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Factors related to Musculoskeletal System Complaints in Horticulture Farmers Spraying Pesticide in Sako Duo Kerinci Village

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Abstract

***Background**: The agricultural sector is a high-risk occupation, health problems that are often experienced by farmers are musculoskeletal complaints. The results of the initial survey of BPS (Central Bureau of Statistics) found that 80% of farmers suffer from back pain. The purpose of this study was to determine the relationship between work posture, workload, length of work and body size with complaints of the musculoskeletal system when spraying pesticides on horticultural farmers in Sako Dua village, Kerinci.*
***Method**: This study is a quantitative study using a cross-sectional design. The research population was all members of the farmer group with as many as 191 farmers and the research sample was 51 farmers who sprayed pesticides. The sampling technique used was the purposive sampling technique. The research instrument used a questionnaire and measurement sheets. The research technique used interviews and measurements with REBA, Nhon Hoa sitting scales, Electronic Personal Scales, and Stature Meters. Data were analyzed by univariate and bivariate using the chi-square test.*
***Results**: 60.8% of respondents experienced high MSDs complaints, 68.6% of respondents experienced high-risk work postures, 94.1% of respondents had additional workloads in the heavy category, 72.5% of respondents had long work durations, and 41.2% of respondents had Obese BMI. Bivariate results show that there is a relationship between work posture and MSDs complaints (p-value = 0.001), there is no relationship between additional workload (p-value = 0.315), there is a relationship between the length of work (p-value = 0.001), and there is no relationship between BMI (p-value=0.398) with MSDs complaints.*
***Conclusion**: MSDs disorders can occur due to several factors that based on the results of the study it can be concluded that the factors associated with musculoskeletal complaints in vegetable farmers are the length of work and work posture. For this reason, it is hoped that horticultural farmers who spray pesticides will pay more attention to work posture when working, such as not bending too much, this is useful for reducing the risk level of musculoskeletal complaints that will occur in workers. Farmers have received counseling every 3 months but not from health workers and not counseling related to ergonomics or work postures.*

Keywords: Musculoskeletal complaints, farmers, pesticides, spraying

INTRODUCTION

In Indonesia, the agricultural sector is one type of work that has a high job risk, extreme environmental conditions and the way and use of technology in managing land that is still quite lagging determine the level of health and safety of farmers. One of the occupational health and safety problems that are often experienced by workers such as farmers is ergonomics(1). According to the International Labor Organization (ILO), every year 1.1 million deaths are caused by occupational diseases or accidents. Three hundred thousand deaths occurred from 250 million accidents and the rest were deaths due to occupational diseases (PAK). According to data from the Central Bureau of Statistics, the number of workers in Indonesia which in 1997 was still around 89 million, in 2000 it had reached more than 95 million people, of whom almost 50% worked in the agriculture, forestry and fishery sectors, which according to the ILO is the employment sector. most at risk to health(2)

.According to the World Health Organization (WHO), Occupational Diseases are the tenth cause of occupational disease and death. Based on data from WHO, the risk factors for the number of morbidity and mortality are 37% back pain, 10% hearing loss, 13% chronic obstructive disease, 11% asthma, 10% injury, 9% lung cancer, and 2% leukemia(3).

According to research conducted by Pandey et al., 2019 stated that all respondents experienced musculoskeletal complaints and the most were moderate musculoskeletal complaints (68.3%). In these clove farmers, the highest complaint was on the feet, which was 98.3%. In contrast to research conducted Utami et al., 2017 on rice farmers who work in a squatting position itself has caused fatigue in the abdominal and back muscles. So it can be interpreted that there is a significant relationship between work posture and the level of MSDs in farmers(4).

According to research Guit et al., 2020 on the Relationship Between Body Size and Work Attitude With Musculoskeletal Complaints in Coconut Peeling Farmers in Bitung City stated that there was no significant relationship between body size and musculoskeletal complaints(5), whereas according to research (Afro & Paskarini, 2022) states that the results of the analysis show that the correlation coefficient value is 0.055, so it can be concluded that the strong relationship between BMI and MSDs complaints is in the very weak category(6). So it can be interpreted that there is a significant relationship between work attitude and the level of MSDs in farmers

Jambi Province with the main base of Kerinci Regency is one of the main development areas for potato cultivation. Kerinci Regency is the center of an agricultural area that is developing more and more advanced both from the food crops sub-sector and the horticulture sub-sector. The area of Kayu Aro Barat District, Kerinci Regency is a center for vegetables such as potatoes, chilies, onions, cabbage and cabbage. Kerinci vegetable products are one of the most important vegetable centers in Sumatra(7).

