

ABSTRACT

The Effect of Finger Grasp Relaxation on Reducing Pain Intensity in Postoperative Patients at RSI Assyifa Sukabumi City

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ARTICLE INFORMATION

<i>Article history</i> Received (21 January 2025) Revised (18 June 2025) Accepted (2 July 2025)	Introduction: Postoperative pain is a common clinical issue that can negatively impact patient recovery and quality of life. Despite the availability of pharmacological interventions, non-pharmacological approaches such as finger grasp relaxation remain underutilized. Objectives: This study aimed to evaluate the effect of finger grasp relaxation on reducing pain intensity in postoperative patients at RSI Assyifa Sukabumi City.
Keywords	Methods: A pre-experimental design with a one-group pretest-posttest
Finger Grasp Relaxation	approach was used. Eighteen postoperative patients were selected based on
Decrease in Pain Intensity Patients	specific inclusion and exclusion criteria. Each participant received a finger grasp relaxation intervention for 3–5 minutes following an initial pain assessment using the Numeric Rating Scale. A post-intervention pain assessment was conducted 10 minutes later. Data were analyzed using univariate and bivariate statistical methods, including a paired sample t-test. Results: Prior to the intervention, 72.2% of patients experienced moderate pain and 27.8% experienced mild pain. After the intervention, 66.7% reported mild pain and 33.3% reported moderate pain. The mean pain score decreased from 4.16 (SD = 1.098) to 3.00 (SD = 1.028), with a mean difference of 1.16. The paired sample t-test indicated a statistically significant reduction in pain intensity (p < 0.05).
	Conclusions: Finger grasp relaxation was found to be an effective method for reducing pain intensity in postoperative patients. This simple, non-invasive technique may serve as a complementary approach to pharmacological pain management in clinical settings.

Introduction

The pre-operative phase is the initial phase of perioperative care that plays a crucial role in the overall success of the surgery; mistakes at this stage can have a fatal impact on subsequent phases. The intraoperative phase ends when the patient is removed from the operating table, followed by transfer to the recovery room. Activities during surgery tend to focus more on addressing the patient's physical problems, while psychological aspects are often overlooked. Perioperative care ends with the postoperative stage, where the main priority of nursing is to improve the patient's condition optimally (Rahayu, 2021).

According to data from the World Health Organization (WHO), surgical care has been an important part of global healthcare for more than a century. It is estimated that around 230 million surgical procedures are performed annually worldwide. According to the National Tabulation data of the Ministry of Health of the Republic of Indonesia in 2016, surgical procedures ranked 11th out of 50 disease patterns recorded in Indonesia, with a contribution of 12.8%. Of these, about 32% are major surgeries, 25.1% of patients experience psychiatric disorders, and 7% of them face anxiety (Rosiska, 2021).



Di RSI Assyifa Kota Sukabumi, berdasarkan data awal dari Ruang Arafat III pada periode September hingga November 2024, terdapat 108 pasien pascaoperasi, dengan lebih dari 70% mengalami nyeri sedang hingga berat pada fase pascaoperasi awal. Hal ini menyoroti tantangan berkelanjutan dalam manajemen nyeri selama pemulihan pascaoperasi. Based on preliminary studies conducted by researchers on October 15, 2024 in Arafat Room III RSI Assyifa Kota Sukabumi, data from the medical records of Arafat Room III RSI Assyifa, namely 5 diseases and the most surgical procedures for the past 3 months, namely September-November 2024, were obtained as follows:

No.	Disease Name	Total		
		Frequency	Percentage %	
1.	BPH	29	26,85%	
2.	Appendicitis	27	25,00%	
3. Peritonitis		22	20,38%	
4.	TMD	16	14,81%	
5.	Inguinal Hernia	7	6,49%	
	Total	108	100.00%	

Table 1. Top 5 most common diseases and surgical procedures during the past 3 months of September-November 2024

(Source: Medical Records of RSI Assyfa Kota Sukabumi in 2024)

According to (Heriyanda et al., 2023) the finger grasping technique is done by grasping the fingers of the hand in a relatively short time, namely for 3-5 minutes which can reduce physical and emotional tension. When the hand grasps, stimulation will be given reflexively (spontaneously) at the point of reflection. The stimulation will send electrical waves to the brain, which will be quickly received and processed. These electrical waves will then go to the nerves to the damaged organs, which can cause blockages in the energy pathways (Muzaki et al., 2021).

