PAIN MANAGEMENT WITH DEEP BREATHING RELAXATION AND WARM COMPRESS IN PATIENTS WITH CHRONIC URINARY TRACT INFECTION AT GINOWAN KINEN BYOUIN

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ABSTRACT
Inflammatory conditions in urinary tract infections often cause pain and can reduce the patient's quality of life. Pain management in UTI patients does not only rely on pharmacological therapy, but can be combined with non-pharmacological interventions such as deep breathing, relaxation and warm compresses. This case study aims to illustrate the application of these two interventions in nursing care for patients with chronic UTI. The study used a descriptive method with a case study approach on one patient diagnosed with chronic UTI and comorbid diabetes mellitus. Pain intensity was assessed in patients using the Numerical Rating Scale (NRS) with a score of 0–10, a standard WHO scale for assessing pain perception. The deep breathing relaxation intervention was given for 15 minutes, and warm compresses in the suprapubic area for 15 minutes, carried out twice daily for three consecutive days. The results showed a decrease in pain from 6 to 3. There was an increase in comfort, sleep quality, and the patient's understanding of infection prevention efforts. The evaluation results indicate that some to all of the care objectives have been achieved according to the Indonesian Nursing Outcome Standards (SLKI). Deep breathing, relaxation, and warm compresses have proven effective as simple, safe, non-pharmacological interventions that can improve the comfort of patients with chronic UTIs.

Keywords: chronic urinary tract infection; deep breathing relaxation; pain; warm compresses

INTRODUCTION
Urinary Tract Infections (UTIs) are one of the most common infectious diseases affecting humans worldwide, after respiratory infections. This condition occurs due to the entry and multiplication of microorganisms, primarily Escherichia coli bacteria, along the urinary tract, which includes the urethra, bladder, ureters, and kidneys. According to the Global Burden of Disease Study, the number of global UTI cases increased from approximately 252 million in 1990 to over 400 million in 2019 (Yang et al., 2022). This prevalence indicates that UTIs remain a significant public health problem in both developing and developed countries. In Japan, the incidence of UTIs is also relatively high. A national retrospective study from 2010–2015 showed that there were approximately 106,508 hospitalizations per year due to UTIs, with an incidence of 12.4 per 10,000 women and 6.8 per 10,000 men (Sako et al., 2021). UTIs can be acute or chronic; in chronic cases, the infection tends to recur and does not resolve completely despite antibiotic therapy. This condition often causes painful urination (dysuria), suprapubic discomfort, and sleep disturbances due to increased urinary frequency.

Pain is one of the primary complaints of patients with chronic UTIs. Pain arises from inflammation of the urinary tract mucosa and spasm of the smooth muscle of the bladder. If not properly managed, pain can disrupt activities, hinder the fulfillment of basic needs, and reduce the patient's quality of life (Maulana & Wahyuniati, 2024). Pain management in UTI patients generally uses pharmacological approaches such as the administration of analgesics and antibiotics. However, continuous use of medications can cause side effects such as digestive disorders and antibiotic resistance, so alternative non-pharmacological therapies are needed to help reduce pain intensity safely and effectively. One non-pharmacological intervention that can be implemented is deep breathing relaxation and warm compresses. Deep breathing relaxation works by activating the parasympathetic nervous system, thereby reducing muscle tension, improving oxygen circulation, and decreasing pain perception (Purba et al., 2024). Meanwhile, warm compresses can increase local blood flow, reduce muscle spasms, and help

remove pain-causing metabolic waste products (Lestari et al., 2024). The combination of these two techniques has been proven effective in reducing pain intensity and improving patient comfort, both in cases of urinary tract infections and other urological conditions (Filiandri & Sari, 2023).
Based on the results of a case study at Ginowan Kinen Byouin, the application of a combination of deep breathing relaxation and warm compresses in patients with chronic UTIs resulted in a reduction in pain from 6 to 3, accompanied by improved sleep patterns, increased comfort, and increased patient understanding of the importance of preventing recurrent infections. This suggests that this simple intervention can be an effective, safe, and easily implemented non-pharmacological therapy option for nurses in daily clinical practice. Therefore, the author is interested in presenting a scientific paper entitled "Pain Management with Deep Breathing Relaxation and Warm Compresses in Patients with Chronic Urinary Tract Infections at Ginowan Kinen Byouin," to illustrate the implementation of nursing care with a focus on pain management through this non-pharmacological approach.