The results of the initial survey conducted on 6 vegetable farmers in the village of Sako Dua obtained information through interviews and observations, there are non-ergonomic activities when spraying pesticides that can cause musculoskeletal complaints. From the results of the interview, the average stated that they often feel pain / pain, especially in the lower back and shoulders. This may be due to the area and terrain of the land surface that must be sprayed and most farmers have more than 1 garden, and they take care of them individually including when spraying pesticides using a manual sprayer which is usually called a mistral, the average weight empty of the tool is 12 kg, the weight when filled is about 25 kg. Based on observations, most farmers use a tool that belongs to the type of motor sprayer with a spray capacity of 8 liters. The size and shape of the various tools will cause a mismatch between the size of the farmer's body and the tool so that the results are not optimal.

In addition, based on the measurement of work posture using the REBA method on one of the farmers in the initial survey, the results of the performance standard were obtained with a score of 9 which means that it is in the high risk category. Bending and bowing postures when spraying pesticides if done repeatedly and for a long enough duration and the heavy load being carried will cause musculoskeletal disorders. Therefore, based on the above background, researchers are interested in researching the factors of work posture, additional workload, length of work and BMI in order to analyze complaints of the musculoskeletal system, especially when spraying pesticides on horticultural farmers in Sako Dua village, Kayu Aro Barat District, Kabupaten Kerinci, Jambi Province in 2022.

METHOD

This research is quantitative research, with a cross sectional approach design. The study was conducted in Sako Dua village, Kayu Aro Barat sub-district. The population in this study were all members of the horticultural farmer group in Sako Dua village,

Kayu Aro Barat District, namely, as many as 191 farmers and the research sample was calculated using the Lemeshow formula for 51 respondents, the sampling technique was carried out by purposive sampling, where the sample was taken with inclusion criteria, namely the respondent lived in the village of Sako Dua, the respondent was a farmer who sprayed pesticides, and the respondent was male. man

The instrument used in this study was to use a questionnaire sheet as one of the measurement media. Characteristics of respondents include name, age, and years of service. Variables Complaints and length of work were carried out by direct interviews using the Nordic Body Map questionnaire. measurement of work posture using the REBA method by taking pictures (photos) of workers when spraying pesticides. Measurement of nutritional status was carried out using BMI measurements, namely measuring height using a Stature Meter and measuring weight using an Electronic Personal Scale. The additional workload was measured with a Nhon Hoa sitting scale.

RESULT

1. Characteristics of Respondents

a. Age

The age of respondents in horticultural farmers spraying pesticides can be seen in Table 1

Table 1. Average Age of Respondents

Variable	Mean	SD	Min	Max
age	41,24	9,391	25	63

Table 1 shows that the average age of the respondents is 41 years. The minimum age of the respondent is 25 years and the maximum age is 63 years.

b. Years of service

The working period of horticultural farmers spraying pesticides can be seen in Table 2

Table 2. Average Working Time

Variable	Mean	SD	Min	Max
Years of service	16,25	8,185	3	35

The table 2 shows that the average respondent has worked for 16 years. The respondent's minimum working period is 3 years and the maximum working period is 35 years.

2. Univariate Analysis

a. Musculoskeletal complaints

The description of respondents to musculoskeletal complaints in horticultural farmers spraying pesticides can be seen in Table 3

Table 3. Distribution of Respondents Based on Complaints of Musculoskeletal Disorders in Horticultural Farmers Spraying Pesticides

Complaint	Frequency	Percentage (%)
High Complaint	31	60,8
Moderate Complaint	20	39,2
Total	51	100

Based on the table 3 it is known that most of the respondents experienced musculoskeletal complaints in the high category of 31 (60.8%)

b. Work Posture

The description of the working posture of horticultural farmers spraying pesticides in the village can be seen in Table 4 below:

Table 4. Distribution of Respondents Based on Work Postures on Horticultural Farmers Spraying Pesticides

Work Posture	Frekuensi	Persentase (%)
High Risk	35	68,6
Moderate Risk	16	31,4
Total	51	100

Based on table 4 it is known that of the 51 respondents, 35 (68.6%) of the respondents were in the high risk category of work postures

c. Additional Workload

An overview of the additional workload on horticultural farmers spraying pesticides can be seen in Table 5 below:

Table 5. Distribution of Respondents Based on Additional Workload on Horticultural Farmers Spraying Pesticides

Additional Workload	Frequency	Percentage (%)
Heavy load	48	94,1
Medium Load	3	5,9
total	51	100

Based on the table 5 , it is known that of the 51 respondents, 48 (94.1%) respondents have an additional workload in the category of heavy loads of more than 10 kg or ranging from 23-26 kg

d. Length of working

The description of respondents on the length of work for horticultural farmers spraying pesticides can be seen in Table 6 below:

Table 6. Distribution of Respondents Based on Length of Work on Horticultural Farmers Spraying Pesticides

Length of work	Frequency	Percentage (%)
Long Duration	37	72,5
Moderate Duration	14	27,5
total	51	100

Based on table 6, it is known that out of 51 respondents, 37 (72.5%) of respondents had long working years in the old category.

e. Body Mass Index (BMI)

The description of respondents to BMI measurements on horticultural farmers spraying pesticides can be seen in Table 7 below**:**

Table 7. Distribution of Respondents Based on BMI in Horticultural Farmers Spraying Pesticides

IMT	Frequency	Persentage (%)
Obesitas	21	41,2
Excess	14	27,5
Normal	16	31,4
Total	51	100

Based on table 7, it shows that from 51 respondents, 21 (41.2%) respondents had an obese BMI

3. Bivariate Analysis

a. The relationship between work posture and musculoskeletal complaints in horticultural farmers spraying pesticides can be seen in table 8.

The results of statistical analysis using the chi-square test obtained P-value = 0.000 (P-value < α = 0.05). Western Aro Wood in 2022.

Table 8. Relationship between Work Posture and Musculoskeletal Complaints in Horticultural Farmers Spraying Pesticides

Work Posture	Musculoskeletal complaints				Total		P-value
	High		Moderate				
	n	%	n	%	n	%	
High risk	28	80	7	20	35	100	0,001
moderate risk	3	18,8	13	81,3	16	100	
Total	31	60,8	20	39,2	51	100	

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b. Relationship between additional workload and Musculoskeletal Complaints in Horticultural Farmers Spraying Pesticides

Based on table 9, The results of statistical analysis using the chi-square test obtained P-value = 0.315 (P-value > = 0.05) statistically there is no relationship between additional workload variables and complaints of musculoskeletal disorders in Horticultural Pesticide Spraying farmers in Sako Dua Village. , Kayu Aro Barat District in 2022.

Table 9 Relationship of Additional Workload with Musculoskeletal Complaints in Horticultural Farmers Spraying Pesticides

Additional Workload	Musculoskeletal complaints				Total		P-value
	Tall		Currently				
	n	%	n	%	n	%	
Heavy load	30	62,5	18	37,5	48	100	0,315
Medium load	1	33.3	2	66,7	3	100	
Total	31	60,8	20	39,2	51	100	

c. Long working relationship with Musculoskeletal Complaints in Horticultural Farmers Spraying Pesticides

The results of statistical analysis using the chi-square test obtained P-value = 0.000 (P-value > = 0.05) statistically there is a relationship between the variable length of work on complaints of musculoskeletal disorders in Horticultural Pesticide Spraying farmers in Sako Dua Village, District West Aro Wood 2022 d.Relationship between BMI and Musculoskeletal Complaints in Horticultural Farmers Spraying Pesticides.

Table 10. The Relationship of Length of Work with Musculoskeletal Complaints in Horticultural Farmers Spraying Pesticides

Length of working	Musculoskeletal complaints				Total		P-value
	Tall		Currently				
	n	%	n	%	n	%	
Long duration	29	78,4	8	21,6	37	100	0,001
Medium duration	2	14,3	12	85,7	14	100	
Total	31	60,8	20	39,2	51	100	

d. Long working relationship with Musculoskeletal Complaints in Horticultural Farmers Spraying Pesticides.

Based on table 11, the results of statistical analysis using the chi-square test obtained P-value = 0.398 (P-value > 0.05) statistically there is no relationship between BMI variables and complaints of musculoskeletal disorders in Horticultural Pesticide Spraying farmers in Sako Dua Village, District West Aro Wood 2022.

