

THE EFFECT OF THE COMBINATION OF *SLOW STROKE BACK MASSAGE* AND *WILLIAM FLEXION EXERCISE* IN OVERCOMING LOW BACK PAIN IN OPERATING ROOM NURSES AT KARUNIA KASIH JATIWARINGIN HOSPITAL IN 2023

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Abstract

Background: Low back pain (LBP) is pain that occurs in the lower back area and is caused by stress or strain on the muscles, tendons, and ligaments of the back that often occurs due to excessive activity. This pain can lead to an inability to perform normal activities (Yulianto et al., 2023). **Research Objective:** The general objective of this study is to determine the effect of combination therapy of slow stroke back massage and William flexion exercise on low back pain in operating room nurses. **Research Methodology:** The methodology used in this study uses The type of research used is quantitative descriptive research, which is a research process that uses a lot of numbers in its implementation starting from data collection, and interpretation to drawing conclusions **Results Research:** The results of the study found a significant relationship between the Effect of the Combination of *Slow Stroke Back Massage* and *William Flexion Exercise* in Overcoming Low Back Pain in Operating Room Nurses at Karunia Kasih Hospital Bekasi obtained *p-value* 0.000 **Conclusions and suggestions:** conclusions and suggestions from all these research activities can be concluded that there is a relationship between the Effect of the Combination of *Slow Stroke Back Massage* and *William Flexion Exercise* in Overcoming Low Back Pain in Operating Room Nurses at Karunia Kasih Hospital Bekasi. Therefore, it is expected that health efforts need to be maximally improved.

Keywords: Low Back Pain, Slow Stroke Back Massage, William Flexion Exercise

Introduction

Low Back Pain (LBP) is one of the most commonly found occupational health problems and can give rise to the highest absenteeism in the workplace. Workers at high risk of low back pain are those who work with uncomfortable posture, manual operation, and high frequency and duration, including for medical personnel in hospitals, especially nurses in work areas that require heavy lifting. Many studies in the world report that nurses are one of the jobs that have a high risk of back pain. (Kurniawidjaja et al., 2014).

Low back pain (LBP) or low back pain is pain that occurs in the lower back area and is caused by stress or strain on the muscles, tendons, and ligaments of the back that often occurs due to excessive activity. This pain can lead to an inability to perform normal activities (Yulianto et al., 2023).

Low back pain has become a problem that can affect the performance and well-being of workers.

Complaints of low back pain are often found in nurses either acute, sub-acute or chronic which has an impact according to the severity such as physical limitations, so that the nurse's work performance becomes reduced (Study *et al.*, 2013)

Nursing work can cause injury if nurses do not pay attention to body mechanics. (Love, 2023). When doing their work, nurses use various movements of bending and twisting the body, especially around the lower spine, lifting heavy objects and moving patients are major risk factors for this low back pain condition (Sulistyaningtyas, 2022) Occupational safety and health are important factors that affect the quality of nurses' work. Poorly implemented occupational health and safety programs increase the risk of occupational accidents and diseases (Kasih, 2023).

Diseases caused by work equipment, physical processes and work environment are called occupational diseases. One of the occupational diseases is low back pain (Astuti *et al.*, 2019) Jobs that have a high risk of low back pain or low back pain are operating room nurses, whose job is to do many movements such as standing for a long time, bending, turning the body and lifting the patient's body. One of the most common types of low back pain is low back pain, which is caused by excessive strain on the back when sitting or standing against gravity for long periods of time. This causes spasms in the muscles, which can cause pain for the patient (Lee *et al.*, 2016).

The prevalence of low back pain shows a significant number both globally and for developing countries such as Indonesia. Globally, around 15-45% of the population in the world experiences low back pain. For developing countries, around 33% of the population has low back pain, while for developed countries almost 70-80% of the population experiences low back pain (Banuaji, 2019). The results of this research are in accordance with basic health research (Riskesmas) in 2018 showing that the prevalence of musculoskeletal disorders that have been diagnosed by health workers in Indonesia is 11.9%, which based on diagnosis or symptoms is 24.7% (Ministry of Health, 2019). The number of people with low back pain is predicted to be around 7.6% to 37% (Kumbea *et al.*, 2021). The results of research by the Indonesian Neurological Association (Perdossi) showed that from the hospitals studied, 18.3% of nurses experienced low back pain (Segita, 2020). With the high incidence of low back pain in nurses, efforts are needed to recognize factors related to the incidence of low back pain and its treatment.

