

CHAPTER II

LITERATURE REVIEW

2.1 Concept of CAD

2.1.1 Definition of CAD

Coronary artery disease (CAD) is characterized by an inadequate blood and oxygen supply to the myocardium. This condition occurs due to occlusion of the coronary arteries, which causes an imbalance between oxygen demand and supply. CAD generally involves plaque formation in the lumen of the coronary arteries, which obstructs blood flow (Shahjehan, 2024). CAD is a heart dysfunction caused by narrowing and blockage of the heart's blood vessels. This condition can cause changes in various aspects, including physical, psychological, and social, resulting in decreased heart function and patient comfort (Mutarobin, 2019). CAD refers to chronic pathological changes in the walls of arteries that cause reduced blood flow through these vessels (Septianingrum, 2024).

According to Sarebanhassanabadi (2024), Coronary heart disease (CHD), also known as coronary artery disease (CAD), is a pathological condition characterized by the formation of atherosclerotic plaques in the epicardial coronary arteries. These plaques can be obstructive, meaning they significantly block blood flow, or nonobstructive, which, although they do not cause major blockages, still contribute to the risk of cardiovascular events.

2.1.2 Etiology of CAD

CAD is a multifactorial disease influenced by various etiological factors, which can generally be classified into non-modifiable risk factors and modifiable risk factors (Shahjehan,2024).

Non-modifiable risk factors include:

1. Gender

Men have a higher risk of developing coronary artery disease (CAD) than women due to hormonal and lifestyle factors. In women of childbearing age, the hormone estrogen plays a role in protecting blood vessels by increasing high-density lipoprotein (HDL) levels and maintaining blood vessel elasticity, thus slowing the development of atherosclerosis. Conversely, men tend to experience atherosclerotic plaque buildup earlier. Furthermore, the prevalence of risk factors such as smoking, hypertension, and unhealthy lifestyles is also higher in men (Shahjehan, 2024).

2. Age

As we age, the risk of CAD increases. The aging process causes a decrease in blood vessel elasticity and an increase in the buildup of fatty plaque in the coronary arteries. Furthermore, vascular endothelial function declines, resulting in less than optimal blood flow to the heart. In older age, exposure to risk factors such as hypertension, diabetes mellitus, and dyslipidemia also persists for longer, increasing the likelihood of atherosclerosis and CAD (Shahjehan, 2024; Bauersachs, 2019).

3. Family history

Family history is an important risk factor for CAD. Individuals with a family member, such as a parent or sibling, with a history of CAD, especially at a young age, have a higher risk of developing the disease. This is due to shared genetic, lifestyle, and environmental factors within the family, which can influence lipid metabolism, blood pressure, and the process of atherosclerosis. Family history is also known to be associated with an increased risk of acute coronary syndrome and atherosclerotic plaque formation in the coronary arteries (Goldsborough et al., 2022; Kurniawan, 2022).

4. Genetic factors.

Genetic factors play a role in increasing a person's susceptibility to CAD by influencing cholesterol metabolism, blood pressure regulation, inflammatory responses, and vascular endothelial function. Variations or mutations in certain genes can lead to increased low-density lipoprotein (LDL) levels, familial dyslipidemia, and accelerated atherosclerosis. Furthermore, genetic predisposition can also increase the risk of hypertension and diabetes mellitus, which are triggers for CAD. Recent research has shown that genetic and polygenic risk factors are strongly associated with CAD, particularly in individuals with a family history of coronary heart disease (Mars et al., 2022).

Meanwhile, modifiable risk factors include:

1. Hypertension

Hypertension is a major risk factor for coronary artery disease (CAD). Persistently high blood pressure can damage the endothelial lining of coronary arteries. This damage facilitates the buildup of atherosclerotic plaque on artery walls, leading to narrowing of the blood vessels and reduced blood flow to the myocardium. Furthermore, hypertension increases the heart's workload and myocardial oxygen demand, increasing the risk of ischemia and CAD (Shahjehan et al., 2024).

2. Smoking habit

Smoking can increase the risk of coronary heart disease (CAD) because harmful substances in cigarettes, such as nicotine and carbon monoxide, can damage the endothelium of blood vessels and accelerate the process of atherosclerosis. Nicotine causes vasoconstriction and increases blood pressure and heart rate, while carbon monoxide reduces the blood's ability to carry oxygen. Furthermore, smoking also increases low-density lipoprotein (LDL) levels and decreases high-density lipoprotein (HDL) levels, thus accelerating plaque formation in the coronary arteries. This condition increases the risk of blood vessel blockages and CAD (Bauersachs et al., 2019).

3. Obesity

Various studies have shown that obesity is closely linked to an increased risk of cardiovascular disease and a higher incidence of heart and blood vessel disorders. A recent study showed that obese patients were twice

as likely to suffer from coronary heart disease (hazard ratio) after adjusting for demographics, smoking habits, physical activity, and alcohol consumption (Susanti et al., 2025). Obesity is associated with more complex, prominent, and high-grade atherosclerotic coronary artery lesions (Susanti et al., 2025).

4. Lipid levels

One modifiable risk factor that plays a significant role in the development of CAD is hypercholesterolemia. Elevated low-density lipoprotein (LDL) levels are known to increase the risk of CAD, while higher high-density lipoprotein (HDL) levels are protective against the disease (Shahjehan, 2024).

5. Lifestyle: Lack of Physical Activity

Sport is a protective factor in preventing the development of CAD. Individuals who self-select to exercise have lower morbidity and mortality than those who do not engage in physical activity. This occurs due to increased endothelial nitrous oxide production, more effective deactivation of reactive oxygen species, and improved vasculogenesis (Susanti et al., 2025).

2.1.3 Clinical Manifestations of CAD

According to Alamsyah (2021), symptoms that can appear due to Coronary Artery Disease (CAD) include:

a. Chest pain (angina pectoris)

Chest pain, or angina pectoris, is a clinical manifestation in patients with CAD, characterized by discomfort or pressure in the chest area. This pain

occurs when part of the heart muscle is not receiving enough oxygen and can radiate to the shoulders, arms, neck, jaw, and even the back.

b. Tightness or feeling of pressure in the chest

This feeling of tightness can be an early sign of heart failure. In heart failure, the heart's ability to pump blood throughout the body, including the lungs, decreases, leading to fluid buildup in the lungs, which causes shortness of breath.

c. Arrhythmia

Arrhythmia is a heart rhythm disorder that occurs when the electrical impulses that regulate the heartbeat are disrupted, causing the heart to beat too fast, too slow, or irregularly. This condition can be triggered by an imbalance of electrolytes such as sodium or potassium in the blood.

d. Dizzy

Dizziness can occur due to decreased blood flow to the brain because the heart is unable to pump blood optimally, so that the oxygen supply to the brain is reduced.

e. Tachycardia

An increased heart rate can be the body's response to certain conditions such as heart disease, dehydration, anemia, or electrolyte imbalances that affect heart function.

2.1.3 Classification of CAD

According to Susanti (2025), CAD can be classified into two main groups, namely Acute Coronary Syndrome (ACS) and Chronic Coronary Syndrome (CCS). ACS includes unstable angina pectoris, non-ST-segment elevation

myocardial infarct (NSTEMI) and ST-segment elevation myocardial infarct (STEMI). Chronic coronary syndrome (CSS) includes classic stable angina pectoris caused by epicardial artery stenosis, microvascular dysfunction caused by metabolic vasoconstriction or vasodilation, vasospasm and ischemic cardiomyopathy.