Table 11. Relationship between BMI and Musculoskeletal Complaints in Horticultural Farmers Spraying Pesticides

BMI	Musculoskeletal complaints				Total		P-value
	Tall		Currently				
	n	%	n	%	n	%	
Obesitas	15	71,4	6	28,6	21	100	0,398
Excess	7	50	7	50	14	100	
Normal	9	56,3	7	43,8	16	100	
Total	31	60,8	20	39,2	51	100	

DISCUSSION

The data obtained from the results of research on the variable musculoskeletal complaints showed that from 51 respondents, who experienced high musculoskeletal complaints were 31 people (60.8%), while respondents who experienced moderate musculoskeletal complaints were 20 people (39.2%).

The results of this study are in line with research Oktavian et al., 2021, regarding the distribution of respondents based on musculoskeletal complaints, it is known that as many as 8 people (26%) of palm sugar farmers in Rumong Atas village are included in the moderate level of complaints, 16 people (53%) in the level of complaints is high and those who have very high complaints are 6 people (21%).(8)

According to research Syfanah & Fadillah 2022, regarding the distribution of respondents based on musculoskeletal complaints, it is known that musculoskeletal complaints experienced by farmers are in the categories of low complaints, moderate complaints, and high complaints. The highest frequency was in low complaints, namely as many as 25 farmers (53.19%) and the lowest frequency was in high complaints, namely 7 farmers (14.89%).(9)

According to research Tololiu et al., 2022 shows that as many as 46 (59.7%) musculoskeletal complaints are in low scores and as many as 30 (39.0%) are in moderate scores and as many as 1 (1.3%) are in very high scores. From the results of this study, it can be seen that most of the respondents with musculoskeletal complaints are in the low category.(10)

Complaints on the musculoskeletal system are complaints in the parts of the skeletal muscles that are felt by a person ranging from very mild complaints to very painful. Musculoskeletal complaints that often occur in industrial workers are wrist pain, neck pain, back pain and pain in the elbows and legs. tendons. These complaints to damage are usually termed Musculoskeletal Disorders (MSDs) complaints or injuries to the musculoskeletal system (11)

From the research results obtained, related theories and research, it can be assumed that MSDs disorders can occur as a result of several factors such as inappropriate body posture, heavy workload, long working hours and other risk factors.

The honesty of each respondent in answering the questions on the research questionnaire greatly influences the results obtained. Because the results of the study show that the number of respondents who experience high musculoskeletal complaints, therefore it is better for horticultural farmers who spray pesticides specifically for each farmer group to be assisted by the puskesmas to be able to form an Occupational Health Effort Post (POS UKK) considering that there is also no UKK POS formed in the village. The establishment of the UKK Pos is a form of community

empowerment in groups of informal workers such as farmers, especially in promotive and preventive efforts so that it is hoped that after the formation of UKK POS the farmers understand and are aware of being able to relax muscles before work so that the muscles are not stiff in order to reduce the risk of musculoskeletal complaints, where it is useful to protect workers to live healthy and free from health problems.

In addition, the handling of musculoskeletal complaints that can be done by farmers is to check musculoskeletal complaints such as farmers who feel pain in the back and hips to the clinic or hospital around when the complaints they feel are very disturbing and farmers already feel sick.

Based on the results of statistical tests using the chi-square test, it was obtained that P-value = 0.000 (P-value <0.05) statistically there was a relationship between work posture variables and complaints of musculoskeletal disorders in Horticultural Pesticide Spraying farmers in Sako Dua Village, Kayu District. West Aro 2022.

This study is in line with (Izza, 2021), that there is a relationship between work posture and musculoskeletal complaints in farmers in Jagalan village, Klaten with (p-value = 0.040).(12)

Based on the results of the study Salcha et al., 2021, it shows that the p-value = 0.028 (p <0.05) so it can be said that there is a relationship between work posture and MSDs. This can be seen from the work postures with high-risk categories and more severe musculoskeletal complaints than those with low-risk work postures and those with mild musculoskeletal complaints.