Physiotherapy plays an important role in the treatment of conditions related to movement disorders and human function, including efforts to increase functional activity in low back pain (LBP) This is in accordance with the Regulation of the Minister of Health of the Republic of Indonesia Number 65 of 2015 concerning Physiotherapy Service Standards (Hsia *et al.*, 2015).

Low Back Pain (LBP) is pain in the area of the back between the lower corner of the ribs and the lumbar ribs (around the coccyx) due to poor physical activity The pain can also spread to other areas such as the upper back and groin. A variety of interventions can be used to manage this pain, using either pharmacological or non-pharmacological treatment or complementary therapies.

The most common treatment for pain control in low back pain (LBP) patients is with analgesics or painkillers such as acetaminophen or NSAIDs. However, continued use of the drug can cause liver damage and drowsiness. With the increasing number of low back pain problems that arise, the use of alternative medicine with physiotherapy is very necessary. One physical therapy that can be used in patients with LBP is to use cutaneous stimulus slow-stroke back massage (SSBM) in combination with William Flexion Exercise. SSBM is one technique in giving massage with a swab using lotion or using massage oil to provide a warm sensation by causing dilation of local blood vessels, when individuals perceive touch as a stimulus to relax, then the response will appear relaxation, relaxation is very important in increasing comfort and freeing themselves from fear and stress caused by pain (Setiawan *et al.*, 2020).

William Flexion Exercise (WFE) is an exercise therapy introduced by Dr. Paul Williams in 1937. William flexion exercise is a form of physical exercise to reduce emphasis on the posterior elements of the spine and this exercise can maintain the right balance between flexor and postural extensor muscle

groups (Hasmar & Faridah, 2022). To treat patients with complaints of low back pain (LBP). Until now, there have not been many reviews related to the effect of the combination of slow stroke back massage and William flexion exercise in overcoming low back pain. Therefore, it is important to review this matter.

Based on a preliminary study conducted in the operating room of Karunia Kasih Hospital by collecting data through interviews with 10 surgical room nurses on October 16, 2023, 10 surgical room nurses said that they often experience musculoskeletal disorders in the lower back area and are strengthened by the signs and symptoms of *low back pain*, pain feels like a puncture and occurs suddenly due to muscle sprains or muscle injuries and often spreads to the upper and groin. Of the 10 people, they said they did not know the cutaneous stimulus back massage therapy, which is in combination with William Flexion Exercise, to manage pain they simply took pain medication, and smeared with balm. Based on this, researchers are interested in examining "The effect of the combination of Slow Stroke, Back Massage and William flexion exercise in overcoming low back pain in the operating room of Karunia Kasih Jatiwaringin Hospital. Based on the background of the research above, the identification of the problem can be described as follows:

1. According to basic health research (Rikesdas) in 2018 shows that the prevalence of musculoskeletal disorders that have been diagnosed by health workers in Indonesia is 11.9%, which based on diagnosis or symptoms is 24.7% (Ministry of Health, 2019) The number of people with low back pain is predicted to be around 7.6% to 37% (Kumbea et al, 2021). The results of research by the Indonesian Neurological Association (Perdossi) showed that from the hospitals studied, 18.3% of nurses experienced low back pain (Segita, 2020).
2. Low back pain has become a problem that can affect the performance and well-being of workers. Complaints of low back pain are often found in nurses either acute, sub-acute or chronic which has an impact according to the severity such as physical limitations, so that the nurse's work performance becomes reduced (Study et al., 2013)
3. Based on a preliminary study conducted in the operating room of Karunia Kasih Hospital by collecting data through interviews with 10 surgical room nurses on October 16, 2023, 10 surgical room nurses said that they often experience musculoskeletal disorders in the lower waist area and are strengthened by the signs and symptoms of lowback pain, pain or pain like being pierced and occurs suddenly due to muscle sprain/injury and often spreads to upper part and groin. Of the 10 people, they said they were unaware of back massage therapy, a cutaneous stimulus slow stroke back massage, which is in combination with William Flexion Exercise, to manage pain, they simply took pain medication, and smeared with balm.

