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Analysis of Nursing Care in Schizophrenia Patients with Signs and Symptoms of Risk for Violent Behavior by Implementing Progressive Muscle Relaxation Therapy at Tampan Psychiatric Hospital

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ABSTRACT

Schizophrenia affects approximately 24 million people worldwide or about 1 in 300 individuals (0.32%). In Indonesia, the 2018 prevalence of schizophrenia reached 6.7 per 1,000 households, indicating that many families are affected by this mental disorder. Patients with schizophrenia who experience a risk of violent behavior often show symptoms such as impaired problem-solving ability, disorientation to time, place, and person, as well as restlessness. One non-pharmacological intervention that can help reduce the risk of violent behavior is Progressive Muscle Relaxation Therapy (PMRT).

This final scientific nursing paper aimed to analyze nursing care in schizophrenia patients with signs and symptoms of risk for violent behavior through the application of PMRT at Tampan Mental Hospital, Pekanbaru. This study used a nursing care approach involving two schizophrenia patients treated in the Manda 2 ward. PMRT was implemented routinely for seven consecutive days, with each session lasting 15–30 minutes.

The study applied a quasi-experimental pre-test and post-test design. The population consisted of 27 patients, while 18 respondents were selected using purposive sampling. However, PMRT intervention in this nursing case study was applied only to two respondents according to the implementation criteria. The results showed a significant reduction in violent behavior after regular PMRT sessions. The pre-test score indicated a high interpretation score of 86, while the post-test score decreased to 51, categorized as low interpretation.

The findings suggest that PMRT is effective in reducing the risk of violent behavior in schizophrenia patients and can be recommended as a non-pharmacological nursing intervention in mental health care.

INTRODUCTION

People with Mental Disorders (PMD) are individuals who experience disturbances in thoughts, behavior, and emotions manifested through a collection of symptoms or significant behavioral changes that cause distress and impair daily functioning. Mental health is a condition in which individuals are able to develop physically, mentally, spiritually, and socially, recognize their abilities, cope with life stressors, work productively, and contribute to their environment (1). Mental disorders remain a major global health problem due to their impact on individuals, families, and communities. According to the Annida (2), more than 430 million people worldwide experienced mental disorders. In Indonesia, the 2018 Basic Health Research (Riskesdas) reported 282,654 individuals with severe mental disorders, with

East Java having the highest prevalence at 5.4%, while Riau Province reached 4.3% with 6,792 cases. These findings indicate that mental disorders remain an important issue, particularly in psychiatric nursing practice.

Schizophrenia is one of the most common severe mental disorders. It is a chronic mental illness that affects the way individuals think, behave, express emotions, perceive reality, and interact with others (3). Reported that schizophrenia affects more than 20 million people worldwide (4). In Indonesia, the prevalence of schizophrenia was reported at 6.7 per 1,000 households according to Fajariah and Tresna (5), meaning that approximately 6–7 households in every 1,000 have a family member with schizophrenia. Riau Province ranked 23rd with a prevalence of 6%, while Bali had the highest prevalence at 11% (6). Data from Tampan Mental Hospital Pekanbaru in 2025 showed that from January to October there were 1,902 psychiatric patients, including 350 patients in the Mandau II ward diagnosed with Risk of Violent Behavior (RVB). This high number indicates that violent behavior remains a dominant problem among patients with schizophrenia.

Patients with schizophrenia often experience distortions in thinking, perception, emotion, and behavior, making them more likely to display aggressive or violent behavior (7). Risk of violent behavior refers to a condition in which individuals are potentially harmful to themselves, others, or the environment due to impaired emotional control. Common signs and symptoms include threatening behavior, restlessness, pacing, loud voice tone, tense facial expressions, and aggressive actions (8). Patients may also experience decreased problem-solving ability and impaired orientation to time, place, and person. These conditions may endanger both patients and their surroundings, requiring comprehensive and continuous psychiatric nursing interventions.