1. Unstable Angina Pectoris (UAP)

Angina pectoris is a term used to describe a clinical syndrome, usually characterized by discomfort in the chest, jaw, shoulders, back, or arms caused by myocardial ischemia. Angina pectoris is a clinical syndrome caused by an imbalance between the demand and supply of blood flow in the coronary arteries. The cause of this imbalance is a sudden blockage in the coronary blood vessels due to plaque rupture (Santilana et al, 2023). Unstable angina pectoris (UA) is part of the acute coronary syndrome characterized by unpleasant chest pain and can cause physical dysfunction, changes in blood pressure, pulse rate, and the inability to cough and make deep breaths, low oxygen saturation, sleep disturbances, ineffective self-care, immune system disorders and persistent catabolism and pain can be felt for more than 20 minutes with increasing quality, complaints are felt to appear at rest or light activity. Chest pain that occurs at rest or during activity, such as a feeling of pressure or heaviness in the retrosternal area that can spread to the neck, jaw, interscapular area, shoulder, left arm and epigastrium, lasting several minutes or more than 20 minutes (Al-Shudifat et al., 2017).

2. Non ST-Elevation Myocardial Infarction (NSTEMI)

NSTEMI presents with similar manifestations to UAP, but in NSTEMI there is an increase in cardiac enzymes. In NSTEMI, subtotal coronary occlusion occurs, resulting in decreased coronary blood flow. Consequently, there is a decrease in oxygen supply to the heart muscle. This will result in an increase in cardiac enzymes, namely creatinine kinase (CK), CK-MB, and troponin T. Myocardial ischemia in NSTEMI is caused by a decrease in coronary blood flow ranging from 80-90%. Chest pain in NSTEMI has the same characteristics as UAP. ECG recordings show ST-segment depression, T-wave inversion, flat or even unchanged T waves. Laboratory examination results show a significant increase in cardiac biomarkers. Coronary artery blockage in NSTEMI is greater than in UAP, with an increase in cardiac biomarkers (Paudel et al., 2016).

3. ST-Elevation Myocardial Infarction (STEMI).

In STEMI, there is a sudden decrease in blood flow due to thrombus occlusion of a pre-existing atherosclerotic plaque. In STEMI, the occlusion covers 100% of the blood vessel. Acute myocardial infarction with ST-segment elevation indicates total occlusion of the coronary artery. Total occlusion occurs due to thrombosis of a ruptured plaque. Chest pain experienced by patients experiencing STEMI will be more severe than in NSTEMI and UAP. The diagnosis of STEMI is confirmed by persistent ST-segment elevation in 2 adjacent leads accompanied by new T-wave changes or LBBB and a significant increase in cardiac

biomarkers troponin T and I. This condition requires revascularization to restore blood flow and myocardial perfusion as soon as possible using fibrinolytic agents or primary percutaneous coronary intervention. Complete obstruction of the coronary artery that occurs in STEMI requires immediate revascularization (Santilana et al., 2023).

4. Classic Stable Angina Pectoris

CCS is a new terminology used to replace several terms such as stable angina or stable coronary heart disease. The most common symptom is right-sided chest discomfort that occurs during strenuous activity and resolves after rest. CCS includes classic stable angina pectoris caused by epicardial artery stenosis, microvascular dysfunction due to metabolic vasoconstriction or vasodilation, vasospasm, and ischemic cardiomyopathy. Stable angina pectoris presents clinically as episodes of chest pain triggered by activity, lasting 5–15 minutes, and relieved by rest or nitroglycerin. In stable angina pectoris, the myocardium becomes hypoxic within the first 10 minutes of arterial blockage. If the coronary artery is completely blocked, contractions cease for several minutes, while myocardial cells require oxygen and glucose for metabolism (Neumann et al., 2020).

2.1.4 Pathway of CAD

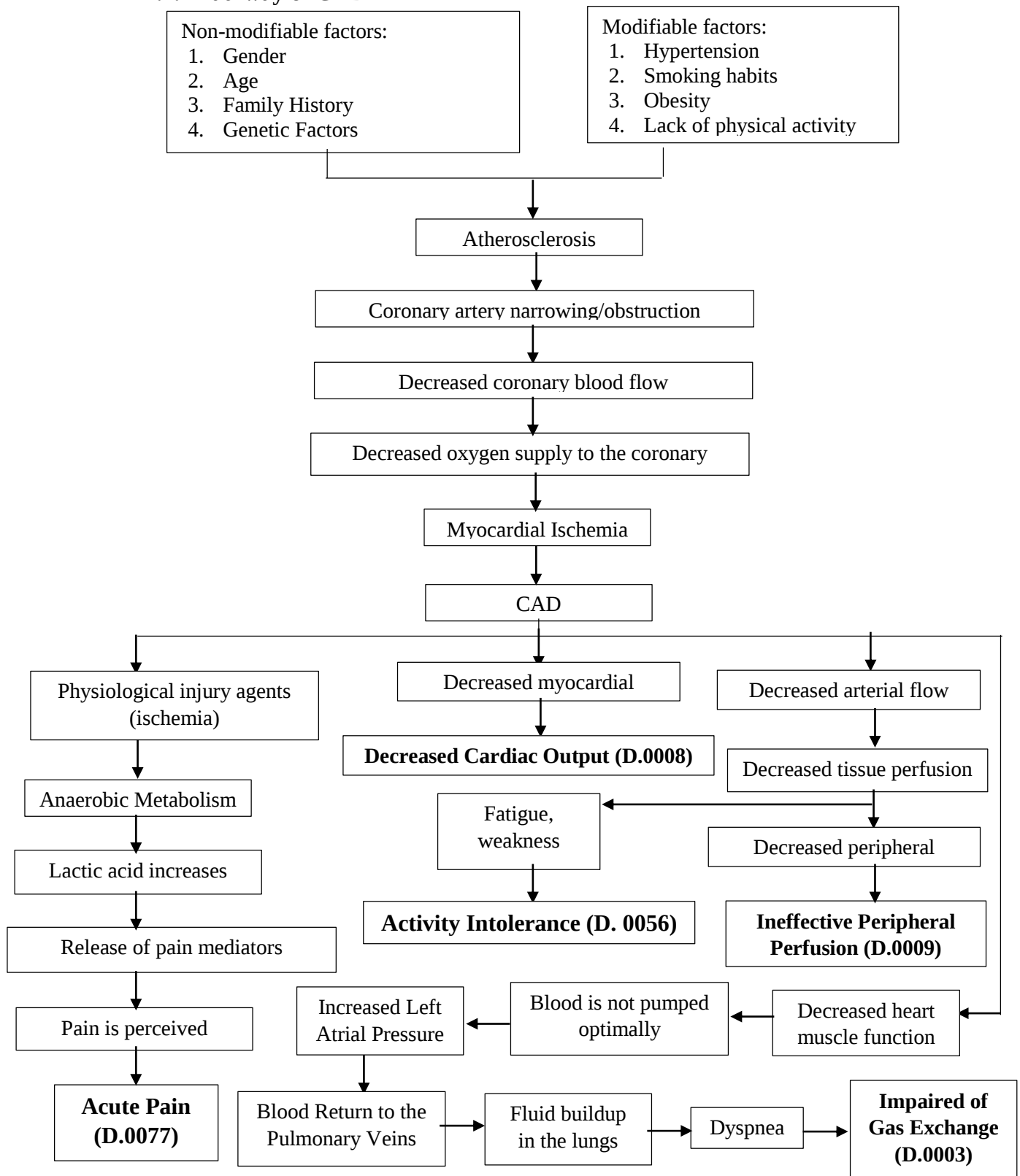


Figure 2.1 Pathway of Coronary Artery Disease

2.1.5 Management of CAD

According to LeMone (2019), CAD management can be divided into three approaches: pharmacological therapy, non-pharmacological therapy, and myocardial revascularization. It's important to note that there is currently no curative therapy, so lifestyle changes remain a crucial component in managing triggers. In general, management includes various efforts to control symptoms, slow disease progression, and improve the patient's quality of life.