In horticultural farmers who spray pesticides, the highest complaint is on the back. In contrast to the research that has been done (Pandey et al., 2019) on clove farmers, the highest complaint is the feet. This can be caused by the way of working that uses a different body position.(4)

Awkward work postures will affect the health condition of the farmer's organs. Awkward posture is an attitude or body position that deviates from a neutral position, a significant deviation from this normal position will increase the workload of the muscles so that the amount of energy required is greater, due to inefficient transfer of energy from the muscles to the skeletal system (13)

Based on statistical tests, there is a relationship between work posture and musculoskeletal complaints in farmers in the village of Sako Dua, especially in pesticide spraying because the activities of the spraying period are often carried out, namely the farmers routinely spraying every 3 days and in doing the work the farmers are still with the manual method so that the farmer's body movements such as bending, standing and bending the other leg shows that this work attitude can increase musculoskeletal complaints. Another thing could also be because all the farmers did a long standing posture without stretching. Another factor that may affect musculoskeletal complaints is the age of the workers who are getting older, the greater the factors that cause musculoskeletal complaints.

Based on an interview with a member of the farmer group, almost every farmer group routinely receives counseling every 3 months, but not from the local Puskesmas but from the PT and there has been no counseling related to ergonomics or work postures. It is highly expected from the local health center to be more active in providing counseling to farmer groups, especially related to work postures so that farmers know and can understand the risks that can cause musculoskeletal complaints. If the counseling has been carried out, it is hoped that every farmer will pay more attention to work postures at work, especially when spraying pesticides, considering that there is a burden of tools used to reduce the risk of complaints in certain muscles. There is a need for routine communication from the puskesmas to farmer groups such as holding counseling related to ergonomics for farmers in Sako Dua village in order to further increase the knowledge of farmers, especially on work postures.

The results of statistical tests using the chi-square test obtained P-value = 0.315 (P-value > = 0.05) statistically there is no relationship between additional workload

variables and complaints of musculoskeletal disorders in Horticultural Pesticide Spraying farmers in Sako Dua Village. , Kayu Aro Barat District in 2022.

This study is not in line with research conducted by Utami et al., 2017, based on the chi-square test that the workload with complaints of Musculoskeletal Disorders meets the Chi square requirements, showing p-value (0.018) <0.05 then H0 is rejected or H1 is accepted so that it can be concluded that there is a significant relationship between workload and musculoskeletal disorders in rice farmers in Ahuhu Village in 2017.

According to the Ministry of Health, the permissible load for adult men is 15-20 kg and for women (16-18 years) is 12-15 kg (14)

Based on the results of interviews with respondents in the field, it showed that as many as 48 (94.1%) respondents had additional workloads in the heavy load category, namely the weight of the equipment carried more than 10 kg or ranging from 23-26 kg. There was no relationship between additional workload and musculoskeletal complaints in this study, which could be due to other factors, such as body size, rest time and environmental temperature. Other factors also include environmental factors, namely when doing heavy physical work in a hot environment, the blood will get an additional burden. This is different from the environmental conditions in the village of Sako Dua, where the temperature in the area is cold because it is near Mount Kerinci which is included in the highlands. In addition, the area of the garden being treated can also have an effect considering that almost the average garden area owned by each farmer is more than 1 hectare (ha) or equal to 10,000 square meters (m^2), so the spraying process will be very time consuming. and with the heavy load of the equipment carried, it will increase the risk of developing musculoskeletal complaints.

It would be better if farmers also pay attention to the capacity of the weight of the equipment used and stretch their muscles before and after spraying pesticides. Improving knowledge by conducting counseling is very necessary for each farmer group, including related to additional workloads, because if the behavior of carrying heavy loads is carried out continuously for years, it can result in serious risks to the structure of the spine.

The results of statistical tests using the chi-square test obtained P-value = 0.000 (P-value > = 0.05) statistically there is a relationship between the variable length of work on complaints of musculoskeletal disorders in Horticultural Pesticide Spraying farmers in Sako Dua Village, District West Aro Wood 2022

This is in line with the research conducted by (Entianopa et al., 2020). This shows that there is a significant relationship between length of work and muscle fatigue in rubber tappers in Suka Jaya Village, Bayung Lencir District, South Sumatra 2018.(15)

Length of work is the amount of time exposed to risk factors. Length of work can be viewed as minutes of hours worked/day of the worker exposed to the risk. The ideal length of work for workers is 6-8 hours with the duration of work divided into short (<1 hour) and long (>2 hours). Furthermore, the lifting duration can be classified into 3 classifications, namely short duration (<1 hour), medium duration (1-2 hours) and long duration (3-8 hours). If the work lasts for a long time without rest, the body's ability will decrease and it can cause pain in the limbs(11)

There is a relationship between length of work and complaints of MSDs in this study, it can be caused because long working hours are not balanced with adequate/appropriate rest time (between working hours, it is mandatory to provide rest which amounts to between 15-30% of all working time) thus causing a decrease in working hours. productivity and the tendency of fatigue, illness, accidents and increased risk of MSDs. Based on the results found in the field, the average respondent did not rest after spraying pesticides, usually they immediately continued with other gardening activities.

