

THE RELATIONSHIP OF ERGONOMICS KNOWLEDGE AND WORK ATTITUDES WITH LOW BACK PAIN COMPLAINTS OF FARMERAT TRIYAGAN VILLAGE SUKOHARJO REGENCY

Ari Prastyamto¹, Reni Vijayati², Heni Hastuti³

1.2. D4 Occupational Safety and Health Study Program, Vocational School, Sebelas Maret University

3. Medical Study Program, Faculty of Medicine, Sebelas Maret University

E-mail: a_prastyam@student.uns.ac.id

Article Info

Article history:

Received Agust 07, 2022

Revised Agust 09, 2022

Accepted January 01,2023

Keywords:

Triyagan Village Farmers
Ergonomics Knowledge
Work Attitudes
Low Back Pain Complaints

ABSTRACT

The Relationship of Ergonomics Knowledge and Work Attitudes with Low Back Pain Complaints of Farmer at Triyagan Village Sukoharjo Regency. One of the risks in the work of farmers is musculoskeletal complaints that caused by mistakes in work attitude, wrong body position, repetition of movements, and excessive static movement in long duration. Musculoskeletal problems are second leading cause of global disability. Musculoskeletal disorders that affect 80% of individuals, named Low Back Pain. The purpose of this research is analyzing the relationship between knowledge of ergonomics and work attitudes with Low Back Pain complaints. This research is included in the type of cross sectional study. Samples in this study amounted to 57 farmers at Triyagan Village. This research uses the technique of total sampling. The research instrument used in this research is some questionnaire to determine knowledge of ergonomics, work attitudes, and complaints of Low Back Pain. The results of data analysis using the Somers'd test show that there is a significant relationship between knowledge of ergonomics with complaints of Low Back Pain of farmers at Triyagan Village ($p = 0,000$; $r = -0,409$) and there is a significant relationship between work attitude with Low Back Pain complaints of farmers of Triyagan Village ($p = 0,001$; $r = 0,339$). Result of data analysis using multiple ordinal regression test shows that there is a significabt relationship between all independent variable (ergonomics knowledge and work attitude) to the dependent variable (complaints of Low Back Pain). Ergonomics Knowledge ($OR = 0,139$) has a greater influence than with work attitudes ($OR = 0,132$) against complainst of Low Back Pain of farmers at Triyagan Village. There is a significant relationship between knowledge

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INTRODUCTION

Farmer work has the danger of accident and health risks due to work. Risks to this health include biological and non-biological agents which if exposed to humans can cause diseases such as pneumonitis, contact dermatitis, and asthma, as well as occupational diseases related to musculoskeletal due to non-ergonomic work attitudes, exposure to vibrations, work with repetitive motion, static motion work and long work duration ⁽¹⁾.

Farmers in Indonesia spend every day in the fields or fields, even if only supervising or hoeing and planting, such work is carried out routinely by farmers, so that the work affects the position of bone work ⁽²⁾. In South Carolina in 2013 57% of poultry processing plant workers (213 workers) experienced more musculoskeletal complaints in the arms, wrists, back, shoulders, legs, neck, and knees ⁽³⁾.

Musculoskeletal problems are the second highest cause of global disability, as well as the leading cause of global disability due to musculoskeletal disorders since it was first measured in 1990 as Low Back Pain (NPB) or Low Back Pain (LBP) ⁽⁴⁾. Musculoskeletal disorders that affect 80% of individuals caused by various health problems are: Low Back Pain (LBP), occurs due to the position of the body when walking or standing in an upright position where the majority of body weight is concentrated on the spine, namely the lumbar, pressure on the lumbar causes the lumbosacral ligament to become tense and muscles feel pain ⁽⁵⁾.

Based on the results of research by Utami & Setyaningsih ⁽⁶⁾ Regarding the relationship between ergonomic knowledge and musculoskeletal disorders of 83 nurses at Husada Hospital, that is, if workers' knowledge about ergonomics is getting better, then the possibility of these workers performing actions or work positions that are not ergonomic is getting smaller, thereby reducing the number of musculoskeletal complaints in workers.

