

# Implementation of Deep Breathing Relaxation for Chest Pain Management in Heart Disease Patients

Nurhusna, Putri Iwanti Sari, Yulia Indah Permata Sari

Program Studi Keperawatan, Universitas Jambi

Email: [nurhusna@unja.ac.id](mailto:nurhusna@unja.ac.id)

## Abstract

Pain is the most complex human experience and is a phenomenon that is influenced by interactions between emotions, behavior, cognitive and physiological sensory factors. Pain as a subjective sensory and unpleasant emotional experience is related to actual or potential tissue damage or is felt in events described by the term damage. The cause of pain is not only life-threatening diseases such as cancer, but also injuries, surgery, burns, infections and the effects of violence. A person also experiences pain from many of the procedures and investigations used by doctors and nurses to investigate and treat disease. Pain can be managed by pain management by taking deep breaths. Deep breathing relaxation techniques can reduce pain by relaxing muscle tension that supports pain. The relaxation technique consists of slow, rhythmic, abdominal breathing. The patient can close his eyes and breathe slowly and comfortably. The aim of this service is to provide knowledge and skills in managing pain for heart disease sufferers with clinical symptoms of pain immediately after the pain appears, which can be done by the patient or with the guidance of the family. The method used was counseling for patients and families with heart disease who were undergoing treatment at the Heart Care Unit at Raden Matta Her Hospital, Jambi, totaling 20 people. The results of the service activities showed that there were changes in respondents' knowledge regarding non-pharmacological pain management, and increased ability to perform deep breathing techniques for pain management.

**Key words :** Chest-pain, Heart Disease, Deep breathing relaxation

## A. INTRODUCTION

Pain is the most complex human experience and is a phenomenon influenced by the interaction between emotions, behavior, cognitive and physiological sensory factors. Pain as a subjective sensory and unpleasant emotional experience is related to actual or potential tissue damage or is felt in events described in terms of damage (Faisol, 2022).

Pain is a global health problem, it is estimated that every year 20% of the world's population experiences pain and half of it is chronic pain. In America, pain is the main reason people come to seek health care centers. Based on research in America in 2012, there were 86.6 million adults who experienced acute pain every day and 25.5 million had chronic pain. In Indonesia, there has been no large-scale research that discusses the prevalence and quality of all types of pain. Indonesia also does not have practical parameters to assess pain, patient comfort levels, and the effects of pain on the quality of life of the Indonesian people (Faisol, 2022).

According to the International Association for the Study of Pain (IASP), pain is not only caused by life-threatening diseases such as cancer, but also by injuries, surgery, burns, infections and the effects of violence. A person also experiences pain from many procedures and investigations used by doctors and nurses to investigate and treat diseases (Daniel, 2016). Pain can be overcome by deep breathing pain management. Deep breathing

relaxation techniques can reduce pain by relaxing muscle tension that supports pain. Relaxation techniques consist of slow, rhythmic abdominal breathing. Patients can close their eyes and breathe slowly and comfortably (Smeltzer et al., 2010).

Pain management is the identification and management of sensory or emotional experiences related to tissue or functional damage with sudden or slow onset and mild to severe and constant intensity. Pain management aims to reduce pain that interferes with the patient's activities. Pain management will be given when someone feels significant or prolonged pain. The goals of pain management include: reducing the pain felt, improving the function of the affected body part and improving quality of life. Pain can be managed using pharmacological and non-pharmacological pain management.

Acute Myocardial Infarction or commonly known as AMI is myocardial necrosis caused by insufficient blood supply resulting in acute blockage of the coronary arteries. Typical signs and symptoms experienced by AMI patients are retrosternal chest pain such as being squeezed, pressed, stabbed, hot, or being hit by a heavy object. Pain can spread to the arm (usually the left), shoulder, neck, jaw and even to the back and epigastrium. Pain can last longer than angina pectoris and is unresponsive to nitroglycerin. The pain can be accompanied by feelings of nausea, vomiting, shortness of breath, cold sweats, palpitations or syncope. Pain caused by a sudden decrease in coronary blood flow after thrombus occlusion of pre-existing atherosclerotic plaque and causing coronary artery blood vessel injury.

