



## Case Study: Deep Breath Intervention to Reduce Pain in Mild-head Injury Patients

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### ABSTRACT

**Objective:** To present upbringing with deep breath intervention to reduce pain in patients with mild head injuries.

**Methods:** The method used is descriptive with a case study approach using nursing care that refers to the SDKI and SIKI books. The subjects in this study were 1 patient with a nursing diagnosis of acute pain in a patient with a minor head injury at the orchid room of the Banjar City Hospital. With data collection techniques include interviews, observations, physical examinations and documentation studies.

**Results:** From nursing care in patients with chronic renal failure, the symptom that appears at the time of the assessment is pain. The nursing problem that arises is that acute pain is related to physical injury agents referring to the SDKI book. The intervention carried out to reduce pain is by deep breath relaxation techniques. During the intervention process, the action went smoothly until the evaluation. There are changes in pain.

**Conclusion:** After deep breath intervention there was a change in pain from a scale of 5 to 2 (0-10), while the results of anamnesis obtained subjective data, the client said the pain was reduced.

**Keywords:** breath relaxation, head injury, pain

### Introduction

Mild-head injury is a type of head trauma that can damage nerve function and unconsciousness without damaging other organs. Mild head trauma can be caused by head trauma with a GCS value: 14-15, without loss of consciousness, often accompanied by dizziness and sharp pain, as well as scratches or bruises, head trauma, or internal bleeding of the brain.

Head injuries are a global health problem that can lead to death, disability and intellectual disability. Head trauma causes various neurological emergencies. Indeed, the head is the center of human life, where the brain affects all human activities. Therefore, in the event of damage, the entire body system will be disturbed (Kusuma & Anggraeni, 2019).

The World Health Organization (WHO) reports that about 1.2 million people die each year from a diagnosis of serious head injuries, mainly from road accidents (KLL). In the United States, head injuries are expected to rise to 500,000 cases per year, or 296,678 minor head injuries (59.3%), and moderate head injuries to 100,890 (20.17%) (Utami et al., 2021).

In Indonesia, it is estimated that 11.9% of head injury cases occur. In DIY Province, the number of head injury cases is mainly caused by traffic accidents with different figures compared to between districts, the highest in Yogyakarta city 12.97% of cases, Sleman regency 12.01% of cases, Bantul Regency 10.55%, Gunung Kidul Regency 9.53%, and the lowest is Kulon Progo Regency with 8.59% of cases. The highest rates of head trauma were 1 to 4 years (29.5%), 153 years (17.7%), and 65 years and older (33.1%). Based on gender, head injuries are more common in men (12.2%) than in women (11.5%) (Utami et al., 2021).

Head injuries occur mainly from road traffic accidents (47.7%), falls (40.9%), pressure with sharp or blunt objects (7.3%) and falling objects (2.5%) (Utami et al., 2021). Patients with head injuries have swelling of the brain, bleeding into the skull, increased intracranial pressure, and a decrease in cerebral perfusion pressure. When the condition worsens or is critical, the pulse decreases (bradycardia) and even decreases the respiratory rate. Blood pressure in the brain continues to rise to a critical level, aggravating head injuries, damaging all important functions and causing death (Kusuma, 2019). Management of head injuries must be fast, accurate, careful, and consistent, In addition to the general principles of handling head injuries, existing procedures also provide important guidance to avoid death, injury, and disability, for example airway, breathing, blood circulation, instability and exposure, observe vital signs, maintain sufficient oxygen, assess and correct disorders of coagulopathy, maintenance of hemostasis and blood sugar, sufficient nutrition (Savitri & Widia, 2021).