Knowledge of ergonomics is needed in farmers. This greatly affects the quality of work and physical condition of farmers ⁽⁵⁾. Research conducted Remon., et al., ⁽⁷⁾ In 109 oil palm farmers, it was found that 74 oil palm farmers had the wrong working position due to lack of ergonomic knowledge. The work attitude of farmers when doing work is ergonomic and some are not ergonomic, therefore there is a risk of complaints of LBP pain caused by a bent work position and has the potential to burden the spinal skeletal muscles more because of moments in the body ⁽⁸⁾. In 2018, the number of farmers in Central Java Province who experienced joint problems in Sukoharjo Regency was 323 farmers ⁽⁹⁾.

On Friday, February 5, 2021, in Triyagan Village, observations and interviews were conducted related to ergonomic knowledge, work attitudes and complaints of low back pain in farmers. It can be known from 10 farmers, only 1 farmer knows the definition of ergonomics and the purpose of ergonomics. Related to work attitude, 9 out of 10 farmers often work by bending and lifting weights. The number of farmers who have complaints in the form of body aches due to work is 6 out of 10 farmers, while the rest have complaints in the form of back pain due to work. Then when complaints were felt by the body in 4 farmers occurred when doing work, while 6 farmers experienced complaints after doing work. Subjectively, 9 out of 10 farmers feel they have experienced LBP.

Based on the description above, researchers are interested in conducting research to find out and analyze the relationship between ergonomic knowledge and work attitudes with complaints of Low Back Pain in farmers in Triyagan Village, Mojolaban District, Sukoharjo Regency.

MATERIALS AND RESEARCH METHODS

This research was carried out in Triyagan Village, Mojolaban District, Sukoharjo Regency from February to October 2021. This study was included in an analytical observational study, the approach used was cross sectional with a population of 57 farmers. Research sampling was carried out by total sampling technique. This technique makes all members of the population a sample with a total sample of 57 farmers.

The independent variable in this study is ergonomic knowledge and work attitude, while the dependent variable is Low Back Pain complaint. The ergonomics knowledge variable was measured using a questionnaire consisting of 20 Guttman-scale questions, with good ($\geq 75\%$), good enough (56%-74%), and less good ($\leq 55\%$) categories. Work attitude variables were measured using a questionnaire consisting of 19 Likert scale questions, with good ($\geq 75\%$), good enough (56%-74%), and less good ($\leq 55\%$) categories. The variable of Low Back Pain complaints was measured using the Indonesian Modified Oswestry Disability Index (ODI) questionnaire consisting of 10 questions, with categories of minimal disability ($\leq 20\%$),

moderate disability (21%-40%), and severe disability ($\geq 40\%$). All questionnaires have been tested for validity and reliability, so they can be used to conduct research.

After taking the research data, analysis was carried out by calculating the distribution and percentage of each variable, followed by bivariate analysis with test somers'd and multivariate analysis was carried out with Multiple ordinal regression test to find out The most influential independent variables (knowledge of ergonomics and work attitude) against dependent variables (complaints Low Back Pain) ⁽¹⁰⁾. Data processing and analysis using applications Statistical Product and Service Solution (SPSS) verses 23.

RESULTS OF RESEARCH AND DISCUSSION

The results of univariate analysis of respondent characteristics and research variables can be seen in tables 1 and 2 as follows:

Table 1. Results of Univariate Analysis of Sex Characteristics

Characteristics of Respondents	Low Back Pain Complaints			Total
	At least	Keep	Severe	
Gender				
Man	12 (21%)	23 (40%)	9 (16%)	44 (77%)
Woman	7 (12%)	6 (11%)	0 (0%)	13 (23%)
Sum	19 (33%)	29 (51%)	9 (16%)	57 (100%)

Male respondents (77%) outnumber female respondents (23%). In the female respondents, none of them felt complaints *Low Back Pain* At the level of severe disability, while in male respondents there are 16% of respondents who experience the level of severe disability complaints. In statistical testing, it was found that there was no influence of gender on complaints *Low Back Pain* in Triyagan Village farmers ($p = 0.085$). This discrepancy is because the majority of Triyagan Village farmers are male, so the causative factor *Low Back Pain* more experienced by male farmers ⁽¹¹⁾.