1. Pharmacological Therapy

a. Nitrate

Used to dilate blood vessels so that it can increase blood flow to the myocardium and reduce chest pain.

b. Aspirin

Functions as an antiplatelet which prevents the formation of thrombus in coronary blood vessels.

c. Beta blockers

It works by reducing the heart rate and workload of the heart so that myocardial oxygen requirements are reduced.

d. Calcium antagonists

Helps relax the smooth muscles of blood vessels and increases blood supply to the heart.

e. Cholesterol-lowering drugs

Used to control blood lipid levels to prevent the progression of atherosclerosis.

2. Non-Pharmacological Therapy

- a. Make healthy lifestyle changes through regular light physical activity.
- b. Controlling risk factors that contribute to coronary heart disease.
- c. Manage stress with relaxation or distraction techniques.
- d. Limit physical activities that can increase the heart's workload excessively.

3. Myocardial revascularization procedure

Myocardial revascularization, one of which is through Coronary Artery Bypass Grafting (CABG), is a surgical procedure that involves removing a vein or artery to create a new pathway between the aorta and a blocked coronary artery. This procedure aims to restore blood flow to the ischemic area of the myocardium, thereby improving heart function (Nurhidayat S, 2011).

2.2 Concept of Pain

2.2.1 Definition of Pain

The International Association for the Study of Pain (IASP) defines pain as a subjective and unpleasant sensory and emotional experience associated with tissue damage. Pain is a feeling of pain, both real and potential, that is felt when there is an indication of injury to the body. Pain is an experience that can be perceived differently by each individual, depending on their perception and response. However, there are generally similarities in understanding the concept of pain. Pain can be defined as an unpleasant sensation, both sensory

and emotional, associated with tissue damage or other factors. This condition can cause individuals to feel disturbed, suffer, and potentially hinder daily activities and psychological well-being (Perry & Potter, 2009).

According to the Indonesian National Nurses Association (PPNI, 2016), acute pain is a sensory or emotional experience associated with actual tissue damage or impaired tissue function. This pain can appear suddenly or gradually, range in intensity from mild to severe, and last for less than three months.

2.2.2 Pain Classification

According to the Indonesian Nursing Diagnosis Standards (SDKI, 2016), pain is divided into two types, namely acute pain and chronic pain.

1. Acute pain

Acute pain is a condition of actual tissue damage or impaired tissue function that can appear suddenly or slowly, with levels of intensity ranging from mild to severe. This pain includes sensory or emotional experiences that last less than three months. Generally, acute pain is temporary (self-limiting) and will resolve with or without therapy once the underlying cause or condition improves. Acute pain is usually brief, occurs suddenly, and is localized to a specific area. Physiologically, acute pain can be accompanied by activation of the sympathetic nervous system, characterized by increased respiratory rate, blood pressure, heart rate, excessive sweating (diaphoresis), and pupil dilation. Patients can verbally express discomfort due to pain, while nonverbally it can be

shown through facial expressions such as grimacing, crying, groaning, or grinning.

2. Chronic pain

Chronic pain is a condition of actual tissue damage or functional impairment that can occur suddenly or slowly, with intensity ranging from mild to severe, and can be persistent or recurring. This pain is a sensory or emotional experience that lasts more than three months and can even persist even after the initial cause has resolved. Patients with chronic pain often experience psychological impacts such as depression, sleep disturbances, and prolonged pain perception, which can affect overall quality of life. Chronic pain also tends to be difficult to manage because it is persistent and can become part of the patient's long-term condition.

2.2.3 Pain Measurement

Pain intensity represents an individual's level of pain (Suryani and Soesanto, 2021). Pain scale measurements can be used to assess pain severity, including:

a. Wong Baker Faces Pain Rating Scale

Pain can be assessed by observing the patient's facial expressions without having to verbally ask about their symptoms. One measurement tool used in adult patients is the Wong-Baker Faces Pain Rating Scale, which describes pain levels based on facial expressions. This scale is used to help determine the patient's pain level more objectively.

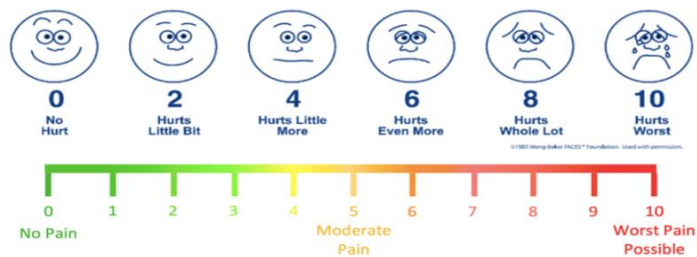


Figure 2.2 Wong Baker Faces Pain Rating scale

b. Numeric Rating Scale (NRS)

The NRS is a pain assessment instrument used to measure a patient's level of discomfort on a numeric scale from 0 to 10. This scale can be used to assess pain intensity before and after intervention. On this scale, a score of 0 indicates no pain, while a score of 10 represents extremely severe or unbearable pain (Boer D, 2019). In this study, the NRS was used as the pain scale.

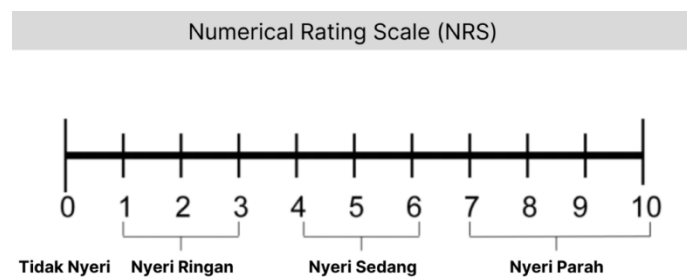


Figure 2.3 Numeric Rating Scale

c. Verbal Rating Scale (VRS)

A verbal pain scale is a pain assessment method that uses verbal descriptions, rather than lines or numbers, to describe the level of pain a patient is experiencing. Categories include no pain, moderate pain, and severe pain. Furthermore, pain reduction or disappearance

can be evaluated using criteria such as no reduction at all, slight reduction, moderate reduction, or complete disappearance of pain.

