

Relaxation Technique Of Deep Breathing In Post-Appendectomy Patients: A Case Study

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Abstract: Appendicitis is a condition characterized by inflammation of the appendix. While mild cases may resolve without treatment, many require surgical removal of the infected appendix through a procedure known as laparotomy. Post-appendectomy pain can significantly impact daily activities, including rest, sleep, and personal well-being. Severe pain, if not addressed promptly with non-pharmacological interventions, can lead to neurogenic shock. **Methods:** This study employed a descriptive case study approach to investigate the effectiveness of deep breathing relaxation techniques in managing post-appendectomy pain. **Results:** The study involved two respondents who underwent deep breathing relaxation exercises twice daily for 15 minutes over three days. The results showed a decline in pain intensity for both respondents. Respondent 1 experienced a reduction from moderate pain (score of 3) to mild pain (score of 2), while Respondent 2's pain intensity decreased to moderate pain (score of 3). **Conclusion:** The findings suggest that deep breathing exercises and relaxation techniques can be beneficial in reducing pain levels in post-appendectomy patients when practiced consistently over a period of time.

Keywords: Appendicitis, Deep Breathing Relaxation, Pain Scale.

INTRODUCTION

Post-appendectomy pain can significantly affect a patient's daily life. Severe pain can disrupt sleep and limit activities. If intense pain is not addressed promptly with both pharmacological and non-pharmacological interventions, it will lead to serious complications like neurogenic shock (1). The pain is often most intense in the first 12 to 36 hours after surgery but typically subsides within a few days (2).

Deep breathing relaxation techniques offer a non-pharmacological approach to managing post-appendectomy pain. By focusing the patient's attention on tactile sensations, these techniques can help reduce pain perception (3).

In another study on the effect of relaxation techniques on post-appendectomy pain, researchers observed notable pain reduction following the use of deep breathing exercises. Before the intervention, 26.67% of patients reported mild pain, 53.33% moderate pain, and 66.67% severe pain. After the relaxation technique, these figures dropped to 13.33% for mild pain, 20.00% for moderate pain, and 20.00% for severe pain. Before the nursing intervention, the average pain level was rated at 4, but after the deep breathing exercise, the pain score decreased to 3 (4).

Previous studies aforementioned have demonstrated the effectiveness of deep breathing relaxation techniques in reducing post-appendectomy pain. However, these studies primarily focused on the technique's efficacy and application.

METHODS

This study employs a descriptive observational case study approach to provide an in-depth understanding of the cases involved (5). The focus is on the application of deep breathing relaxation techniques to improve patient comfort following appendectomy surgery.

This research involves two patients who experienced discomfort after undergoing appendectomy and were given deep breathing relaxation techniques as therapy. Both patients voluntarily agreed to participate in the study based on predefined inclusion and exclusion criteria (6). Inclusion criteria outline the characteristics suitable for case study subjects, while exclusion criteria specify those who do not meet the necessary requirements (7). The tool used for data collection in this study is the Numeric Rating Scale (NRS), a pain measurement instrument that asks patients to select a number between 0 and 10 that best reflects their current pain experience. This method of pain assessment using the NRS is commonly applied to adults (8). The Numeric Rating Scale (NRS) is the primary instrument for data collection. It requires patients to choose a number from 0 to 10 to represent their pain intensity. This scale is widely utilized in pain assessment practices.

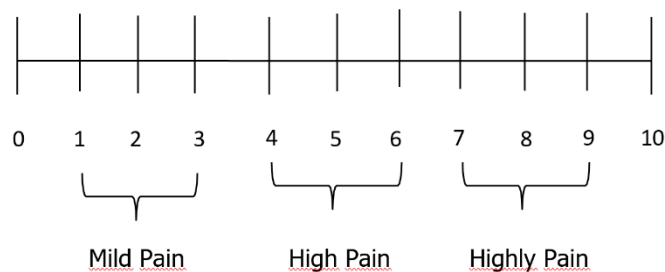


Figure 1 : Numeric Rating Scale (9)

RESULT AND DISCUSSIONS

After implementing the deep breathing relaxation technique, both respondents, Mr. R and Mr. H, reported a reduction in post-appendectomy pain after using the technique twice daily for 15 minutes over three days.