Research conducted (Rosiska, 2021) found that there is an effect of finger-grip relaxation techniques on postoperative patients as evidenced by reduced pain intensity. Based on the results of research from (Primantika & Erika Dewi Noorratri, 2023) entitled "The Effect of Giving Finger-Held Relaxation Techniques on Pain Reduction in Post Op Patients", it was found that the finger-hold relaxation technique has an effect on reducing pain in patients who have undergone surgery, with a p-value of 0.011. These results also show that some research. Other research Hasini 2019 in Heriyanda et al., 2023) . shows that finger grasp relaxation therapy is beneficial because it makes muscle tissue more relaxed, accelerates blood and lymph circulation, and removes lactic acid from muscle fibers, which reduces fatigue and stress.

Based on an interview study conducted by researchers at RSI Assyifa on October 15, 2024 to 5 postoperative respondents, it was found that 3 people said they had never done finger grip relaxation to reduce pain, and 2 people said they were only instructed in deep breath relaxation techniques to reduce pain. This preliminary finding indicates a lack of implementation and awareness of finger grasp relaxation techniques among postoperative patients. Therefore, the objective of this research is to determine the effect of finger grasp relaxation on reducing pain intensity in postoperative patients in Arafat Room III RSI Assyifa Sukabumi City.

Method

This research uses a quantitative approach with a pre-experimental method in the form of a One-Group Pretest-Posttest Design. In this study, there was only one experimental group that underwent a pre-test (O_1) to determine the initial condition. Following that, a treatment (X) in the form of finger grasp relaxation was administered, and then a post-test (O_2) was conducted to measure the outcome (Al Mawaddah et al., 2021). The research was carried out in Arafat Room III at RSI Assyifa Sukabumi City from September to November 2024, involving a population of 108 postoperative patients. A total of 18 respondents were selected through inclusion and exclusion criteria.



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The finger grasp relaxation intervention was administered once per patient, immediately after the pre-test measurement, for a duration of 3 to 5 minutes in accordance with the standard procedure described by Heriyanda et al. (2023). Pain levels were then reassessed using the Numeric Rating Scale (NRS) within 10 minutes after the relaxation was completed. The data collection process involved direct observation of each patient during the intervention session and documentation of pre- and post-intervention pain scores. Data were analyzed using univariate analysis (mean and standard deviation) and bivariate analysis (normality test and paired sample t-test).

Results

a. Univariate Analysis

Univariate analysis of variables in this study includes a description of pain in postoperative patients before finger grip relaxation.

1) Statistical Descriptive Analysis of Pain Scale Levels of Postoperative Patients Before Performing Finger Grasp Relaxation

 Table 2. Frequency Distribution of Decreased Pain Intensity in Postoperative Patients Before

 Finger Crease Palavetian

No.	Category	F	Percentage %
1.	Mild Pain	5	27.8%
2.	Moderate Pain	13	72.2%
	Total	18	100.0%

Source: Primary Data, 2024

Based on the table above, it shows that most of the respondents in the Arafat III Room of Rsi Assyifa Kota Sukabumi before the finger grip relaxation had postoperative pain with moderate pain levels as many as 13 respondents (72.2%) and a small portion of mild pain, namely 5 (27.8%).

