

Section: Medical Surgical Nursing

Benson relaxation therapy to reduce anxiety in patient with diabetic foot ulcers

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Abstract

Diabetic foot ulcers are a complication of diabetes often caused by lack of sensation or blood flow in the affected area. Without treatment, these ulcers can lead to serious complications. People with diabetes often experience anxiety about short-term and long-term health complications. This anxiety can affect blood sugar levels and overall physical and mental condition. One non-pharmacological management for anxiety is Benson relaxation therapy. The breathing process in Benson relaxation optimizes oxygen intake, distributing it throughout the body, creating a state of relaxation. This relaxation is transmitted to the hypothalamus, stimulating the pituitary gland to increase enkephalin production, affecting mood and encouraging relaxation. This case study aims to determine the effect of Benson relaxation therapy on anxiety and blood glucose levels. Mr. A, 59 years old, felt anxious after right foot surgery. Benson relaxation therapy reduced anxiety and blood sugar levels after 3 days of application (20 minutes each).

Keywords: Anxiety, Benson relaxation therapy, diabetic foot ulcers, nursing care, surgical nursing

Introduction

Diabetic foot ulcers are complications of diabetes that are often caused by a lack of sensation or blood flow in the affected area (Raja et al., 2023). The prevalence of type 2 diabetes in the last 3 decades has increased drastically in many countries. The International Diabetes Federation (IDF) in 2019, recorded 463 million people aged 20-79 years in the world experiencing diabetes in 2019 or equivalent to a prevalence rate of 9.3% of the total population of the same age (Saeedi et al., 2019). Indonesia is the country with the seventh largest number of patients with diabetes, namely as many as 10.7 million Indonesians aged 20-79 years. The incidence of diabetic ulcers in general in Indonesia has a high prevalence with an amputation rate of 30%, a mortality rate of 32% every year (Soeatmadji et al., 2023). More than one million people in the world have one of their feet amputated. Diabetes is usually a manageable disease, but it can add stress (Sharma et al., 2022; Schrems et al., 2025). People with diabetes are 20% more likely to experience anxiety than those without diabetes. Diabetic ulcers can cause anxiety because the effects of physical limitations, pain, and potential serious complications associated with diabetic ulcers can have a significant impact on a person's mental well-being (Ahmad et al., 2018; Polikandrioti et al., 2020). Levels of anxiety and stress have an effect on diabetes management, which can lead to lifestyle changes, medication, or therapies to manage anxiety and stress. High levels of stress hormones can stop insulin-producing cells in the pancreas from functioning properly and reduce the amount of insulin produced (Yaribeygi et al., Song et al., 2025). This in turn can contribute to the development of type 2 diabetes.

Benson relaxation therapy is a technique that includes deep relaxation, slowed heart and breathing rates, reduced oxygen consumption, and increased skin resistance (Harorani et al., 2020). Benson relaxation therapy helps control fasting blood sugar levels and blood pressure. The breathing process in the Benson relaxation technique is to optimize the entry of oxygen through the respiratory tract and into the lungs to be circulated throughout the body through the veins to meet the oxygen needs in the body (Bhasin et al., 2013). If oxygen levels are sufficient, the body remains in a balanced state. This condition will lead to a general state of relaxation in humans. The feeling of relaxation will be transmitted to the hypothalamus which will then produce corticotropin-releasing factor (CRF) (Olia et al., 2019). CRF will stimulate the pituitary gland to increase the production of proopiomelanocortin (POMC) resulting in increased production of enkephalins by the adrenal medulla. The pituitary gland also produces beta-endorphins, a neurotransmitter that affects mood and encourages us to relax. Increased enkephalins and beta-endorphins will make patients feel relaxed and comfortable. Benson relaxation therapy exercises performed regularly for 15 minutes three times a week can increase muscle activity and improve blood sugar in the body. The benefits of Benson exercise are to increase alpha brain waves and metabolism, including blood sugar metabolism, systolic and diastolic blood pressure, and premature ventricular contractions, reduce anxiety, oxygen consumption in the body, respiratory rate, and muscle tension (Sajadi et al., 2017). The Benson approach can improve personal and social performance by enhancing the

autonomic nervous system and relaxing muscles. Ultimately, this technique reinforces one's positive feelings and reduces mental disorders such as anxiety.