Management of violent behavior can be carried out through pharmacological and non-pharmacological approaches. Pharmacological treatment commonly involves antipsychotic or neuroleptic medications to control psychotic symptoms (9). However, non-pharmacological interventions also play an important role in helping patients manage emotions and aggressive behavior. According to Keliat et.al (10), general nursing interventions include deep breathing relaxation, hitting pillows or mattresses, assertive communication training, spiritual activities, medication adherence, and group activity therapy. One specialized intervention is Progressive Muscle Relaxation Therapy (PMRT). PMRT is a relaxation technique that combines deep breathing exercises with gradual muscle contraction and relaxation to reduce physical and psychological tension (11). This therapy works by decreasing the secretion of stress hormones such as Corticotropin Releasing Hormone (CRH) and Adrenocorticotropic Hormone (ACTH), thereby reducing sympathetic nervous system activity and adrenaline release (12).

Conceptually, the implementation of PMRT in this study is based on Roy's Adaptation Model, which explains that individuals respond adaptively to internal and external stimuli through physiological and psychological coping mechanisms. In patients with schizophrenia and risk of violent behavior, PMRT

acts as a positive stimulus that helps improve emotional control, reduce muscle tension, and enhance adaptive responses to stress. The relationship between PMRT and reduced violent behavior is supported by the therapy's ability to decrease anxiety, anger, and aggressive impulses, enabling patients to better control their behavior.

Previous studies have demonstrated the effectiveness of PMRT in reducing signs and symptoms of violent behavior in schizophrenia patients. Using a quasi-experimental pre-post test design, found a significant reduction in violent behavior symptoms after PMRT intervention with a p-value of 0.000 (<0.05) (12). However, studies examining the implementation of PMRT as part of nursing care analysis in schizophrenia patients at Tampan Mental Hospital Pekanbaru remain limited, particularly those focusing on direct application in clinical nursing practice. Therefore, further contextualized studies are needed to strengthen evidence-based psychiatric nursing practice in managing violent behavior.

This study is expected to contribute to psychiatric nursing practice by improving nurses' competencies in providing non-pharmacological interventions for patients at risk of violent behavior. In addition, the findings may support the development of more effective, safe, and patient-centered mental health services aimed at improving patient outcomes and quality of life.

Therefore, the aim of this study was to analyze nursing care in schizophrenia patients with signs and symptoms of risk of violent behavior through the implementation of Progressive Muscle Relaxation Therapy (PMRT) at Tampan Mental Hospital Pekanbaru.

METHOD

Research Design

This study used a nursing care case study approach with the application of Evidence-Based Nursing Practice (EBNP) in schizophrenia patients with signs and symptoms of risk of violent behavior through Progressive Muscle Relaxation Therapy (PMRT). The study adopted the findings of Pardede, Simanjuntak, and Laia , entitled *"Symptoms of Risk of Violent Behavior Decreased After Progressive Muscle Relaxation Therapy in Schizophrenia Patients"* (13) The previous study employed a quasi-experimental pre-post test design involving 27 participants with a sample size of 18 respondents selected using purposive sampling. In the present study, PMRT intervention was implemented only in two schizophrenia patients as part of nursing care analysis.

Temporal and Spatial Parameters of Research

This study was conducted at Tampan Mental Hospital, Riau Province, Indonesia, particularly in the Mandau II ward. The implementation of nursing care and PMRT intervention was carried out during the clinical nursing practice period in 2025. Each PMRT session lasted approximately 25–30 minutes and was conducted once daily for seven consecutive days.

Population and Sample

The population in the reference study consisted of 27 schizophrenia patients with risk of violent behavior, while the sample included 18 respondents selected using purposive sampling. In this nursing case study, the intervention was applied to two schizophrenia patients who met the inclusion criteria. The inclusion criteria were: (1) hospitalized patients at Tampan Mental Hospital, Riau Province; (2) cooperative patients; (3) patients in a stable condition; and (4) patients who had received approval from the ward head. The exclusion criteria included: (1) patients with physical limitations and (2) patients who were unable to participate throughout the intervention period.

The variables in this study consisted of Progressive Muscle Relaxation Therapy (PMRT) as the independent variable and risk of violent behavior in schizophrenia patients as the dependent variable.

