

ORIGINAL ARTICLE

Age and Working Time Periods with Musculoskeletal Disorders in Non-Medical Support Workers at An-Nisa Hospital Tangerang District, Jakarta, Indonesia

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ABSTRACT

Introduction: Musculoskeletal Disorder (MSD) is an injury that affects the movement of human body systems such as muscles, tendons, ligaments, nerves, blood vessels, and others. The prevalence of MSDs in Indonesia is 11.9% based on diagnosis and 24.7% based on symptoms. MSDs prevalence is 31.2% based on employment among farmers, fishermen, and workers. **Methods:** The design of this study has been included in observational research using a quantitative approach with Cross-Sectional study. **Results:** MSDs can appear based on gender, age, educational status, and non-medical supporting professions. Older workers tend to be at risk of developing MSDs complaints. **Conclusion:** To reduce the risk of complaints, work facilities such as ergonomic chairs and tables can be provided along with extension of work intervals. Workers must take advantage of good rest periods. There is no relationship between work tenure and MSDs complaints. If the working period is long, then it can cause boredom and the endurance of muscles as well as bones physically.

Keywords: Age, Work Period, Complaints of MSDs

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INTRODUCTION

Musculoskeletal Disorders (MSDs) is one of the major ergonomic hazards causing health problems. MSDs are injuries that affect the movement of human body systems such as muscles, tendons, ligaments, nerves, blood vessels, and others. Musculoskeletal complaints are complaints of the skeletal muscle that range from complaints that are very mild to very painful. Moreover, if the muscles receive a repetitive static load for a long time it can cause complaints in the form of damage to the joints, ligaments, and tendons (1,2).

Occupational disease prevention program explains that MSDs including carpal tunnel syndrome, 59% of all disease records were found in 2005 in European countries. The European Commission Supervisory Report calculates 49.9% cases of MSDs causing absence from work for more than three days and 60% of cases reported permanent disability (3). In 2015 a research in Indonesia found that there is a significant correlation

between age and also between tenure with MSDs (4).

The prevalence of MSDs in Indonesia, among health workers is 11.9% based on diagnosis with muscle pain and 24.7% based on symptoms. The prevalence of MSDs is highest based on work among farmers, fishermen, and laborers, which is 31.2%. The results of research showed that there was a significant relationship between tenure of work period and complaints of MSDs, which is 75%. So, the longer a person works or the longer he is exposed to risk factors higher is the chances of experiencing MSDs (5).

MATERIALS AND METHODS

The design of this study was included in observational research using a quantitative approach with Cross-Sectional study. The respondents were Non-Medical Support Workers in Tangerang An-Nisa Hospital in 2019. Total 55 respondents were considered for this study. Demographic data like age, sex and period of work was collected. Ethical approval for this study was obtained from the Widya Dharma Husada Ethics Committee (Ref No: KE/130/01/2019). Statistical analysis was done on the collected data. Spearman correlation test results was done to obtain the *p*-value.

RESULTS

Age

MSDs complaints generally begin to be felt at the age of 30 years and gradually increase at the age of 40 years and over. This is due to biological changes that naturally occurs in middle age, as muscle strength and endurance begin to decline due to the aging process. This is because of the degenerative muscles, tendons, ligaments, and joints, causing increase risk of complaints in the muscles. Individual factors based on age showed that most respondents were aged ≥ 35 years old amounting to 32 people (58.2%) (Table I).

Work

The period of service is the length of time the respondent has worked as a non-medical support worker at the place of the research. Individual factors based on years of service showed that most respondents worked as non-medical support workers at An-Nisa Hospital Tangerang for ≥ 5 years, as many as many as 30 people (54.5%) (Table I).

Table I: Age and Working Years in Non-Medical Support Workers in Tangerang An-Nisa Hospital in 2019

	Frequency	Percentage(%)
Age		
<35 years	23	41.8
≥ 35 years	32	58.2
Working Years		
<5 years	25	45.5
≥ 5 years	30	54.5

Source: Primary Data, 2019

History of MSDs

Statements of respondents working as a non-medical support worker at An-Nisa Hospital, Tangerang having experiencing MSDs were collected. Based on the results of the study, on the history of MSDs disease revealed that most respondents did not have a history of MSDs before they worked as non-medical support workers at An-Nisa Hospital Tangerang as many as 32 people (58.2%).