Table 2. Results of Univariate Analysis of Age Characteristics

Characteristics of Respondents	Low Back Pain Complaints			Total
	Minimal	Keep	Parah	
Age (12)				
30-39 Years	3 (5%)	1 (2%)	0 (0%)	4 (7%)
40-49 Years	9 (16%)	10 (18%)	2 (3%)	21 (37%)
50-59 Years	3 (5%)	9 (16%)	2 (3%)	14 (24%)
> 60 Years	4 (7%)	9 (16%)	5 (9%)	18 (32%)
Sum	19 (33%)	29 (51%)	9 (16%)	57 (100%)

The majority of respondents have an age of 40-49 years and there are 3% of farmers experiencing complaints of *Low Back Pain* at the level of severe disability. This number is less than the number of farmers in the age category of > 60 years who experience severe disabilities, which is 9% of farmers. Based on the results of statistical tests in this study, it was found that age had no influence on complaints of *Low Back Pain* in Triyagan Village farmers ($p = 0.205$). There is no relationship between age and complaints of *low back pain* in Triyagan Village farmers, can be due to intermittent working hours or work duration that is very random and free to be determined by the farmers themselves, so that this age factor becomes a small risk and can be minimized by stretching muscles and getting enough rest.

Table 3. Results of Univariate Analysis of Characteristics of Service Life

Characteristics of Respondents	Low Back Pain Complaints			Total
	Minimal	Keep	Parah	
Period of Service (14)				
< 6 Years (Very New)	5 (9%)	6 (10%)	1 (2%)	12 (21%)
6-12 Years (New)	8 (14%)	3 (5%)	1 (2%)	12 (21%)
13-18 Years (Old)	3 (5%)	9 (16%)	0 (0%)	12 (21%)
> 18 years (very old)	3 (5%)	11 (20%)	7 (12%)	21 (37%)
Sum	19 (33%)	29 (51%)	9 (16%)	57 (100%)

The majority of respondents' working period was in the very long category (more than 18 years), which was 37%, and it was found that 12% of farmers experienced *complaints of Low Back Pain* with severe levels of disability. In this study, it was found that working period had an influence on *Low Back Pain complaints* in Triyagan Village farmers ($p = 0.04$).

This is in line with Andini's statement ⁽¹⁴⁾, that the longer a person's working life, the greater the risk of complaints *Low Back Pain*. The length of service is closely related to a person's physical ability, the longer the working period, the lower the physical ability.

Table 4. Results of Univariate Analysis of Nutritional Status Characteristics

Characteristics of Respondents	Low Back Pain Complaints			Total
	Minimal	Keep	Parah	
Status Gizi (15)				
< 18,5 (<i>Underweight</i>)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
18,5-22,9 (<i>Normal</i>)	18 (31%)	16 (27%)	6 (10,6%)	39 (68%)
23-29,9 (<i>Overweight</i>)	1 (2%)	6 (10%)	3 (5,4%)	10 (18%)
> 30 (<i>Obesity</i>)	0 (0%)	8 (14%)	0 (0%)	8 (14%)
Sum	19 (33%)	29 (51%)	9 (16%)	57 (100%)

The majority of respondents had normal nutritional status (68%), and 31% experienced *complaints of Low Back Pain* at a minimal level of disability. On the other hand, from respondents who had *overweight nutritional status* (18%), it was found that 5.4% of respondents experienced *complaints of Low Back Pain* with severe disability. In this study, it was found that nutritional status had an influence on complaints of *Low Back Pain* in Triyagan Village farmers ($p = 0.001$).

This is in line with the statement Setyaningrum ⁽¹⁵⁾, that there is a relationship between nutritional status in the form of body mass index to incidence rates *Low Back Pain*. The unhealthy lifestyle of a person and obesity can cause the occurrence of *Low Back Pain*.

Table 5. Results of Univariate Analysis Characteristics of Disease History

Characteristics of Respondents	Low Back Pain Complaints			Total
	Minimal	Keep	Parah	
History of the disease				
Exist	0 (0%)	0 (0%)	0 (0%)	0 (0%)
None	19 (33%)	29 (51%)	9 (16%)	57 (100%)
Sum	19 (33%)	29 (51%)	9 (16%)	57 (100%)

None of the respondents had a history of cancer, tumors, or kidney failure (100%). In this study, it was found that the history of the disease had no influence on complaints *Low Back Pain* in Triyagan Village farmers (p value cannot be computed because it is constant). This is in line with the results of Ulandari's research ⁽¹⁶⁾ that the history of the disease has no influence on complaints *Low Back Pain* (p value cannot be computed).

