Research Article

THE RELATIONSHIP BETWEEN PAIN AND ANXIETY WITH SLEEP QUALITY IN INPATIENTS AT TK.III DR. R. SOEHARSONO HOSPITAL

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Abstract

Background: Poor sleep quality can negatively impact the function of vital organs, such as the heart, digestive system, and nervous system, ultimately worsening the health status of hospitalized patients. **Objective**: To analyze the relationship between pain and anxiety with sleep quality in patients at TK.III Dr. R. Soeharsono Hospital. **Methods**: This study employed a quantitative approach with a cross-sectional design. The study population comprised 7,790 inpatients at TK.III Dr. R. Soeharsono Hospital, with a sample size of 99 respondents. Bivariate analysis was conducted using the Spearman rank correlation test. **Results**: There was a significant positive relationship between pain and sleep quality ($p = 0.000 < 0.05$) with a correlation coefficient of 0.469. Similarly, there was a significant positive relationship between anxiety and sleep quality ($p = 0.002 < 0.05$) with a correlation coefficient of 0.308. Hospitalized patients require more sleep compared to healthy individuals to support the recovery process. **Conclusion**: These findings highlight the importance of managing pain and anxiety in hospitalized patients to improve their sleep quality. **Recommendation**: The results of this study may serve as a reference for nursing care, particularly in the management of pain and anxiety among inpatients.

Keywords: Anxiety, Pain, Sleep Quality

Background

The primary goal of fulfilling basic human needs is to maintain life and health. Humans are described as living beings created by God, possessing various functions and potentials, and subject to natural laws. Humans undergo the processes of birth, growth, development, and death, and are interconnected with nature and their environment through reciprocal relationships, either positive or negative. Physiological needs such as eating, drinking, sleeping, and breathing are the most fundamental and vital for human survival (Devi & Heri, 2021).

Sleep is an essential need for everyone to improve quality of life. According to Potter and Perry (2006), sleep is a basic human need that functions to restore normal physiological balance, regulate body temperature, and replenish energy. Beyond physical rest, sleep also reduces tension in the brain, particularly the cerebral cortex, which is responsible for memory, imagination, judgment, and reasoning (Hidayat, 2021).

Data from the World Association of Sleep Medicine (WASM) indicate that approximately 45% of the global population experiences sleep disturbances such as insomnia, insufficient sleep duration, and Restless Legs Syndrome (RLS) (Lim et al., 2020). Sleep quality is influenced by several factors, including illness, environment, fatigue, medication, and emotional stress (Basri, 2021). Illnesses may cause physical discomfort and pain—such as breathing difficulties—that can lead to mental disorders like anxiety and depression, further disrupting sleep posture and comfort (Sari et al., 2022).

Inadequate pain management significantly impacts patients, contributing to sleep disturbances, limited mobility, anxiety, and aggression. Despite receiving analgesics, about 50% of patients still report experiencing pain. Unmanaged pain can adversely affect quality of life and worsen the patient's condition. Pain-related sleep disturbances may lead to additional health problems, making

proper pain management essential to ensure optimal patient comfort and well-being (Budiyanto, 2022).

According to WHO, approximately 33% of people in developing countries experience persistent pain. In the United States, pain is a primary reason for seeking medical care. A 2012 study found that 86.6 million adults experienced daily acute pain, and 25.5 million suffered from chronic pain (KEMENKES RI, 2022). In Indonesia, although no comprehensive national data exist, it is estimated that 12.7 million people (around 5% of the population) experience cancer-related pain. Rheumatic disease affects 23.6–31.3% of the population, while low back pain (LBP) affects around 40%, with a prevalence of 18.2% among men and 13.6% among women (Putri, 2022).

Furthermore, 11.9% of the population has been diagnosed with musculoskeletal disorders, with 24.7% showing related symptoms. Musculoskeletal pain that interferes with daily activity is a common experience (Kawuryan, 2022). While no specific data on pain prevalence in South Kalimantan exists, BPS provincial reports list the ten most common diseases that potentially cause pain, including acute respiratory infections (76,635 cases), hypertension (60,844), gastritis (31,290), arthritis (29,653), dental pulp disorders (27,122), cough (21,095), and headaches (18,092), among others (BPS KALSEL, 2023).

At TK.III Dr. R. Soeharsono Hospital, there is no consolidated data on pain prevalence. However, the 2022 annual report highlights pain-inducing conditions among inpatients, especially postoperative patients (764 cases). Other pain-related diagnoses include varicocele (209), hernia (172), diabetes mellitus (153), GERD (131), tonsillitis (123), typhoid fever (105), impacted teeth (101), hypertension (71), and vertigo (37). Pain may arise from physical injury, inflammation, infection, nervous system disorders, chronic illness, psychological factors, and cancer.

Pain is a complex experience involving unpleasant sensory and emotional components related to actual or potential tissue damage. If not properly managed, pain may result in chronic conditions, impact bodily functions, reduce quality of life, and delay healing. It may also affect the autonomic nervous system, particularly the sympathetic system (Vitani, 2019). Chronic pain often leads to anxiety, which in turn increases pain perception (Agustin, 2020).