METHOD

This research used a descriptive design with a case study approach. The aim was to describe the implementation of nursing care for patients with chronic urinary tract infections (UTIs) through the application of deep breathing relaxation techniques and warm compresses as non-pharmacological pain management. The study was conducted at Ginowan Kinen Byouin for three days, from September 1–3, 2024, with a 70-year-old female patient diagnosed with chronic UTI and a history of type 2 diabetes mellitus. Subjects were selected purposively based on the following criteria: conscious, cooperative, experiencing pain during urination, and willing to participate. Data were collected through interviews, observations, and pain level measurements using the Numeric Rating Scale (NRS). Interventions included deep breathing relaxation exercises for 10–15 minutes and warm compresses applied to the suprapubic area at a temperature of 37–40°C for 10–15 minutes, twice daily for three consecutive days. Data analysis was conducted using descriptive qualitative methods, comparing changes in pain levels before and after the intervention and assessing the effectiveness of the intervention based on theory and previous research findings. This study adhered to ethical research principles, including informed consent, anonymity, confidentiality, and beneficence.

RESULT AND DISCUSSION

The results of this study describe the implementation of nursing care for patients with chronic urinary tract infections (UTIs) experiencing pain, focusing on the application of deep breathing relaxation techniques and warm compresses as non-pharmacological interventions. The study was conducted over three consecutive days in the Ginowan Kinen Byouin ward. The patient was a 70-year-old woman diagnosed with chronic urinary tract infections and comorbid type 2 diabetes mellitus. At the initial assessment, the patient complained of pain during urination accompanied by a burning and stinging sensation in the suprapubic area. The pain was persistent, especially during and after urination. Based on measurements using the Numeric Rating Scale (NRS), the initial pain level was 6 (moderate pain category). Furthermore, the patient appeared restless, frequently changed positions due to discomfort, and experienced sleep disturbances due to frequent awakenings to urinate.

On the first day, a comprehensive assessment was conducted, including the patient's general condition, elimination patterns, vital signs, and nonverbal expressions of pain. The intervention began with training in deep breathing relaxation techniques. The patient was instructed to sit in a comfortable position, inhale slowly through the nose for four seconds, hold the breath for two seconds, and exhale slowly through the mouth for six seconds. The exercise lasted approximately 10 minutes, with guidance and examples from the nurse. Afterward, a warm compress was applied using a towel at a temperature of around 37–40°C

to the suprapubic area for 15 minutes. After the first day of intervention, the patient reported feeling slightly more relaxed, although the pain had not
significantly decreased.On the second day, the intervention was performed twice, in the morning and evening. The patient began to practice deep breathing relaxation independently with minimal guidance from the nurse. She appeared calmer and more cooperative during the procedure. Based on subjective evaluation, the patient stated that the burning sensation during urination had decreased, with pain only occurring occasionally. The pain scale dropped to 4, indicating a two-level decrease in pain intensity from the first day. Objectively, the patient appeared calmer, less grimacing, and was able to communicate more comfortably. Urinary frequency also decreased to approximately 7–8 times per day, and urine color began to become clearer.

On the third day, the patient reported feeling much more comfortable, with significantly reduced pain, and improved sleep quality. The pain scale recorded a 3, indicating mild pain. The patient reported only mild discomfort immediately after urinating and no longer felt as anxious as before. Objective observations revealed no signs of distress, her skin appeared fresher, and her vital signs were within normal limits (blood pressure 120/80 mmHg, pulse 82 beats/minute, temperature 36.7°C, and respirations 20 breaths/minute). No signs of further infection, such as fever or hematuria, were found. Overall, the results of this study indicate that the combination of deep breathing relaxation techniques and warm compresses is effective in reducing pain intensity, increasing comfort, and improving sleep patterns in patients with chronic UTIs. Patients became calmer, more confident in performing breathing exercises independently, and better understood the importance of maintaining good hygiene and fluid intake to prevent UTI recurrence.

