# CHAPTER II

# LITERATURE REVIEW

## 2.1 Basic Concepts of Schizophrenia

### 2.1.1 Definition

Schizophrenia is a severe and chronic mental disorder that affects the way a person thinks, feels, and behaves, which is characterized by cognitive distortion and a significant decline in psychosocial function (World Health Organization [WHO], 2022). Clinically, the manifestations of schizophrenia are grouped into positive symptoms such as hallucinations, delusions, and disorganization of thought processes as well as negative symptoms that include apathy, withdrawal from the social environment, and dullness of emotional affectation (Tandon et al., 2021). The impact of the complexity of these symptoms often triggers emotional instability in patients, one of which is in the form of an escalation of angry emotions that if not managed properly can develop into aggressive behavior or the risk of violent behavior (Pardede & Siregar, 2022). Therefore, the management of schizophrenia patients does not only rely on psychopharmaceutical therapy, but also requires a combination of community-based non-pharmacological interventions to train adaptive coping mechanisms, stabilize emotional regulation, and prevent recurrence in the family environment (Windarwati et al., 2023).

### 2.1.2 Etiology

There are two factors that cause schizophrenia, namely:

a. Predisposing factors

1. Biological factors

a) Genetics

Genetic factors are the main triggering factors of schizophrenia. Children who have one biological parent with schizophrenia but are adopted at birth by a family with no history of schizophrenia still have a genetic risk from their biological parents. This is evidenced by research that children who have one parent with schizophrenia have a 15% risk; This figure increases to 35% if both biological parents have schizophrenia (Videbeck, 2020).

b) Neuroanatomi

Research shows that individuals with schizophrenia have relatively less brain tissue. This can indicate a developmental failure or subsequent tissue loss. Computerized Tomography (CTScan) shows enlargement of the ventricles of the brain and atrophy of the cerebral cortex. Positron Emission Tomography (PET) examination shows that there is a decrease in oxygen and glucose metabolism in the structure of the frontal cortex of the brain. Research has consistently shown a decrease in brain volume and abnormal brain function in the temporal and frontal areas of individuals with schizophrenia (Videbeck, 2020).

c) Neurokimia

Neurochemical research has consistently shown changes in the brain's neurotransmitter system in individuals with schizophrenia. In normal people, the switch system in the brain works normally. The incoming perceptual signals are sent back perfectly without any

interference so that they produce feelings, thoughts, and finally take actions according to the needs of the time. In the brain of people with schizophrenia, the signals sent are disrupted so that they do not succeed in reaching the intended cell connection (Videbeck, 2020).

2. Psychological factors

Schizophrenia occurs due to a failure to complete early psychosocial development, for example, a child who is unable to form a trusting relationship that can result in lifelong intrapsychic conflict. Severe schizophrenia is seen in the inability to cope with existing problems. Identity disorders, inability to cope with imaging problems and inability to control oneself (Videbeck, 2020).

3. Sociocultural and environmental factors

Sociocultural and environmental factors suggest that the number of individuals from lower socioeconomic classes experience greater symptoms of schizophrenia compared to individuals from higher socioeconomic backgrounds. These incidents are associated with poverty, overcrowded housing accommodation, inadequate nutrition, lack of prenatal care, resources to cope with stress and feelings of hopelessness (Videbeck, 2020).

b. Precipitating factors

1. Biological

Biological stressors can affect the brain's communication and feedback loops, as well as cause abnormalities in the entrance mechanism

in the brain, making it difficult for individuals to respond to stimuli selectively (Videbeck, 2020).

2. Environment

Biologically determined stress tolerance thresholds interact with environmental stressors, which can lead to mind disorders (Videbeck, 2020).

3. Symptom triggers

Triggers are precursors and stimuli that can trigger new episodes of a disease, and are usually related to individual health, environment, attitudes, and behaviors (Videbeck, 2020).

### 2.1.3 Clinical Manifestations

The signs and symptoms of schizophrenia are as follows:

a. Positive symptoms

1. Delusion

A delusion is a false belief that does not correspond to reality, which is persistently held and repeatedly expressed (persecution delusions, delusions of suspicion, delusions of grandeur).

2. Hallucinations

Hallucinations are disturbances in the reception of the five senses without any ecdternal stimulus (hallucinations of hearing, sight, taste, smell and touch).

3. Changes in the flow of thought

a) Interrupted thought stream: in conversation suddenly unable to continue the content of the conversation.

b) Incoherent: speaking incoherently with the other person (chaotic speech).

c) Neologism: using words that are only understood by oneself but not understood by others.

4. Behavior change

Negative Symptoms:

1. Blunted Affect
2. Alogia
3. Avolition (Loss of Motivation)
4. Anhedonia
5. Asociality
6. Psychomotor Slowdown
7. Response Slowdown
8. Irritability (Mashudi, 2021).

### 2.1.4 Positive Symptoms and Negative Symptoms of Schizophrenia

Schizophrenia is a severe mental disorder characterized by disturbances in thinking, perception, emotions, behavior, and social functioning. The clinical manifestations of schizophrenia are generally differentiated into positive symptoms and negative symptoms. Positive symptoms indicate an increase or distortion of normal function, while negative symptoms indicate a decrease or loss of normal function that the individual should have (Correll & Schooler, 2020).

## A. Positive Symptoms of Schizophrenia

Positive symptoms are symptoms that arise due to the addition of experiences or behaviors that are not found in normal individuals. These symptoms are usually easier to recognize because they are evident in the patient's behavior (Marder & Galderisi, 2017).

### 1. Hallucination

Hallucinations are sensory perceptions in the absence of any real external stimulus. Hallucinations can be auditory, sight, smell, taste, or touch hallucinations. In schizophrenia patients, auditory hallucinations are the most commonly found form, such as hearing voices that command, comment, or threaten the patient (Correll & Schooler, 2020).

### 2. Delusion

Waham is a false belief and is strongly defended despite the evidence to the contrary. The forms of waham that are often found include suspicious waham, chase waham, greatness waham, religious waham, and reference waham. Waham can cause patients to interpret the environment as a threat thereby increasing the risk of aggressive behavior and violent behavior (Marder & Galderisi, 2017).

### 3. Disorganized Thinking

Formal thinking disorder is characterized by irregularities in the thought process that appear through the patient's speech pattern. Patients may speak out of place, be difficult to understand, change topics suddenly, or give answers that do not match the questions (Correll & Schooler, 2020).