Relationship of Age with MSDs Complaints

The data showed that there is a relationship between age and MSDs complaints in non-medical support workers at An-Nisa Tangerang Hospital with P-value= 0.034 (Table II)

Relationship of Work Period with Complaints of MSDs

The data also showed that there is no relationship between the length of working period with complaints of MSDs in non-medical support workers at An-Nisa Hospital Tangerang with P-value= 0.786 (Table III).

DISCUSSION

Age

The age distribution among 55 respondents revealed that most respondents were ≥ 35 years old as many as 32 people (58.2%). The prevalence of a person's MSDs increases when they start working. In general, complaints of MSDs begin to be felt at the age of 30 years and increasingly elevates at the age of 40 years and over. This is due to biological changes occurring

Table II: Age Relationship with MSDs Complaints in Non-Medical Support Workers in An-Nisa Hospital Tangerang Year 2019

No.	Category	Complaints MSDs										P- value
		Complaints Low		Complaints Medium		Complaints High		Complaints Very High		Total		
		N	%	N	%	n	%	n	%	N	%	
1	<35 Year	10	43.5	7	30.4	5	21.7	1	4.3	23	41.8	0.034
2	≥ 35 Year	5	15.6	12	37.5	13	40.6	2	6.2	32	58.2	
Total		15	27.3	19	34.5	18	32.7	3	5.5	55	100.0	

Source: Primary Data, 2019

Table III: Correlation of Work Periods with Complaints of MSDs in Non-Medical Support Workers in An-Nisa Hospital Tangerang Year 2019

No.	Category	Complaints MSDs										P-value
		Complaints Low		Complaints Medium		Complaints High		Complaints Very High		Total		
		n	%	N	%	n	%	n	%	n	%	
1	Not Long Time	8	32.0	7	28.0	9	36.0	1	4.0	23	45.5	0.780
2	Old	7	23.3	12	40.0	9	30.0	2	6.7	32	54.5	
Total		15	27.3	19	34.5	18	32.7	3	5.5	55	100.0	

Source: Primary Data, 2019

naturally in middle age. Muscle strength and endurance begin to decrease due to the aging process, increasing the risk of degeneration in the muscles (6).

Working period

Based on the data, it shows that from 55 respondents, the majority of respondents have 5 years of service, namely 30 people (54.5%).

The work period is the length of time from the first time the worker come to work until when the research data was collected. Length of service has a strong relationship with muscle complaints and increases the risk of musculoskeletal disorders, especially for jobs that involve high workforce (6).

History of MSDs

Based on the data it can be said that among 55 respondents, the majority of respondents have no history of MSDs disease as many as 32 (58.2%). Another research result showed that among fishermen showed that they did not have a history of MSDs. Routine checks are necessary to control health and stamina to avoid the illness that could interfere with work activities (7).

Correlation of age with Complaints of MSDs

Based on the Spearman correlation test results obtained $p\text{-value} = 0.034$ ($p < 0.05$), meaning that there is a relationship between age with complaints of MSDS in non-medical support workers at An-Nisa Hospital, Tangerang. This is because workers with old age tend to be at risk of developing MSDs complaints.

At early age, the effects of nicotine on the bones will not be felt because the process of bone formation is still ongoing. But on reaching the age of 35 years the bones will begin to feel weak because the process of bone formation at that age has stopped (8).

Correlation of Work Period with Complaints MSDs

Based on the Spearman correlation test results it showed $p\text{-value} = 0.786$ ($p > 0.05$), meaning that there are no relationship between tenure of work and musculoskeletal disorders in non-medical support workers at An-Nisa Hospital, Tangerang.

This study is in line with research conducted on a 'Can manufacturing plant in East Jakarta, which shows that work tenure has no significant relationship with MSDs complaints with a $p\text{-value}$ of 0.439(9).

So, it can be concluded that MSDs can occur due to the accumulation of minor injuries during the work period which have been considered trivial. The long working period of a person, can decrease the endurance capacity of muscles and bones physically. Thus, the accumulation of injuries for a long periods of work has an important role in causing MSDs.

CONCLUSION

There is a relationship between age and complaints of musculoskeletal disorders. The present study also revealed that there is no relationship between work periods with complaints of musculoskeletal disorders in non-medical support workers at An-Nisa Hospital, Tangerang. Training should be provided for workers who are involved in jobs that include physical labor. Workers need to learn to adjust work to fit the tasks and their individual requirements. Training should also stress the importance of rest periods and they must take advantage of short periods of rest between tasks to relax the muscles. Good work practices that improve satisfaction of workers will have a positive influence on reducing the risk of MSDs.

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