Symptoms of spinal tumors will appear when tumor cells grow larger and begin to cause bone tissue or nerve pads to be damaged. Symptoms appear lumps in the waist area, or tingling in the back ⁽¹⁷⁾.

Crystals or mineral stones that have a large size will have difficulty when going through the kamih channel, so it can cause severe pain in the waist and pain when urinating (18).

Table 6. Results of Univariate Analysis of Smoking Habit Characteristics

Characteristics of Respondents	Low Back Pain Complaints			Total
	Minimal	Keep	Parah	
Smoking Habits				
Smoke	5 (9%)	13 (23%)	4 (7%)	22 (39%)
No Smoking	14 (24%)	16 (28%)	5 (9%)	35 (61%)
Sum	19 (33%)	29 (51%)	9 (16%)	57 (100%)

Farmers who do not smoke (61%) outnumber farmers who smoke (39%). Based on the results of statistical tests, smoking habits have no influence on *Low Back Pain complaints of Triyagan Village farmers* ($p = 0.306$).

In this study, smoking habits did not have a significant effect on complaints *Low Back Pain*, caused by each farmer having time to be exposed to cigarettes, as well as the ability of each farmer's body to respond to different disease agents ⁽¹⁹⁾.

Table 7. Results of Univariate Analysis of Other Occupational Characteristics

Characteristics of Respondents	Low Back Pain Complaints			Total
	Minimal	Keep	Parah	
Other Work				
None	7 (12%)	9 (16%)	1 (2%)	17 (30%)
Guru	1 (2%)	0 (0%)	0 (0%)	1 (2%)
Cattle/Goat Farmer	1 (2%)	3 (5%)	4 (7%)	8 (14%)
Past Labour	3 (5%)	6 (10%)	2 (3%)	11 (20%)
Merchant	2 (3%)	3 (5%)	0 (0%)	5 (9%)
Becak	0 (0%)	1 (2%)	2 (3%)	3 (5%)
Buruh Pabrik	3 (5%)	4 (7%)	0 (0%)	7 (12%)
Building Labor	1 (2%)	2 (3%)	0 (0%)	3 (5%)
Container Stuffs	0 (0%)	1 (2%)	0 (0%)	1 (2%)
Chicken Slaughter Service	1 (2%)	0 (0%)	0 (0%)	1 (2%)
Sum	19 (33%)	29 (51%)	9 (16%)	57 (100%)

Based on research data, the majority of respondents have jobs other than being farmers (70%). The most jobs other than farmers are casual workers (20%). Based on the results of statistical tests, it was found that the other work of these farmers had no influence on complaints *Low Back Pain* ($p = 0.074$). This can be caused by other jobs of farmers varying in terms of physical energy needs, duration, to workload.

Casual laborers who make up the majority of other jobs of farmers can be in the form of jobs offered by neighbors, so that the work is very diverse and can be adjusted to conditions and needs.

Table 8. Results of Univariate Analysis of Research Variables

No	Research Variables	Low Back Pain Complaints			Total
		Minimal	Keep	Parah	
1	Ergonomic Knowledge				
	Good	9 (15%)	1 (2%)	0 (0%)	10 (17%)
	Enough	2 (4%)	4 (7%)	0 (0%)	6 (11%)
	Less	9 (16%)	24 (40%)	9 (16%)	41 (72%)
	Sum	19 (33%)	29 (51%)	9 (16%)	57 (100%)
2	Work Attitude				
	Good	3 (5%)	0 (0%)	0 (0%)	3 (5%)
	Enough	14 (25%)	19 (33%)	4 (7%)	37 (65%)
	Less	2 (3%)	10 (18%)	5 (9%)	17 (30%)
	Sum	19 (33%)	29 (51%)	9 (16%)	57 (100%)

The majority of respondents have poor ergonomic knowledge (72%) with the most complaints of *Low Back Pain* at the level of moderate disability (40%). Based on the analysis of the lowest score results on the questionnaire, it was shown that the majority of farmers in Triyagan Village had poor knowledge regarding the right actions and positions in lifting weights.