2.2.4 Major and Minor Data of Acute Pain

Table 2.1 Symptoms and Signs of Acute Pain

Major Symptoms and Signs	
Subjective	Objective
1. Complaining of Pain	1. Looks grimacing 2. Be protective (e.g. alert, pain-avoiding position) 3. Restless 4. Increased heart rate 5. Difficulty sleeping
Minor Symptoms and Signs	
Subjective	Objective
(Not available)	1. Focus on theirselves 2. Increased blood pressure 3. Changes in appetite 4. Breathing pattern changes 5. Diaphoresis 6. Disturbed thinking process 7. Withdraw

2.2.5 Factors Causing Pain

According to the Indonesian Nursing Diagnosis Standards (SDKI, 2016), the causes of pain are:

1) Acute pain

- a) Physiological injuring agents (e.g. inflammation, ischemia, neoplasm)
- b) Chemical injury agents (e.g. burns, diamond chemicals)
- c) Physical injuring agents (e.g. burns, abscesses, surgical procedures, amputations, trauma, cuts, excessive physical exercise, heavy lifting)

2) Chronic Pain

- a) Damage to the nervous system
- b) Imbalance of neurotransmitters, neuromodulators, and receptors

- c) History of abuse (e.g. physical, psychological, sexual)
- d) Immune disorders (e.g. neuropathy, varicella-zoster virus)
- e) Increase in body mass index
- f) Tumor infiltration
- g) Nerve compression
- h) Metabolic dysfunction
- i) Emotional stress

2.2.6 Clinical Conditions Associated with Acute Pain

According to (SDKI, 2016), namely:

1. Acute coronary syndrome
2. Surgical conditions
3. Glaucoma
4. Traumatic injury
5. Infection

2.3 The Concept of Spiritual Emotional Freedom Technique (SEFT)

2.3.1 Definition of SEFT

Spiritual Emotional Freedom Technique (SEFT) therapy is a therapy method that combines tapping or light stimulation techniques at specific points on the body with the provision of positive affirmations, focused on emotional and physical problems experienced by individuals (Farmawati, 2018). SEFT is a therapy technique that integrates elements of prayer and sincerity by utilizing the body's energy system to help improve the patient's state of mind, emotions, and behavior. This therapy is carried out by

providing suggestions in the form of prayer sentences accompanied by light tapping with two fingertips on specific points on the body (Mariani, 2020).

SEFT therapy refers to Faye Abdellah's theory of 21 nursing issues that encompass the physical, social, and emotional needs of patients, as well as the interpersonal relationship between patients and nurses and general aspects of patient care. In its application, SEFT emphasizes the use of prayer sentences that can induce relaxation and calm, thereby aiding the recovery process both physically and mentally. emotional (Palupi et al., 2024). This shows that SEFT not only focuses on the physical aspects but also considers the patient's emotional needs through a spiritual approach to pain management. Unlike pharmacological therapy, which focuses solely on rapid pain relief but can potentially cause side effects such as drug dependence, SEFT offers a more holistic approach by considering the patient's physical and psychological balance (Palupi et al., 2024).

2.3.2 Benefits of SEFT

The following are the benefits of SEFT therapy according to Maryana (2019):

1. Greatness (Pride)

Optimally implemented SEFT therapy can increase a person's sense of pride and gratitude to God Almighty for themselves. Psychologically, this helps them become more confident in their potential and develop a positive self-perception.

2. Success (Success)

SEFT therapy can provide individuals with a sense of motivation that success is achievable. This increased motivation plays a role in increasing one's enthusiasm, effort, and commitment to achieving life goals, aspirations, and desired success.

3. Happiness (Happiness)

SEFT helps individuals build the belief that everyone has the opportunity to experience happiness in life. Through positive suggestions, individuals experiencing sadness, stress, or anxiety are expected to develop a more optimistic outlook and live a happier life.

4. Healing (Healing)

Every disease inherently has potential treatment, but the healing process rests entirely with the will of God Almighty. In this regard, SEFT acts as a supportive therapy that can improve quality of life and provide positive suggestions for the healing process. SEFT also helps individuals accept their condition without despair, while prioritizing prayer, serenity, and surrender to God as the primary factors in the healing process.

2.3.3 Principle of SEFT

Like acupuncture, SEFT works by stimulating the body's meridian system. While acupuncture uses needles to stimulate key meridian points, SEFT is performed using two fingertips, the index and middle fingers, to apply light tapping (*tapping*) at these points. Tapping is done 7 to 10 times at the main meridian points (Maryana, 2019).

An important understanding in the SEFT concept is the existence of Psychological Reversal (PR), a condition that arises from fear or trauma,

which can hinder the healing process, whether through medical (allopathic) or alternative treatment. PR is characterized by a reversal of energy flow in the body's meridian system, which can be likened to a "reversed battery". This condition arises from negative emotions that influence a person's behavior in dealing with one or more problems (Maryana, 2019).

PR is commonly found in chronic conditions, depression, and addictions, which are influenced by past experiences, decisions, beliefs, stress, and conflicting negative energies within the individual. In SEFT therapy, this PR condition can be improved through techniques of tapping, especially at the sore spot or karate chop point. Technically, this process is also accompanied by verbal affirmations, so that psychological blocks can be reduced and the body's energy flow can be restored to balance without disrupting the individual's energy system (Maryana, 2019).

2.3.4 Procedure of SEFT

There are two methods in implementing SEFT, namely the full version and the condensed version (short cut). Both methods consist of three simple main steps, but the difference lies in the third stage, namely tapping. In the abbreviated version, tapping is performed at only 9 points, while in the full version, tapping is performed at 18 points (Maryana, 2019).

1. The Set-up (identification of problem points)

"The Set-Up" is a stage that aims to direct the body's condition to be in the right state during the therapy process. This step is carried out to neutralize Psychological Reversal, namely psychological obstacles or resistance that

usually arise in the form of spontaneous negative thoughts or negative subconscious beliefs. For example, a sentence like "I can't recover from this disease." "The Set-Up" essentially consists of two main activities. The first activity is to say the Set-Up Words or sentence in your own language three times. The second activity is done by saying the sentence with full appreciation, while pressing on the chest at the sore spot (an area around the upper chest that feels slightly painful when pressed) or by lightly tapping with two fingertips on the karate chop point. An example of a sentence is "Even though I feel anxious, I choose to calm myself, so I become calmer, calmer, calmer, and now calm."

2. The Tune-in (feeling the problem/erasing the subconscious)

For physical problems, the tune-in stage involves focusing on the pain experienced and directing thoughts to the affected area. Simultaneously, the individual utters sincere phrases of acceptance, such as "I accept this" or "I accept this illness, and I surrender to my healing." This stage is a form of self-hypnosis aimed at reducing the influence of the subconscious mind, which generates negative energy. Furthermore, the tune-in stage is performed simultaneously with the third stage, tapping. This combination of focusing on the perceived condition and tapping stimulation serves to help neutralize negative emotions and physical pain.

3. The Tapping (lightly tapping with two fingers)

Tapping involves tapping with two fingertips on specific points on the body while continuously tuning in. These points are key points of the "Major Energy Meridians." Tapping repeatedly will neutralize emotional

disturbances or pain. This restores the body's energy flow to normal and balanced levels.