Intervention Procedure and Research Implementation

PMRT was implemented as a non-pharmacological nursing intervention to reduce symptoms of violent behavior in schizophrenia patients. The intervention consisted of 14 relaxation movements involving gradual muscle contraction and relaxation techniques combined with deep breathing exercises. The therapy was administered directly by the researcher/nursing student according to the Standard Operating Procedure (SOP).

The implementation stages included pre-interaction, orientation, working, and termination phases. During the working phase, patients were guided through relaxation exercises involving the forehead, eyes, cheeks, mouth, jaw, neck, shoulders, hands, arms, back, abdomen, and legs. Each movement was maintained for approximately 10 seconds before relaxation. The intervention was performed in a comfortable and quiet environment to minimize distractions and ensure patient safety. Bias risk was minimized by implementing the intervention according to the same SOP for each patient.

Research Instrument

The instrument used to evaluate symptoms of risk of violent behavior was adopted from Pardede, Simanjuntak, and Laia (13). The questionnaire consisted of 26 statements divided into four domains: cognitive responses, affective responses, behavioral responses, and social responses. The instrument was used to assess changes in violent behavior symptoms before and after PMRT intervention. The questionnaire was categorized using a scoring system to determine the severity of symptoms.

In addition, observation sheets and nursing assessment formats were used to document patient responses during the intervention process.

Data Analysis

This study used univariate analysis to describe the characteristics and changes in symptoms of risk of violent behavior before and after PMRT intervention. The evaluation results were presented descriptively based on cognitive, affective, behavioral, and social responses observed during the nursing care process. The implementation of PMRT was also analyzed by comparing patient conditions before and after therapy sessions.

The reference study by Pardede et al. (13) used a Paired Sample t-test and demonstrated a significant reduction in violent behavior symptoms after PMRT intervention with a p-value of 0.000 ($p < 0.05$).

Ethical Consideration

This study was conducted in accordance with research ethics principles, including respect for autonomy, confidentiality, beneficence, and non-maleficence. Ethical approval was obtained from the Ethics Committee of Hang Tuah University Pekanbaru, and the study was declared ethically approved before implementation. All participants provided informed consent prior to participation in the intervention process.

RESULT DAN DISCUSSION

Characteristics of Respondents

Table 1 shows the demographic and clinical characteristics of the intervention and control patients diagnosed with schizophrenia and risk of violent behavior at Tampan Mental Hospital, Riau Province.

Table 1. Demographic Characteristics of Patients

Characteristic	Intervention Patient (Tn.Y)	Control Patient (Tn.O)
Age	Adult	44 years
Gender	Male	Male
Educational Level	Not identified	Elementary School
Occupation	Former supermarket cashier	Former loading laborer
Marital Status	Not identified	Married
Previous Hospitalization	Hospitalized in 2024 and readmitted in 2025	Third hospitalization in 2025
Medical Diagnosis	Schizophrenia	Schizophrenia
Nursing Diagnosis	Risk of Violent Behavior	Risk of Violent Behavior
Clinical Symptoms	Pacing, loud voice, sharp eye contact, emotional instability	Pacing, loud voice, clenched fists, red face, emotional instability

Results of Progressive Muscle Relaxation Therapy (PMRT)

The intervention patient received Progressive Muscle Relaxation Therapy (PMRT) combined with general psychiatric nursing interventions (SP 1–4 RPK) for seven consecutive days. Meanwhile, the control patient only received general psychiatric nursing interventions without PMRT.

Table 2. Comparison of Pre-Test and Post-Test Scores Between Intervention and Control Patients

Variable	Intervention Patient (PMRT + SP 1–4)	Control Patient (SP 1–4 only)
Pre-test Score	86	87
Interpretation	High	High
Post-test Score	51	80
Interpretation	Low	High
Score Difference	35	7

Table 2 demonstrates that the intervention patient who received PMRT experienced a greater reduction in violent behavior symptoms compared to the control patient. The intervention patient's score decreased from 86 (high category) to 51 (low category), while the control patient's score only decreased from 87 to 80 and remained in the high category.