This study employs a descriptive research design in the form of a case study. Descriptive research aims to explain or portray important events occurring in the present. The case study approach was chosen because it allows for an in-depth examination of a unique event within a specific context. In this research, the case studied involves nursing care using Benson relaxation techniques to reduce anxiety in patients with diabetic foot ulcers at RSUD Muntilan. Data were collected through structured interviews and structured observations. Structured interviews were conducted using a predetermined list of questions arranged systematically to ensure consistency and control over the conversation, focusing on the content expected by the researcher. Structured observations were carried out based on a detailed plan, enabling the researcher to accurately record the phenomena that needed to be observed. Interviews and observations with patients and their families included information on identity, main complaints, previous medical history, family history, physical examination, and vital signs. In addition, the Hamilton Anxiety Rating Scale (HARS) was used as a standardized instrument to measure the level of anxiety experienced by patients.

Case Description

Nursing care is a systematic process designed to meet a patient's basic needs and optimize their health status through illness prevention and health promotion. This case study focuses on Mr. A, a 59-year-old male residing in Muntilan, Magelang, who was admitted to Muntilan Hospital on January 4, 2025. Mr. A has a 10-year history of Type 2 Diabetes Mellitus and was diagnosed with a diabetic ulcer that necessitated the amputation of the third digit of his right foot (digit 3 pedis dextra). This surgical intervention significantly impacted his psychological well-being, manifesting as sadness and anxiety regarding his physical loss and future health. On January 6, 2025, the initial assessment revealed that the patient's primary complaints were acute pain at the surgical site and persistent anxiety. Clinically, Mr. A appeared weak, lethargic, and protective of his right leg. His vital signs were stable (BP: 135/84 mmHg, T: 36.5°C, HR: 85 bpm, RR: 20 bpm), though his Random Blood Glucose (GDS) was elevated at 214 mg/dL. Laboratory results indicated anemia (Hb: 10.3 g/dL) and leukocytosis (WBC: 17.85%), suggesting an ongoing inflammatory response. The integumentary assessment showed dry skin and a moist post-operative wound. His current pharmacological regimen included NaCl infusion, Kalnex injection (1x250 mg), and Novorapid (3 x 6 IU).

Based on the Indonesian Nursing Diagnosis Standards (SDKI), two priority diagnoses were identified: acute Pain (D.0077) related to physical injury agents (post-amputation surgery) and Anxiety (D.0080) related to a situational crisis (amputation and chronic illness). The nursing intervention followed the Indonesian Nursing Intervention Standards (SIKI), focusing on non-pharmacological anxiety management. The primary intervention was Benson Relaxation Therapy, administered for 20 minutes once daily over three days. The therapy involved monitoring signs of anxiety, identifying triggers, discussing realistic outcomes, and guiding the patient through the relaxation steps to induce a relaxation response and potentially stabilize blood glucose levels. The progress was measured against the Indonesian Nursing Outcome Standards (SLKI) over 3x24 hours. Day 1 (Jan 6): The patient reported moderate anxiety and appeared restless. However, he followed the Benson therapy instructions well and began to show signs of relaxation. Day 2 (Jan 7): Although the patient still expressed worries about his condition, he reported feeling significantly calmer and was able to rest more quietly following the therapy session. Day 3 (Jan 8): The target SLKI outcomes were achieved. The patient no longer complained of anxiety, his mood improved, and his rest-activity patterns were restored to a normal state.

Discussion

The patient complained of pain following the amputation of the third digit of the right foot (digit 3 pedis dextra). Based on the PQRST pain assessment, the findings were as follows: Provokes – pain due to post-amputation wound and debridement. Limb amputation can cause changes in the nervous system, including alterations in brain nerve mapping and the potential for phantom pain. Quality – the pain was described as resembling needle pricks. Region – localized in the right leg post-amputation. Scale – the patient reported moderate to severe pain (score 5), which significantly interfered with daily activities and rest/sleep patterns. Time – the pain was intermittent, sometimes continuous and sometimes subsiding. The patient's anxiety further disrupted rest and sleep, as pain made it difficult to fall asleep. Anxiety and poor sleep quality together negatively affected glycaemic control, thereby reducing the quality of life in individuals with diabetes. Type 2 diabetes mellitus (T2DM) is strongly associated with sleep disturbances, which can lead to anxiety and depression (Darraj et al., 2023). These conditions may contribute to chronic stress and emotional problems such as fear, anxiety, and poor sleep quality. Sleep, as a natural physiological process, is essential for psychological and biological functions, including glucose metabolism in T2DM. It plays a critical role in overall well-being, particularly in individuals with chronic diseases. Sleep disturbances are highly prevalent among patients with T2DM, with 30–50% experiencing poor sleep quality.