The points in the complete version of SEFT are: 1) Crown: Point at the top of the head, 2) Eyebrow: Point at the beginning of the eyebrow, 3) Side of Eye: Point above the bone on the outside of the eye, 4) Under Eye: Point about 2 cm below the eyelid, 5) Under the Nose: Point directly below the nose, 6) Chin: Point between the chin and the bottom of the lip, 7) Collar Bone: Point at the intersection of the sternum, collarbone, and first rib, 8) Under the Arm: Point below the armpit, in line with the nipple in men or in the middle of the bra strap in women, 9) Below Nipple: Point about 2.5 cm below the nipple in men or at the border between the sternum and the bottom of the breast in women, 10) Inside of Hand: Point on the inside of the hand, bordering the palm, 11) Outside of Hand: Point on the outside of the hand, bordering the palm, 12) Thumb: Point on the outside of the thumb, right at the bottom of the nail, 13) Index Finger: Point on the outside of the index finger, at the bottom of the nail facing the thumb, 14) Middle Finger: Point on the outside of the middle finger, at the bottom of the nail facing the thumb, 15) Ring Finger: Point on the outside of the ring finger, at the bottom of the nail facing the thumb, 16) Baby Finger: Point on the outside of the little finger, at the bottom of the nail, 17) Karate Chop: Point on the outside of the palm that is often used in the movement of breaking blocks in karate, 18) Gamut Spot: Point between the ring finger bone and the little finger bone on the back of the hand (Ningsih et al 2022).

The points in the short-cut version of SEFT include 1) Crown: the part at the top of the head, 2) Eyebrow: the point at the beginning of the eyebrow, 3) Side of Eye: the point above the bone on the outer side of the eye, 4) Under Eye: the point about 2 cm below the eyelid, 5) Under Nose: the point directly below the nose, 6) Chin: the point between the chin and the lower lip, 7) Collar Bone: the point at the end of the meeting between the sternum and the first rib, 8) Under Arm, the point below the armpit parallel to the chest, 9) Below Nipple: the point about 2.5 cm below the chest (Marwing, 2019).

2.4 Concept of Nursing Care

2.4.1 Nursing Assessment

Assessment is the initial stage and the main basis in the nursing process which aims to collect comprehensive information regarding the patient's condition (Anggraini et al., 2020).

2.4.1.1 Data Collection

1. Patient Biodata

Patient identification includes name, age, gender, religion, education level, occupation, address, marital status, ethnicity, registration number, date of hospital admission, and medical diagnosis. Coronary artery disease (CAD) is generally found in patients over 40 years of age and is more common in men. Furthermore, many patients work in the formal sector or offices, which have high levels of work demands and stress.

2. Main Complaint

The main complaints in patients with cardiovascular system disorders are usually shortness of breath, coughing, chest pain, palpitations, fatigue, syncope, extremity edema, and other complaints related to impaired heart function.

3. History of Present Illness

The current medical history includes the chronology of CAD onset, contributing factors, and the patient's symptoms, particularly chest pain. The assessment begins with the patient's initial complaint before hospitalization, their condition during treatment, and the nursing assessment.

4. Past Medical History

Past medical history includes any previous history of CAD or other illnesses the patient has experienced, medical procedures that have been performed, and regular use of medications.

5. Family Health History

Family health history is reviewed through a genogram to determine whether any family members have a history of CAD or other hereditary diseases such as hypertension and heart disease that can increase the risk of CAD.

6. Psychosocial Data

Psychosocial data includes patient and family behaviors, feelings, emotions, and responses to the disease. CAD patients often experience psychological changes such as feelings of resignation, helplessness, fear of lifestyle and role changes, anxiety about surgery, disease

complications, and even fear of death. These symptoms can be manifested through avoidance of eye contact, insomnia, weakness, changes in blood pressure and breathing patterns, and feelings of anxiety and restlessness.

7. Spiritual Data

In patients with CAD, the disease often causes anxiety, fear, and worry about their health, which can impact their spiritual well-being. Most patients still strive to practice religious practices to the best of their ability as a way to draw closer to God and as a source of strength in coping with their illness. Patients generally believe that their illness is a test or ordeal that must be endured patiently and that they must persist with treatment. Furthermore, patients typically have hope and faith in recovery through a combination of medical therapy, family support, and prayer. However, conditions such as chest pain, shortness of breath, fatigue, and activity limitations due to CAD can make it difficult for patients to optimally practice religious practices.

8. Daily Habits Patterns

a) Nutrition

In patients with coronary heart disease (Coronary Artery Disease/CAD), appetite often decreases so that food portions become smaller than usual.

b) Rest and Sleep

Patients' rest and sleep patterns can be disrupted by pain or discomfort. Furthermore, they tend to tire easily, requiring more rest.

c) Elimination

Urination (BAK): Generally no problems, with a urination frequency of around 4–6 times per day and normal liquid urine consistency.

Defecation (BAB): Usually remains normal with a frequency of around 1–2 times per day and solid stool consistency.

d) Personal Hygiene

Personal hygiene is an individual's effort to maintain personal hygiene. In CAD patients, meeting personal hygiene needs often requires the assistance of a nurse or family member due to the patient's condition, which requires plenty of rest or bed rest.

e) Activities

CAD patients generally experience a decline in their ability to perform daily activities. Patients tend to limit or even stop strenuous activities due to fatigue, shortness of breath, or chest pain that occurs during activity.

9. Physical examination

During a physical examination of the patient, examinations such as:

- a) General condition: General condition includes the patient's condition, consciousness, speaking voice, height, weight, and vital signs (TTV).
- b) Vital signs: The patient experienced an increase in blood pressure, pulse, and respiration. Blood pressure ranged from 124/91 mmHg to 137/97 mmHg, RR approximately 16-20

beats/minute, and pulse rate 100-112 beats/minute. Changes occurred depending on activity and pain.

c) Head and neck

Assess the shape of the head, the condition of the hair, is there any enlargement of the neck, is there any hearing loss, is there any blurred/double vision. Inspection: round/oval head shape, symmetrical face/not, clean hair/not, edema of the face/not, presence/absence of lesions on the face, grimacing/crying/smiling facial expression. Palpation: hair loss/not, presence/absence of lumps on the head

d) Respiratory System

Is there shortness of breath, cough, sputum, chest pain in patients with coronary artery disease (CAD).

e) Cardiovascular System Heart

- a. Inspection: ictus cordis/heartbeat visible or not
- b. Palpation: whether or not the ICS (intercostal space) can be felt
- c. Percussion: normally sounds dull
- d. Auscultation: S3/S4 heart sounds are usually heard as a murmur/abnormal.

f) Digestive system

- a. Inspection: is there a wound or not, is there scar tissue or not, is the umbilicus protruding or sunken in, observe whether the skin color is even or not.

- b. Auscultation: normal bowel sounds or not (5-20x/minute)
- c. Palpation: tenderness on the abdomen/no tenderness
- d. Percussion: tympanic or hypertympanic sound
- g) Integument System
 - Inspection: black/brown skin color, moist/not, observe good/decreased skin turgor. Palpation: warm/cold acral, CRT (Capillary Refill Time) on normal fingers < 2 seconds.
- h) Musculoskeletal System
 - Inspection: strong/not muscle tone, complete/not fingers, fracture/not
 - Palpation: there is edema or not
- i) Reproductive System
 - Inspection: is a catheter installed or not?