Changes in Signs and Symptoms of Violent Behavior

The intervention patient showed gradual improvement throughout the seven-day PMRT implementation. On the first and second days, the patient still appeared angry, emotionally unstable, with clenched fists, red facial expression, and mumbling speech. On the third day, the patient reported feeling calmer, happier, and more able to control emotions. On the fourth until sixth days, the patient stated improved sleep quality, reduced anger, increased motivation, and no desire to throw objects. By the seventh day, the patient reported feeling calm, emotionally stable, relaxed, and better able to control irritability.

In contrast, the control patient who only received standard psychiatric nursing interventions showed minimal improvement. Although the patient reported slightly improved mood and sleep quality, symptoms such as emotional instability, aggressive tendencies, loud voice tone, and anger remained present during the observation period.

Table 3. Comparison of Violent Behavior Symptoms Before and After Intervention

Indicators	Intervention Patient Pre-Test	Intervention Patient Post-Test	Control Patient Pre-Test	Control Patient Post-Test
Cognitive Response	Frequent negative thoughts and harmful thinking	Negative thoughts decreased	Persistent negative thoughts	Slight reduction
Affective Response	Emotional instability, anger, irritability	Emotions became calmer and more stable	Emotional instability remained	Minimal improvement
Physiological Response	Red face, clenched fists, loud voice	Muscle tension reduced, relaxed appearance	Physical tension remained	Slight reduction
Behavioral Response	Aggressive behavior, pacing, damaging objects	Aggression decreased significantly	Aggressive behavior persisted	No significant change
Social Response	Threatening, mocking, loud speech	Improved communication and emotional control	Loud speech and threatening behavior remained	Minimal improvement

The findings indicate that PMRT contributed to significant emotional regulation and reduction of violent behavior symptoms in schizophrenia patients. Patients who received PMRT demonstrated better emotional control, decreased muscle tension, improved relaxation, and reduced aggressive tendencies compared to patients who only received standard nursing interventions.

Nursing Assessment

Nursing assessment is the process of systematically and continuously collecting patient data or information, including organizing, validating, and documenting patient data. The collected data contain comprehensive and interrelated information gathered by nurses and other health professionals

with the aim of improving the patient's health status through a comprehensive and effective nursing care plan (14). Violent behavior is the result of extreme anger or fear as a response to feelings of threat, either in the form of physical attacks or threats to self-concept. These threatening feelings may arise from external environments, such as physical assault, loss of significant others, and criticism from others, as well as internal environments, such as feelings of failure, lack of affection, and fear of physical illness (11). Violent behavior toward oneself may manifest as self-harm, suicidal behavior, or self-neglect. Violent behavior toward others includes aggressive actions intended to injure or harm others, while violent behavior toward the environment may include damaging objects or throwing items. Violent behavior is considered the most maladaptive response within the anger response continuum, namely rage or aggression.

The side effects of aggressive behavior include rejection attitudes and behavioral manifestations such as shouting, clenched fists, emotional instability, irritability, anger, and aggressiveness. Physiological responses include muscle tension, facial flushing, sharp eye contact, and increased pulse rate. Uncontrolled anger may lead individuals to harm themselves or others (15). Based on the managed case, similarities were found between the theoretical concepts and the clinical findings in Mr. Y, including irritability, speaking in a loud tone, red face, sharp gaze, lack of cooperation, and aggressive behavior.

The risk of violent behavior can be influenced by predisposing and precipitating factors. Predisposing factors include genetic influences, psychological factors such as introverted personality, loss experiences, sexual abuse, domestic violence, and sociocultural factors such as failure and social rejection that may cause loneliness (16). Meanwhile, precipitating factors include psychological, social, cultural, and genetic stressors.

Based on the assessment findings, both Mr. Y (intervention group) and Mr. O (control group) experienced behavioral changes caused by medication non-adherence. Both patients discontinued medication in 2024, resulting in relapse and rehospitalization in 2025. This condition is consistent with one of the major predisposing factors for violent behavior (17). Medication discontinuation is recognized as a trigger contributing to the recurrence of violent behavior risk (18,19). This finding is supported by PPNI (20) and Risnah (21), who reported that medication non-adherence is one of the primary causes of relapse in schizophrenia, leading to the re-emergence of positive and negative symptoms. Factors influencing medication non-adherence include poor understanding of treatment goals, lack of awareness regarding the importance of treatment adherence, difficulty accessing medication, high medication costs, and inadequate family support. The patients stated that they discontinued medication due to side effects such as dizziness, lack of reminders for follow-up visits, and unwillingness to continue medication.