 Table 3. Results of Central Tendency of Pain Levels in Postoperative Patients Respondents

 Before Performing Finger Grasp Relaxation

	Minimum Value	1
Before Finger Hold	Maximum Value	2
Relaxation	Mean	1.331
	Median	1.00
	Mode	1
	Standard	4.850
	Deviation	

Source: Primary Data 2024.

Based on the table, it shows that the pain scale in postoperative patients in the arafah III room of Rsi Asyyifa Kota Sukabumi before the finger grip relaxation with a minimum value (Xmin) of 1 and a maximum value (Xmin) of 2. With an average value (Mean) of 1.331, quartile (Median) 1.00, Mode of 1, and standard deviation value (Std) of 4.850.

2) Statistical Descriptive Analysis of Pain Scale Levels of Postoperative Patients Before Performing Finger Grasp Relaxation

Table 4. Frequency Distribution of Decrease in Pain Intensity in Postoperative Patients After Performing Finger Grasp Relaxation

No.	Category	F	Percentage %		



1.	Mild Pain	12	66.7%		
2.	Moderate Pain	6	33.3%		
	Total	18	100.0%		
Source: Primary Data, 2024					

Based on the table above, it shows that most of the respondents in the Arafat III Room of Rsi Assyifa Kota Sukabumi before being carried out finger grip relaxation had postoperative pain with mild pain levels as many as 12 respondents (66.7%) and a small portion of moderate pain, namely 6 (33.3%).

Table 5. Results of Central Tendency of Pain Levels in Postoperative Patients Respondents

Before Perfo	rming Finger Grasp Re	elaxation			
Minimum Value 1					
After Finger Grasp	Maximum Value	2			
Relaxation	Mean	1.33			
	Median	1.00			
	Mode	1			
	Standard	4.85			
	Deviation				

Source: Primary Data 2024.

Based on the table, it shows that the pain scale in postoperative patients in the arafah III room of Rsi Asyyifa Kota Sukabumi after finger grip relaxation with a minimum value (Xmin) of 1 and a maximum value (Xmin) of 2. With an average value (Mean) of 1.33, quartile (Median) 1.00, Mode of 1, and standard deviation value (Std) of 4.85.

b. Bivariate Data

1) Normality Test Analysis

The results of this analysis aim to determine the normality of a data, namely the level of pain scale in postoperative patients before and after finger grip relaxation in Arafat Room III Rsi Assyifa Kota Sukabumi. This normality test uses the complete Shapiro Wilk test analysis can be seen in the following table:

Table 6. Results of the Normality Test of the Level of Pain Scale in Postoperative Patients Before and After Performing Finger Grasp Relaxation in the Arafat III Room, Rsi Assyifa, Sukabumi City.

P-Value	X	Hypothesis
0.197	0.05	Normal
0.150		Normal
	0.197	0.197 0.05

Source: Primary Data 2024

Based on the table, it can be seen the results of statistical tests using Shapiro Wilk, for the level of pain before finger grip relaxation, the P-value = 0.197, and for the level of pain after finger grip relaxation, the P-value = 0.150. Based on the results of these calculations, all data shows> 0.05, which means the data is normally distributed.

2) Hypothesis Test Analysis

Table 7. Hypothesis Test Results The Effect of Finger Grasping Relaxation on Reducing Pain Intensity in Postoperative Patients in Arafat III Room Rsi Assyifa Sukabumi City

F -							_
Pain	Ν	Mean	Mean	SD	Т	Р-	
Level			Difference			value	





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Pre-	18	4.16	1.16	1.098	12.907	0.000
Test						
Post-	18	3.00		1.028		
Test						

Source: Primary Data 2024

Based on the table, it can show the mean value of the pain scale in 18 respondents who were measured before finger grip relaxation was 4.16 with a standard deviation of 1.098. In the measurement after finger grip relaxation, the mean value of the scale is 3.00 and a standard deviation of 1.028 with a mean difference of 1.16. Based on the table, the P-value of the paired sample t-test is 0.000, the P-value <0.05, which shows that there is an effect of finger grip relaxation on reducing pain intensity in postoperative patients in the Arafat III room at Rsi Assyifa Sukabumi City

The results of this study are similar to the findings of Indrawati and Arham (2020), which showed a change in the pain scale after the intervention. The average change in pain scale in the group that received the intervention appeared significant.