2.4.1.2 Data Analysis

Data analysis is the activity of selecting/grouping data based on nursing problems that occur in the context of the classification and validation process of information to support the establishment of accurate nursing diagnoses. The function of data analysis is to be able to interpret data obtained from nursing assessments that have meaning and significance in determining client problems and needs, as well as a decision-making process in determining alternative solutions to problems outlined in the nursing care plan. Writing data analysis in tabular form consists of three columns, namely data grouping, possible causes (etiology), and nursing problems.

2.4.2 Nursing Diagnosis

A nursing diagnosis is a clinical assessment of a patient's response to a health problem or life process, whether actual or potential. According to the SDKI (2016), nursing diagnoses are divided into negative and positive. A negative diagnosis indicates that the client is ill or at risk of developing an illness, and establishing this diagnosis will direct the provision of nursing interventions that are curative, restorative, and preventative. This diagnosis consists of an actual diagnosis and a risk diagnosis. A positive diagnosis indicates that the client is healthy and can achieve a healthier or optimal state. This diagnosis is also called a health promotion diagnosis. The types of nursing diagnoses can be described as follows:

1. Actual Diagnosis

This diagnosis describes a person's (the client's) response to a health condition/life process that is causing the client's problem. An actual diagnosis is an event that is currently occurring, evidenced by the presence of signs and symptoms, or where the signs and symptoms can be validated.

2. Risk Diagnosis

Describes a person's (client's) response to health conditions/life processes that may put them at risk for health problems. No major or minor symptoms were found, but if the client's data is not addressed, health problems will occur.

3. Health Promotion Diagnosis

This diagnosis reflects a clinical assessment of an individual, family, group, or community's motivation and desire to improve well-being and actualize their human health potential, as expressed in their readiness to engage in specific health behaviors. This diagnosis also reflects the client's desire and motivation to improve their health to a better/optimal level.

Nursing diagnoses that may arise in CAD patients are (Nurulhuda, 2024):

- a. Impaired of Gas exchange related to ventilation and perfusion imbalance as evidenced by dyspnea, increased PCO₂, decreased PO₂, tachycardia, increased/decreased arterial pH, additional breath sounds, dizziness, blurred vision, cyanosis, diaphoresis, restlessness, nasal flaring, abnormal breathing patterns, abnormal skin color, decreased consciousness (D.0005)
- b. Decreased cardiac output is related to changes in contractility as evidenced by dyspnea, orthopnea, coughing, audible S3 and/or S4 heart sounds, and decreased EF (D.0008).
- c. Ineffective peripheral perfusion is related to decreased arterial and/or venous flow as evidenced by CRT >3 seconds, decreased peripheral pulse, cold extremities, pale skin color, decreased skin turgor, paresthesia, extremity pain, edema, slow wound healing, femoral bruit (D.0009).
- d. Activity intolerance is related to an imbalance between oxygen supply and demand, as evidenced by complaints of fatigue, increased heart rate >20% from resting conditions, dyspnea during/after rest, feeling

uncomfortable after activity, feeling weak, ECG showing arrhythmia during/after activity, ECG showing ischemia, cyanosis (D.0056)

- e. Acute pain is related to physiological injury agents as evidenced by complaints of pain, grimacing, protective behavior, restlessness, difficulty sleeping, increased blood pressure and pulse, changes in breathing patterns, changes in appetite, disturbed thought processes, withdrawal, self-focus, diaphoresis (D.0077).

2.4.3 Nursing Interventions

Nursing interventions are all treatments performed by nurses based on clinical knowledge and judgment to achieve desired outcomes.

Nursing actions are specific behaviors or activities performed by nurses to implement nursing interventions (Tim Pokja SLKI DPP PPNI, 2018).

Table 2.2 Nursing Intervention Table

No .	Nursing Diagnosis	Output and Outcome Criteria	Nursing Interventions	Rational
1.	Impaired of Gas Exchange (D.0005)	Gas Exchange (L.01003) After nursing intervention for 3 x 24 hours, gas exchange increased, with the following outcome criteria: 1. Decreased dyspnea 2. Decreased adventitious breath sounds 3. Tachycardia decreases 4. PCO ₂ improves 5. PO ₂ improves 6. Arterial pH improves	Oxygen Therapy (I.01026) Observation 1. Oxygen flow rate monitor 2. Monitor the position of the oxygen therapy device 3. Monitor oxygen flow periodically and ensure that the fraction delivered is sufficient. 4. Monitor the effectiveness of oxygen therapy (e.g., oximetry, blood gas analysis), if necessary. 5. Monitor the ability to release oxygen while eating 6. Monitor signs of hypoventilation 7. Monitor signs and symptoms of oxygen toxicity and atelectasis	1. Ensure oxygen is given according to the patient's needs to prevent hypoxemia or hyperoxia. 2. Ensures optimal oxygen delivery and prevents oxygen leaks. 3. Ensure that the oxygen concentration provided is adequate to meet the body's oxygenation needs. 4. Assess the effectiveness of oxygen therapy in improving patient oxygenation status. 5. Knowing the patient's tolerance to temporary cessation of

No .	Nursing Diagnosis	Output and Outcome Criteria	Nursing Interventions	Rational
			8. Monitor anxiety levels due to oxygen therapy 9. Monitor nasal mucosal integrity due to oxygen administration Therapeutic 10. Clear secretions from the mouth, nose, and trachea, if necessary. 11. Maintain airway patency 12. Prepare and arrange oxygen delivery equipment 13. Administer supplemental oxygen, if necessary 14. Continue to provide oxygen while the patient is being transported. 15. Use an oxygen device that is appropriate to the patient's mobility level. Education 16. Teach patients and families how to use oxygen at home. Health Conditions Collaboration 17. Collaboration in determining oxygen doses 18. Collaborative use of oxygen during activity and/or sleep	oxygen during meals and preventing desaturation. 6. Early detection of ventilation disorders that can lead to carbon dioxide retention and hypoxia. 7. Prevent complications due to long-term use of high concentration oxygen. 8. Identifying anxiety that can increase oxygen requirements and worsen the patient's condition. 9. Prevents irritation, dryness, or damage to the nasal mucosa due to oxygen therapy. 10. Eliminates airway obstruction so that oxygen can enter the lungs optimally. 11. Ensuring air and oxygen passageways remain open to support effective gas exchange. 12. Ensure that oxygen therapy equipment functions properly and is safe to use.

