

Effectiveness of Mc Kenzie Exercise and Myofascial Release on Reducing Non-Specific Low Back Pain in Farmers in Maguan Village

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ABSTRACT

Facing increasingly fierce competition, it requires qualified human resources and high work productivity. Adequately qualified human resources if they have health problems can reduce work productivity. Some that interfere with work activities, one of which is lower back pain, because sometimes they do work or lift weights with the wrong ergonomic position, for example in farmers. To analyze the effect of Myofascial Release and Mc Kenzie Exercise interventions on reducing the intensity of Non-specific Low Back Pain in farmers in Maguan Village, Ngajum District, Malang Regency. Quantitative quasi-experimental design with Proportional Random Sampling pre and post test techniques using 60 farmers as respondents who meet the criteria are randomly selected and given treatment in the form of myofascial release and mc kenzie exercise with a dose of 10-15 minutes / treatment 2 times a week for 1 month. It was found that there was an effect of the experimental group intervention with myofascial release and McKenzie exercises with an average pre-test of 49.80 and post-test of 15.26, so that the difference in the pre-test and post-test VAS values was 34.59 with a P value of $0.000 < 0.005$ and in the control group given William Flexy exercises there was a decrease in pain but greater than the experimental group. The results of this study indicate that myofascial release, McKenzie exercises and William Flexy exercises can reduce the intensity of lower back pain in farmers in Maguan Village, Ngajum District, Malang Regency.

Keywords: Low Back pain, mc kenzie exercise, myofascial release, pain intensity

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BACKGROUND

Lower back pain is one of the things that many people suffer from today because they sometimes do work or lift weights with the wrong ergonomic position, for example in a farmer. Lower back pain can affect all people, in terms of economy, social popularity, gender, occupation and many more (Rahma, 2019).

According to the World Health Organization (WHO) 2019, around 30% of people suffer from lower back pain. Lower back pain is considered a major factor because it has a significant impact on the industrial sector, especially on the economic growth of countries in Western Europe. Almost 80% of Indonesia's population suffered from lower back pain (LBP) in 2019. The prevalence based on medical examinations is known to be 1.3%. around 3.7% of hospital examination results in Indonesia. The prevalence each year averages 30%. The Indonesian population suffers from back pain around 65% with complaints of chronic or acute pain (Sinaga, 2020).

Agriculture is one of the work factors that has a high impact on the occurrence of lower back pain. The pain ranges from mild to severe. The main causes of back pain include certain body parts, such as hunched positions, twisting, and reaching far away (Sekpin, 2021).

Myofascia release focuses on soft tissues such as muscle tissue and fascia to restore normal fluid or lubricant quality, mobility, muscle tissue, and joint function (Cesario, 2021). Mz Kenzie Exercise is an exercise program that includes a series of movements that focus on muscle flexibility in the lower back which aims to relieve pain and restore impaired spinal mobility (Fransisca, 2022).

METHODS

This study is a Quantitative study using a quasi-experimental Analytical Design Study with the Proportional Random Sampling technique where the data collection process with individual characteristics is carried out using a Visual Analog Scale (VAS) pain measurement tool. For the case studied, the respondent was a farmer who lived in Maguan Village with a sample of 60 farmers.

RESULTS

Table 1. Respondent characteristics based on

Gender	Frequency	Percent
Male	48	80.0
Female	12	20.0
Total	60	100.0

The characteristics of respondents in this study are focused on gender, age, occupation and duration of work. The respondents in the study in table 1 are farmers in Maguan Village, Ngajum District, Malang Regency. The distribution of respondents by gender is 80% male and 20% female. So it is concluded that there are more male than female farmer workers.

Table 2. Respondent Characteristics Based on Age

Age	Frequency	Percent
37 – 45 years	20	33.3
46 – 54 years	17	28.3
56 – 64 years	23	38.3
Total	60	

In table 2 with an age range of 37-45 as many as 20 people (33.3%), age 46-54 as many as 17 people (28.3%) all respondents aged 56-64 years (38.3%) work as farmers who work in Maguan Village, Ngajum District, Malang Regency. From table 4.2 above, it can be seen that the majority of the characteristics of the respondents are in the age range of 56 - 64 years.

Table 3. Respondent Characteristics Based on Length of Work

O'clock	Frequency	Percent
<8 O'clock	18	30.0
>8 O'clock	42	70.0
Total	60	100.0

Based on table 3, the table above shows that the respondents of farmers with a working time of less than 8 hours are 18 people (30%) and more than 8 hours (60%). It can be concluded that farmers in Maguan Village, Ngajum District, Malang Regency mostly work more than 8 hours every day.