According to research by Sutarjo and Budijanto (2017), head trauma can cause physical and psychological changes for patients and families. Therefore serious treatment is necessary to provide nursing care. In this case, the nurse plays an important role, especially in the prevention of complications. Nursing care should still include encouraging and preventive measures, nurses instill knowledge of health values related to the importance of care in improving survival, such as maintaining an efficient airway, meeting fluid and nutritional needs, and preventing complications (Andarmoyo, 2013). Healing action, that is, the nurse cooperates with the doctor or other staff to provide therapy. Rehabilitation measures, nurses provide knowledge and skills aimed at returning the patient's condition to its original state (Savitri & Widia, 2021). The management of head injuries begins with protecting the brain by increasing blood flow to the brain to prevent hypoxia and cerebral ischemia. Nonpharmacological therapy that can be done is Pain management consists of deep breath relaxation techniques. Relaxation is an external action that can affect an individual's internal response to pain. Relaxation pain treatments include diaphragmatic breathing, gradual relaxation, guided imagination, and meditation. Relaxation training can be done for a limited time and usually has no side effects.

Based on the explanation above, the author has the ability to conduct a case study of the implementation of deep breath to reduce pain in Mr. S with a medical diagnosis of a minor head injury to the Orchid Room of the Banjar City Hospital.

## Objective

The study aims to present upbringing with deep breath intervention as an effort to reduce pain in mild head patients.

## Method

This case study uses a nursing approach that includes assessment, nursing diagnosis decisions, nursing care plans, nursing practice, and nursing evaluation. The assessment was carried out to collect data and information sourced from the patient, the patient's family, and patient status sheets through anamnesis and observation of medical history. Nursing diagnosis is sourced from SDKI based on existing data analysis, while nursing plans are sourced from the SIKI-SLKI book. Implementation and Evaluation of nursing is documented with the SOAPIER model. The provision of therapy to patients with minor head injuries is with deep breath relaxation techniques.

This study was conducted on patients with minor head injuries at the Banjar City Hospital, Anggrek Room for 4 days from 25 to 29 May 2022. Before the action, the author first explains the intervention to be carried out. At the time when after being given an explanation, the client is willing to give consent verbally. Before the intervention is given as well, the author conducts a comprehensive review of the client to ascertain whether it is necessary to give the intervention or not. And for its implementation is carried out for 15 minutes. By means of Position the client as comfortably as possible, with the position of the fowler or semi fowler, Inhale through the nose as much as possible and hold for 2-3 seconds, expel air through the mouth by forming lips like blowing a balloon, repeat the technique for 3-5 times.

## Results

### Case Presentation

The results of the study obtained data from a client of Mr. R aged 43 years, a man of Muslim religion, high school education and residing in Cibayawak Village rt 04 rw 01 Sidamulih Village, Pamarican District, Ciamis Regency with a medical diagnosis of minor head injury. All information is obtained from clients and families. The client's main complaint in the May 25, 2022 assessment was pain. The results of the examination of vital signs are as follows. Blood pressure: 140/80 mmHg, Temperature: 36oC, Respiration: 20 x/min, Pulse: 44 x/min general consciousness composmentis with total GCS: 15.

Table 1. Glasgow Coma Scale

GCS	Reaction	score
E: Eye	Spontan	4
M: Motorik	Follow the order	6
V: Verbal	Well oriented	5
<b>Total</b>		<b>15</b>

With a current history of the disease, the client was taken to the hospital with complaints of headaches due to a fall. Anamnesis, the client has no history of comorbidities, the client also said there is no family history of hereditary disorders such as high blood

pressure and diabetes. The results of laboratory examinations carried out on clients include the following.

Table 2. Laboratory Test Results

Inspection	results	Normal value
Hemoglobin	11.5	12~15 gr/dl
Leukosit	8.7	4.4~11.3 thousand\mm3
Trombosit	114	150-450 thousand\mm3
Hematokrit	33.9	35~47 %
Eritrosit	2.8	4.1~5.1 million /UI
MCV	80.6	80~96 fl
MCH	27.4	26~33 pg
MCHC	33.9	32~36 %
Kreatinin	0.7	0.5-0.9 mg/dl
Ureum	18	15-50 mg/dl

### Nursing diagnosis

Nursing diagnosis taken based on the results of Data Analysis adjusted to the grouping of nursing diagnoses by the Indonesian National Nurses Association (PPNI) in the Indonesian Nursing Diagnosis Standard (SDKI) edition 1 print III revision in 2017