No .	Nursing Diagnosis	Output and Outcome Criteria	Nursing Interventions	Rational
				13. Increase oxygen supply to meet the metabolic needs of body tissues. 14. Maintain adequate oxygenation during patient transport. 15. Improve the comfort and effectiveness of oxygen therapy according to the patient's condition and mobility. 16. Improve the ability of patients and families to use oxygen therapy safely and independently at home. 17. Determine the appropriate oxygen dose according to the patient's clinical condition and needs. 18. Adjusting oxygen delivery to the body's increased needs during activity and during sleep.
2.	Decreased cardiac output (D.0008)	Cardiac Output (L.02008) After nursing intervention for 3 x 24 hours, cardiac	Cardiac Care (I.02075) Observation	1. Assess hemodynamic status and detect changes in blood

No .	Nursing Diagnosis	Output and Outcome Criteria	Nursing Interventions	Rational
		output increased, with the following outcome criteria: 1. Peripheral pulse strength increased 2. Ejection fraction (EF) increased 3. Palpitations decreased 4. Decreased bradycardia 5. Tachycardia decreases 6. ECG picture: Decreased arrhythmia	1. Monitor blood pressure (including orthostatic blood pressure, if necessary) 2. Monitor fluid intake and output 3. Monitor your weight every day at the same time 4. Oxygen saturation monitor 5. Monitor chest pain complaints (eg: intensity, location, radiation, duration, precipitation that reduces pain) 6. 12-lead ECG monitor 7. Arrhythmia monitor (rhythm and frequency abnormalities) 8. Monitor cardiac laboratory values (eg: electrolytes, cardiac enzymes, BNP, NTpro-BNP) 9. Pacemaker function monitor 10. Check blood pressure and pulse rate before and after activity. 11. Check blood pressure and pulse rate before administering medication (eg: beta blockers, ACE inhibitors, calcium channel blockers, digoxin) Therapeutic 12. Position the patient in a semi-Fowler or Fowler position with the legs down or in a comfortable position.	pressure that may affect tissue perfusion. 2. Knowing the body's fluid balance and detecting fluid retention or deficit/excess. 3. Detecting changes in fluid status 4. Assess the adequacy of tissue oxygenation and perfusion. 5. Identifying pain characteristics to determine the severity of myocardial ischemia. 6. Detecting the presence of ischemia, myocardial infarction, or cardiac conduction disorders. 7. Identifying heart rhythm disturbances that can reduce cardiac output. 8. Assess myocardial damage, electrolyte balance, and cardiac function. 9. Ensuring the pacemaker is functioning effectively in maintaining heart rhythm.

No .	Nursing Diagnosis	Output and Outcome Criteria	Nursing Interventions	Rational
			13. Provide a heart-appropriate diet (eg: limit intake of caffeine, sodium, cholesterol, and high-fat foods) 14. Use intermittent elastic or pneumatic stockings, as indicated. 15. Facilitate patients and families to modify their lifestyle to a healthy level. 16. Provide relaxation therapy to reduce stress, if necessary. 17. Provide emotional and spiritual support 18. Give oxygen to maintain oxygen saturation > 94% Education 19. Encourage physical activity according to tolerance 20. Recommend gradual physical activity 21. Advise to stop smoking 22. Teach patients and families to measure daily weight. 23. Teach patients and families to measure daily fluid intake and output. Collaboration 24. Collaboration in administering antiarrhythmics, if necessary 25. Refer to cardiac rehabilitation program	10. Assess the patient's cardiovascular response to activity and activity tolerance. 11. Prevent side effects of drugs that can cause hypotension or bradycardia. 12. Reduces the workload of the heart and increases lung expansion, making breathing easier. 13. Reduce cardiovascular risk factors and prevent worsening of heart disease. 14. Increases venous return and reduces the risk of thromboembolism. 15. Helps reduce risk factors and improve long-term cardiovascular health. 16. Reduce stress and anxiety which can increase myocardial oxygen demand. 17. Improve patient coping, calmness, and motivation in undergoing treatment.

No .	Nursing Diagnosis	Output and Outcome Criteria	Nursing Interventions	Rational
				18. Meet myocardial oxygen needs and prevent tissue hypoxia. 19. Increase the body's functional capacity without overworking the heart. 20. Safely increase activity tolerance and prevent excessive fatigue. 21. Reduces the risk of cardiovascular disease and increases tissue oxygenation. 22. Helps monitor fluid retention and detect worsening heart conditions. 23. Helps control fluid balance and prevent excess fluid volume. 24. Control or correct heart rhythm disturbances to maintain adequate cardiac output. 25. Optimizes heart function recovery, improves quality of life, and prevents disease recurrence.

No .	Nursing Diagnosis	Output and Outcome Criteria	Nursing Interventions	Rational
3.	Ineffective peripheral perfusion (D.0009)	Peripheral Perfusion (L.02011) After nursing intervention for 3 x 24 hours, peripheral perfusion increased, with the following outcome criteria: 1. Peripheral pulse strength increased 2. Pale skin color decreases 3. Capillary refill improves 4. Akral is getting better 5. Skin turgor improves	Circulation Care (I.02079) Observation 1. Check peripheral circulation (eg: peripheral pulses, edema, capillary refill, color, temperature, ankle-brachial index) 2. Identify risk factors for circulatory disorders (eg: diabetes, smoking, elderly, hypertension, and high cholesterol levels) 3. Monitor for heat, redness, pain, or swelling in the extremities. Therapeutic 4. Avoid IV insertion, or blood collection in areas of limited perfusion. 5. Avoid measuring blood pressure in extremities with limited perfusion. 6. Avoid applying pressure and tourniquets to the injured area. 7. Take infection prevention measures 8. Do foot and nail care 9. Do hydration Education 10. Advise to stop smoking 11. Recommend regular exercise 12. Recommend checking bath water to avoid skin burns.	1. Assess peripheral perfusion status and detect circulatory disorders early. 2. Identify factors that can worsen blood flow and increase the risk of vascular complications. 3. Detects signs of inflammation, infection, or impaired perfusion in the extremities. 4. Prevent further tissue damage in areas with impaired perfusion. 5. Avoid tissue injury and inaccurate measurement results due to impaired blood flow. 6. Prevents decreased blood flow that can worsen tissue ischemia. 7. Reduces the risk of infection that can inhibit the tissue healing process. 8. Prevent injury, infection, and complications in the extremities due to circulatory disorders.

No .	Nursing Diagnosis	Output and Outcome Criteria	Nursing Interventions	Rational
			13. Recommend using blood pressure lowering drugs, anticoagulants, and cholesterol lowering drugs, if necessary. 14. Recommend taking blood pressure control medication regularly 15. Recommend avoiding the use of beta blockers 16. Recommend proper skin care (eg: moisturizing dry skin on the feet) 17. Recommend a vascular rehabilitation program 18. Teach a diet program to improve circulation (eg: low saturated fat, omega 3 fish oil) 19. Inform emergency signs and symptoms that should be reported (e.g., pain that does not go away with rest, wounds that do not heal, loss of feeling).	9. Maintain adequate circulating volume to support tissue perfusion. 10. Reduces vasoconstriction and increases blood flow to peripheral tissues. 11. Improves blood circulation, vascular function, and overall cardiovascular health. 12. Prevent injuries or burns that may go unnoticed due to decreased peripheral sensation. 13. Helps control risk factors that can worsen circulation disorders. 14. Keeping blood pressure under control so that tissue perfusion can be maintained optimally. 15. Prevents peripheral vasoconstriction which can worsen circulatory disorders in certain conditions. 16. Maintains skin integrity and prevents dryness and tissue damage.

