IMPLEMENTASI *MC KENZIE EXERCISE* PADA PASIEN *LOW BACK PAIN* DI WILAYAH AGRIKULTURAL: STUDI KASUS

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ABSTRACT

Background: Low back pain experienced by farmers due to non-ergonomic work positions and heavy workloads over long periods of time can hinder work activities, affect quality of life, and indirectly impact farmers' economies. One implementation of lower back pain management that can be done is the Mc Kenzie Exercise. The purpose of this study is to explore the implementation of the McKenzie Exercise in patients with acute low back pain (LBP). **Methods:** This research method is a case study of a 51-year-old farmer who complained of lower back pain, appeared to be grimacing, restless, and protective of the pain. Data collection was conducted in March 2025 using interviews, observations, and documentation. The pain level measurement instrument used the Numeric Pain Rating Scale (NPRS) before and after the intervention. **Results:** The case study results showed that the patient complained of lower back pain for 2 weeks with the pain location remaining in the lower back, resulting in acute pain nursing issues. The intervention provided was therapeutic measures in the form of pain management using the McKenzie Exercise over 6 sessions, each lasting 20–30 minutes. The pain scale measurement before intervention was 4 (moderate pain) and decreased to 1 (no pain) after the Mc Kenzie Exercise intervention accompanied by a decrease in grimacing, protective posture, and restless. **Conclusions:** The implementation of Mc Kenzie Exercise can reduce pain in patients with LBP. Mc Kenzie exercises with consistent duration can be one of the options for nurses or health services to improve the health of patients with LBP so that the pain they feel is reduced as much as possible.

Keywords: *Acute Pain*, *Low Back Pain*, *Mc Kenzie Exercise*

Introduction

Indonesia is known as an agrarian country, as most of its population works in agriculture (Maisyaroh, 2019). Farming is a profession that involves activities such as plowing, hoeing, fertilizing, and planting,

which can lead to health issues (Rasmi et al., 2023). One such health issue is lower back pain, also known as Low Back Pain (LBP). LBP is a condition caused by improper body posture or poor posture while working. The pain originates in the lower back region, affecting the spinal column, nerves, muscles, and other structures in that area (Suma'mur, 2014 in Kumbea et al., 2021). LBP can limit activities such as lifting objects, twisting the body, sitting or standing for extended periods, and squatting (Fibriansari, Astuti, et al., 2022). Farmers experiencing LBP may be hindered in their work activities to the point of not being able to work (Widianto et al., 2023). Indirectly, LBP affects the economy and quality of life of farmers (Fibriansari, Maisyaroh, et al., 2022).

The *World Health Organization* (WHO) in (Habir et al., 2023) states that LBP affects 570 million cases worldwide. According to the Directorate General of Health Services, Ministry of Health of the Republic of Indonesia (Kemenkes RI) in (Habir et al., 2023) the prevalence of LBP in Indonesia is 18% and according to (Yojana, 2022 in Anwar et al., 2022) the prevalence of joint diseases diagnosed by doctors in East Java is 75,490 people. Based on data obtained from the health center report of Sukodono Lumajang in 2024, cases of muscle and tissue disorders such as low back pain accounted for 116 cases of musculoskeletal disorders.

This complaint will cause nursing problems according to the Indonesian Nursing Diagnosis Standard (SDKI) namely acute pain (PPNI, 2018). Interventions that can be carried out with nursing outcomes in the form of pain levels (PPNI, 2018). According to the Indonesian Nursing Intervention Standard (SIKI), this is done through pain management (PPNI, 2018). Researchers can provide one therapeutic intervention in the form of non-pharmacological treatment using the Mc Kenzie Exercise. The Mc Kenzie Exercise is one method to reduce pain.

Based on the research findings of Afrian Wiji Pratama et al (2020) the McKenzie exercise program administered to batik artists can reduce the intensity of low back pain from moderate to mild with a statistically significant p-value of 0.004. The McKenzie exercise involves body extension movements followed by strengthening and stretching of the extensor and flexor muscles (Septianto & Setiowati, 2024). According to Fibriansari, Maisyaroh, et al (2022) Mc Kenzie Exercises are capable of reducing LBP with a significant level of p= 0.001, safely rehabilitating muscles, and causing no side effects. By performing McKenzie exercises, low back pain issues can be addressed.

Methods

This study was conducted in the Agricultural Area of the Sukodono Lumajang Community Health Center in March 2025. The research participant was a farmer who experienced low back pain due to work-related factors by meeting the inclusion criteria, namely being aged 30 years or older, participants in a state of compos mentis, willing to participate by signing informed consent, showing signs

and symptoms of pain, grimacing, being protective, and restless.

Data collection using interviews, observation, and documentation studies. The data collection tools consist of SLKI observation sheets, namely the pain level using the Numeric Pain Rating Scale (NPRS) to determine the pain scale of low back pain after performing the Mc Kenzie exercise, as well medical devices (tensiometers, oximeters, thermometers) used for physical examination. The procedure for performing the Mc Kenzie exercise is divided into three stages the pre-interaction stage, the orientation stage, and the work stage, which includes seven Mc Kenzie movements.

This report obtained ethical approval from KEPK Fkep Universitas Jember No. 067/UN25.1.14/KEPK/2025 with the research ethics applied being the consent obtained from participants prior to data collection, maintaining anonymity and confidentiality of information during the research.