### 4. Disorganized Behavior and Catatonia

Disorganized behavior is manifested through actions that are undirected and not appropriate to the situation. In some cases, symptoms of catatonia can be found in the form of immobility, mutism, maintaining a certain body position for a long time, or excessive motor activity without a clear purpose (Marder & Galderisi, 2017).

B. Negative Symptoms of Schizophrenia

Negative symptoms are reduced or loss of normal functions related to emotional expression, motivation, communication, and social relationships. These symptoms often persist longer than positive symptoms and are closely related to the patient's low ability to carry out daily activities (Correll & Schooler, 2020).

1. Blunted Affect

Dull affectation is a reduction in emotional expression that is seen through a lack of facial expressions, reduced eye contact, monotonous voice intonation, and limited body movements when communicating (Kirkpatrick et al., 2006).

2. Alogia (Speech Poverty)

Alogia is a decrease in the number and quality of conversations shown by short answers, talking little, and difficulty developing conversations. Patients often only answer one or two words and take longer to respond to the questions asked (Correll & Schooler, 2020).

3. Avolition (Loss of Motivation)

Avolition is a decrease in motivation to start and maintain a purposeful activity. Patients appear passive, lack initiative, and require encouragement from others to carry out daily activities (Strauss et al., 2021).

4. Anhedonia

Anhedonia is a reduced ability of individuals to feel pleasure from activities that were previously considered enjoyable. Patients show low interest in leisure activities, hobbies, and social activities (Mosolov & Yaltonskaya, 2022).

5. Asociality

Asociality is characterized by a reduced interest in establishing or maintaining social relationships. Patients tend to withdraw from the environment and reduce interaction with family and society (Mosolov & Yaltonskaya, 2022).

6. Psychomotor Slowdown

Psychomotor slowdown is a condition when the patient's body movements, facial expressions, and motor activities become slower than normal conditions. Patients appear to be slow to perform activities and take longer to complete an action (Mosolov & Yaltonskaya, 2022).

7. Response Slowdown

A slowdown in response is characterized by an increase in the time it takes for the patient to understand information and respond to verbal and nonverbal stimuli. Patients often appear to be silent before answering questions, not because they refuse to communicate, but because it takes longer to process the information received (Correll & Schooler, 2020).

## 2.2 Risk of Violent Behavior

### 2.2.1 Definition of Risk of Violent Behavior

The risk of violent behavior is a condition when individuals have the potential to commit actions that can harm themselves, others, and the environment, both physically, verbally, and emotionally (Cahyo &

Rahmawati, 2026). This condition generally arises due to an individual's inability to control emotions, manage anger, deal with frustration, and express feelings adaptively. In patients with mental disorders such as schizophrenia, the risk of violent behavior can increase due to perception disorders, thought process disorders, hallucinations, suspicious attitudes, or feelings of being threatened that cause the patient to misinterpret the situation around him (Lestari, 2025).

Violent behavior does not always appear immediately in the form of physical attacks, but can begin with signs such as tense faces, sharp gaze, restlessness, pacing, high pitchedness, irritability, rudeness, threatening, clenched hands, and difficulty directing (Indriya, 2023). If these signs are not addressed immediately, anger can develop into aggressive behaviors such as damaging the environment, attacking others, or hurting oneself. Thus, the risk of violent behavior needs to be recognized early so that appropriate nursing interventions can be provided to help patients control emotions and prevent violent acts from occurring.

### 2.2.2 Signs and Symptoms

Patients at risk of violent behavior may show signs and symptoms in the following aspects (Pertiwi & Hasanah, 2023):

a. Physical: face appears flushed and tense, eyes bulge with a sharp gaze, clenched hands, jaw clenched, posture stiff, and frequent walking back and forth.
b. Verbal: speaking harshly, raising the tone of voice, yelling or yelling, verbally threatening, profanity, loud voice, and speaking slurred.

c. Behavior: throwing or hitting objects or other people, attacking others, injuring oneself or others, damaging the environment, and exhibiting angry or aggressive behavior.
d. Emotions: showing inappropriate emotions, feeling insecure and uncomfortable, feeling disturbed, holding grudges, feeling irritated, helpless, and tending to blame and demand others.
e. Intellectual: tends to dominate conversation, talk a lot, be rude, argue, use sarcasm, and look down on others.
f. Spiritual: feeling in power, feeling the most righteous, criticizing other people's opinions, offending others, not caring, and being rude.
g. Social: withdrawing from the environment, experiencing isolation, rejection, violence, ridicule, and satirizing others.
h. Attention: shows attention-seeking behaviors such as stealing, running away, or committing sexual deviances.

Signs and symptoms of violent behavior (major and minor) according to the PPNI Working Group Team (2017), are:

a. Major Symptoms and Signs
    1) Subjective: threatening, swearing with profanity, loud voices, slurring
    2) Objective: attacking others, injuring oneself and/or others, damaging the environment, aggressive or raging behavior.
b. Minor Symptoms and Signs
    1) Objectives: bulging eyes or sharp gaze, clenched hands, clenched jaw, face flushed, stiff posture.

### 2.2.3 Response Range

Description of the anger response range:

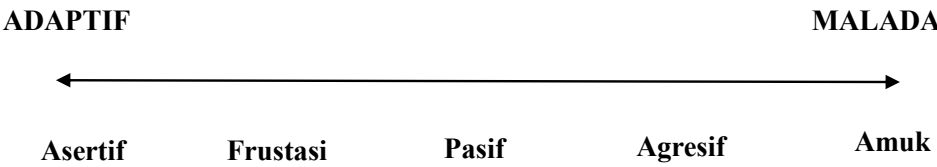



Figure 2. 1 Range of Risk of Violent Behavior Responses

a. Assertive: Individuals are able to convey anger appropriately without blaming others, and still maintain calm and comfort in interacting.
b. Frustration: Individuals experience failure to achieve their desired satisfaction or goals when angry, and have not been able to find appropriate problem-solving options.
c. Passive: An individual is unable to express his feelings or anger directly, even if it is related to trying to defend his rights and needs.
d. Aggressive: Individuals exhibit a hostile, harsh, demanding, and approaching others in a threatening manner. Threats can be conveyed through words, but at this stage the individual generally still has the ability to control himself so as not to hurt others.
e. Tantrum: Tantrums are a disturbing disorder characterized by threatening behavior in a frightening manner, touching or approaching others in a way that causes fear, and can be accompanied by acts of harm from mild to severe. At this stage, individuals are unable to control themselves and experience loss of control.