No .	Nursing Diagnosis	Output and Outcome Criteria	Nursing Interventions	Rational
				17. Helps improve vascular function, activity tolerance, and quality of life for patients. 18. Reduces risk factors for atherosclerosis and improves blood vessel health. 19. Allows early detection and treatment of conditions that threaten tissue or limb perfusion.
4.	Activity intolerance (D.0056)	Activity Tolerance (L.05047) After nursing intervention for 3 x 24 hours, activity tolerance increased, with the following outcome criteria: 1. Complaints of fatigue decreased 2. Dyspnea on decreased activity 3. Dyspnea after decreased activity 4. Pulse rate improves	Energy Management (I.05178) Observation 1. Identify body function disorders that cause fatigue 2. Monitor physical and emotional fatigue 3. Monitor sleep patterns and hours 4. Monitor location and discomfort during activities Therapeutic 5. Provide a comfortable, low-stimulus environment (e.g., light, sound, visits) 6. Perform passive and/or active range of motion exercises 7. Provide calming distraction activities	1. Knowing the body function disorders that cause fatigue so that intervention can be given appropriately. 2. Assess the level of physical and emotional fatigue as a basis for monitoring the patient's condition. 3. Identify sleep patterns that can affect energy levels and recovery processes. 4. Recognizing any pain or discomfort that may limit the patient's activities.

No .	Nursing Diagnosis	Output and Outcome Criteria	Nursing Interventions	Rational
			8. Facilitate sitting at the side of the bed, if unable to move or walk Education 9. Recommend bed rest 10. Recommend doing activities gradually 11. Advise contacting a nurse if signs and symptoms of fatigue do not improve. 12. Teach coping strategies to reduce fatigue Collaboration 13. Collaborate with a nutritionist on how to increase food intake	5. Create an environment that supports rest and reduces energy expenditure. 6. Maintain muscle strength, joint flexibility, and prevent complications due to immobilization. 7. Helps reduce stress, increase relaxation, and distract from fatigue. 8. Gradually increase activity tolerance and prevent complications due to bed rest. 9. Reduces the body's oxygen requirements and energy expenditure during the acute phase. 10. Increases activity tolerance without causing excessive fatigue. 11. Allows early detection if the patient's condition does not show improvement. 12. Helping patients manage stress and adapt to conditions that cause fatigue.

No .	Nursing Diagnosis	Output and Outcome Criteria	Nursing Interventions	Rational
				13. Meet adequate nutritional needs to increase energy and accelerate patient recovery.
5.	Acute pain (D.0077)	Pain Level (L.06049) After nursing actions have been carried out for 3x24 hours, it is hoped that the level of pain will decrease with the following outcome criteria: 1. Complaints of pain decreased 2. Grimace decreases 3. Rice frequency improves 4. Blood pressure improves	Pain Management (I.08238) Observation: 1. Identify the location, characteristics, duration, frequency, quality, intensity of pain 2. Pain scale identification 3. Identifying non-verbal pain responses 4. Identify factors that aggravate and alleviate pain 5. Identify knowledge and beliefs about pain 6. Identifying cultural influences on pain responses 7. Identifying the impact of pain on quality of life 8. Monitor the success of complementary therapies that have been given 9. Monitor side effects of analgesic use Therapeutic 10. Provide non-pharmacological techniques to reduce pain (eg: TENS, hypnosis, acupressure, music therapy, biofeedback, massage therapy, aromatherapy, guided	1. Determining the location, characteristics, and severity of pain as a basis for planning nursing actions. 2. Measure pain intensity objectively to evaluate the progress of the patient's condition. 3. Helps identify pain through behavioral signs shown by the patient. 4. Knowing the triggers and pain relievers to determine the appropriate intervention. 5. Identifying patient perceptions of pain that may influence response to therapy. 6. Adapting the nursing approach to the patient's values and culture.

No .	Nursing Diagnosis	Output and Outcome Criteria	Nursing Interventions	Rational
			imagery techniques, warm/cold compresses) 11. Controlling environmental factors that aggravate pain (e.g., room temperature, lighting, noise) 12. Facilitate rest and sleep 13. Consider the type and source of pain when selecting a pain relief strategy Education: 14. Explain the causes, periods, and triggers of pain. 15. Explain pain relief strategies 16. Encourage self-monitoring of pain 17. Recommend using analgesics appropriately 18. Teach non-pharmacological techniques to reduce pain Collaboration: 19. Collaboration in providing analgesics, if necessary	7. Knowing the impact of pain on daily activities, rest, and patient well-being. 8. Assessing the effectiveness of complementary therapies in reducing pain intensity. 9. Early detection of side effects due to the use of analgesics. 10. Helps reduce the perception of pain, increases relaxation, and provides a feeling of comfort. 11. Reducing environmental stimuli that can worsen pain perception. 12. Adequate rest helps reduce physical stress and increases patient comfort. 13. Ensure that pain management strategies are appropriate to the type and cause of pain experienced by the patient. 14. Increase patient understanding of the conditions causing pain. 15. Improve the patient's ability to control and reduce the pain they feel.

No .	Nursing Diagnosis	Output and Outcome Criteria	Nursing Interventions	Rational
				16. Help patients recognize changes in pain and report them appropriately. 17. Optimizing the effectiveness of analgesic therapy and preventing medication errors. 18. Increasing patient independence in managing pain non-pharmacologically. 19. Helps reduce pain optimally through a combination of pharmacological and nursing therapy.

2.4.4 Nursing Implementation

The implementation phase occurs after the nursing action plan is developed and focuses on the nurse's efforts to help the client achieve the predetermined outcomes. Implementation aims to support improved health status, prevent disease, accelerate the recovery process, and assist the client in developing effective coping mechanisms. At this stage, nurses need adequate knowledge and skills, including aspects of patient safety and protection, therapeutic communication techniques, the ability to perform nursing procedures, an understanding of patient rights, and an understanding of the patient's developmental level and needs (Sayekti, 2020).

2.4.5 Nursing Evaluation

Evaluation is the final stage in the nursing process, conducted to assess the extent to which the goals and outcomes set out in the nursing plan have been achieved. Nursing evaluation includes assessing the patient's response after receiving nursing interventions and reviewing the effectiveness of the nursing care provided (Kurniawati, 2017). The evaluation process is carried out systematically through data collection, analysis of results, and drawing conclusions regarding the success of the nursing actions provided. Furthermore, evaluation also involves continuous monitoring of the patient's condition, response to care, and changes in the patient's needs throughout the care process. The evaluation results serve as the basis for nurses to maintain, modify, or discontinue the nursing plan (Kurniawati, 2017).

Nursing evaluation consists of two types, namely formative evaluation and summative evaluation.

1. Formative evaluation is conducted immediately after nursing interventions are administered to assess the patient's response and the effectiveness of the interventions. This evaluation is conducted continuously until the nursing goals are achieved. The formulation of this formative evaluation includes four components known as SOAP: subjective, objective, data analysis, and planning (Meisanigsih, 2021).

a. S (Subjective)

Subjective data is the result of patient complaints, except in patients with aphasia or speech disorders.

b. O (Objective)

Objective data is the result of observations made by nurses.

c. A (Analysis)

The patient's nursing problems and diagnoses are analyzed or reviewed from the subjective and objective data obtained. In this section, the problem is determined as resolved, partially resolved, or unresolved by comparing the SOAP with the objectives and outcome criteria that have been set and planned.

d. P (Planning)

Planning is re-planning the development of nursing actions, both now and in the future, with the aim of improving the patient's health condition.

2. Summative evaluation is conducted after the entire series of nursing actions is completed to assess the quality of care and the level of success in achieving the desired outcomes. Summative evaluation can be conducted through interviews with patients and families, assessments of satisfaction with the care, and a review of the final results of the nursing care provided (Kurniawati, 2017). .