The majority of respondents have a fairly good work attitude (65%) with the most complaints of *Low Back Pain* at the level of moderate disability (33%). Based on the analysis of the lowest score results of the questionnaire, it was shown that the majority of Triyagan Village farmers had poor decisions regarding repetitive work and when doing weight-lifting work.

The majority of respondents experienced LBP complaints at the level of moderate disability (51%). Referring to ODI standards, workers who experience complaints of disability are feeling pain in sitting, lifting, and standing activities. But self-care, social, household, and sleep activities were less affected by pain. Perceived complaints can be managed conservatively such as the use of pain medication and exercise ⁽²⁰⁾. This is in accordance with the results of the questionnaire in this study, it was found that the worst complaint scores occurred in lifting weights and sitting activities.

The results of statistical tests related to the relationship between ergonomic knowledge and complaints of *Low Back Pain* can be seen in table 3.

Table 9. Statistical Test Results of the Relationship between Ergonomic Knowledge and Low Back Pain Complaints

Ergonomic Knowledge	Low Back Pain Complaints			Total	r	p
	Minimal	Keep	Parah			
Good	9	1	0	10	-0,409	0,000
Good enough	2	4	0	6		
Not Good	8	24	9	41		
Sum	19	29	9	57		

Referring to table 3, a p value = 0.000 or < 0.05 was obtained, so that the test results were declared significant there was a meaningful relationship between ergonomic knowledge variables and *Low Back Pain complaint variables*. The strength of the relationship is shown in the result of the r value, which is 0.409, meaning that the strength of the relationship between the two variables is at a moderate level. The test results showed that the direction of the relationship between the two variables was negative, so the higher the value of ergonomic knowledge, the lower the level of *Low Back Pain complaints* in Triyagan Village farmers.

Farmers who have poor knowledge as much as 72%, but only 16% of farmers have a minimal level of Low Back Pain disability. While the number of farmers who have good knowledge is as many as 17% of farmers and none of them experience *complaints of Low Back Pain* at the level of severe disability.

The results of this study are in line with the research of the Utami & Setyaningsih (6) To 83 nurses at Husada Hospital about the relationship between ergonomic knowledge and musculoskeletal disorders with the results of a relationship between ergonomic knowledge and musculoskeletal disorders (p = 0.001; r = 0.367). This means that the higher the worker's knowledge related to ergonomics, the less likely the worker is to perform actions or work positions that are not ergonomic, thereby reducing the number of occurrences of musculoskeletal disorders in workers.

This is also in line with the results of research by Rahardi (21) Related to the relationship of ergonomic knowledge with risk *Musculoskeletal Disorder Syndrome* on 44 workers of Dharmais Cancer Hospital Clinical Laboratory. The results of the analysis showed a significant relationship with medium strength (p = 0.00; r = -0.546) between ergonomic knowledge and risk *Musculoskeletal Disorder Syndrome*, So that the higher the value of ergonomic knowledge

in workers, the lower the risk *Musculoskeletal Disorder Syndrome*. Having a good enough knowledge of ergonomics, will influence actions in working to be careful or avoid body positions that are not ergonomic, in order to prevent the emergence of *Low Back Pain* (22). The results of statistical tests related to the relationship between work attitude and *Low Back Pain* complaints are shown in table 4.

Table 10. Statistical Test Results of Work Attitude Relationship
 with *Low Back Pain* Complaints

Work Attitude	Low Back Pain Complaints			Total	r	p
	Minimal	Keep	Parah			
Good	3	0	0	3	-0,339	0,001
Good enough	14	19	4	37		
Not Good	2	10	5	17		
Sum	19	29	9	57		

Based on table 18, it can be seen that the p value = 0.001 or < 0.05, so it can be stated that there is a meaningful relationship between the work attitude variable and *the Low Back Pain complaint variable*. The strength of the relationship is shown in the result of the r value, which is 0.339, meaning that the strength of the relationship between the two variables is at a weak level. Then the test results showed that the direction of the relationship between the two variables was negative, so the higher the value of work attitude, the lower the level of LBP complaints to village farmers.