Based on the interventions compiled, all were implemented for the patient, with pain management carried out through the application of deep-breath relaxation therapy over three consecutive days. During the sessions, the patient reported feeling comfortable and relaxed when guided to perform deep-breath relaxation, which contributed to a reduction in perceived pain. Benson relaxation therapy, which lasts approximately 20 minutes per session, is a

technique that induces deep relaxation, slows heart rate and breathing, reduces oxygen consumption, and increases skin resistance. This therapy has been shown to reduce autonomic nervous system activity, improve the balance between the anterior and posterior hypothalamus, decrease sympathetic activity and catecholamine release, relieve muscle tension, lower blood pressure and heart rate, and regulate breathing. Collectively, these effects significantly reduce anxiety levels. Therefore, deep-breath relaxation can be considered a non-pharmacological therapy for postoperative patients or those with ulcers, as it helps alleviate pain by relaxing tense muscles and preventing further aggravation. Evaluation was conducted using the PQRST pain assessment and by determining the impact of pain on daily activities between January 7 and January 9, 2025. Over the three-day intervention, the patient's pain scale decreased progressively: from 5 (moderate to severe pain) on the first day, to 3 on the second day, and finally to 1 on the last day. This reduction in pain was attributed to the combined effects of both pharmacological interventions and non-pharmacological therapy, particularly the application of deep-breath relaxation.

The amputation surgery performed on Mr. A affected the patient's mental health which made the patient feel anxious due to his condition. Anxiety that occurs due to situational crisis occurs when a person experiences intense anxiety or fear about certain situations or events that are considered challenging or threatening. The patient had undergone amputation surgery on the leg and felt a threatening situation. Symptoms of anxiety due to situational crisis are seen physically and emotionally affecting the patient. The physical symptoms were rapid heartbeat, sweating and tense appearance. The emotional symptoms were intense worry or fear of the event and difficulty sleeping. The results of anxiety assessment using the HARS questionnaire showed that the patient's anxiety was panic (score 46) before being taught Benson relaxation therapy. After Benson relaxation therapy, on the 2nd day the anxiety scale became 21 (moderate scale) and on the last day the patient had no anxiety with a total score of 10. So, with the results of the anxiety assessment, the patient experienced significant sleep disturbances and somatic symptoms related to his anxiety. This is because the mind and body always interact with each other and can cause anxiety. This is seen in conditions such as pregnancy, during adolescence and while recovering from an illness. During these conditions, emotional changes are common, and this can cause anxiety. The cause of anxiety is anxiety that arises from seeing the danger that threatens him. Anxiety arising from the condition of postoperative patients experiencing pain problems is a significant predictor of procedural pain during dressing changes and wound cleansing. Severe pain stimulates a stress response that adversely affects the cardiac and immune systems. When pain impulses are transmitted, muscle tension increases.

On the first day of implementation, the patient complained of pain due to postoperative wounds and felt restless, anxious, worried about his condition. Patients are given Benson relaxation therapy and can increase relaxation. On day 2 the patient experienced a decrease in anxiety to mild. The data obtained by the patient said the pain decreased and felt relaxed so that sleeplessness began to be resolved. From the results of the examination of BP: 160/86 mmHg, pulse: 87 x/min, respiration 20x/min. On the last day of implementation, the patient said he was no longer anxious and could accept the conditions currently faced. The patient seemed less tense, less anxious and restless and sleeplessness was better than before. TTV results showed BP: 138/87 mmHg, pulse: 86 x/min, RR: 20x/min. The results of the implementation on Mr. A's patient Mr. A experienced a decrease in moderate anxiety to mild. The anxiety felt by Mr. A experienced a significant decrease with benson relaxation therapy. The results of this study indicate that anxiety, depression and stress among the study group decreased after implementing benson relaxation therapy than before implementation. Anxiety and depression are common problems experienced by patients, especially those with chronic illnesses. Benson therapy is a treatment that can reduce anxiety and depression. The results showed that Benson relaxation therapy is effective in reducing anxiety and depression levels in some cases of patients with chronic diseases. When applied continuously and consistently, Benson relaxation therapy provides a calming effect.

Conclusion

The primary intervention in this case study is the application of Benson relaxation therapy; a non-pharmacological approach aimed at alleviating anxiety triggered by chronic disease and physical pain. Administered for 20 minutes daily over three consecutive days, this therapy facilitates a calmer state of mind, leading to improved mood, enhanced sleep quality, and a better overall quality of life. The clinical impact was significant; as measured by the Hamilton Anxiety Rating Scale (HARS), the patient's initial score of 46 (panic level) decreased to 21 (moderate anxiety) by the second day, and ultimately dropped to 10 (no anxiety) on the final day of implementation. These results align with existing literature suggesting that Benson relaxation is an effective complementary therapy for reducing anxiety and improving psychological well-being, particularly in patients with diabetic ulcers or those undergoing medical procedures. Consequently, these findings provide a foundation for future researchers to further explore the efficacy of Benson relaxation therapy in managing the psychological burden associated with diabetes.

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