CHAPTER III

RESEARCH METHODS

3.1 Research Design

This Final Scientific Paper uses a case study research design. Case studies are a research approach that is carried out through intensive and in-depth studies of a specific individual, family, group, community, or institution with clear case limitations. This approach utilizes various sources of information to obtain a comprehensive picture of the phenomenon or problem being studied (Hermanto et al., 2020).

In this scientific paper, a case study was used to explore in depth the process of implementing progressive muscle relaxation with an adaptive approach and family involvement in Mrs. S who experienced schizophrenia with a risk of violent behavior in the work area of the Bantur Health Center, Malang Regency, as well as identify the changes that occurred during the implementation of the intervention.

3.2. Location, Time and Place

The research on the Implementation of *Progressive Muscle Relaxation* in Schizophrenia Patients with Nursing Problems at Risk of Violent Behavior was carried out at the Bantur Health Center, precisely in the area of Srigonco Village, Bantur District, Malang Regency. The psychiatric nursing care process, which focuses on providing muscle relaxation physical exercise interventions, is carried out intensively and continuously, with a scheduled implementation time span from May 11 - 17, 2026.

3.3 Research Subjects

The subjects in this study are Mrs. S, a patient with a medical diagnosis of schizophrenia and major nursing problems Risk of violent behavior in the work area of the Bantur Health Center with the following inclusion and exclusion criteria:

a. **Inclusion Criteria**:

1. Age 18–60 years old
2. Diagnosed with active schizophrenia in the work area of the Bantur Health Center
3. Showing observable RVB signs/symptoms
4. Not in the severe acute psychotic phase (can take part in PMR with assistance)
5. Domiciled in the work area of the Bantur Health Center
6. Family willing to actively accompany

b. Exclusion Criteria:

1. Severe acute psychotic phase/active aggression requiring restraint
2. Musculoskeletal disorders that block PMR movement
3. Decreased consciousness or acute medical condition
4. No family companion

1.4 Operational Definition

3.4.1 Study Focus

The focus of the study in this study is the implementation of Progressive Muscle Relaxation (PMR) with an adaptive approach and family involvement in Mrs. S who experiences schizophrenia with a risk of violent behavior. Observations were focused on changes in the anger response of patients who were in the

aggressive response range, the patient's ability to follow progressive muscle relaxation therapy, family involvement in the implementation of therapy, and changes in physiological parameters in the form of blood pressure, pulse rate, and respiratory rate before and after the implementation of therapy.

3.4.2 Operational Definition

Operational definition is the elaboration of the variables or focuses that are researched into a form that can be observed and measured in real terms in the field. The preparation of operational definitions aims to simplify the process of collecting, processing, and analyzing research data. At the data collection stage, operational definitions become guidelines in the preparation and development of research instruments. Meanwhile, at the stage of data processing and analysis, operational definitions help researchers obtain data that has been measured clearly so that it is easier to interpret and analyze (Masturoh, 2018). The focus of the study and the operational definition in this study are presented in the following table:

Table 3. 1 Study Focus and Operational Definition

Study Focus	Operational Definition	Parameter	Tools and instruments
Progressive Muscle Relaxation Therapy with an Adaptive Approach	Nursing actions in the form of tense (5–7 seconds) and relaxing (10–30 seconds) exercises of 14 muscle groups are gradually accompanied by deep breaths, the delivery of which is modified (demonstration, physical guidance, simple instructions, gradual repetition) according to the client's capacity, given 7 days (11–17 May 2026), duration (±15–20 minutes) per session.	1. Able to recognize triggers/causes of anger. 2. Able to recognize the first signs of anger. 3. Able to follow and perform a series of PMR movements correctly. 4. Able to use PMR independently when the first signs of anger appear. 5. Shows a shift in anger response from maladaptive to adaptive.	Developmental evaluation sheet Progressive muscle relaxation techniques

Study Focus	Operational Definition	Parameter	Tools and instruments
Family Involvement	The client's younger brother participated as a companion and therapist after receiving education and demonstrations. Families who were willing to lead PMR sessions alternately with the researcher (3 family sessions among the 4 researcher sessions), as well as observe and report the client's angry response at home.	The ability of the family to lead the PMR correctly; the activeness of mentoring; accuracy of reporting patient conditions.	Family Monitoring Sheet; Family Ability Observation Sheet in the Implementation of PMR
Risk of Violent Behavior	The client's condition that has the potential to endanger themselves, others, or the environment, is assessed from the range of angry responses before and after the administration of PMR.	Aggressiveness score (verbal aggression, aggression towards objects, aggression towards oneself, physical aggression towards others). Each domain is scored 0–4 based on the severity of the behavior that emerges 1) Score 1 mild 2) Score 2 moderate aggression 3) Score 3 moderate 4) The score of 4 aggression issevere. The score of each domain is then multiplied by the weight of each, i.e. 1) Verbal aggression (Severity 0-4) ×1 2) Aggression against objects (Severity 0-4) ×2 3) Aggression against oneself (Severity 0-4) ×3 4) Aggression towards others (Severity 0-4)×4	MOAS (Modified Overt Aggression Scale), Physiological Parameter Monitoring Sheet, Family monitoring sheet