Farmers who have a poor work attitude as much as 30%, but only 3% of farmers have a minimal level of Low Back Pain disability. Conversely, farmers who have a good work attitude are only 5% of farmers and none of them experience complaints of *Low Back Pain* at the level of severe disability and of the 65% of farmers who have a fairly good work attitude, only 7% of farmers experience complaints of *Low Back Pain* at the level of severe disability.

The results of this study are in line with research conducted by Utami., *et al.*,⁽²³⁾ to 62 rice farmers in Ahuhu Village, Konawe District, regarding the relationship between work attitudes towards *Musculoskeletal Disorder*. The results showed that there was a significant relationship between work attitudes and *Musculoskeletal Disorder* (p = 0.018; r = 0.484). Work attitude in the form of actions and body positions when working causes body gestures to reach natural positions, including movements when lifting, bending, and so on. The farther the position of the body from the center of gravity on the body, the risk of complaints *Musculoskeletal Disorder* like *Low Back Pain* may add up.

As a result of work with improper work attitude, it will have an effect on body parts such as the back. Jobs that use a lot of body twisting and bending movements, more specifically around the lower spine and lifting heavy weights are the biggest risk factors for complaints of low back pain⁽⁵⁾.

The results of multivariate statistical tests of respondents' characteristics and test results related to the relationship between ergonomic knowledge and work attitude with complaints of *Low Back Pain* are shown in table 5.

Table 11. Multiple Ordinal Regression Statistical Test Results

Free Variable	df	p value	Estimate (β)	Odd Ratio (exp ^(β))	95% Confidence Interval	
					Lower Bound	Upper Bound
Ergonomic Knowledge	1	0,000	-1,967	0,139	-3,019	-0,916
Work Attitude	1	0,001	-2,022	0,132	-3,224	-0,820
Age	1	0,205	-0,425	0,653	-1,082	0,233
Period of Service	1	0,049	-0,547	0,578	-1,092	-0,002

Status Gizi	1	0,017	0,403	1,496	-1,751	-0,171
Gender	1	0,085	-1,495	0,224	-3,194	0,204
History of the disease	0	-	0a	-	-	-
Smoking Habits	0	0,306	0,667	1,948	-0,609	1,943
Other Work	1	0,223	0,121	1,128	-0,074	0,315

There is a significant influence between ergonomic knowledge and work attitudes towards complaints *Low Back Pain*. Effect of ergonomic knowledge variables ($p = 0.000$; OR = 0.139) was stronger than the effect of work attitude ($p = 0.001$; OR = 0.132). This shows that the ergonomic knowledge variable affects 0.139 times the complaint variable *Low Back Pain*, While the work attitude variable affects 0.132 times the complaint variable *Low Back Pain*. Because the OR value in the two independent variables < 1 , both variables are protective factors, so the higher the value of ergonomic knowledge and work attitude, the lower the level of LBP complaints ⁽²⁴⁾

The results of this study are in line with the results of other studies conducted by Balaputra & Sutomo ⁽²⁵⁾ Of 39 nurses at Dr. H. Koesnadi Bondowoso Hospital, the study showed a significant influence between ergonomic knowledge ($p = 0.014$; OR = 7.33) and work attitude ($p = 0.041$; OR = 4.93) with musculoskeletal disorders. If ergonomic knowledge, work attitude, and working period have good control, then the risk of musculoskeletal disorders such as *Low Back Pain* can be reduced.

Workers who have ergonomics knowledge will not perform movements or work positions that can cause interference *Low Back Pain* on yourself or others ⁽⁶⁾. The work attitude carried out by farmers when working is ergonomic and some are not ergonomic, therefore there can be a risk of complaints *Low Back Pain* Due to the bent work position and due to the moment in the body, the potential for spinal muscles to be more burdened ⁽⁸⁾.

However, in this study it was also found that there are confounding variables that have an influence on complaints *Low Back Pain*, i.e. the length of service ($p = 0.04$; OR = 0.578) and nutritional status ($p = 0.01$; OR = 1.496). The length of service is closely related to a person's physical ability, the longer the working period, the lower the physical ability. Workers with more than 10 years of service were found to experience more *Low Back Pain* from employees with work time less than 5 years ⁽¹⁴⁾.