Table 1. Evaluation of Deep Breathing Relaxation Technique in Mr. R

Day/Date	Time	Pre	Post
Thursday 16 Mei 2024	11.00 AM	Pain Scale 5 NRS (High Pain)	Pain Scale 4 NRS (High Pain)
	06.00 PM	Pain Scale 4 NRS (High Pain)	Pain Scale 4 NRS (High Pain)

Friday 17 Mei 2024	11.00 AM	Pain Scale 4 NRS (High Pain)	Pain Scale 3 NRS (Mild Pain)
	06.00 PM	Pain Scale 3 NRS (Mild Pain)	Pain Scale 3 NRS (Mild Pain)
Saturday 18 Mei 2024	11.00 AM	Pain Scale 3 NRS (Mild Pain)	Pain Scale 2 NRS (Mild Pain)
	06.00 PM	Pain Scale 2 NRS (Mild Pain)	Pain Scale 2 NRS (Mild Pain)

Table 2. Evaluation of Deep Breathing Relaxation Technique in Mr. H

Day/ Date	Time	Pre	Post
Saturday 19 Mei 2024	11.00 AM	Pain Scale 6 NRS (High Pain)	Pain Scala 6 NRS (High Pain)
	06.00 PM	Pain Scale 6 NRS (High Pain)	Pain Scale 5 NRS (High Pain)
Sunday 20 Mei 2024	11.00 AM	Pain Scale 5 NRS (High Pain)	Pain Scale 4 NRS (High Pain)
	06.00 PM	Pain Scale 4 NRS (High Pain)	Pain Scale 4 NRS (High Pain)
Monday 21 Mei 2024	11.00 AM	Pain Scale 4 NRS (High Pain)	Pain Scale 3 NRS (Mild Pain)
	06.00 PM	Pain Scale 3 NRS (Mild Pain)	Pain Scale 3 NRS (Mild Pain)

These findings align with the theoretical framework, which correlates with the main complaint shared by both respondents—post-surgical abdominal pain (10). The deep breathing relaxation technique practiced twice daily for three consecutive days significantly reduced the respondents' pain levels and contributed to their comfort.

While Mr. R successfully performed the technique, Mr. H encountered difficulties due to abdominal pain during inhalation. This can be attributed to Mr. H's higher level of anxiety, which can influence pain

perception. Relaxation techniques have been shown to regulate the hypothalamus's response to the parasympathetic nervous system, thereby reducing anxiety and pain (11). Excessive anxiety is a contributing factor that can intensify an individual's experience of pain.



Figure 2. Deep Breathing Relaxation

Previous studies on breathing exercises for hypertensive patients have demonstrated their effectiveness in reducing anxiety levels. Over time, non-pharmacological methods for managing hypertension have evolved, with relaxation techniques emerging as one of the most widely used approaches. By regulating the hypothalamus's response to the parasympathetic nerves, relaxation techniques can lower heart rate, blood pressure, respiratory rate, and oxygen consumption while also reducing muscle tension (12).

Additionally, research on diaphragmatic breathing exercises has shown them to effectively reduce pain and improve the quality of life in individuals with shoulder pain. The study aims to investigate the effects of diaphragmatic mobilization and diaphragmatic breathing exercises on shoulder pain and quality of life in individuals experiencing shoulder pain. The research hypothesis was that combining diaphragmatic mobilization and breathing exercises with traditional physiotherapy treatments would yield more significant improvements in pain reduction and quality of life than traditional physiotherapy alone (13).

Other research shows that relaxation exercises reduce shoulder pain, increase range of motion, and provide other therapeutic benefits. In addition, deep breathing exercises and relaxation techniques are now recognized as effective treatment methods for enhancing patients' daily lives by reducing pain (14).

A study found that relaxation techniques significantly decreased breathing rate and pain. Researchers found that by reducing muscle tension, relaxation techniques decreased patients' pain perception. Patients in the study who used relaxation techniques reported significantly less incision pain and body discomfort compared to those in the control group. Beyond physiological factors, relaxation also positively enhances patients' psychological condition.

A study revealed that relaxation training can reduce pain-related discomfort and increase patients' sense of control over their thoughts and bodies (15).

CONCLUSION

Based on a study conducted at Pelamonia Hospital II Makassar, researchers investigated the effectiveness of deep breathing relaxation techniques in managing pain intensity among post-appendectomy patients treated in the Aster and Anyelir wards. The findings revealed that the application of deep breathing relaxation techniques successfully reduced pain intensity in these patients.

This study, conducted on post-appendectomy patients at Pelamonia II Hospital Makassar, demonstrated the positive impact of deep breathing relaxation techniques on pain management. The results indicate that these techniques are valuable tools for reducing pain intensity in individuals recovering from appendectomy.

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