Research Methods

The type of research used is quantitative descriptive research, which is a research process that uses a lot of numbers in its implementation starting from data collection, interpretation to drawing conclusions (Machali, 2021). Furthermore, the design used was a quasi-experiment (one-group pre-test and post-test design), and this study did not use a control or comparison group, but only a study group, before and after the intervention. to clarify causal relationships by measuring (Sujarweni, 2014).

The stages carried out in this study were measuring the pain scale before the intervention (*pretest*), *then the intervention of slow stroke back massage and wiliam flexi exercise, which was then continued with the measurement of the pain scale carried out 5-10 minutes after the intervention* (*posttest*). The intervention aims to determine whether there is an effect of *slow stroke, back massage and wiliam flexi exercise* on reducing pain intensity in Operating Room Nurses, Rmah Sakit Karunia Kasih Jatiwaringin.

Research is determined to limit the scope of a study, such as provincial, district, sub-district or certain institutional levels (Notoatmodjo, 2018). The place that became the location of this study was

the Operating Room of the Karunia Kasih Jatiwaringin Hospital.

The research was conducted from October to December 2023 consisting of the preparation of proposals to the results of the study.

Research Results

A. Univariate Analysis

Univariate analysis aims to explain or describe the characteristics of each research variable. The analysis of this study was based on an observation sheet with a sample of 20 respondents, namely the *Low Back Pain* (LBP) pain scale before and after SSBM (*Slow Stroke Back Massage*) therapy and *wiliam flexi exercise* in the table as follows:

Table 5.1.3. pain scale after SSBM and flexi exercise Frequency distribution of respondents with decreased pain scale after SSBM and flexi exercise.

Skala Nyeri	Frequency	Percentage
Down	18	90%
Not Down	2	10%
Total	20	100%

Based on table 5.1.3, it can be seen that the pain scale after SSBM therapy and flexi exercise of 20 respondents who experienced a decrease in pain by 18 respondents (90%) and who did not experience a decrease in pain or persisted by 2 respondents (10%).

B. Bivariate Analysis

Bivariate analysis is performed to determine whether there is an influence between the independent variable and the dependent variable. Bivariate analysis in this study was conducted to determine the effect of SSBM therapy on pain scales in *low back pain* (LBP) and flexi exercise at *Karunia Kasih Jatiwaringin Hospital* by looking at pre-SSBM therapy and flexi exercise and *post-SSBM therapy and flexi exercise*. Researchers use the normality test using the *shapiro-wilk test* because this test is more precise on the basis of data samples used less than 50 ($n = 20$).

Table 5.2.1. Distribution of normality test of LBP pain scale, SSBM therapy and flexi exercise

Skala Nyeri	Statistic	df	Say.	Statistic	df	Say.
For the Nyeri Rock Test	.207	20	.024	.925	20	.122
Result Post Test Scale Nyeri	.180	20	.090	.909	20	.061

The normality test in table 5.2.1 above using the *Shapiro-Wilk* test on the basis of this test is more precise because the data used is less than 50 ($n = 20$). Based on these data, *Shapiro-Wilk* obtained significant values of *the variables pre-test* LBP pain scale (0.122), and *post-test* LBP pain scale (0.061). Based on this information, it can be concluded that the data before and after SSBM therapy and flexi exercise are normal distributed data with p values > 0.05 while for abnormal distribution data with p values < 0.05 . So that the appropriate analysis in this study uses a statistical test *paired samples T-test*. The use of *paired samples T-test* serves to determine whether there is an effect of SSBM therapy and flexi exercise on reducing the pain scale in *Low Back Pain* (LBP) at *Karunia Kasih Jatiwaringin Hospital*.

Testing the effect of SSBM therapy and flexi exercise on reducing pain scales in respondents through *pre-treatment* and *post-treatment* using statistical *paired samples T-test* with the following hypotheses:

- Ho: there is no effect of SSBM therapy and *flexi exercise* on reducing pain scale in LBP.
- Ha: there is an effect of SSBM therapy and *flexi exercise* on reducing the pain scale in LBP.