When you gain weight, the spine will be pressured to accept the load that makes damage and danger to the structures of the back, such as the *lumbar vertebrae* area very risky due to excess weight.

CONCLUSIONS AND RECOMMENDATIONS

The majority of farmers' ergonomic knowledge in Triyagan Village is in the poor category (72%). The work attitude of farmers in Triyagan Village is mostly in the fairly good category (65%). Complaints *Low Back Pain* The majority of farmers in Triyagan Village are in the category of moderate disability (51%). There is a significant relationship with the direction of the negative relationship between ergonomic knowledge and complaints *Low Back Pain* in Triyagan Village farmers ($p = 0.000$; $r = -0.409$). There was a significant relationship with the direction of the negative relationship between work attitudes and complaints *Low Back Pain* in Triyagan Village farmers ($p = 0.001$; $r = -0.399$). Knowledge of ergonomics and work attitude are protective factors of complaints *Low Back Pain*. Knowledge of ergonomics ($p = 0.000$; OR = 0.139) has a greater influence on complaints *Low Back Pain* compared with work attitude ($p = 0.001$; OR = 0.132).

Future research can add other variables included in the causal factors *Low Back Pain* Such as nutritional status, length of work, duration of work, work stress, and workload, to find out other factors that have a stronger relationship or influence on complaints *Low Back Pain*. Further research can use a combination of other research methods such as observation methods or measurements in depth and specific, so that the research data obtained is able to describe the conditions and conditions of respondents better.