These results align with the theory that deep breathing relaxation can activate the parasympathetic nervous system, reduce muscle tension, and increase tissue oxygenation, thereby reducing pain perception (Purba et al., 2024). Meanwhile, warm compresses provide a local vasodilatory effect that improves blood circulation, reduces smooth muscle spasms, and decreases the transmission of pain impulses to the central nervous system (Lestari et al., 2024). By combining these two, the patient's pain can be more effectively controlled without pharmacological side effects. From the nursing evaluation, it can be concluded that the care goals were partially to fully achieved in accordance with the Indonesian Nursing Outcome Standards (SLKI) criteria, namely reducing pain intensity, increasing comfort, and the patient's ability to use relaxation techniques independently. Therefore, deep breathing relaxation and warm compresses can be recommended as part of non-pharmacological pain management for patients with chronic urinary tract infections in both clinical and community settings.

The results of this study indicate that applying deep breathing relaxation and warm compresses for three consecutive days reduced pain intensity in patients with chronic urinary tract infections (UTIs) from 6 to 3. Patients appeared more relaxed, calmer, and slept better after the intervention. This pain reduction occurred because deep breathing relaxation stimulates the parasympathetic nervous system, which reduces muscle tension and increases tissue oxygenation, while warm compresses improve blood circulation, reduce muscle spasms, and decrease the transmission of pain impulses. These results align with research by Filiandri and Sari (2023) and Julita et al. (2025), which demonstrated the effectiveness of this combination of non-pharmacological interventions in reducing pain in patients with urological disorders. In addition to reduced pain, patients also experienced improved comfort and sleep quality and were more cooperative in participating in exercises. Thus, the combination of deep breathing relaxation and warm compresses has been proven to be effective, safe, and easy to implement as an alternative non-pharmacological pain management in the nursing care of patients with chronic UTIs.

Assessment

Assessment is the initial stage of the nursing process and is crucial for identifying the patient's condition, through subjective and objective data, as well as supporting examinations. This data serves as the basis for determining the correct nursing diagnosis and developing an appropriate intervention plan (Ihwainul, 2024). In this case, Mrs. Toyozato Kumiko, a 70-year-old woman diagnosed with chronic urinary tract infection (UTI), presented with chief complaints of painful urination (dysuria), increased urinary frequency, incomplete voiding, and suprapubic and right flank pain. These complaints had persisted for more than four weeks and had worsened in the past three days. The patient also reported strong-smelling, cloudy urine, and a low-grade fever. Classic symptoms of a UTI include dysuria, urgency, increased frequency, cloudy/odorous urine, and suprapubic or flank pain (Maulana & Wahyuniati, 2024).

The patient's medical history revealed that the patient had diabetes mellitus for 10 years and a history of recurrent UTIs in the past 2 years with incomplete treatment. According to Ramadhan et al., (2024), patients with diabetes are at higher risk of developing UTIs due to low immunity, the presence of glucose in the urine, which serves as a medium for bacterial growth, and the possibility of neuropathy affecting bladder function. A history of recurrent, unresolved UTIs increases the likelihood of developing chronic UTIs (Lailliah et al., 2025). Physical examination revealed the patient to be compos mentis, appearing weak, grimacing during urination, and with vital signs: BP 140/90 mmHg, Pulse 96 beats/minute, RR 20 breaths/minute, and Temperature 37.9°C (subfebrile). Suprapubic palpation revealed positive tenderness. The patient also complained of pain, rated 6/10 on the National Respiratory Systemic Response System (NRS), which was dull, constant, and worsened with urination and movement. This is consistent with Malik et al., (2022), who stated that inflammation of the urinary tract wall causes characteristic pain.