Discussion

1. Overview of the Pain Scale Level of Postoperative Patients Before Giving Finger Grasp Relaxation

The results of the study in table show the pain scale in postoperative patients in the arafah III room of Rsi Assyifa Kota Sukabumi before the finger grip relaxation with a minimum value (Xmin) of 1 and a maximum value (Xmin) of 2. With an average value (Mean) of 1.331, quartile (Median) 1.00, Mode of 1, and standard deviation value (Std) of 4.850.

According to the International Association Of The Study Of Pain (IASP), pain is an unpleasant experience involving sensations and emotions due to real or potential tissue damage. Pain can be felt as an uncomfortable sensation that is localized in one part of the body, with characteristics such as a stabbing sensation, a hot sensation that spreads to other areas, a twisting feeling, or pain that appears and disappears alternately (Hastuti, 2018).

Patients often experience pain after surgery. The patient's quality of life and healing process can be compromised by high levels of pain. Therefore, pain control is one of the main focuses in postoperative care. One way to reduce the pain intensity of postoperative patients is to use non-pharmacological methods, such as finger grasp relaxation. To help patients relax physically and mentally, this technique involves gentle grasping of the fingers along with breathing regulation. The purpose of this study was to determine the effect of finger grasp relaxation on the pain intensity of postoperative patients in the Arafat III room of RSI Assyifa Sukabumi City.

In the table above, it is described that of the postoperative patient respondents, the average age of 19-42 years is 6 (33.3%), 43-56 years of age is 6 (33.3%), and 57-76 years of age is 6 (33.3%). As age increases, the occurrence of postoperative pain is getting higher because there is a deterioration in the system and body functions. Closely related to the decline in neuromuscular function and the decline in repair mechanisms.

Previous studies have shown that the finger-grip relaxation technique can significantly reduce post-surgery pain. This technique encourages the body to release endorphins, natural chemicals that reduce pain. Endorphins reduce pain intensity by inhibiting pain signals to the brain and spinal cord. A study by Fitria (2019) found that the finger grasp relaxation method in patients who had undergone laparotomy surgery could reduce Numeric Rating Scale (NRS) pain scores by 40%. The study also found that this technique not only reduced the patient's pain, but also made the patient feel more comfortable and calm.



Susanto et al. (2022) also supported these results, showing that using the finger grasp relaxation technique can reduce pain scores by 3 points on the NRS scale in patients who have undergone hernia surgery. This decrease indicates that this method is effective in making patients feel more comfortable after surgery, and can be an alternative option to reduce dependence on painkillers that may have negative side effects.

Other studies also support the effectiveness of finger grasp relaxation techniques in reducing postoperative pain intensity. Sulung & Rani (2017) found that among 32 post-appendectomy patients, 65.6% initially experienced moderate pain and 34.4% experienced severe pain before receiving finger grasp relaxation. After the intervention, pain levels significantly decreased, with 59.4% reporting mild pain and 40.6% moderate pain, with a p-value of 0.000. Similar results were obtained in a study by Larasati & Hidayati (2022), which showed a reduction in pain intensity among post-cesarean section patients following the same intervention. Additionally, Rasyidah et al., (2022), in a study on appendectomy patients in Gorontalo, reported that this relaxation technique stimulates reflex points that influence the central nervous system and reduce the transmission of pain signals to the brain, aligning with the Gate Control Theory. Thus, finger grasp relaxation intervention is proven to be an effective non-pharmacological method in supporting postoperative pain management.