REFERENCES

1. Hadyan MF, Saftarina F. Hubungan Usia, Lama Kerja, Masa Kerja dan Indeks Massa Tubuh (IMT) Terhadap Kejadian Low Back Pain (LBP) pada Petani Di Desa Munca Kabupaten Pesawaran. Medula [Internet]. 2017;7(4):141–6. Available from: <http://juke.kedokteran.unila.ac.id/index.php/medula/article/download/1704/pdf>
2. Blessy Tanor T, Pinontoan OR, Rattu AJM, Kesehatan F, Universitas M, Ratulangi S, et al. Hubungan antara Lama Kerja (Durasi) dan Sikap Kerja dengan Keluhan Muskuloskeletal pada Petani Tanaman Padi di Desa Ponompia Kecamatan Dumoga Kabupaten Bolaang Mongondow [Internet]. Vol. 8, KESMAS. 2019. Available from: <https://ejournal.unsrat.ac.id/index.php/kesmas/article/view/27283>
3. Musolin K, Ramsey JG, Wassell JT, Hard DL. Evaluation of Musculoskeletal Disorders and Traumatic Injuries Among Employees at a Poultry Processing Plant [Internet]. Health Hazard Evaluation Report. 2014. Available from: <http://www.cdc.gov/niosh/hhe/reports/pdfs/2012-0125-3204.pdf>
4. Briggs, A M, Woolf, A D, Dreinhofer K, Homb N, Hoy, D G. Reducing the Global Burden of Musculoskeletal Conditions. Glob Orthop Caring Musculoskelet Cond Inj Austere Settings. 2018;96(March):366–8.
5. Roma I, Bayhakki, Woferst R. HUBUNGAN Pengetahuan tentang Body Mechanic Terhadap Tingkat Nyeri Low Back Pain (Lbp) Pada Petani Kelapa Sawit. JOM FKP. 2019;6:1–9.
6. Utami RA, Setyaningsih T, Hemawayanti H. Hubungan Pengetahuan tentang Sikap Ergonomi Dengan Gangguan Muskuloskeletal pada Perawat. J Kesehat Holist. 2018;1(2):90–104.
7. Remon, Utami G, Dewi A. Hubungan Antara Posisi Tubuh saat Bekerja Terhadap Kejadian Low Back Pain (Lbp) Pada Petani Sawit Remon1,. JOM. 2015;2(2):1396–401.
8. Purnawinadi IG, Rumegang A. Evaluasi Sikap Kerja Sebagai Risiko Nyeri Punggung Bawah. J Sk Keperawatan. 2019;5(1):48–55.
9. KEMENKES. Laporan Provinsi Jawa Tengah Riskesdas 2018. Kementerian Kesehatan RI. 2019. 88–94 p.
10. Sumardiyono, Probandari A, Widyaningsih V. Statistik Dasar untuk Kesehatan dan Kedokteran. 1st ed. Surakarta: UNS Press; 2020. 9, 161 p.
11. Rini HS, Triastuti NJ. Hubungan Jenis Kelamin, Lama Duduk, Konsumsi Air Putih dan Olahraga dengan Kejadian LBP pada Penjahit Konveksi. 2020;185–6.
12. Untari DT. Buku Ajar Statistik 1. 1st ed. Banyumas: CV. Pena Persada; 2020. 12 p.
13. Karima A. Faktor-Faktor yang Berhubungan dengan Stress Kerja pada Pekerja di PT X tahun 2014. Universitas Islam Negeri Syarif Hidayatullah; 2014.
14. Andini F. Risk factors of low back pain in workers. 2015;4:12–9.
15. Setyaningrum MS. Hubungan Indeks Massa Tubuh dengan Angka Kejadian Low Back Pain di RSUD Dr. Moewardi Surakarta. Univ Muhammadiyah Makassar. 2014;6.
16. Ulandari S. Analisis Postur Kerja dengan Keluhann Low Back Pain pada Pekerja Pencetak Genteng di Kabupaten Blitar. Universitas Jember; 2017.
17. Adrian K. Tumor Tulang Belakang : Penyebab , Gejala , dan Cara Mengatasinya [Internet]. ALODOKTER. 2020 [cited 2021 Nov 16]. p. 2. Available from: www.alodokter.com/tumor-tulang-belakang-penyebab-gejala-dan-cara-mengatasinya
18. Yunita, T R. Ciri dan Tanda Sakit Pinggang Akibat Batu Ginjal [Internet]. Klik Dokter. 2021 [cited 2021 Nov 16]. p. 1–2. Available from: www.klikdokter.com/info-sehat/read/3614802/ciri-dan-tanda-sakit-pinggang-akibat-batu-ginjal
19. Astuti I, Septriana D, Romadhona N, Achmad S, Kusmiati M. Nyeri Punggung Bawah serta Kebiasaan Merokok , Indeks Massa Tubuh , Masa Kerja , dan Beban Kerja pada Pengumpul Sampah. J Integr Kesehat Sains. 2019;1(22):74–8.

20. Wahyuddin. Adaptasi Lintas Budaya Modifikasi Kuesioner Disabilitas untuk Nyeri Punggung Bawah (Modified Oswestry Low Back Pain Disability Questionnaire / Odi) Versi Indonesia. Universitas Esa Unggul. Jakarta; 2017.
21. Rahardi W. Hubungan Pengetahuan Ergonomi dengan Risiko Musculoskeletal Disorder Syndrome (MSDS) Karyawan Laboratorium Klinik di RS Kanker Dharmas. 1st ed. [Jakarta]: Universitas Esa Unggul; 2016.
22. Purwantini D. Tingkat pengetahuan posisi ergonomi dalam pencegahan nyeri punggung bawah. J Penelit Kesehat. 2017;4(2):80-1.
23. Utami U, Karimuna S, Jufri N. Hubungan Lama Kerja, Sikap Kerja Dan Beban Kerja Dengan Muskuloskeletal Disorders (Msds) Pada Petani Padi Di Desa Ahuhu Kecamatan Meluhu Kabupaten Konawe Tahun 2017. J Ilm Mhs Kesehat Masy Unsyiah. 2017;2(6):198.
24. Marlina, Nurlaelah. Faktor Risiko Kejadian Retensio Plasenta di Rumah Sakit Umum Daerah Lanto Daeng Pasewang. J Ilm Media Bidan. 2016;1(02):88-9.
25. Balaputra I, Sutomo H. Pengetahuan Ergonomi dan Postur Kerja Perawat pada Perawatan Luka dengan Gangguan Muskuloskeletal di dr. H. Koesnadi Bondowoso. J Community Med Public Heal. 2017;33(9):445-6.