari 40 kali dalam sehari dan lama waktu kerja kurang lebih 8 jam sehari. Beban saat aktivitas *manual material handling* rata-rata 280 kg setiap hari dan terkadang aktivitas tersebut dilakukan seorang diri oleh pekerja, sehingga menyebabkan keluhan rasa nyeri pada bagian tubuh pekerja. Hasil wawancara pekerja menyatakan sering mengalami keluhan berupa nyeri otot dan badan terasa pegal setelah melakukan pekerjaannya, bahkan terdapat beberapa keluhan tentang rasa nyeri yang tidak hilang walaupun telah beristirahat, maka penulis tertarik untuk melakukan penelitian mengenai faktor yang berhubungan dengan keluhan *musculoskeletal disorders (MSDs)* pada pekerja bagian produksi di PT. Gold Coin Indonesia Surabaya.

Penelitian ini bertujuan untuk menganalisis faktor yang berhubungan dengan keluhan MSDs pada pekerja bagian produksi di PT Gold Coin Indonesia Surabaya. Penelitian ini termasuk penelitian kuantitatif dengan jenis penelitian observasional dan pendekatan *crosssectional* karena semua variabel bebas (independen) dan terikat (dependen) hanya akan dinilai satu kali pada saat penelitian. Penelitian dilakukan di PT Gold Coin Indonesia pada bulan Januari-Juni 2019. Populasi penelitian ini adalah 32 pekerja di bagian produksi PT. Gold Coin Surabaya dengan teknik pengambilan sampel menggunakan *simple random sampling*. Penentuan besar sampel dihitung menggunakan rumus Lemeshow (1997) diperoleh sebanyak 30 responden.

Karakteristik responden yaitu memiliki rata-rata usia 38 tahun dengan masa kerja rata-rata 9 tahun, status gizi pekerja didominasi normal dan kesegaran jasmani responden didominasi dengan kategori tinggi. Beban kerja didominasi beban kerja tinggi atau berat, serta iklim kerja diukur berdasarkan area kerja

responden memberikan hasil yang bervariasi yaitu mulai dari 28,7<sup>o</sup>C sampai 31,6<sup>o</sup>C.

Hasil penelitian menunjukkan tidak terdapat hubungan antara *personal factor* yang meliputi: umur, masa kerja, status gizi dan kesegaran jasmani dengan keluhan MSDs. Terdapat hubungan antara beban kerja dan postur kerja dengan keluhan MSDs. Saran untuk pekerja yaitu menggunakan *mechanical aid* atau alat bantu mekanis sejenisnya saat aktivitas *manual handling*. Saran bagi perusahaan yaitu menempatkan material dan peralatan kerja pada jangkauan yang optimal, memberi pelatihan pada pekerja tentang faktor penyebab dan upaya pencegahan *musculoskeletal disorders*, menetapkan waktu istirahat selama 5-10 menit/1 jam kerja sehingga pekerja dapat melakukan peregangan otot (*stretching*) dan melakukan tindak lanjut terhadap hasil penilaian keluhan MSDs sehingga dapat dilakukan upaya pengobatan dan pencegahan yang sesuai.

**ABSTRACT**

**Factors Related to MSDs Complaints in Production Workers of  
PT Gold Coin Indonesia Surabaya**

Musculoskeletal Disorders (MSDs) complaints occurs when the muscle receives repetitive static load for a long time, causing damages at the hands, wrists, elbows, arms, shoulders, neck, back, or even the knee. The results of preliminary study indicated that production workers in PT Gold Coin Indonesia Surabaya often experiences muscle and body aches after doing manual material handling (MMH).

This study aims to analyze the factors associated with MSDs complaints on production workers at PT Gold Coin Indonesia Surabaya. This research was a quantitative study with observational research and a cross-sectional approach. The study was conducted at PT Gold Coin Indonesia Surabaya in January-June 2019.

The study population was 32 workers in the production section of PT. Gold Coin Indonesia Surabaya with sampling techniques using simple random sampling. The sample size was calculated using the Lemeshow formula (1997) resulting in 30 respondents.

Characteristics of respondents were average age of 38 years, average employment period of 9 years, BMI was dominated by light and normal and physical fitness was dominated by fit workers. The workload was dominated by heavy workloads, and the work climate showing varied results, ranging from 28.7°C-31.6°C.

The results showed there was a correlation between work posture and workload with MSDs complaints. Suggestions for workers and companies are eliminates excessive reach by placing work materials and equipment at optimal reach, to increase the knowledge of all workers related to causative factors and efforts to prevent musculoskeletal disorders, setting a break time of 5-10 minutes / 1 hour of work so that workers can stretching muscles periodically, follow up on the results of MSDs complaints assessment of workers through clinical examination so that appropriate treatment and prevention efforts can be made.

Keywords : *Musculoskeletal disorders, production workers.*

## ABSTRAK

### **Faktor yang Berhubungan dengan Keluhan MSDs pada Pekerja bagian Produksi PT Gold Coin Indonesia Surabaya**

Keluhan *Musculoskeletal Disorders* (MSDs) adalah keluhan yang terjadi apabila otot menerima beban statis secara berulang dalam waktu lama sehingga menyebabkan gangguan pada tangan, pergelangan tangan, siku, lengan, bahu, leher, punggung, atau bahkan lutut. Hasil penelitian awal menunjukkan bahwa pekerja bagian produksi PT Gold Coin Indonesia Surabaya sering mengalami keluhan berupa nyeri otot dan badan terasa pegal setelah melakukan *manual material handling* (MMH).

Penelitian ini bertujuan untuk menganalisis faktor yang berhubungan dengan keluhan MSDs pada pekerja bagian produksi di PT Gold Coin Indonesia Surabaya. Penelitian ini termasuk penelitian kuantitatif dengan jenis penelitian observasional dan pendekatan *crosssectional*. Penelitian dilakukan di PT Gold Coin Indonesia Surabaya pada bulan Januari-Juni 2019.

Populasi penelitian ini adalah 32 pekerja di bagian produksi PT. Gold Coin Indonesia Surabaya dengan teknik pengambilan sampel menggunakan *simple random sampling*. Penentuan besar sampel dihitung menggunakan rumus Lemeshow (1997) diperoleh sebanyak 30 responden.

Karakteristik responden yaitu memiliki rata-rata usia 38 tahun dengan masa kerja rata-rata 9 tahun, IMT pekerja didominasi normal dan kesegaran jasmani responden didominasi dengan kategori tinggi. Beban kerja didominasi beban kerja tinggi atau berat, serta iklim kerja memnunjukkan hasil yang bervariasi yaitu mulai 28,7°C-31,6°C.

Hasil penelitian menunjukkan terdapat hubungan antara postur kerja dan beban kerja dengan keluhan MSDs. Saran untuk pekerja dan perusahaan antara lain yaitu menggunakan *mechanical aid* saat aktivitas *manual handling*, menempatkan material dan peralatan kerja pada jangkauan yang optimal, memberi pelatihan pada pekerja tentang faktor penyebab dan upaya pencegahan *musculoskeletal disorders*, menetapkan waktu istirahat selama 5-10 menit/1 jam kerja sehingga pekerja dapat melakukan peregangan otot (*stretching*) dan melakukan tindak lanjut terhadap hasil penilaian keluhan MSDs sehingga dapat dilakukan upaya pengobatan dan pencegahan yang sesuai.

Kata kunci : *Keluhan muskoloskeletal, pekerja bagian produksi.*