Pain management should be done as soon as possible to prevent sympathetic nerve activation, because sympathetic nerve activation can cause tachycardia, vasoconstriction, and increased blood pressure which in the next stage can increase the burden on the heart and expand damage to the myocardium. The goal of pain management is to reduce cardiac oxygen demand and increase oxygen supply to the heart. 8 Proper pain management should include pharmacological and non-pharmacological measures. Independent Nursing Interventions include non-pharmacological with the type of treatment being deep breathing relaxation.

This community service activity is carried out to provide education for the community, especially families and sufferers of heart disease (myocardial infarction, and/or angina pectoris) in managing the pain they feel based on research results that support the effectiveness of this intervention.

## **B. METHODS**

As for community service activities, according to the following stages:

### **1. Implementation Method**

- a. Coordinate and discuss with the head of the room, the Hospital's health promotion unit regarding the topic of service and its relevance to conditions in the field.
- b. Conduct an inventory of facilities and infrastructure that will be used in service activities together with related parties.

### **2. Activity Plan**

- a. Conducting socialization of activities to the head of the room, clinical supervisors in the cardiac care unit, hospital health promotion unit officers, patients and families in the care unit.
- b. Identifying and forming a community service activity team consisting of lecturers and nursing profession students.
- c. Conducting counseling activities in the form of delivering material on the concept of pain in cardiac patients, pain management that can be done, and pain management techniques using the deep breathing relaxation method and conducting demonstrations.
- d. Conducting evaluations

### **3. Evaluation**

Evaluation of activities is carried out from the beginning of the implementation of the activity to the end of the activity by assessing:

- a. Evaluation of Knowledge and Skills  
Conducted by distributing pre-tests and post-tests for counseling participants consisting of families and heart disease sufferers who participate in training activities
- b. Evaluation of support for facilities and infrastructure  
Conducted by inventorying facilities and infrastructure during the implementation of the activity
- c. Evaluation of follow-up plans  
Conducted by creating a Plan of Action after the counseling activity is carried out.

### C. RESULTS

The intervention improved the participants' understanding and ability to manage chest pain. Table 1 below illustrates the knowledge level before and after the intervention:

Table 1. Knowledge Level of Respondents on Pain Management Using Deep Breathing (N = 20)

	Knowledge Level	
	Good (f/%)	Poor (f/%)
Pre- Training	5 (25%)	15 (75%)
Post- Training	17 (85%)	3 (15%)

Based on table 1, it is known that the level of knowledge of respondents before the health education activity on pain management, generally respondents had less knowledge (75%), especially related to the concept of pain, causes of pain, and how to handle it. However, after the education, there was a significant change in respondents' knowledge to 85% good.

Pain management through self-care intervention is an important task to control the negative impact of the disease, where behavioral modification is a target that needs to be prepared. Knowledge through health education can change the understanding and attitude of patients in recognizing their disease and the management actions that must be taken in patients with heart disease.

Deep breathing relaxation techniques are a form of nursing care, in which the nurse teaches the client how to take deep breaths, slow breaths (holding inspiration to the maximum) and how to exhale slowly, in addition to reducing pain intensity, deep breathing relaxation techniques can also increase lung ventilation and increase blood oxygenation. Breathing relaxation is abdominal breathing with a slow or slow frequency, rhythmic, and comfortable which is done by closing the eyes. Relaxation is an effective method to reduce pain in clients who experience chronic pain. Breathing exercises and relaxation techniques reduce oxygen consumption, respiratory rate, heart rate, and muscle tension, which stops the pain-anxiety-muscle tension cycle. Based on the above understanding, it can be concluded that relaxation is an effective method to reduce pain which is an unpleasant sensory and emotional experience with its mechanism that stops the pain cycle.

Increasing patient knowledge in improving modifiable factors, recognizing the disease they suffer from based on the signs and symptoms that appear, and how treatment actions should be taken immediately after symptoms appear are priorities for patient care as an effort to prevent worsening of the condition. These behavioral changes can have a positive impact on the health of patients with heart disease. Lifestyle changes consist of increasing self-care and self-management of the disease, both of which improve quality of life, reduce re-hospitalizations, and minimize possible complications. Self-management of heart disease