In addition, ineffective communication was also identified in both patients. The patients preferred to suppress their emotions and avoid discussing problems with family members. They described

themselves as closed individuals and assumed that others would automatically understand their condition, which eventually contributed to family conflicts. Ineffective communication is also recognized as one of the psychosocial factors contributing to mental disorders. Psychosocial factors, including problematic family relationships, play an important role in the development of schizophrenia (22).

Nursing Diagnosis

Nursing diagnosis forms the basis for developing nursing care plans. Nursing diagnoses are closely related to medical diagnoses because the nursing assessment process involves collecting patient data related to the disease condition to establish appropriate nursing diagnoses (23,24). Nursing diagnosis is a vital component in determining appropriate nursing interventions to help patients achieve optimal health outcomes.

Based on the managed cases, the primary nursing problem identified in both Mr. Y (intervention group) and Mr. O (control group) was the risk of violent behavior. Violent behavior is a response to extreme anger or fear triggered by perceived threats, either physical or psychological. Violent behavior toward oneself may include self-harm or neglect, whereas violent behavior toward others includes aggressive acts intended to harm others. Violent behavior toward the environment may involve damaging property or throwing objects (25,26).

The manifestations observed in both patients were consistent with the theory proposed (27), including irritability, loud speech, facial flushing, sharp eye contact, clenched fists, emotional instability, and aggressive behavior. These findings supported the establishment of the nursing diagnosis of risk for violent behavior.

Nursing Intervention

The planning stage was conducted after formulating the nursing diagnosis into a nursing care plan aimed at resolving the patient's problems. Activities at this stage included prioritizing nursing problems, formulating goals and expected outcomes, and selecting appropriate nursing intervention strategies. Planning is considered the core stage of the nursing process because it determines the initial clinical decisions required to address the patient's health problems based on assessment data. Planning also includes collaboration with other healthcare professionals and documentation of nursing care plans (28).

In this case, nursing interventions focused primarily on the implementation of standard psychiatric nursing care through generalist therapy SP1–SP4. SP1 involved deep breathing exercises and hitting a pillow or mattress as a physical outlet for anger control. SP2 focused on controlling violent behavior through medication adherence. SP3 emphasized verbal communication skills and appropriate expression of emotions, while SP4 involved spiritual interventions such as prayer and dhikr. These interventions aimed to improve the patient's ability to recognize triggers, manage emotions, and control aggressive impulses adaptively.

However, although the patients were able to repeat and understand the generalist therapy sessions, the improvement in emotional control and aggressive behavior remained limited. Therefore, an additional intervention in the form of Progressive Muscle Relaxation Therapy (PMRT) was implemented to optimize emotional regulation and reduce physiological tension associated with aggressive behavior.

PMRT is a non-pharmacological relaxation technique designed to reduce muscle tension in various body areas, including the face, neck, shoulders, chest, arms, abdomen, and legs. Through systematic contraction and relaxation exercises, PMRT helps patients achieve physical and emotional relaxation. Explained that PMRT can decrease peripheral resistance, improve blood vessel elasticity, and enhance oxygen circulation throughout the body. Physiologically, PMRT promotes vasodilation and reduces sympathetic nervous system activity, thereby lowering muscle tension and stress responses (28).

In psychiatric nursing care, PMRT plays a significant role in helping patients with violent behavior risk manage emotional dysregulation. The intervention directly targets physiological manifestations of anger, such as increased muscle tension, elevated pulse rate, clenched fists, and facial tension. By reducing these physiological responses, PMRT helps patients achieve better emotional stability and self-control. Furthermore, PMRT positively affects cognitive, affective, social, and behavioral aspects by increasing patients' awareness of bodily tension and emotional reactions.

The implementation of PMRT in this study was conducted after completion of SP1–SP4 sessions and was scheduled for seven consecutive days with a duration of approximately 25–30 minutes per session. During the intervention, the patient appeared cooperative, focused, and motivated to complete the relaxation exercises. Consistent and structured implementation allowed the patient to gradually internalize relaxation techniques as adaptive coping mechanisms for anger management.