Tantrums are the most maladaptive form of anger response in the anger response range. This condition occurs when individuals are no longer able to control angry emotions, resulting in strong hostile feelings and destructive

behaviors. Anger can initially arise as a reaction to threats, pressure, frustration, or unmet needs. When anger is still controllable, individuals can express it assertively. However, if anger is not managed properly, the response can develop into aggressive behavior to anger. In the raging stage, individuals can lose self-control and risk committing harmful actions, such as injuring themselves, attacking others, or damaging the environment. In patients at risk of violent behavior, this condition needs to be recognized early because increased anger can turn into violent behavior if appropriate intervention is not immediately provided (Pongdatu et al., 2023; Sutini et al., 2024).

### 2.2.4 The Process of Anger at Risk of Violent Behavior

Anger in patients at risk of violent behavior can occur when the individual faces threats, pressures, or unmet needs. These circumstances cause emotional responses such as stress, disappointment, anxiety, offended, and frustration. If these emotions are not able to be controlled properly, then anger can escalate into oppositional, hostile, or aggressive behavior (Elyadini et al., 2024). In individuals who feel they have more power or position, anger can be expressed directly through an attitude of resisting, yelling, threatening, or attacking. In contrast, in individuals who feel helpless, anger can be suppressed, avoided, or not expressed, thus creating prolonged emotional tension.

Anger that is not channeled constructively can develop into a sedentary hostility. If these conditions continue and are not resolved, pent-up emotions can arise in the form of maladaptive responses, such as depression when anger is directed at oneself, or aggressive behavior and tantrums when anger is

vented on others or the environment (Pongdatu et al., 2023). In schizophrenia patients, the process of anger can also be affected by perception disorders, thought process disorders, hallucinations, suspicious attitudes, impulsivity, low self-esteem, and inability to assess situations appropriately. This condition makes it easier for patients to misinterpret stimuli as threats, resulting in fear, offended, irritability, and anger that can develop into violent behavior.

Violent behavior can also arise when individuals have high but unfulfilled expectations, leading to disappointment, frustration, and decreased self-esteem. Individuals with low self-esteem tend to feel angry with themselves, others, and the environment. If the anger is not managed properly, the patient may show unconstructive responses, such as hitting themselves, slamming objects, damaging the environment, or injuring others (Sutini et al., 2024). Thus, the process of getting angry at the risk of violent behavior begins with the presence of stressors, negative assessments of the situation, the emergence of emotional tension, the inability to control emotions, then develops into aggressive or violent behavior if the right intervention is not immediately given.

### 2.2.5 Etiology

Violent behavior is triggered by complex interactions of various aspects of a person's life and the existence of certain stimuli. In general, these factors are grouped into two main dimensions, namely predisposing factors and precipitating factors (Stuart, 2013 in Pongdatu et al., 2023).

1. Predisposing Factors

Predisposing factors are fundamental aspects that shape a person's vulnerability to tend to express anger uncontrollably. This factor includes three main domains:

a. Biological Aspects

1) Instinctive Impulse Theory: This view states that aggressive behavior is rooted in a strong internal drive to meet basic human needs.

2) Psychosomatic Theory: Destructive actions are understood as the manifestation of psychological turmoil triggered by internal as well as external stimuli. Neurobiologically, this emotion regulation is regulated by the limbic system, which functions to manage memory, process information, and control individual angry expressions.

b. Psychological Aspects

1) Aggressive-Frustration Theory: Disappointment due to failure to realize accumulated expectations or ideals can trigger deep frustration. The manifestation of this accumulation of disappointment is often in the form of aggressive actions, which the individual psychologically uses to reduce his emotional tension.

2) Behavior Theory: Referring to Bandura (1977), violent behavior is the result of the process of environmental adoption. Internal reinforcement is obtained from personal satisfaction when committing aggression, while external reinforcement occurs through direct observation (*modeling*) of authority figures or the surrounding environment, such as parents, peers, and the media.

3) Existential Theory: This theory emphasizes the importance of self-actualization and the meaning of life. If a person fails to demonstrate their existence in a positive (constructive) way, they tend to exploit it through destructive actions.

c. Socio-Cultural Aspects

1) Social Environment Theory: Economic stress due to unmet living needs, unemployment, single parenthood, marital conflicts, and dysfunction of family structures and poor interpersonal relationships have the potential to trigger violent behavior.

2) Social Learning Theory :

- Social Norms: Overly restrictive societal rules sometimes restrict individuals from channeling their anger in a healthy way, thus triggering maladaptive vents.
- Assertive Culture*:* An environment that supports assertive communication, which is to dare to express opinions honestly and firmly without demeaning others, can help individuals develop healthy adaptive mechanisms when facing conflict.

2. Precipitation Factor

The precipitation factor is a stimulant or direct trigger that compensates for the vulnerability of individuals until violent behavior occurs. These triggers are classified into two sources:

a. Stimulus Internal

Comes from within the individual, which includes:

1) Decreased self-esteem and loss of confidence.
2) Feeling vulnerable or weak personally.
3) Deep anxiety about physical health disorders suffered.
4) Inability to control one's own behavioral impulses.

b. External Stimulus

Derived from external environmental stresses, such as:

1) The traumatic experience of losing a loved one or losing a valuable asset.
2) There is a provocation or physical attack from another party.
3) Exposure to sharp criticism, rejection, or negative judgment that offends the self-esteem of those around them.

### 2.2.6 Stages of Violent Behavior

Violent behavior does not occur suddenly, but through a process of manifestation of anxiety and failure of coping mechanisms that culminate in destructive actions. According to the theory of *the Assault Cycle*, which is widely adapted in psychiatric nursing research, the stages of violent behavior are divided into five main phases:

1. Triggering Phase

This phase is the beginning of the emergence of a response to internal and external stimuli. Trigger events (such as rejection, criticism, or threats) trigger

feelings of anger, stress, or anxiety. At this stage, the clinical manifestations that appear tend to be non-verbal and early, such as:

1) Facial changes (tense, jealous, or moody).
2) Fidgeting, pacing, or squeezing your hands.
3) Changes in tone of voice that start to get higher or tighter.