Table 5.2.2. Uji Statistik Simple Paired T-Test

Variable	Mean	N	T-Table	T-Hitung	P-Value
Pretest	2.85				
		20	2.093	7.678	.000
Posttest	1.75				

Based on table 5.2.2 above, the probability of pain scale before and after *sig values is obtained*. (2-tailed) or a p value of 0.000. Then the p value < 0.05 (significance level) then H₀ is rejected and H_a is accepted, meaning that there is an effect of SSBM therapy and *flexi exercise* on reducing the pain scale in *Low Back Pain* (LBP) at Karunia Kasih Jatiwaringin Hospital.

This can be proven by the decrease in the pain scale in LBP as many as 18 respondents after the intervention and as many as 2 respondents of the pain scale in LBP did not decrease or increase after the intervention.

Table 5.2.3. Bivariate Analysis of SSBM Therapy and *flexi exercise* against pain scale on LBP

	Mean	N	Std. Deviation	Std. Error Mean
Pair 1 Before Therapy	2.85	20	1.040	.233
After Therapy	1.75	20	1.410	.315

based on table 5.2.3 using the *Normality* test shows that there are differences in pain scales in LBP before and after SSBM therapy intervention and *flexi exercise*. The mean value of the pain scale before and after (2.85 – 1.75) and for the standard deviation value of the pain scale before and after (1.040 – 1.410).

Discussion

SSBM (*Slow Storoke Back Massage*) with a combination of *william flexion exercise* is an effective method to reduce pain, relax the muscles. This study states that everyone is very comfortable after massage and reduces pain (Anuhgera *et al.*, 2020). *The William Flexion* method involves repetitive movements or continuous positions and has a muscular adaptation component to minimize pain and disability and increase spinal mobility and may also help reduce pain by reducing intradiscal pressure (Halimah *et al.*, 2022).

A. Univariat Analysis

Based on table 5.2.2 above, the results of the pain level before and after are obtained with a value (sig) of pain level or *p value* of 0.000. Then the p value < 0.05 (significance level) then H₀ is rejected and H_a is accepted, meaning that there is an effect of SSBM therapy and William Flexion Exercise on reducing pain levels at Karunia Kasih Jatiwaringin Hospital. The results of this study are in line with research conducted by Triyanita *et al* (2022), regarding the treatment of *William Flexion Exercise on Pain Reduction in Non-Specific Low Back Pain Patients at Salewangang Maros Hospital* where the results of measuring pain levels based on statistical tests using paired T-Test tests obtained the intensity of pain levels *P value = 0.000* (with *P value* < 0.05), which means H₀ is rejected and H_a is accepted. There is an influence after SSBM therapy on the intensity of pain levels in nurses at Karunia Kasih

Hospital.

Slow stroke back massage (SSBM) therapy which functions to facilitate blood circulation and provide a comfort effect so that it can reduce pain scale (Fresia, 2021). The decrease in pain intensity and significant difference is due to the influence of the cutaneous stimulus *slow-stroke back massage*, in the form of *masssge* action on the back with a slow stroke for 15 minutes. By giving cutaneous stimulus *slow-stroke back massage*, it can stimulate beta A fibers that are widely found in the skin and respond to light *massage* on the skin so that impulses are delivered faster. The provision of this stimulation makes the dominant impulse input come from the beta A fibers so that the gate closes and the pain impulse cannot be passed on to the cerebral cortex to be interpreted as pain. In addition, the descending control system will also react by releasing endorphins which are the body's natural morphine so as to block pain transmission and pain perception does not occur (Mahasih, 2020).

Conclusion

The following can be concluded from the results of research and discussion conducted on operating room nurses to see the effect of *Slow Stroke Back Massage* and *William Flexion Exercise* in Overcoming Low Back Pain.

At Karunia Kasih Hospital Bekasi, there is a significant relationship between the effect of SSBM therapy and William Flexion Exercise on reducing pain levels at RS Karunia Kasih Jatiwaringin with a *p-value* of 0.000 ($p < 0.05$)

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