The length of work is closely related to the area of land to be treated. Based on the results found in the field, it was also found that most of the 1 agricultural land that will be

sprayed with pesticides is done by 1 farmer, only found some agricultural land which at the time of spraying pesticides was done by about 3 to 4 farmers. From this, it would be better if the farmers were assisted by several other workers in working on a large area of land, in order to shorten the working time so that it is expected to reduce the factor of musculoskeletal complaints due to the long duration of work. It is also expected that the farmers use the best possible rest time and do stretching to stretch tense muscles.

The results of statistical tests using the chi-square test obtained P-value = 0.398 (P-value > = 0.05) statistically there is no relationship between BMI variable and complaints of musculoskeletal disorders in Horticultural Pesticide Spraying farmers in Sako Dua Village, District West Aro Wood 2022

This is in line with research conducted by (Afro & Paskarini, 2022), it is known that the results of statistical analysis using the Cramer test that between BMI and MSDs complaints in rice farmers in Doho Village obtained a p-value of 0.759. This means that there is no relationship between BMI and MSDs complaints.(6)

The results of this study are not in line with Tarwaka's theory (2015) which states that weight, height and body mass are factors that can cause muscle complaints. Complaints of MSDs related to BMI are caused by the condition of the balance of the frame structure in receiving loads. Everyone who has a good nutritional condition, the work capacity and body resistance will be good too, and vice versa.(11)

According to the National Institute for Occupational Safety and Health (NIOSH), weight, height, body mass index (BMI), and obesity have been identified as potential risk factors for MSDs. Obese people with body mass > 29 kg have a 2.5 higher risk than thin people (body mass < 20 kg) because people who are overweight will try to support weight from the front by contracting the lower back muscles.

The absence of a relationship between BMI and MSDs complaints in this study could be caused because BMI also needs to be supported by other factors, namely age, gender, years of service, physical strength, physical fitness, and work factors. Most likely there is no relationship between BMI and MSDs complaints in this study, it comes from the gender of the farmers whose all workers are male and from the physical fitness of the farmers, because even though the results of the proportion of farmers with obesity body size are more, if their physical fitness is good it will reduce the risk of developing MSDs. Based on interviews with several farmers, almost every man in the village of Sako Dua routinely does sports every afternoon such as badminton or takrau training and jogging in the morning which can improve the physical fitness of the workers. .

Although there is no relationship between BMI and MSDs complaints, it is hoped that farmers will maintain a normal body weight by maintaining a lifestyle and adequate rest. Because keeping the body healthy and ideal is important to prevent various kinds of health disorders including complaints on the musculoskeletal system.

CONCLUSION

Based on the analysis of the results and discussion of the research conducted on Horticultural Farmers Spraying Pesticide in Sako Dua Village, Kayu Aro Barat District, Kerinci Regency, Jambi Province in 2022 it can be concluded that:

As many as 60.8% of respondents experienced high MSDs complaints, 68.6% of respondents experienced high-risk work postures, 94.1% of respondents had additional workload in the heavy category, 72.5% of respondents had long working duration, and 41.2 % of respondents have obese BMI. There is a relationship between work posture and complaints of musculoskeletal disorders in horticultural farmers spraying pesticides in Sako Dua Village, Kayu Aro Barat District, Kerinci Regency, Jambi Province in 2022 (p-value = 0.000).

There is no relationship between additional workload and complaints of musculoskeletal disorders in horticultural farmers spraying pesticides in Sako Dua

Village, Kayu Aro Barat District, Kerinci Regency, Jambi Province in 2022 (p-value = 0.315). There is a relationship between Length of Work and Complaints of Musculoskeletal Disorders in Horticultural Farmers Spraying Pesticide in Sako Dua Village, Kayu Aro Barat District, Kerinci Regency, Jambi Province in 2022 (p-value = 0.000). There is no relationship between BMI and Complaints of Musculoskeletal Disorders in Horticultural Farmers Spraying Pesticide in Sako Dua Village, Kayu Aro Barat District, Kerinci Regency, Jambi Province in 2022 (p-value = 0.398).

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