2. Overview of Pain Scale Levels in Postoperative Patients After Giving Finger Grasp Relaxation

Based on the table above, it shows that the pain scale in postoperative patients in the arafah III room of Rsi Asyyifa Kota Sukabumi after finger grip relaxation with a minimum value (Xmin) of 1 and a maximum value (Xmin) of 2. With an average value (Mean) of 1.33, quartile (Median) 1.00, Mode of 1, and standard deviation value (Std) of 4.85.

Post-surgery is an invasive medical procedure that involves opening a body part through an incision, followed by wound closure and suturing. This procedure can cause trauma to the patient and trigger various complaints (AZ et al., 2022). And after the intervention of finger grasp relaxation, patients experienced significantly lower pain levels after surgery. Using the Numeric Rating Scale (NRS), the pain intensity dropped to the mild category, with an average score of 2-4. Previously, it was in the moderate category with an average score of 5-6. The finger grasp relaxation method involving gentle grasping of each finger in turn and breath regulation led to this decrease in pain scale. This method uses psychological and physiological mechanisms that support each other.

One effective relaxation method to reduce pain intensity is the finger grasp relaxation technique. This technique, which is simple and easy to perform, involves the fingers and utilizes the flow of energy in the body. By grasping the fingers while regulating breathing for about 2-5 minutes, one can achieve a sense of peace, focus and comfort, thus being better able to deal with situations calmly. The reflection points on the hands will spontaneously provide stimulation as the grasping is done. The advantage of this technique is its simplicity, it can be done by anyone, anytime, and without the help of others. The finger grasp relaxation technique is also useful in everyday life to relieve physical tension (AZ et al., 2022).

The results of this study are in line with the results of research conducted by Indrawati & Arham (2020), which showed a significant change in the pain scale after the intervention. The average change in pain scale in the group that received the intervention was quite significant.

Finger grasp relaxation aims to reduce pain, fear and anxiety, reduce feelings of panic, worry and threat, provide a comfortable feeling in the body, calm the mind and control emotions. Finger grasping relaxation therapy as a companion to pharmacological therapy is useful for increasing the analgesic effect as a postoperative pain relief therapy. This combination of techniques is carried out simultaneously and as an effective way to relieve pain (Rosiska, 2021).

Researchers argue that the reduction in pain or the decrease in pain sensation from moderate pain to mild pain is due to the effect of finger grasping (finger grasping relaxation). The effect of finger grasping relaxation that sends signals to balance the nervous system so as to slow down impulses and maximum relaxation.



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Recent studies further support the effectiveness of finger grasp relaxation in reducing postoperative pain levels across various surgical populations. For instance, Dani et al., (2025) reported a significant reduction in pain among children who underwent abdominal surgery, where the post-intervention pain score in the experimental group dropped to a mean of 3.1 compared to 5.96 in the control group, with a p-value < 0.00001. This substantial difference suggests that finger grasp relaxation can serve as an effective non-pharmacological approach to pain relief, especially when combined with deep breathing and tactile stimulation. Similarly, a study by Elnosary (2024) involving post-neurosurgical patients found that administering finger grip relaxation therapy twice daily for three days significantly lowered Visual Analog Scale (VAS) scores, indicating both reduced pain and anxiety. These findings imply that the technique activates the parasympathetic nervous system and promotes endorphin release, which in turn decreases pain perception and emotional distress.

Moreover, other research aligns with these conclusions, highlighting the accessibility and psychological benefits of the technique. Safariah (2022) demonstrated that finger grip relaxation administered for 15 minutes reduced Numeric Rating Scale (NRS) scores by an average of 2 points in post-appendectomy patients. In another study by Prayogi et al., (2022), finger grasp therapy not only alleviated postoperative pain but also improved sleep quality and reduced blood pressure fluctuations, which are often associated with untreated pain and anxiety. Furthermore, Allam et al., (2023) emphasized that this method can be an empowering self-care tool for patients, particularly those recovering in resource-limited settings. The evidence consistently points to finger grasp relaxation as a low-cost, low-risk, and easily applicable intervention with significant benefits for postoperative pain management.