Supporting examination results support the presence of chronic UTI. Urinalysis showed leukocytes (++), nitrite (+), erythrocytes (+), protein (+), and numerous bacteria. According to Putri et al., (2024), leukocyturia, bacteriuria, and positive nitrite are indicators of active infection. Urine culture results showed Escherichia coli growth >100,000 CFU/mL, consistent with Lailliah et al., (2025), who stated that this bacteria is the most common cause of UTI. A complete blood count (CBC) showed leukocytosis (14,000/mm³) and an elevated C-Reactive Protein (CRP) of 35 mg/L, indicating a systemic inflammatory response (Ministry of Health of the Republic of Indonesia, 2021). Meanwhile, the results of abdominal ultrasound showed thickening of the bladder wall and post-micturition urine residue, in accordance with Tan et al., (2023) who stated that urinary retention is a predisposing factor for chronic UTI because it facilitates bacterial colonization, grimacing facial expressions, increased frequency of urination, and disturbed rest.

Table 1.
Conformity of Study Results with Theory

Component	Patient Data (Mrs. Kumiko)	Theory/References
Identity	Female, 70 years old, medical diagnosis of chronic UTI	UTIs are more common in women because the urethra is short (Ramadhan et al., 2024)
Main complaint	Dysuria, frequent urination, feeling of incomplete voiding, suprapubic and flank pain, cloudy and smelly urine	Classic symptoms of UTI: dysuria, urgency, cloudy urine, suprapubic pain (Maulana & Wahyuniati, 2024)
Medical history	DM 10 years, recurrent UTI not resolved	DM and recurrent UTIs increase the risk of chronic UTIs (Lailiyah et al., 2025)
Physical examination	Appears weak, BP 140/90, Pulse 96, RR 20, temperature 37.9°C, suprapubic tenderness, pain 6/10	UTI is characterized by mild fever, suprapubic pain, pain expression (Malik et al., 2022)

Component	Patient Data (Mrs. Kumiko)	Theory/References
Urinalysis	Leukocytes ++, nitrite +, erythrocytes +, protein +, many bacteria	Leukocyturia and positive nitrite are signs of UTI (Putri et al., 2024)
Urine culture	E. coli >100,000 CFU/mL	E. coli is the main cause of UTI (Lailliah et al., 2025)
Complete blood count	Leukocytes 14,000/mm³ (leukocytosis), CRP 35 mg/L	Leukocytosis and increased CRP = inflammatory response (Ministry of Health of the Republic of Indonesia, 2021)
Abdominal ultrasound	Thickening of the bladder wall, post-micturition urine residue	Urine residue facilitates bacterial colonization (Tan et al., 2023)

Based on the assessment of Mrs. Toyozato Kumiko, several important data points can be analyzed to determine the nursing problem. First, the patient complained of pain during urination and pain in the suprapubic and flank areas, with a scale of 6/10. The pain was dull, constant, and worsened with urination and movement. The patient appeared weak and grimaced during urination. These findings align with the signs and symptoms of acute pain due to urinary tract inflammation, as explained in the theory that infection and inflammation of the urinary tract wall cause significant pain (Malik et al., 2022). Therefore, this analysis leads to the nursing problem of Acute Pain (D.0077).

Second, the patient reported dysuria, increased urinary frequency, a feeling of incomplete urination, and cloudy and foul-smelling urine. Supporting examinations revealed post-micturition residual urine on an abdominal ultrasound and findings of leukocytes, nitrites, erythrocytes, protein, and large numbers of bacteria on urinalysis. This condition indicates a disturbance in urinary elimination patterns, characterized by retention and a sensation of incomplete voiding. According to theory, one of the effects of chronic UTI is impaired urinary elimination due to inflammation and difficulty emptying the bladder (Maulana & Wahyuniati, 2024). Therefore, data analysis supports the nursing diagnosis of Impaired Urinary Elimination (D.0040).