Table 3. Nursing diagnosis

Analisa Data	Etiology	Diagnosis
<p><b>Subjective:</b> Client says headache</p> <p><b>Objectives:</b></p> <ul style="list-style-type: none"> <li>• The client appears agitated and in pain</li> <li>• The client appears to be holding his back of the head</li> <li>• Compostmentic</li> <li>• BP : 140/80 mmHg</li> <li>• <b>Pulse : 44 x/mnt</b></li> <li>• <b>RR : 20 x/mnt</b></li> <li>• <b>Temp. : 36°C</b></li> <li>• There was a bruise on the back of the head</li> </ul>	Acute pain	Acute pain associated with physically sensing agents

### Nursing Intervention, Implementation and Evaluation

After analyzing the data from the diagnosis, the interventions given were then taken in the book Indonesian Nursing Intervention Standards edition 1 print II of 2018

Table 4. Nursing Interventions In Patients With Minor Head Injuries

Diagnosis	Intervention	Note
Acute pain associated with physically sensing agents	<p>Observation</p> <ol style="list-style-type: none"> <li>1. Monitor TTV</li> <li>2. Identify the location, characteristics, duration, frequency, quality, intensity of pain</li> <li>3. Identify the pain scale</li> <li>4. Identify non-verbal pain responses Terapeutik</li> <li>5. Provide nonpharmacological techniques to relieve pain (deep breath relaxation)</li> <li>6. Collaboration of analgesic administration</li> </ol>	Conducted

Table 5. Nursing evaluation

Times	Evaluation	initials
Wednesday, 27 May 2022 09.00 am	<p>S:</p> <ul style="list-style-type: none"> <li>• The client said headaches such as punctures, pain felt in the back of the head, pain scale 5(0-10), pain felt all the time, pain increased if the client was active.</li> </ul> <p>O:</p> <ul style="list-style-type: none"> <li>• Clients seem to wince in pain</li> <li>• The client seems to have not relaxed</li> <li>• BP: 140/80 mmHg RR: 20 x/ menit Pulse : 44 x/ menit Temperature : 36°C</li> </ul> <p>A: Acute pain problems have not been resolved</p> <p>P: Continue intervention 1,2,3,4,5,6</p> <ul style="list-style-type: none"> <li>• TTV monitor</li> <li>• Identify the location, characteristics, duration, frequency, quality of pain intensity</li> <li>• Identifies nonverbal pain responses</li> <li>• Identify factors that aggravate and lighten pain</li> <li>• Teaches ternic nonpharmacology relaxation of deep breath</li> <li>• Collaboration of analgesic giving</li> </ul>	

## Discussion

After the nursing care process was carried out on a 43-year-old Mr.S with a minor head injury in the orchid room of the Banjar City Hospital from May 25-29, 2022. At the time of the implementation of the upbringing of the client and the family is very cooperative so that it makes it easier to carry out actions. The process consists of assessment, determining nursing diagnosis, intervention, implementation and evaluation (Arif, 2019).

The first stage is the assessment, which is the initial stage of the nursing care process, where the author collects data by approaching clients and families accompanied by the intentions and objectives to be carried out. These data will later be submitted for the enforcement of nursing diagnoses. Based on the results of the study on May 25, 2022 at 09.00 the client said that the headache in the back with the results of vital signs of blood pressure 140/80 mmHg, respiration 20 x / min, pulse 44 x / min, body temperature 36oC, the back of the head looks bruised, causing pain (Arif, 2019).

The second stage is the determination of nursing diagnoses carried out after collecting assessment data on Mr. S based on the analysis of the data obtained, the diagnosis that appears is acute pain related to post-physical injury in clients. What is characterized by subjective data is that the client says pain, while the objective data obtained is that the client seems to wince in pain (Wang, 2014).

According to the facts in the field and existing theories, the results obtained are related in terms of determining nursing diagnoses in people with minor head injuries. Facts in the field state that in patients with minor head injuries can give rise to a diagnosis of acute pain nursing (Arif, 2019).