2. Eskalasi Phase

If the triggers in the first phase are not addressed with adequate coping mechanisms, the individual's response will move towards a loss of self-control. The escalation phase shows increasingly obvious signs of anger, including:

1) Physical Response: Red face, sharp vision, hunting breath, increased pulse rate, and tense muscles.
2) Cognitive/Behavioral Response: Starts yelling, verbally threatening, refuses to communicate, or demands aggressively.

3. Crisis Phase

The crisis phase is the culmination of a cycle of violent behavior. At this stage, the individual has completely lost control over himself (*loss of control*). Verbal approaches are often no longer effective because the individual's cognitive function is drastically reduced due to emotional overflow. The behaviors that appear are destructive, such as:

1) Committing acts of physical violence (hitting, kicking, scratching).

2) Damaging objects around (*vandalism*).

3) Endangering the safety of oneself, others, or the environment.

4. Recovery Phase

After reaching a peak in the crisis phase, the individual's energy begins to decline and slowly returns to normal consciousness. During the recovery phase, the individual begins to calm down, but is still emotionally unstable. Visible signs include:

1) Physical tension begins to decrease (breathing and pulse slow down).

2) Individuals begin to be able to listen to verbal directions from others.

3) There is still a risk of further escalation if a new trigger stimulus enters.

5. Depression/Post-Crisis Phase

This last phase is characterized by a drastic decrease in energy (the depression phase). The individual's full consciousness has returned, and they begin to realize the consequences of the violent act that has just been committed. Common responses in this phase are:

1) Feelings of guilt, shame, regret, or crying.

2) Individuals tend to withdraw or apologize.

3) Extreme physical fatigue due to energy depleted during the crisis phase.

**2.2.7 Coping Mechanism**

The coping mechanism is a strategy or action taken by individuals to overcome, manage, and respond to the stressors they are facing. In the context

of psychiatric nursing, nurses have a crucial role in providing education about adaptive coping management. The goal is for the patient to be able to divert his angry emotions through assertive expressions.

When faced with an outburst of anger, individuals often use an ego defense mechanism. According to Sutejo (2019), there are several commonly used forms of ego defense, including displacement, sublimation, projection, repression, and formation reactions.

Based on the literature from Maryam (2017), the classification and explanation of the coping mechanism are as follows:

1) Displacement: This mechanism occurs when an individual transfers his negative emotions or anger from the original object to a substitute target (an object or other person) who is considered weaker and does not threaten him.

2) Sublimation: It is the most mature and positive form of coping. Individuals transform their anger impulses into productive, creative, or social activities that are beneficial and acceptable to the environment. This action reflects a good level of emotional maturity because it does not harm the other party.

3) Projection: A defensive mechanism in which individuals refuse to acknowledge their own shortcomings or negative impulses, then delegate the blame to others. Others are made scapegoats for the failures or conflicts they experience.

4) Repression: A subconscious attempt to suppress and hide memories, bitter experiences, or situations that trigger deep anxiety out of consciousness, so that individuals only remember pleasant moments.

5) Formation Reaction: The behavioral response that an individual consciously shows is inversely proportional or opposite to the negative emotions that he actually feels in his heart.

Naturally, anger is a basic human response that has existed since birth and is generally closely related to situations that trigger frustration. Within reasonable limits, anger is not a completely negative phenomenon. However, these emotions will turn destructive and pathological if expressed excessively at high intensity, so there is a risk of causing danger and damage to oneself and the surrounding environment.

## 2.3 Progressive Muscle Relaxation Therapy Concept

### 2.3.1 Definition of Progressive Muscle Relaxation

Progressive muscle relaxation (PMR) is a non-pharmacological therapy that aims to help individuals control emotions, reduce muscle tension, and reduce excessive anger responses. This therapy was first developed by Dr. Edmund Jacobson in the early 20th century. Progressive muscle relaxation is done by gradually tensing and relaxing certain muscle groups, accompanied by deep breathing exercises, so that the body becomes more relaxed. This technique does not require imagination, suggestions, or special tools, so it is easy to apply with the guidance of health workers (Muhammad Khir et al., 2024; Centre for Clinical Interventions, 2018). Through these exercises, patients can recognize the difference between tense and relaxed muscle states,

so they are better able to control the body's response when experiencing anger, offended, or emotional tension. Thus, progressive muscle relaxation can be used as a nursing intervention to help patients control emotions and prevent the escalation of anger into violent behavior (Khoirunnisa et al., 2025).

### 2.3.2 Objectives of Progressive Muscle Relaxation Therapy

*Progressive Muscle Relaxation* (PMR) is a non-pharmacological nursing therapeutic modality that focuses on alternately tightening and loosening the muscles to achieve a state of deep relaxation. In schizophrenic patients with Risk of Violent Behavior (RVB) nursing problems, this therapy is implemented with the following specific objectives (Khoirunnisa et al., 2025):

a. Lowering Physiological Tension (Neurobiological Response)

When the patient experiences angry emotions or is in an escalation phase of violent behavior, the sympathetic nervous system will be overactive, causing the muscles to tense, pulse rate to increase, and breathing to hunt. The main goal of PMR is to stimulate the work of the parasympathetic nervous system to decrease the production of stress hormones (such as cortisol and adrenaline). This has implications for:

- Lowers the tension of the body's muscles that are stiff when angry.
- Stabilizes blood pressure, pulse rate, and respiratory rate to become more regular (Purwasih et al., 2023; Sapra et al., 2023).

b. Increase Self-Control Against Aggressive Urges

Schizophrenia patients often have difficulty processing information due to impaired cognitive function, making them prone to impulsively respond to stressors through destructive actions. PMR aims to train the patient's body *awareness*. By recognizing the difference between tense muscle states (when angry) and relaxed muscles, patients are taught to consciously stop aggression impulses before entering a crisis phase (loss of self-control) (Sovianti et al., 2024).

c. Provides Calming Effect (Reduces Anxiety and Hallucinations)

A relaxed physical condition after PMR will send a signal to the brain (limbic system) that the body is safe. The psychological goals of this process are:

- Reduces the level of deep *anxiety* that is often the main trigger for schizophrenic patients' anger.
- Helps calm the patient's mind, which can indirectly decrease cognitive distortion or maladaptive responses to psychotic symptoms such as auditory hallucinations of a provocative nature (Muhammad Khir et al., 2024).

d. Improve the Quality of Sleep and Rest

One of the triggers for the increase in violent behavior in schizophrenic patients in the community is sleep pattern disorders or insomnia. Physical fatigue due to lack of sleep makes the patient's emotions very unstable. PMR aims to trigger the release of endorphins that make it easier for patients to

enter the deep *sleep phase*, so that their emotional stability during the day can be better maintained (Stuerz et al., 2022).

e. As an Independent Adaptive Coping Strategy in the Community

In the context of long-term care at the Health Center level, the ultimate goal of the implementation of PMR is patient independence. This therapy aims to provide patients with practical, inexpensive, and independent coping skills at home without full dependence on health workers, in order to prevent the *recurrence* of violent behavior in the family and community environment.