Third, the patient's medical history indicates that she has had diabetes mellitus for 10 years and has experienced recurrent UTIs in the past two years, but her treatment has often been incomplete. Combined with laboratory findings of leukocytosis (14,000/mm³) and an elevated CRP (35 mg/L), these conditions indicate that the patient is susceptible to ongoing infection and infectious complications. Theory explains that patients with diabetes have a weakened immune system, making them more susceptible to infection and recurrent UTIs (Lailliah et al., 2025). Based on this analysis, the relevant nursing problem is Risk of Infection (D.0142). Thus, data analysis revealed three primary patient problems: acute pain, impaired urinary elimination, and the risk of ongoing infection. These three problems are interrelated: pain arises from inflammation, impaired elimination occurs due to urinary retention and residual urine, while the risk of infection is increased by chronic conditions, advanced age, and the presence of comorbidities such as diabetes mellitus (Ramadhan et al., 2024).

Nursing Diagnosis

Nursing diagnoses are established based on the results of the assessment data analysis with the aim of designing more targeted and specific interventions tailored to the patient's needs. In this case, the three diagnoses established were: Acute Pain, Impaired Urinary Elimination, and Risk of Infection. Acute pain was established because the patient complained of suprapubic pain with a score of 6/10. According to the Working Group (2018), acute pain is an unpleasant sensory experience resulting from actual or potential tissue damage. This aligns with the pathophysiology of UTI, where inflammation of the bladder mucosa triggers the activation of pain receptors, resulting in dysuria. Urinary Elimination Disorders arise because the patient experiences increased urinary frequency, a feeling of incomplete voiding, and the presence of post-void residual urine on ultrasound. Maulana & Wahyuniati (2024) explain that chronic UTIs can cause bladder wall irritation and detrusor muscle weakness, leading to urinary retention. The risk of infection was determined considering the patient's history of recurrent UTIs and diabetes mellitus, both of which are predisposing factors for infection. Lailliah et al., (2025) stated that diabetic patients are more susceptible to infection because hyperglycemia can reduce immunity and provide a medium for bacterial growth. Therefore, the nursing diagnosis established in this case is appropriate and relevant to theory and previous research findings.

Nursing Intervention

Nursing intervention plans are developed based on established nursing diagnoses. The primary goals of intervention are to reduce pain intensity, improve urinary elimination patterns, and reduce the risk of recurrent infection (SIKI, 2018). For a diagnosis of Acute Pain, the interventions chosen include teaching deep breathing relaxation techniques and applying warm compresses to the suprapubic area. The rationale for these actions is that deep breathing relaxation can activate the parasympathetic system, thereby reducing muscle tension, increasing oxygenation, and reducing pain perception (Julita et al., 2025). Warm compresses, on the other hand, work through local vasodilation mechanisms that increase blood circulation, reduce muscle spasms, and suppress the transmission of pain impulses, according to the gate control theory (Lestari et al., 2024). Research by Filiandri & Sari (2023) demonstrated that the combination of deep breathing relaxation and warm compresses effectively reduces pain intensity in patients with urinary system disorders.

For a diagnosis of Urinary Elimination Disorders, interventions include monitoring urinary patterns, recording intake and output, and educating patients about the importance of drinking adequate fluids. This aligns with the Working Group (2018), which stated that adequate hydration helps flush bacteria from the urinary tract and improves elimination patterns. Meanwhile, for the diagnosis of Infection Risk, interventions include handwashing education, maintaining genital hygiene, limiting visitors, and collaborating on administering antibiotics according to culture. The WHO (2020) states that hand hygiene is the most effective step in preventing infection transmission. Research by Bari'ah et al. (2025) supports this by demonstrating that handwashing education reduces the incidence of nosocomial infections by up to 30%. Therefore, the intervention plan in this case is theoretically sound and has been proven effective by research.