3.5 Data Collection

Data collection carried out in this study includes:

3.5.1 Interviews

Interviews are a data collection technique through a structured and in-depth oral question and answer process to find clinical problems and find out the condition of the respondents more comprehensively (Sugiyono, 2017). The interviews in this case study were aimed at exploring subjective data related to the mental health status of schizophrenia patients with the risk of violent behavior.

1) Primary Interview: Conducted directly through therapeutic communication with the patient to find out the feelings, reasons for anger, triggers for emotional overflow, and the history of perceived complaints.

2) Secondary Interview: Conducted with family members as the main caregiver at home to validate patient data, explore predisposing factors, precipitating factors, and coping mechanisms that patients usually show when in the home environment.

3.5.2 Observation and Physical Examination

Observation is a method of direct observation of patients' behavior, responses, and clinical conditions to obtain objective data on the nursing problems faced. Meanwhile, a physical examination is carried out to complete objective data based on the body's physiological response to the intervention given. In this case study, the methods used include:

1) Observation of Aggressive Behavior and Angry Response

Observation was carried out periodically before and after the implementation of Progressive Muscle Relaxation (PMR) therapy. Observations were made using the Modified Overt Aggression Scale (MOAS) instrument and a therapy development evaluation sheet. Researchers observed and scored on four domains of aggressive behavior, namely verbal aggression, aggression toward objects, aggression toward oneself, and aggression toward others (Kay et al., 1988).

In the MOAS instrument, each domain is scored 0–4 based on the severity of the behavior that occurred in the observation period, provided that a score of 0 indicates no aggressive behavior.

1) Score 1 mild
2) Score 2 moderate aggression
3) Score 3 moderate
4) The score of 4 aggression issevere.

The score of each domain is then multiplied by the weight of each, i.e.

1) Verbal aggression ×1
2) Aggression against objects ×2
3) Aggression against oneself ×3
4) Aggression towards others ×4

In accordance with the standard provisions of the MOAS instrument (Kay et al., 1988; Herrera-Pino et al., 2024). All weighted scores are summed to obtain a total MOAS score with a theoretical range of 0–40. The total MOAS score in this study was used mainly to see changes (downward or increasing trends) between

measurements before and after the implementation of PMR, in accordance with the basic purpose of this instrument as a tool for monitoring changes in aggressiveness over time (Kay et al., 1988).

2) Physical Examination

The physical examination was carried out by measuring the vital signs of the case study subjects which included blood pressure, pulse rate, and respiratory rate. Examinations were conducted before and after the implementation of progressive muscle relaxation therapy to evaluate changes in physiological responses related to decreased activation of the sympathetic nervous system and increased body relaxation response after the implementation of therapy (Tanriverdi, 2022).

The interpretation of physiological parameters refers to the normal range of adults as follows:

1) Systolic normal blood pressure 90–120 mmHg and diastolic 60–80 mmHg, normal pulse rate 60–100 beats/minute,
2) Normal respiratory rate is 12–20 breath/minute (Sapra et al., 2023).

The success of therapy is supported by a tendency to decrease or stabilize blood pressure, pulse rate, and respiratory rate after the implementation of progressive muscle relaxation compared to pre-intervention conditions.

3.5.3 Documentation Studies

Documentation study is a data collection technique by examining records, documents, or written archives from trusted sources related to the condition of the research subject (Sugiyono, 2017). In this study, the

documentation study used was in the form of patient medical records to determine the client's diagnosis and the treatment received by the client.

3.5.4 Stages of Data Collection

The steps for data collection are as follows:

1) Preparation Stage

a. Prepare interview guidelines, observation sheets, and research instruments.
b. Ask permission from the Head of the Bantur Health Center regarding the case study to be conducted.
c. Taking data on mental patients in the work area of the Bantur Health Center and determining the research subjects according to the inclusion criteria that have been set.
d. Provide explanations of the objectives, benefits, and procedures of the research to clients and families.
e. Performing time contracts and therapeutic communications to clients and families on behalf of Mrs. S.