### 2.3.3 Benefits Progressive Muscle Relaxation Therapy

In general, the application of PMR therapy provides a continuous double advantage between the somatic (body) and psychic (psychic) aspects. According to various trusted psychiatric nursing research, the benefits of PMR for schizophrenic patients with Risk of Violent Behavior problems can be classified as follows:

a. Physiological (Physical) Benefits

Anger is always followed by a violent somatic reaction due to the overactivity of the sympathetic nervous system. Regular PMR interventions have a clinical impact on the patient's body in the form of:

1) Relaxes Sclelet Muscles: Lowers tension in large muscles (such as neck, shoulder, back, and chest muscles) that usually tighten involuntarily (out of control) when the patient feels threatened or upset.

2) Stabilizes Vital Signs: Helps lower blood pressure, stabilizes pulse rate, and slows down the hunting rate of breathing (*hyperventilation*) when the patient's emotions begin to escalate.

3) Lowers Stress Hormones: Suppresses the secretion of the hormones adrenaline, noradrenaline, and cortisol in the blood, so that the body switches from *fight-or-flight* mode to relaxed mode.

4) Improves Sleep Quality: Helps overcome sleep disorders (insomnia) in schizophrenia patients by stimulating brain waves to a deep relaxation phase, so that the resting needs of brain cells are met (Purwasih et al., 2023).

b. Psychological and Behavioral Benefits

The effects of physical calmness resulting from muscle relaxation and relaxation exercises directly affect the psychological state of schizophrenic patients, including:

1) Reduces the Intensity of Angry Behavior: Patients become calmer and less easily offended by trivial stimuli. Sloping psychological tension makes the patient's tolerance threshold for stress higher.

2) Preventing Violent Behavior Crises: With decreased tension, schizophrenic patients can be prevented from falling into a crisis phase (a phase in which the patient engages in a physical rampage, injures others, or damages the environment).

3) Improves Cognitive Function and Self-Control: A relaxed state helps to clear the patient's thought process that was previously distorted by symptoms of schizophrenia or anger. This provides space for the patient to think clearly and consciously control his aggressive impulses.

4) Helps Divert Focus from Hallucinations: In schizophrenia patients who experience provocative auditory hallucinations (telling to hit or get angry), structured motor movements in PMR can serve as an effective diversion (*distraction*) technique to break the chain of responses to such hallucinations.

5) Increasing *Self-Efficacy*: Giving patients the confidence that they have complete control over their own bodies and emotions through methods that they can practice independently in the community (Ramadita & Putra, 2025; Pratama et al., 2024).

### 2.3.4 Mechanism of Action of Progressive Muscle Relaxation Therapy

The mechanism of action of PMR in controlling angry behavior and the risk of violent behavior (RVB) in schizophrenia patients is based on the reciprocal relationship between the central nervous system, the autonomic nervous system, and the musculoskeletal (muscle) system. Physiologically, the mechanism is described as follows:

a. Stress Response Pathway Termination (Fight-or-Flight)

When a schizophrenic patient experiences angry emotions or feels threatened, the amygdala (the emotional center in the brain) sends a danger signal to the hypothalamus. The hypothalamus then activates the Sympathetic

Nervous System, which triggers the release of stress hormones (cortisol and adrenaline). As a result, there is extreme muscle tension, increased pulse, and hunting breathing.

Through the PMR technique, which is to deliberately strain the muscles and then relax them, the body sends a feedback signal to the brain that the threat has passed. This process stimulates the Parasympathetic Nervous System to work dominantly, resulting in a relaxation response (Tanriverdi, 2022; Stahl, 2021).

b. Gate *Control* Theory and Neurotransmitter Regulation

Muscle tightening and relaxation movements consciously and repeatedly stimulate sensory receptors (mechanoreceptors) in muscles, tendons, and joints. This structured physical stimulus dominates the spinal nerve pathways leading to the brain, thereby blocking or diverting anxiety and anger signals in the brain.

Biochemically, this relaxation response triggers the pituitary to release endorphins (natural sedative neurotransmitters) and increases levels of serotonin and GABA (gamma-aminobutyric acid) in the brain. This increase in neurotransmitters decreases the sensitivity of the amygdala, so the patient's anger threshold increases and the impulsive response of aggression can be muted (Stahl, 2021).

c. Restoration of Cognitive Function through Physical Biofeedback

Schizophrenia patients often experience distortions of thoughts (hallucinations or delusions) that trigger anger. PMR works indirectly as a

somatic distraction technique. The patient's focus of attention is forced to shift from provoking thoughts to the physical sensations of his own body (feeling the difference between tense and relaxed). When physical tension decreases, the supply of oxygen and blood to the cerebral cortex (the logical control center) increases, so that the patient regains consciousness and *self-control* before his anger turns violent (Muhammad Khir et al., 2024).