## REFERENCES

- Aini, N. (2018). Pengaruh teknik relaksasi nafas dalam terhadap penurunan nyeri pada pasien fraktur. *Jurnal Kesehatan*, 9(2), 262–266.
- Andarmoyo, S. (2013). *Konsep dan Proses Keperawatan Nyeri*. Yogyakarta: Ar-Ruzz Media.
- Aziz Alimul Hidayat Musrifatul Uliyah (2015) *Pengantar Kebutuhan Dasar Manusia*. 2nd edn. Edited by Tri Utami. Jakarta Selatan: Salemba Medika.
- Beebe, A., & Myers, J. (2011). Use of complementary therapies in cardiac care. *Journal of Holistic Nursing*, 29(1), 37–45.
- Bratman, S. (2000). *Health Food Junkies*. New York: Broadway Books.
- Brunner & Suddarth (2015) *Buku Ajar Keperawatan Medikal Bedah*. 8th edn. Edited by Monica Ester. Jakarta?: EGC: Buku Kedokteran EGC.
- Daniel, M. (2016). *Clinical Pain Management*. Jakarta: EGC/Faisol. (2022). *Manajemen Nyeri*. Kementrian Kesehatan
- Field, T. (2011). Massage therapy research review. *Complementary Therapies in Clinical Practice*, 17(1), 1–6.
- Hawker, G. A., et al. (2011). Measures of adult pain. *Arthritis Care & Research*, 63(S11), S240–S252.
- International Association for the Study of Pain. (2020). Pain terminology. <https://www.iasp-pain.org>
- Ismoyowati, T. W., Teku, I. S., Banik, J. C., & Sativa, R. A. (2021). Manajemen Nyeri untuk Congestive Heart Failure. *Jurnal Penelitian Kesehatan Suara Forikes*, 107-112.u
- Ismoyowati, TW., Teku, IS., Banik, JC., Sativa, RAO. *Manajemen Nyeri untuk Congestive Heart Failure*. *Jurnal Penelitian Kesehatan Suara Forikes*
- Kolcaba, K. (2003). *Comfort Theory and Practice*. New York: Springer.
- Mauk, K. L. (2010). *Gerontological Nursing: Competencies for Care*. Sudbury: Jones & Bartlett.
- McCaffery, M., & Pasero, C. (1999). *Pain: Clinical Manual*. St. Louis: Mosby.
- NIH. (2021). Mind-Body Practices and Pain. <https://nccih.nih.gov/>
- Potter & Perry (2010) *Buku Ajar Fundamental Keperawatan: Konsep, Proses, dan Praktik* 7th edn. Edited by D. Yulianti and M. Ester. Jakarta : EGC: EGC.
- Ruland, C. M., & Moore, S. (1998). Theory construction based on patient experience. *Journal of Advanced Nursing*, 27(5), 941–949.
- Sakti, N. P. R., Dewi, E. and Triyono, T. (2019) 'Pengaruh Teknik Relaksasi Nafas Dalam terhadap Penurunan Nyeri pada Pasien Fraktur Tertutup di IGD RSUD Ir. Soekarno Sukoharjo'.
- Sherman, K. J., et al. (2011). Complementary therapies for chronic pain. *BMJ*, 343, d5169
- Smeltzer & Bare (2013) *Buku Ajar Keperawatan Medikal Bedah*. Edited by Monica Ester. Jakarta: Buku Kedokteran EGC.
- Tait, R. C., & Chibnall, J. T. (2014). *Pain assessment in chronic illness*. New York: Oxford University Press.
- Tan, G., et al. (2014). Meta-analysis of mindfulness meditation for chronic pain. *The Journal of Pain*, 15(7), 677–689.
- Tawaang, E., Mulyadi, N., & Palandeng, H. (2013). Pengaruh Teknik Relaksasi Napas Dalam Terhadap Penurunan Tekanan Darah Pada Pasien Hipertensi Sedang- berat Di Ruang Irina C Blu Prof. Dr. RD Kandou Manado. *Jurnal Keperawatan*, 1(1).

- Taylor, A. G., et al. (2010). Yoga as complementary therapy for pain management. *Pain Management Nursing*, 11(4), 231-240.
- Turk, D. C., & Okifuji, A. (2002). Psychological factors in chronic pain. *Pain*, 98(1-2), 345-349
- Van Tulder, M., et al. (2006). Conservative treatment for low back pain. *BMJ*, 332(7548), 1431-1435.
- Vickers, A. J., & Linde, K. (2014). Acupuncture for chronic pain. *Archives of Internal Medicine*, 172(19), 1444-1453.
- Yancey, A. K., et al. (2004). Walking for health. *American Journal of Public Health*, 94(9), 1483-1489.