The third stage is nursing planning which is carried out after collecting data and establishing diagnoses, then the author plans the actions to be implemented. At this stage the author did not find many obstacles because it was supported by room nurses, available sourcebooks, and support from client families. The interventions carried out in accordance with the Nursing Intervention Standards book (PPNI, 2016) are as follows:

Table 6. Nursing intervention

<b>Intervention</b>	<b>Rational</b>
<b>Observation</b>	<b>Observation</b>
1. Vital Sign Monitor	1. To know the general state of the client
2. Identify the location, characteristics, duration, frequency, quality, intensity of pain,	2. Assists in meeting the needs of pain management
3. Identify the pain scale	3. To know the degree of pain
4. Identify nonverbal pain responses	4. To know the level of discomfort the client feels
<b>Therapeutic</b>	<b>Therapeutic</b>
Provide nonpharmacological techniques (deep breath relaxation techniques)	Helps clients rest more effectively
<b>Collaboration</b>	<b>Collaboration</b>
Collaboration of analgesic administration	To help reduce pain so as to increase comfort

From the diagnosis that appears and the symptoms that arise above are acute pain characterized by the client grimacing in pain, the intervention carried out is to perform a deep

breath relaxation technique. This intervention can increase saturation and provide a sense of comfort so that by performing this technique the pain in the client will be reduced. Pain management with relaxation techniques is one of the nursing tools to relieve pain. Pain management with relaxation techniques includes deep breath relaxation techniques. Some researchers show that deep breath relaxation is very effective in reducing pain (Sehono, 2010). Relaxation is a condition in which a person is freed from stress and anxiety, after the occurrence of a disorder (Rsup et al., 2013) In Syahriyani's (2010) study on the effect of relaxation techniques on changes in pain intensity in the surgical room of RSUD TK II Pelamonia Makassar, the respondents' pain intensity experienced an increase in pain reduction, before and after the use of relaxation techniques, it was shown that 20.00% to 66.67% mild pain, 53.33% to 20.00% moderate pain, and 26.67% to 13.33% severe pain. (Rsup et al., 2013)).

Implementation is the fourth step in which the author performs nursing care which is carried out according to the plan made earlier. In this case, there are some unexpected measures, one of which is the inability to fully monitor the patient for 24 hours a day during treatment.

There are several actions carried out by the author after being planned in advance, including monitoring vital signs, monitoring respiration status, regulating semi-fowler positions, conducting health education, and the author added focus actions, namely teaching deep breath relaxation with ballon blowing techniques to increase saturation and lower the frequency of breathing.

The fifth stage is an evaluation carried out to monitor the follow-up treatment process and an assessment of the impact of treatment interventions on clients. The formative evaluation did not encounter any obstacles, but the author's inability to fully monitor the client's condition hindered the summative evaluation (Setiadi, 2012).

In the formative evaluation conducted on May 25, 2022, results were obtained that have not been resolved because the client still said pain with a pain scale of 5(0-10) and the client still appeared agitated. Meanwhile, the summative evaluation by monitoring the patient's progress record carried out on May 27-29, 2022, showed quite good results. On May 27, 2022, the development record of the first day, the results obtained after performing deep breath relaxation measures, namely the pain scale, 5 clients also said that they still felt pain. Then on May 28, 2022 the development record of the second day, the results obtained on the pain scale 3 and the client also still said the pain disappeared. Meanwhile, on the third day of development records on May 29, 2022, there was a decrease in the pain scale, namely 2 (0-10) after deep breath relaxation measures were carried out. The client also said the pain had begun to decrease and also the client seemed to be more relaxed and calm (Smeltzer, 2013).

## **Conclusion**

After the author carried out nursing care for Mr. S with Neurovascular System Disorders of Mild Head Injury in the Orchid Room of the Banjar City Regional General Hospital on May 25-29, 2022, the author concluded that there was a reduction in pain intensity after deep breath intervention for clients who experienced acute pain problems. The pain scale before the intervention is 5(1-10), and after the intervention it becomes 2 (1-10). In the process of implementation also the client is cooperative in doing whatever is recommended by the nurse.

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