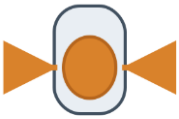
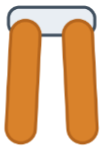
### 2.3.5 Steps of Progressive Muscle Relaxation Techniques

Before starting, the patient is positioned as comfortably as possible (sitting on your back or lying down) in a quiet environment, loosening tight clothing, and taking a few breaths. In each muscle group, the patient inhales while tensing the muscles for approximately 5–7 seconds, then exhales while releasing tension and feels a relaxed sensation for 10–30 seconds. The entire series generally lasts 15–20 minutes and can be repeated as needed (University of Wisconsin Integrative Health, 2016; Cleveland Clinic, 2022). Here are fourteen progressive muscle relaxation movements:

Table 2. 1 Steps of Progressive Muscle Relaxation Techniques

| No | Illustration | Movements and How to Do It |
|---|---|---|
| 1 |  | **Hands.** Clash both palms as hard as you can until you feel tight on your hands and fingers, hold them down, then release them and let them loosen. |

| No | Illustration | Movements and How to Do It |
|---|---|---|
| 2 |  | **Upper arm (bicep).** Bend both elbows and tighten the muscles of the upper arm like a muscle-flexing motion, hold on, then straighten your arms and relax. |
| 3 |  | **forearm (triceps).** Straighten both arms forward and tighten the muscles of the back of the upper arm, hold them down, and then release. |
| 4 |  | **Shoulders.** Lift both shoulders toward the ears as high as possible, hold them, then lower them back and feel the shoulders loosen. |
| 5 |  | **Forehead.** Raise your eyebrows as high as possible until your forehead is wrinkled, hold it, and then loosen it until your forehead feels smooth. |
| 6 |  | **Eyes.** Close your eyes as tightly as you can, hold them, and then relax your eyelids slowly. |
| 7 |  | **Jaws.** Close your teeth and tighten your jaw muscles, hold them down, then relax them until your mouth opens slightly. |

| No | Illustration | Movements and How to Do It |
|---|---|---|
| 8 |  | **Mouth and cheeks.** Pull the corners of the lips to the sides to form a smile as wide as possible, hold it, then relax the facial muscles. |
| 9 |  | **Neck.** Lower your chin to touch your chest, hold it; then on the next breath lower your head. Do it carefully and slowly. |
| 10 |  | **Back.** Arch your back away from the backrest while tightening your back muscles, hold it, then lean back and relax. Be careful if there are back complaints. |
| 11 |  | **Stomach.** Tighten your abdominal muscles as if resisting the impact, hold them, then release them and feel your stomach relax. |
| 12 |  | **Buttocks.** Tighten your butt muscles, hold them, and then relax. |
| 13 |  | **Perhaps.** Tighten the muscles of both thighs, hold them, and then relax. |

| No | Illustration | Movements and How to Do It |
|---|---|---|
| 14 |  | **Legs and calves.** Pull your toes towards your body while tightening your calf muscles, hold them, and then relax. Be careful not to cramp. |

### 2.3.6 Application of Progressive Muscle Relaxation Therapy

Progressive muscle relaxation should be performed in a calm and comfortable environment, with the patient lying or lying down. Each muscle group is tense for 5–7 seconds and relaxed for 10–30 seconds, with a total time of 15–20 minutes per session, and it is recommended to train regularly so that the patient is more skilled at recognizing and releasing tension (University of Wisconsin Integrative Health, 2016). In the context of patients at risk of violent behavior, Sovianti et al. (2024) applied progressive muscle relaxation for four days with a duration of 30 minutes and found a decrease in signs and symptoms of Risk of Violent Behavior.

Several things need to be considered during application: muscle tension should not cause pain, movements in the neck and back should be done slowly and carefully, especially if there is a history of injury, and exercises should not be done immediately after a large meal (CCI Health WA, 2018; University of Wisconsin Integrative Health, 2016).

In patients with communication limitations, the delivery of therapy needs to be adapted. Lengthy verbal instruction is replaced by demonstration or modeling of movements, direct physical guidance, and gradual repetition. The involvement of the family as a training companion can help the patient

continue the exercise independently between visits. The evaluation of therapy success also emphasizes observations of behavior and physiological parameters (such as blood pressure, pulse rate, and respiratory rate), rather than verbal reports from patients.

## 2.4 Adaptive Approach Concept

### 2.4.1 Definition of Adaptive Approach

The adaptive approach in nursing can be interpreted as a way of providing care that is tailored to the patient's actual capacity to receive, understand, and respond to an intervention, rather than by generalizing all patients to one standard procedure. This approach places the patient's real ability, rather than general assumptions about the patient in general, as the basis for determining how the intervention is delivered, so that the modifications made are aimed at the delivery method, not at the substance or therapeutic purpose of the intervention itself (McCance & McCormack, 2025). Thus, the adaptive approach differs from the simplification of therapy; The same intervention can still be given in its entirety, only that the delivery path is adjusted, for example from verbal instruction to visual demonstration or direct physical guidance.

In the context of patients with severe mental disorders such as schizophrenia, the need for an adaptive approach becomes more pronounced when patients show negative symptoms in the form of speech poverty (alogia) and psychomotor slowdown, which makes them unable to always follow long verbal instructions or report their subjective responses consistently (Hany et al., 2024). In these conditions, the success of a non-pharmacological intervention no longer depends entirely on the patient's adherence to the instructions, but also on the ability of the

nurse to modify the delivery method so that it can still be understood and followed by the patient.

### 2.4.2 Theories of Person-Centerd Practice

The theoretical basis of the adaptive approach in this study is sourced from the Person-Centerd Practice Framework (PCPF) developed by McCormack and McCance (2017). The framework consists of four interrelated domains, namely prerequisites (nurses' professional attributes and competencies), the care environment (organizational systems and supportive team relationships), individual-centered processes (how nurses build relationships and provide care), and individual-centered outcomes (participation in decision-making, sense of well-being, and quality of life) (McCormack & McCance, 2017). These four domains influence each other in stages, where the competence and attitude of the nurse are prerequisites for forming a conducive care environment, which ultimately allows the individual-centered care process to take place and produce meaningful outcomes for the patient (Andersson et al., 2023).

At the heart of person-centered practice is the recognition of the patient as a whole individual, with his or her own capacity, values, and way of responding to the world around him, not just a person with a diagnosis who must undergo a standard procedure (McCance & McCormack, 2025). This principle underlies the shift in the way interventions are delivered: when patients are unable to respond consistently to complex verbal instructions, nurses applying person-centerd practices will adjust the delivery method, for example through direct physical guidance and gradual repetition, without changing the therapeutic essence or purpose of the intervention.

