CHAPTER 1

INTRODUCTION

1.1 Background

Tetanus is an acute infectious disease caused by powerful neurotoxins produced by bacteria *Clostridium tetani*, and is still a serious global health problem despite the availability of effective vaccines to prevent it. This disease is caused by anaerobic gram-positive bacteria that produce toxins that cause spastic paralysis through inhibition of the release of inhibitory neurotransmitters gamma-aminobutyric acid (GABA), resulting in the appearance of typical symptoms in the form of severe and periodic muscle spasms (Maryanti, 2022).

The main problem that causes tetanus to still be a health threat is low public awareness of the dangers of contaminated wounds and lack of compliance with tetanus immunization, both in children and adults. Most patients diagnosed with tetanus generalized have a history of never getting a tetanus vaccination in the past decade, or even never immunized at all, and tend to ignore small wounds that are actually at high risk of spore entry *C. tetani*, for example, rusty nail stab wounds, burns, and wounds contaminated with soil or dirt (Dewata & Sumada, 2025).

The disease remains a serious global health threat, especially in developing countries that have limited access to adequate immunization and health care services. Based on data World Health Organization (2021), the incidence of tetanus globally increased by 20 percent from 2023 to 2024, from 2,500 to 3,000 reported cases (Li et al., 2023).

At the national level, Indonesia ranks third with the highest incidence of tetanus cases in Asia after India and Pakistan. Based on data from the Ministry of Health of the Republic of Indonesia, reports of tetanus cases in Indonesia show consistently high numbers throughout the decade, with the most cases historically found in East Java Province. (Ministry of Health, 2026).

Tetanus generalized is the most common and severe clinical form of tetanus. Pathophysiologically, the resulting tetanospasmin toxin *C. tetani* bind to inhibitory synapses in the central nervous system, inhibit the release of inhibitory neurotransmitters such as GABA (gamma-aminobutyric acid) and glycine, resulting in uncontrolled excessive motor activity (Dewata & Sumada, 2025). Typical clinical manifestations include trismus (jaw stiffness), sardonic rheumatism, nuchal stiffness, abdominal muscle rigidity, and tetanic spasms in the extremities that can occur spontaneously or be triggered by external stimuli such as light or sound (Maryanti, 2022).

This series of clinical manifestations poses complex nursing problems in patients with generalized tetanus. In addition to ineffective airway clearance due to bronchial hypersecretion and laryngeal spasms, as well as the risk of falls and the risk of injury due to general seizures that can arise at any time, the most dominant nursing problems that have a long-term impact on the patient's quality of life are Impaired physical mobility which is caused by persistent muscle stiffness and spasms in almost all parts of the body, including the jaw and face, neck, back and spine, abdominal muscles, upper and lower extremities (V. Putri et al., 2023).

Prolonged immobilization due to muscle stiffness and mandatory bedtime in intensive care further worsens the condition by increasing the risk of secondary complications, including decubitus, muscle atrophy, deep vein thrombosis, joint contracture, and hypostatic pneumonia, all of which can significantly prolong the hospitalization period and significantly reduce the patient's quality of life (Maryanti, 2022).

In response to the problem of physical mobility impairment, exercise Range of Motion (ROM) is an evidence-based nursing intervention that has an important position in the nursing care plan for patients with immobilized conditions. ROM is an exercise that is carried out to maintain or improve the level of perfection of the ability to move joints normally and completely in order to increase muscle mass and muscle tone (Setyawati & Retnaningsih, 2024). Putri, Vadissa et al. (2023) states that Range of Motion exercises is a type of nursing planning that can be used in tetanus patients to prevent complications, especially in patients with reduced mobility, and is a fundamental nursing intervention that can ensure a successful patient care plan and prevent the development of post-hospitalization disability.

In patients with generalized tetanus who experience generalized muscle stiffness, impaired consciousness due to sedation, and limited mobility due to total lying down, passive ROM is the most appropriate and safe intervention option to apply. Passive ROM is a joint Range of Motion exercise that is entirely performed with the help of a nurse, where the nurse moves each joint of the patient's body such as lifting and moving the patient's arms or legs without

involving the contraction of the active muscles of the patient himself. This exercise is indicated especially for patients with decreased consciousness or semicoma, patients with severe mobility limitations, and patients with total bedback

Scientific evidence supports the effectiveness of ROM exercises in increasing muscle strength and improving physical mobility. Putri, Vadissa et al. (2023) in a case study in the High Care Unit (HCU) room reported that tetanus patients who received four-day range exercise experienced an increase in muscle strength in both extremities from degree 3 to degree 4, suggesting that ROM is effective in maintaining and improving musculoskeletal function of tetanus patients.

However, there is a research gap that deserves attention. The majority of published research on ROM interventions in the context of nursing has focused on patients with stroke and other chronic neuromuscular conditions, while studies that specifically document the application of ROM in generalized tetanus patients in the acute care setting are still very limited. Research conducted by Santos et al. (2021) also underlines the importance of implementing structured nursing processes in tetanus patients as an effort to improve the quality and safety of care, but local Indonesian clinical case-based studies on this matter are still very much needed to make a contextual and applicative contribution to nursing personnel in the field.

Based on this background, the author is interested in analyzing the application of Range of Motion (ROM) exercises to reduce muscle tone in generalized

tetanus patients with impaired physical mobility in the Yudistira Room of Jombang Hospital.

1.2 Problem Formulation

Based on the background description that has been presented, the formulation of the problem in this study is "How is the application of Range of Motion (ROM) exercises to reduce muscle tone in generalized tetanus patients with impaired physical mobility?".

1.3 Research Objective

1.3.1 General Objective

The general purpose of this final scientific paper is to determine the application of Range of Motion (ROM) exercises to reduce muscle tone in generalized tetanus patients with impaired physical mobility.

1.3.2 Specific Objective

Specifically, this final scientific paper aims to:

1. Analyzing a comprehensive nursing assessment of generalized tetanus patients in the Yudistira Room of Jombang Hospital
2. Analyzing problem analysis and enforcement of appropriate nursing diagnosis in generalized tetanus patients in the Yudistira Room of Jombang Hospital
3. Analyzing the nursing plan for generalized tetanus patients in the Yudistira Room of Jombang Hospital
4. Analyzing nursing care for generalized tetanus patients in the Yudistira Room of Jombang Hospital

5. Analyzing the evaluation of the results of the implementation of nursing care for generalized tetanus patients in the Yudistira Room of Jombang Hospital

1.4 Research Benefit

1.4.1 Theoretical Benefit

Theoretically, this study is expected to make a scientific contribution related to the application of Range of Motion (ROM) exercises to reduce muscle tone in generalized tetanus patients with impaired physical mobility.

1.4.2 Practical Benefit

1. For Educational Institutions

   The results of this case study can be used as discussion material in case-based learning in nursing education institutions in dealing with complex clinical conditions of infection.

2. For Research Places

   This case study is expected to encourage nurses at Jombang Hospital to be more proactive in integrating early rehabilitative interventions, such as ROM exercises to prevent immobilization complications and accelerate the patient's functional recovery process.

3. For Further Research

   The results of this case study are expected to encourage future researchers to develop a more specific ROM intervention standard protocol for generalized tetanus patients, including frequency, duration, type of

movement, and measurable success indicators, so that it can be applied consistently across various healthcare settings.