Results

The nursing assessment of the 51-year-old participant, who is Muslim, works as a farm laborer and has a primary school education. The physical examination findings obtained from the participant with current complaints and medical history are as follows, the participant complains of lower back pain that has been present for two weeks, the pain occurs after finishing work and upon waking up, blood pressure 110/90 mmHg, pulse 60 beats per minute, temperature 36.2°C, and respiratory rate 20 breaths per minute.

Pain complaints during work positions and long working hours are felt as stabbing pains in the lower back. The pain scale shows 4 categories of moderate pain with intermittent episodes. The duration of pain is 2 weeks. The pain assessment obtained from participants indicates that the pain is triggered by work positions and long working hours, with the quality of pain described as stabbing, the pain is localized in the lower back and does not radiate, the pain scale is rated at 4 (moderate pain category), and the duration of pain experienced by the participant is intermittent, with lower back pain often felt around 2 weeks.

The nursing diagnosis is acute pain related to physical injury (excessive physical exercise), characterized by the participant complaining of lower back pain for 2 weeks with a pain scale score of 4. Interventions that can be performed on participants according to the Indonesian Nursing Intervention Standards (SIKI) are pain management with non-pharmacological measures namely Mc Kenzie Exercises

The results of changes in pain scale values after 6 visits conducted 1 every 2 days, with a total duration of 20-30 minutes per visit, are shown in Figure 1.

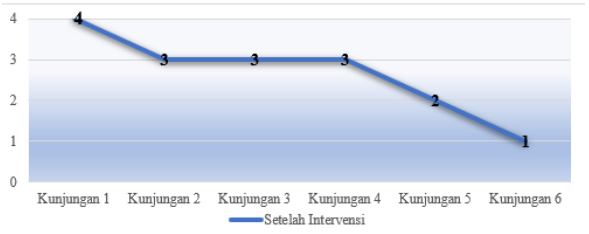

Figure 1. Graph of pain level change notes

Discussion

The acute pain experienced by participants was caused by physical injury agents, namely excessive physical exercise such as long working hours from morning to evening and non-ergonomic working positions, namely digging, plowing, planting, and fertilizing in bent or squatting position, as well lifting heavy loads for long periods of time which can cause health problems (Rasmi et al., 2023) one of which is lower back pain. In addition to non-ergonomic work position, workloads and the participants age also influence the occurrence of lowe back pain.

The results of the author's study show that participants aged 51 years old, according to Rahmawati (2021) experience bone degeneration as they age, and this process begins when a person reaches the age of 30. At this age, tissue damage and replacement occur, along with a reduction in fluid, leading to decreased bone and muscle stability, which causes lower back pain. Therefore, to reduce the level of pain experienced by the participant, McKenzie exercise therapy with 7 movements was implemented. The 7 McKenzie movements, according to Fibriansari, Astuti, et al (2022) the first movement involves lying flat on the back for 5 minutes, the second movement involves lying prone with hands tucked under the chest and lifting the body forward for 2 to 3 minutes, the third movement involves straightening the arms and moving the body and gaze forward, holding the position for 10 seconds, and repeating the movement 10 times, The fourth movement involves lying on your back and pushing your knees toward your chest with your hands wrapped around the knees, repeating this movement 6 times. The fifth movement involves sitting and leaning forward on the chair, placing your hands underneath it, holding the position for 2 seconds, and repeating the movement 6 times. The sixth movement involves leaning forward with feet shoulder-width apart, reaching as far as possible with the hands, and repeating the movement 6 times. The final movement involves standing with hands on the lower back, leaning backward, and repeating the movement 5 to 10 times.

Changes in pain levels among participants following non-pharmacological interventions, specifically Mc Kenzie Exercise, conducted three times a week over two weeks or six sessions over two weeks, with each session estimated to last 20–30 minutes, yielded the following results at the first visit, the pain score was 4 which falls into the moderate pain category. By the sixth visit, the pain score had decreased to 1 falling into the no pain category, indicating that the participant no longer experienced lower back pain.

Non pharmacological therapeutic measures in the form of Mc Kenzie Exercises performed on participants according to research by Afrian Wiji Pratama et al (2020) stated that the Mc Kenzie Exercise can reduce the intensity of low back pain from moderate to mild by using exercise principles to strengthen, relax, and stabilize the muscles of the spine the effective duration for performing Mc Kenzie Exercises on participants experiencing low back pain is three times a

week for two weeks. Therefore, the implementation of Mc Kenzie Exercises on participants can help reduce the level of pain experienced. Additionally, the intensity of pain, grimacing, protective posture, and restless decreased. Therefore, it can be concluded that the participant's acute lower back pain issue aligns with the target criteria, and the acute pain issue in the participant has been resolved.

Conclusion

The implementation of the Mc Kenzie Exercise program for participants was conducted 6 times over 2 weeks with each session lasting 20-30 minutes. This regimen reduced the LBP scale from a pain level of 4 (moderate pain) before intervention to a pain level of 1 (no pain) after intervention at the sixth visit. Mc Kenzie Exercises can be applied to reduce low back pain caused by work-related factors and to identify ergonomic positions during work. Mc Kenzie Exercises can be combined with ergonomic education and work place interventions to create a holistic approach to the prevention and management of work-related LBP.

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