3. The Effect of Finger Grasp Relaxation on Reducing Pain Intensity in Postoperative Patients in Arafat III Room Rsi Assyifa Sukabumi City

The results of hypothesis testing can be seen in the table above showing the mean value of the pain scale in 18 respondents measured before finger grip relaxation was 4.16 with a standard deviation of 1.098. In the measurement after finger grip relaxation, the mean value of the scale is 3.00 and a standard deviation of 1.028 with a mean difference of 1.16. Based on the table above, the paired sample t-test P-value is 0.000, the P-value <0.05, which shows that there is an effect of finger grip relaxation on reducing pain intensity in postoperative patients in the Arafat III room at Rsi Assyifa Sukabumi City.

This is supported by research (Hanani & Rahmawati, 2021) in the above results, finger grasp relaxation is effective in reducing pain intensity in postoperative patients, this confirms previous theories regarding the relationship between finger grasp relaxation and pain intensity. It also shows that researchers assume that the finger-grip relaxation technique can reduce pain intensity in postoperative patients. This is evidenced by more than half of the respondents who reported mild pain after undergoing the finger grasp relaxation technique (Rosiska, 2021). Also shows that based on the results of the application above, it can be concluded that the finger grasp relaxation technique is effective in reducing the pain scale in postoperative patients involved in this study. Both subjects experienced a decrease in pain from moderate to mild pain (Selia et al., 2023).

The results of this study are in accordance with Emara et al., (2022) which states that when performing the finger grip relaxation technique, impulses will be sent through non-nociceptor afferent nerves as a counter stimulation of pain in the cerebral cortex, causing pain intensity to change or modulate due to stimulation of finger grip relaxation that reaches the brain first and more. Reflection points on the hand provide reflex stimulation (spontaneous) at the time of grip. The stimulation will flow a kind of shock wave and electricity to the brain and be processed quickly and forwarded to the nerves in the organs that are experiencing interference so that the blockage in the energy pathway becomes smooth and the pain decreases (Ahmad & Kardi, 2022).



According to the researcher's assumption from the results of the research that has been carried out, it is found that finger grasp relaxation therapy on reducing pain intensity in postoperative patients has a significant effect. After being given a finger-grip relaxation intervention to the respondent and then measuring it using the Numeric Rating Scale (NRS) pain scale, it shows that there is a decrease in pain intensity in postoperative patients in the respondent. The decrease in the intensity of the respondent's pain was due to a supportive environment and the willingness of the respondent when finger-grip relaxation was carried out and to comply with the rules previously explained by the researcher.

Based on the results of the theory and research above, the researcher argues that there is an effect of finger grip relaxation on reducing pain intensity in postoperative patients in the Arafat III room of Rsi Assyifa Sukabumi City as evidenced by the Paired Sample T-Test test obtained p =0.000 which means <0.05. Thus the provision of finger-grip relaxation as a non-pharmacological therapy to postoperative patients is very good and can be used as an alternative choice because the therapy performed has no side effects and is very easy to do.

Conclusion

Based on the results of research and explanation of the effect of finger grip relaxation on reducing pain intensity in postoperative patients in the Arafat III room of Rsi Assyifa Sukabumi City, it can be concluded as follows:

The results showed that the description of pain levels in postoperative patients before giving finger grip relaxation in the Arafat III room of Rsi Assyifa Kota Sukabumi out of 18 respondents had an average mild pain level with a value (mean) of 4.16 and a standard deviation of 1.098.

The results showed that the description of the level of pain in postoperative patients after giving finger grip relaxation in the Arafat III room of Rsi Assyifa Sukabumi City of 18 respondents had an average moderate pain level with a value (mean) of 3.00 and a standard deviation of 1.028.

The results showed that there was an effect of finger grip relaxation on reducing pain intensity in postoperative patients in the Arafat III room of Rsi Assyifa Sukabumi City.

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