Table 4. Homogeneity Test

Test of Homogeneity of Variances					
		Levene Statistic	df1	df2	Sig.
Nilai VAS	Based on Mean	2.065	1	58	.156
	Based on median	.925	1	58	.340
	Based on median and with adjusted df	.925	1	49.388	.341
	Based on trimmed mean	1.216	1	58	.275

In table 4 below is for the influence test Based on the Homogeneity Test Table, the significance value is known to be $0.156 > \alpha (0.05)$ meaning that the data is homogeneous.

Table 5. Annova Test

Coefficients						
Model		Unstandardized Coefficients B Std.Error		Standardized coefficient Beta	t	Sig.
1	(Constant)	43.800	5.115		8.564	.000
	Metode	2.13	3,235	.086	.659	.512

Based on table 5 below, it shows F count of $0.435 < F \text{ table } (1.59) = 4.00$; then H_0 is accepted, meaning the method used has the same effect on reducing pain intensity.

Table 6. Normality test

Pain reduction Group type	Kolmogorov-Smirnova			Shapiro-Wilk		
	Statistic	df.	Sig.	Static	Df.	Sig.
Experimental Group	,100	30	,200	,953	30	,199
Control group	,106	30	,200	,972	30	,595

In table 6 Kolmogorov-Smirnov Test significant value for the experimental group \square p-value = $0.200 > \alpha (0.05)$ significant value for the control group \square p-value = $0.200 > \alpha (0.05)$ conclusion = data is normally distributed moderate Shapiro Wilk Test significant value for the experimental group \square p-value = $0.199 > \alpha (0.05)$ \square normal distribution significant value for the control group \square p-value = $0.595 > \alpha (0.05)$ \square data is normally distributed.

Table 7. Homogeneity test of pain intensity

Test of Homogeneity of Variances					
		Levene Statistic	df1	df2	Sig.
Pain reduction	Based on Mean	,001	1	58	,976
	Based on median	,000	1	58	1,000
	Based on median and with adjusted df	.000	1	57,895	1,000
	Based on trimmed mean	,001	1	58	,972

In table 7 it can be concluded that the significant value = 0.976 > α (0.05) \square the variance of the data on the decrease in pain intensity in the experimental group and the control group is the same or homogeneous.

Table 8. Pre-Post Test Results of the Experimental Group eksperimen

Paired samples statistic					
Pair		Mean	N	Std.Deviation	Std. Error Mean
1	Pre Test	49,8000	30	29,06995	5,30742
	Post Test	15,2667	30	6,63290	1,21100

The table above is the experimental group, the average VAS value of the pre-test is 49.80 mm and the post-test is 15.26 mm, so the difference between the pre-test and post-test VAS values is 34.59 mm. In table 9 below is the control group, the average VAS value of the pre-test is 37.20 mm and the post-test is 16.43 mm, so the difference between the pre-test and post-test VAS values is 20.77 mm.

Table 9. Pre-Post Test Results of the Control Group

Paired samples statistic					
Pair		Mean	N	Std.Deviation	Std. Error Mean
1	Pre Test	37,2000	30	51,0333	1,05207
	Post Test	16,4333	30	49,5667	1,06640

Table 9 is the control group, the average VAS value of the pre-test is 37.20 mm and the post-test is 16.43 mm, so the difference between the pre-test and post-test VAS values is 20.77 mm.

Table 10. Average of the experimental group and the control group

Group Statistics					
Pain reducing	Group type	N	Mean	Std. deviation	Std. Error Mean
	Experimental Group	30	51,0333	5,76244	1,05207
	Control group	30	49,5667	5,84090	1,06640

Based on the output above, the average decrease in pain intensity in the experimental group was 51.03 mm while in the control group it was 49.56 mm. So there is an average difference in the decrease in pain intensity.

DISCUSSION

The results of the study indicated a decrease in pain scores in patients. According to the researchers, myofascial release interventions, the William flexion exercise, and the McKenzie exercise, are equally effective in reducing pain, increasing range of motion, and reducing

muscle spasms in the lower back. However, differences may be due to the duration/dosage of the exercises and the varying consistency of the participants' training.

CONCLUSION

The above research has several benefits. For researchers, it is hoped that this study will provide useful insights and knowledge for future authors if they encounter similar cases, and can also be shared with those around them. For physiotherapists, this study serves as a benchmark for improving physiotherapy performance in the treatment of low back pain (LBP), particularly in clinical and social services. For science, the results of this study are expected to form the basis for future research related to neck pain and sleep quality, and can serve as a reference in the musculoskeletal field. For the physiotherapy profession, this study serves as a guideline for physiotherapists to improve physiotherapy services, particularly in musculoskeletal interventions and those related to daily life.

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