The effectiveness of PMRT was demonstrated by the significant reduction in violent behavior risk scores in the intervention group. Mr. Y experienced a decrease in score from 86 (high category) during pre-test assessment to 51 (low category) after intervention. Clinically, the patient showed improvements across cognitive, affective, physiological, behavioral, and social aspects. Cognitive distortions and negative thought patterns decreased, emotional instability and irritability were reduced, physiological signs such as muscle tension and increased pulse rate improved, and aggressive behaviors became less frequent. Social interaction also improved, as the patient no longer demonstrated threatening behavior or social withdrawal.

In contrast, the control group, represented by Mr. O, only received generalist therapy SP1–SP4 without PMRT. Although slight improvement was observed, the reduction in violent behavior risk score was minimal, decreasing from 87 to 80 while remaining in the high category. This finding indicates that generalist therapy alone was insufficient to significantly reduce physiological tension and emotional dysregulation underlying aggressive behavior.

The findings suggest that combining PMRT with standard psychiatric nursing interventions is more effective than generalist therapy alone in reducing violent behavior risk among patients with schizophrenia. PMRT works directly on the physiological and psychological mechanisms underlying aggression by decreasing sympathetic nervous system activation, lowering cortisol secretion, increasing parasympathetic activity, and promoting the release of calming neurotransmitters such as serotonin and endorphins (29-31). These mechanisms contribute to improved emotional regulation, impulse control, and adaptive coping responses.

The results of this case study are consistent with previous studies demonstrating the effectiveness of PMRT in reducing aggressive behavior among patients with schizophrenia. PMRT significantly reduced aggression scores and physiological tension in psychiatric patients (11). Similarly, Relaxation-based interventions combined with psychiatric nursing care improved self-control and reduced aggressive behavior more effectively than generalist therapy alone.

PMRT also offers several advantages as a psychiatric nursing intervention. It is safe, cost-effective, easy to implement, and does not require special equipment (32). Moreover, PMRT can be practiced independently by patients and does not produce pharmacological side effects. Therefore, PMRT can be recommended as an effective complementary intervention in psychiatric nursing care to reduce violent behavior risk in patients with schizophrenia through a holistic and evidence-based approach.

CONCLUSION

Based on the analysis of nursing care provided to Mr. Y (intervention group) and Mr. O (control group) with the nursing diagnosis of risk for violent behavior, the combination of Progressive Muscle Relaxation Therapy (PMRT) and generalist psychiatric nursing therapy was proven to be more effective than generalist therapy alone. Although generalist therapy SP1–SP4 had been implemented according to psychiatric nursing care standards, the results were not sufficiently significant in reducing aggressive behavior, therefore PMRT was added as a complementary intervention.

PMRT helps improve emotional regulation and self-control by reducing muscle tension, suppressing sympathetic nervous system activity, and increasing parasympathetic responses, resulting in a calmer emotional state and decreased aggressive impulses. In the intervention group, the pre-test score decreased significantly from 86 (high category) to 51 (low category), indicating that PMRT was effective in reducing the risk of violent behavior.

These findings are consistent with the study objectives presented in the introduction, showing that PMRT can be used as an effective non-pharmacological nursing intervention for patients with schizophrenia at risk of violent behavior. Furthermore, this therapy has the potential to be developed and applied more broadly in psychiatric nursing care and future mental health research.

AUTHOR CONTRIBUTION

Ridho Arba'ad Runanda contributed to the conceptualization, data curation, investigation, and Resky Pradesetia for methodology, formal analysis, visualization, writing of the original draft, and manuscript revision and editing. Universitas Hang Tuah Pekanbaru contributed through academic support, supervision, validation, and project administration during the research process. The supervisors and examiners contributed through methodological guidance, supervision, validation, and critical review of the manuscript. Tampan Mental Hospital contributed by providing resources, facilitating data collection, and supporting the implementation of the intervention process. The patients involved in this study contributed through their participation in the implementation of Progressive Muscle Relaxation Therapy (PMRT) and the data collection process related to the study outcomes.

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