### 2.4.3 Adaptive Approach in Patients with Negative Symptoms of Schizophrenia

Negative symptoms of schizophrenia, which include alogia (speech poverty), avolisi, and psychomotor slowdown, cause patients to often have difficulty initiating, maintaining, or actively responding to verbal communication (Hany et al., 2024). This condition has a direct impact on the effectiveness of nonpharmacological interventions, which are generally designed assuming that the patient is able to understand oral instructions, follow the stages independently, and report their own responses. A systematic review of psychosocial therapy on negative symptoms of schizophrenia showed that interventions that combined structured behavioral training with hands-on guidance consistently provided better outcomes than interventions that relied entirely on verbal instruction as well as patient self-reporting (Hong et al., 2025).

Some common forms of adjustment applied to patients with limited verbal responses include:

1) Demonstration, which is directly showing the movements or stages that must be carried out as a substitute for a long oral explanation;
2) Physical guidance, where the nurse directly directs the patient's body position or movement in the early stages of the exercise;
3) Gradual repetition, which is repeating each stage of the exercise consistently in several sessions until the patient is familiar with the sequence of movements; and
4) The instructions are simple, which is to use short, concrete sentences, and one command at a time.

This kind of approach has been applied to populations with cognitive and verbal communication limitations outside the context of schizophrenia, for example in the elderly with mild cognitive impairment undergoing relaxation programs; the results showed that the modification of the way of delivery did not reduce the effectiveness of the therapy, even increasing the patient's involvement in the exercise compared to standard verbal instructions (Stuerz et al., 2022).

### 2.4.4 Relevance of Adaptive Approaches in PMR

Progressive muscle relaxation (PMR) is essentially a gradual motor exercise that can be learned through observation and repetition, so that it is conceptually open to delivery without relying entirely on verbal instructions. A systematic review of the effectiveness of PMR emphasizes that the success of this therapy is greatly influenced by the consistency and clarity of the way the stages of muscle tension are delivered, not by the complexity of the instructions provided (Muhammad Khir et al., 2024). This means that replacing lengthy verbal instructions with demonstrations and physical guidance will not reduce the physiological effects of PMR, as what determines the success of therapy is the patient's accuracy in following the sequence of muscle group tensions, not his understanding of the sentence of the instructions.

In the case of patients with speech poverty and response slowdown such as Mrs. S, the relevance of the adaptive approach in PMR lies in its conformity with the principle of person-centerd practice: the way of delivery of therapy is adapted to the patient's actual capacity to respond to instructions, while the substance of muscle tension exercises and breathing regulation is maintained according to the protocol (McCormack & McCance, 2017). By replacing lengthy verbal instruction

with gradual demonstrations, physical guidance on initial repetitions, and simple instructions that are repeated consistently, PMR can still be given in its entirety to patients with limited verbal responses, while opening up opportunities for family involvement as companions that reinforce the process of physical guidance and repetition at home.

## 2.5 The Concept of Family Involvement

### 2.5.1 Definition of Family in Psychiatric Nursing

In psychiatric nursing, the family is understood not only as the patient's closest social unit, but also the main support system that determines the continuity of care, especially after the patient returns to the home and community environment (Pentariputri et al, 2021). Family support itself can be interpreted as the attitudes, behaviors, and concrete actions that family members give to other sick members, which are generally divided into emotional support (attention and comfort), informational support (guidance and direction), and instrumental support (practical and real help). These three forms of support complement each other and become the basis for families to play an active, not just passive, role in the recovery process of patients with mental disorders.

In patients with severe mental disorders such as schizophrenia, the role of the family becomes more complex due to the chronic nature of the disease and the need for long-term assistance. Families are required not only to fulfill daily emotional and instrumental support, but also to understand and be involved in the implementation of nursing interventions provided to patients at home (Pentariputri et al, 2021).

### 2.5.2 The Role of the Family in Schizophrenic Patients

The family has a central role in the course of schizophrenia, from recognizing signs of recurrence, medical assistance, to creating a home environment that supports recovery. A systematic review and meta-analysis of family interventions in schizophrenia showed that active family involvement consistently lowered the risk of recurrence and readmission compared to standard patient-focused care (Rodolico et al., 2022). These findings confirm that the family is not just a passive companion, but an active component that helps determine the success of long-term therapy.

On the other hand, this role also carries its own burden for the family. A systematic review of the determinants of the burden of care in families of schizophrenic patients found that the length of the duration of care, the level of patient dependence, and the stigma attached to the family all influenced the amount of burden felt. This shows that the involvement of families in nursing care needs to be accompanied by adequate support and debriefing from health workers, so that families are able to carry out their roles without experiencing excessive burden.

### 2.5.3 Family Support in Risk Control of Violent Behavior

In addition to playing a role in the prevention of relapse in general, family involvement has also been shown to be relevant in controlling the risk of violent behavior in schizophrenia patients. An experimental study in schizophrenic patients showed that psychoeducation based on cognitive behavioral therapy, which involves the family as part of the educational process, significantly lowered patients' aggressiveness levels compared to groups that received only standard care (Can & Boys, 2025). This decrease is related to the increased understanding of the

family's understanding of the pattern of the patient's signs of anger, so that the family can respond more appropriately and not worsen the situation when risk signs of violent behavior begin to appear.

Similar is reinforced by the findings that family psychoeducation in patients with psychosis not only improves medication adherence, but also contributes to a decrease in stress levels within the family and an improvement in communication patterns between patients and family members (Iuso et al., 2023). This calmer and more supportive communication pattern is important in the context of the risk of violent behavior, as environmental stimuli perceived to be threatening by the patient often stem from inappropriate interactions within the household itself. Thus, a trained and actively involved family serves as the first layer of prevention of the escalation of violent behavior, before the patient's condition requires crisis handling in a health facility.

### 2.5.4 Family as a Therapy Companion

The relevance of family involvement becomes even more evident when the intervention given, in this case progressive muscle relaxation (PMR), must be delivered to patients with speech poverty and slowing responses such as Mrs. S. In these conditions, the evaluation of the success of therapy cannot be fully relied on the subjective reporting of the patient, so it is necessary to have another party who is consistently with the patient and can observe behavioral changes over time. The family, as the party who most often interacts with patients at home, is in the right position to carry out this observation and reporting function.