Nursing Implementation

Implementation is the stage of implementing pre-planned interventions and tailoring them to the patient's condition. In this case, the focus of implementation was directed at pain management using deep breathing relaxation techniques and warm compresses, which were carried out for three consecutive days: September 2, 3, and 4, 2024. On the first day (September 2, 2024), the patient reported suprapubic pain with a scale of 6/10, grimacing during urination, and discomfort. The nurse conducted a comprehensive pain assessment, including location, intensity, characteristics, precipitating factors, and relieving factors. Afterward, the patient was taught and guided in deep breathing relaxation techniques. The nurse also applied warm compresses to the suprapubic area to help reduce muscle tension and improve blood circulation. Additionally, health education was provided regarding maintaining personal hygiene, adequate drinking habits, and how to recognize signs of infection.

On the second day (September 3, 2024), the patient reported a decrease in pain to a scale of 4/10. The patient began to independently perform deep breathing relaxation techniques, with the patient feeling more relaxed after the exercises. Warm compresses were reapplied, and the patient reported feeling more comfortable after the therapy. On this day, the patient's urine appeared clearer and the frequency of urination decreased. The patient was also able to repeat the previously provided educational information, indicating improved understanding. On the third day (September 4, 2024), the patient reported that the pain had decreased to a 3/10, appeared more relaxed, and was no longer grimacing. The patient reported sleeping better and feeling more satisfied with urination due to the reduced sensation of incomplete voiding. The patient's vital signs were stable, and there were no signs of new infection. Overall, the patient appeared more comfortable and cooperative with treatment.

The implementation of this intervention aligns with previous theory and research. Julita et al. (2025) stated that regular deep breathing relaxation exercises can significantly reduce pain intensity by stimulating the parasympathetic nervous system and reducing muscle tension. Meanwhile, Lestari et al., (2024) found that warm compresses were effective in reducing smooth muscle spasms, improving blood circulation, and improving the comfort of patients with urinary tract infections. Thus, the implementation of deep breathing relaxation and warm compresses has been shown to have positive results in reducing pain and improving the quality of life of patients (Filiandri & Sari, (2023).

Evaluation

Table 2.
Nursing Evaluation of Deep Breathing Relaxation Techniques and Warm Water Compresses

Evaluation Components (SLKI)	September 2, 2024 (Day I – Before Intervention)	September 3, 2024 (Day II – After Intervention)	September 4, 2024 (Day III – After Intervention)	Information
Complaints of pain	The patient complained of moderate-severe suprapubic pain, difficulty sleeping, and appeared restless.	Pain complaints are reduced, patients feel more relaxed, sleep better	Minimal pain, the patient said he only felt a little pain when urinating.	Deep breathing relaxation and warm compresses help reduce muscle tension and anxiety.
Facial expressions	Looks grimacing, face tense when urinating	More relaxed expression, less grimacing	No grimaces, face looks calm	Shows a decrease in pain intensity
Vital signs	Pulse 96 x/minute, BP 140/90 mmHg, temperature 37.9°C	Pulse 88 x/minute, BP 130/80 mmHg, temperature 37.7°C	Pulse 82 x/minute, BP 130/80 mmHg, temperature 37.3°C	Decreased pain response stabilizes vital signs
Activity	Patients have difficulty focusing, appear weak, and often complain of pain.	Patients are more cooperative, able to sit longer	The patient begins to be active, walking to the bathroom with assistance.	Reduced pain increases comfort and independence
Sleep quality	Difficulty sleeping due to pain and restlessness	Sleep better ±4–5 hours	Get enough sleep ±6–7 hours, look fresher when you wake up	Warm compresses and relaxation improve sleep quality.
Pain scale (0–10)	6–7 (moderate–severe pain)	4 (mild–moderate pain)	2–3 (mild pain)	Pain reduction according to SLKI targets
Urinary elimination	Increased frequency, feeling of incomplete voiding, cloudy and smelly urine	Frequency decreases, feeling of incomplete voiding begins to decrease, urine is still cloudy	Frequency is almost normal, feeling of incomplete voiding is reduced, urine is clearer	Effective urinary elimination management reduces symptoms.
Risk of infection	High leukocytes, increased CRP, patient does not maintain hygiene	Patients began to be taught to wash their hands and maintain cleanliness, and began to cooperate.	Patients consistently maintain cleanliness, the risk of infection decreases	Infection prevention education effectively reduces the risk of complications.