2) Implementation Stage

a. Conducting an initial assessment through primary interviews with patients and secondary interviews with families to obtain subjective data related to anger triggers, predisposing factors, precipitating factors, and patient coping mechanisms.
b. Preliminary measurements (pre-test) were taken as baseline data using the Modified Overt Aggression Scale (MOAS) instrument and

examination of vital signs (blood pressure, pulse rate, and respiratory rate) before therapy was given.

c. Provide education and initial demonstration of PMR techniques to family members who will be mentors, namely the patient's younger brother. At this stage, the researcher demonstrated fourteen muscle tension movements, explaining the duration of tension (5–7 seconds) and relaxation (10–30 seconds), as well as adaptive delivery methods (demonstrations, physical guidance, simple instructions, and gradual repetition) that were adjusted to the limitations of the patient's verbal response, and then an evaluation of the family's understanding of progressive muscle relaxation techniques with an adaptive approach was carried out.

d. Prepare a calm and comfortable environment, PMR implementation observation sheets, family ability observation sheets, MOAS instruments, and vital signs monitoring sheets

e. The implementation of PMR will be carried out for seven consecutive days, namely on May 11–17, 2026, with a duration (±15–20 minutes) per session.

f. The implementation of therapy was carried out alternating between the researcher and the family, namely four sessions led by the researcher (days 1, 3, 5, and 7) and three sessions led by the family (days 2, 4, and 6) under the supervision of the researcher. The researcher's guidance is gradually lowered as the family's ability increases, towards family independence in guiding therapy.

g. In each session, patients were guided to perform fourteen PMR movements sequentially from the hand to leg muscles, with adaptive modifications in the form of live demonstrations, physical guidance on initial reps, simple instructions one command at a time, and gradual repetition.

h. In the family-led session, the patient's younger brother guided the course of therapy in the order that the researcher had demonstrated, while the researcher observed, corrected the accuracy of movement and duration, and assessed the family's ability through observation sheets.

i. The researcher observed the patient's behavior and anger response in each session to monitor the development of the patient's condition during the series of therapy.

3) Evaluation Stage

a. Perform the final measurement (post-test) using the MOAS instrument and check vital signs after the therapy series is completed, to compare with the results of the initial measurement.

b. Compare the total scores of MOAS before and after implementation to see the tendency to change in the patient's aggressiveness level, as well as observe the shift in the range of angry responses from maladaptive to more adaptive.

c. To evaluate patients' physiological responses based on the tendency of lowering or stabilizing blood pressure, pulse rate, and respiratory rate after therapy compared to pre-intervention conditions.

d. Evaluate the patient's ability to recognize anger triggers, recognize the initial signs of anger, perform a series of PMR movements correctly, and use PMR independently when the initial signs of anger appear.
e. Evaluate the family's ability to lead therapy independently and accurately report the patient's condition while at home.
f. All collected data is then documented and compiled for analysis according to the objectives of the case study.

3.6 Research Ethics

Any research in the health field involving human volunteers as subjects should be based on the following three ethical principles:

1. Respect for persons (other)

   This principle reflects respect for human dignity as an individual with the right to make decisions and be responsible for those decisions. It requires that the subject and their family understand the information given and decide voluntarily to participate (self-determination). In this study, the researcher explained the purpose, procedure, and duration of the PMR intervention to Mrs. S and her family before obtaining their consent. Mrs. S and her family were given full freedom to accept or refuse participation without any coercion, and were given the opportunity to ask questions about anything they did not understand before, during, and after the intervention (Saidin & Jailani, 2023) .

2. Beneficience and non-maleficence

   The ethical principle of doing good is related to the obligation to help others by maximizing benefits and minimizing losses. The involvement of human subjects in health research aims to support the achievement of relevant research

objectives to be applied to humans. The risks associated with the study must be (Shirley & Setyobroto , 2022) proportionate to the expected benefits;

a. Free from suffering

The PMR intervention was carried out gently, adjusted to Mrs. S's physical and psychological condition at each session. The researcher and family paid close attention to the patient's comfort, and the exercise was stopped or adjusted immediately if the patient showed signs of fatigue, resistance, or discomfort, so that the intervention did not cause physical or psychological harm.

b. Free from exploitation

All personal data and clinical information obtained from Mrs. S and her family during the study were kept strictly confidential and used only for the purposes of this case study, in order to protect the patient from stigma or any negative social consequences.

c. Risks

Because PMR is a low-risk, noninvasive relaxation technique, the researcher ensured that each movement given through demonstration and physical guidance was appropriate to the patient's condition. The researcher and family remained present throughout each session to monitor the patient's response and to anticipate any unexpected reactions during the exercise.

3. Principles of justice ethics

This principle emphasizes the obligation to treat the subject fairly, without discrimination, and to distribute the burdens and benefits of participation equally.

In this study, Mrs. S and her family were treated respectfully and consistently throughout the entire research process, before, during, and after the intervention. No participant was treated differently based on their level of understanding or ability to follow instructions; the researcher took extra time to re-explain and demonstrate the PMR steps whenever Mrs. S or her family needed additional guidance (Shirley & Setyobroto , 2022).