The family's position as a therapeutic companion is also in line with the principle of person-centered practice which emphasizes the importance of involving significant others around the patient in building a complete therapeutic relationship, not just between the nurse and the patient in a dyadic manner (McCance & McCormack, 2025). In practice, this involvement can be in the form of families observing PMR demonstrations, helping to direct the patient's body position at the initial reps, accompanying consistent repetition of exercises outside of scheduled sessions, and reporting changes in signs and symptoms of risk of violent behavior observed at home to health workers. This kind of mentoring pattern has been shown to be effective in populations with limited verbal communication in structured relaxation programs, where the involvement of the facilitator during practice helps maintain consistency in the implementation of therapy even though patients are not always able to report their own verbal responses (Stuerz et al., 2022). Thus, the family's involvement in this study is not positioned as a complement, but rather as an integral part that bridges the limitations of Mrs. S's verbal response during the implementation and evaluation of PMR.

## 2.6 Procedure for Implementing Progressive Muscle Relaxation Therapy with Adaptive Approach and Family Involvement

### 2.6.1 Basic Principles of Implementation

The implementation of progressive muscle relaxation (PMR) in schizophrenic patients at risk of violent behavior accompanied by speech poverty and delayed response cannot fully rely on lengthy verbal instructions or patient self-reporting. Therefore, the implementation procedure in this study is prepared by integrating three components simultaneously, namely the standard protocol of fourteen movements PMR, an adaptive approach based on *person-centered*

*practice*, and family involvement as a companion as well as a therapist. These three components do not stand alone, but rather complement each other: protocols ensure the therapeutic substance remains intact, adaptive approaches adapt the way of delivery to the patient's capacity, while family involvement maintains the consistency and sustainability of practice outside of researcher-led sessions (McCormack & McCance, 2017).

A systematic review of nursing strategies in implementing psychosocial interventions for violent behavior in schizophrenia confirms that the success of nonpharmacological interventions is largely determined by the consistency of the application of techniques, periodic monitoring of progress, and adaptation of therapy according to the patient's individual response (Yosep et al., 2025). This principle is in line with the finding that the effectiveness of PMR is determined more by the accuracy and clarity of the sequence of muscle tension rather than the complexity of the verbal instructions given (Muhammad Khir et al., 2024). Thus, the modification of the way of delivery from verbal instruction to physical demonstration and guidance, as well as the transfer of part of the performance role to the family, conceptually does not reduce the physiological effect of therapy as long as the sequence and duration of muscle tension is maintained according to the protocol.

### 2.6.2 Stages of Implementation

In general, the implementation of adaptive PMR with family involvement is divided into four stages, namely the preparation stage, the orientation stage, the work stage, and the termination stage. At each stage, adaptive modifications and family roles are explicitly integrated.

a. Preparation Stage

1) Prepare a quiet, distraction-free environment with comfortable lighting and temperature, and prepare a reclining chair or a safe reclining place for patients.

2) Ensure patients are in stable condition, not in a phase of acute crisis or agitation, and not have recently completed a large meal (CCI Health WA, 2018; University of Wisconsin Integrative Health, 2016).

3) Provide brief education to families about the goals, benefits, sequence of movements, and the role of the family as companions and implementers of therapy. Family education in this early stage is important because family involvement equipped with adequate understanding has been proven to reduce patient aggressiveness and improve communication patterns at home (Iuso et al., 2023).

4) Prepare an observation sheet for signs and symptoms of Risk of Violent Behavior as well as a monitoring sheet for vital signs (blood pressure, pulse rate, and respiratory rate) as an evaluation instrument, considering that the success of therapy is assessed through behavioral observations and physiological parameters, not the patient's verbal reports (Stuerz et al., 2022).

b. Onboarding Stage

1) Foster a relationship of mutual trust with patients and families through warm but non-threatening greetings, introductions, and contact.

2) Explain time contracts (15–20 minutes per session), places, and activities using short, concrete sentences, and one command at a time as a form of simple, adaptive instruction (Hong et al., 2025).
3) Position the patient as comfortably as possible, loosen tight clothing, and guide the patient to take a few breaths to set up an initial relaxation state.

c. Work Stage

In the work stage, fourteen PMR movements are performed sequentially from hand to foot, with a pattern of tightening the muscles for 5–7 seconds with the exhale, then relaxing for 10–30 seconds with the exhale. In patients with limited verbal responses, each movement is conveyed through the following adaptive modifications:

1) Demonstration: the researcher or family directly demonstrates each movement in advance as a substitute for a long oral explanation, so that the patient can imitate through observation.
2) Physical guidance: in the initial repetition, the patient's body position or movements are directed directly and gently, especially on muscle groups that are difficult to start on their own.
3) Simple instructions: use one keyword or cue for each stage, e.g. "tense... Hold on... Detached".
4) Gradual repetition: each stage is repeated consistently across sessions until the patient is familiar with the sequence of movements. A demonstration approach and physical guidance combined with structured behavioral training

consistently yielded better results than interventions that relied entirely on verbal instruction (Hong et al., 2025).

During the work phase, the family is by the patient's side to observe the demonstration, help orient the body position in the initial rep, and provide calming positive reinforcement. This kind of direct involvement places the family as an integral part of the therapeutic relationship, not just a spectator (McCance & McCormack, 2025).

**d. Termination and Evaluation Stage**

1) Guide the patient back to normal slowly and give appreciation for his or her participation, and agree on the time of the next session.
2) Evaluate the patient's response through behavioral observations (facial expressions, muscle tension, posture, tone of speech) and measurement of vital signs before and after the session, rather than through subjective patient reports.
3) Asking families to report changes in the client's angry response observed at home, so that the family performs observation and reporting functions that the patient cannot verbally fulfill (Stuerz et al., 2022).

### 2.6.3 The Role of the Family in the Implementation of Therapy

In this model, the family performs four main interrelated functions:

a. Therapy implementer: guide the patient to perform 14 PMR movements in the session that is their turn, according to the order and duration that the researcher has demonstrated.

b. Physical guidance companion: helps direct the patient's body position at the initial rep and provides simple cues when the patient has difficulty initiating movements.

c. Observer and reporter: record and report changes in signs and risk symptoms of violent behavior observed at home to healthcare workers, bridging the limitations of the patient's verbal response.

d. Sustainability guard: accompany consistent repetition of exercises outside of scheduled sessions, so that therapy continues between visits and after the study ends.

The involvement of the family as an implementer, not just a companion, is in line with the principle *of person-centerd practice* that emphasizes the involvement of *significant others* in building intact therapeutic relationships, as well as being the first layer of prevention of escalation of violent behavior before the patient's condition requires crisis management in a health facility (McCance & McCormack, 2025)