Nursing evaluations are conducted to assess the effectiveness of the interventions provided. In the case of Mrs. Toyozato Kumiko, diagnosed with a chronic urinary tract infection (UTI), the primary intervention focused on deep breathing relaxation and warm compresses. The evaluation was conducted over three days, from September 2 to 4, 2025, monitoring the progression of pain complaints, vital signs, facial expressions, sleep quality, activity, urinary elimination, and risk of infection. On the first day (September 2, 2024), the patient continued to complain of moderate to severe suprapubic pain, rated 6–7/10. She grimaced, had a tense face, had difficulty sleeping, and appeared restless. The pain also increased her pulse and blood pressure. This is consistent with the theory that acute pain due to inflammation of the urinary tract wall can elicit physiological responses such as increased blood pressure, pulse, and facial tension (Julita et al., 2025).

After receiving deep breathing relaxation intervention, the patient began to control her tension and felt more relaxed. Deep breathing exercises have been shown to help reduce anxiety and increase her pain threshold. Results were visible on the second day (September 3, 2024), when the patient reported a reduction in pain to 4/10, appeared

calmer, and was able to sleep better. Deep breathing relaxation effectively reduces pain through stimulation of the parasympathetic system (Julita et al., 2025). In addition, the patient received intervention in the form of warm compresses on the suprapubic area. This therapy aims to improve blood circulation, reduce bladder smooth muscle spasms, and increase comfort. On the second day, the patient reported improved sleep quality, although mild pain persisted. On the third day (September 4, 2024), the patient reported a significant reduction in pain to 2–3/10, no longer grimacing, and slept for 6–7 hours and felt more refreshed upon awakening. Warm compresses have been shown to increase comfort and reduce pain (Lestari et al., 2024).

The combination of deep breathing relaxation and warm compresses demonstrated optimal results. The patient not only experienced reduced pain but also showed improvements in vital signs, a more relaxed facial expression, more cooperative activities, and improved sleep quality. This is consistent with research confirming that the combined application of non-pharmacological techniques effectively reduces pain and increases patient comfort (Filiandri & Sari, 2023). Therefore, it can be concluded that the deep breathing relaxation and warm compress intervention successfully reduced the patient's pain intensity from a scale of 6–7/10 to 2–3/10 within three days, improved sleep quality, stabilized vital signs, and made the patient more comfortable. The application of these two techniques can be used as an alternative non-pharmacological therapy that supports medical treatment in patients with chronic urinary tract infections (SLKI, 2019).

CONCLUSION

Based on the results of a case study on Mrs. Toyozato Kumiko, diagnosed with chronic urinary tract infection (UTI), it can be concluded that the patient complained of pain during urination with a scale of 6 out of 10, increased frequency of urination accompanied by a feeling of incomplete urination, cloudy and odorous urine, and had a history of recurrent UTIs and comorbid diabetes mellitus. Supporting examination results indicated chronic inflammation of the urinary tract. The established nursing diagnoses included acute pain related to the inflammatory process of the urinary tract, impaired urinary elimination related to urinary retention and residual urine due to chronic UTIs, and risk of infection related to a history of recurrent UTIs and diabetes mellitus. Nursing interventions focused on pain management through the application of deep breathing relaxation techniques and warm compresses, monitoring urinary elimination patterns, infection prevention education, and collaboration in providing medical therapy. Implementation lasted for three days and demonstrated positive results, including a decrease in the pain scale from 6 to 3, improved relaxation and sleep quality, smoother urinary elimination, and a reduced risk of infection, along with an increased understanding of personal hygiene. Evaluation based on outcome criteria (SLKI) indicated that the nursing care goals were partially to fully achieved, namely reduced pain, improved urinary elimination, and a reduced risk of infection. Thus, deep breathing relaxation techniques and warm compresses have proven effective as non-pharmacological interventions in pain management in patients with chronic UTIs.

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