Anxiety is a common mental health problem worldwide. According to WHO, over 18% of the global population suffers from anxiety. In the U.S., 40 million adults over 18 years of age experience anxiety disorders (Artama, 2022). In Indonesia, the 2018 Basic Health Research (Riskesdas) found that 6.1% of the population aged 15 and above shows emotional disorders marked by depression and anxiety, equivalent to approximately 11 million people (egsaugm, 2020).

While no specific data on anxiety prevalence in South Kalimantan exist, estimates suggest 11.6% of Indonesia's population may experience anxiety, including those residing in South Kalimantan. Based on national prevalence, around 299,000 people in South Kalimantan may suffer from emotional disorders. Although TK.III Dr. R. Soeharsono Hospital has no specific anxiety data, the 2022 report shows that anxiety often arises from invasive procedures such as infusions and surgeries. Common diagnoses associated with anxiety included varicocele, hernia, diabetes, GERD, tonsillitis, typhoid, and impacted teeth, affecting around 1,200 inpatients.

Anxiety may result from unfamiliar hospital environments, frustration from limited activity, loss of control, medication side effects, trauma, sleep deprivation, or stress (Damanik, 2021). If untreated, anxiety can lead to serious physical complications such as gastrointestinal issues, headaches, cardiovascular problems, and chronic diseases (Kurniasih, 2022).

Sleep disturbances affect about 18% of the global population, with 1 in 3 individuals suffering from insomnia (Wati, 2022). In the U.S., 30–50 million people, from adolescents to the elderly, experience sleep disorders (Pinalosa et al., 2019). In Indonesia, 35–45% of adults report sleep problems, with 25% suffering from severe disorders (Sonhaji et al., 2023). In South Kalimantan, BKKBN (2011) reported that 8.2% of adolescents to elderly people experience sleep disturbances, mainly insomnia (80%) and hypersomnia (15%).

At TK.III Dr. R. Soeharsono Hospital, although general sleep quality data is unavailable, a study by Despiyadi (2019) found that 75% of post-BPH surgery patients had poor sleep quality. Hospitalized patients require more rest than healthy individuals, making it crucial for nurses to prioritize sleep management. Signs of sleep disturbance include dark circles under the eyes, eyelid swelling, red conjunctiva, restlessness, slow speech, and difficulty concentrating. According to Lobbezoo et al. (2020), sleep must include both REM and NREM phases to support mental and physical health.

A study by Elmiyanti (2022) in Boul District found that 68.3% of hospitalized patients had poor sleep quality due to anxiety. A similar study at Dustira Hospital reported that 66.7% of post-cesarean patients had poor sleep quality (Noviyanti et al., 2020). Sleep is essential for healing, but illness often hinders patients from obtaining adequate rest (Triana, 2019).

According to Kemenkes RI, ideal sleep durations vary by age, ranging from 8–10 hours for teenagers to 7–8 hours for the elderly. Surveys in U.S. hospitals found that sleep disturbances were caused by discomfort (62%), pain (58%), anxiety (30%), fear (25%), unfamiliar environments (18%), and uncomfortable beds (10%) (Ritonga & Pratiko, 2018).

Sari (2021) also found that sleep disorders among ICU patients were mainly due to physical pain (87.1%), environmental factors (90.3%), medical procedures (77.4%), and anxiety (83.9%). Prolonged pain or anxiety may lead to chronic insomnia, creating a cycle of worsening symptoms and poor quality of life. Budiyanto (2022) found significant correlations between pain, anxiety, and sleep quality in Budi Asih Hospital. Patients with mild pain had better sleep, while those with moderate to severe pain experienced poor sleep.

Similar results were found in Bashir's (2020) study, which reported significant associations between pain, anxiety, and sleep patterns in patients at Tengku Chik Ditiro Hospital. This emphasizes the importance of nursing care that addresses pain and anxiety to improve patient outcomes.

Preliminary data from TK.III Dr. R. Soeharsono Hospital show 7,790 inpatients in 2022. Interviews with 15 patients in January 2023 revealed that 10 experienced signs of pain and anxiety, such as difficulty sleeping, headaches, fatigue, restlessness, and swollen eyes. Based on this background, the researcher is interested in examining "The Relationship Between Pain, Anxiety, and Sleep Quality in Inpatients at TK.III Dr. R. Soeharsono Hospital, Banjarmasin".

Method

This study employed an analytic research design using a cross-sectional approach. The population consisted of 7,790 inpatients who experienced pain at TK.III Dr. R. Soeharsono Hospital from January to December 2022. The sampling technique used was purposive sampling, where participants were selected based on predetermined inclusion and exclusion criteria set by the researchers. Data analysis was conducted using the Spearman Rank correlation test.

Results and Discussion

Univariate analysis is a type of data analysis that aims to describe the frequency distribution and percentage of the research variables (Notoatmodjo, 2018). The characteristics of respondents based on age, as shown in Table 1.

Table 1. Frequency Distribution of Respondents by Age

No	Age (years)	n	%
1.	17 – 25	18	18.18
2.	26 – 35	17	17.17
3.	36 – 45	22	22.22
4.	46 – 55	23	23.23
5.	56 - 67	19	19.19
	Total	99	100.0

Table 1 indicate that the most common age range was 36–45 years, with a total of 22 respondents (22.22%).

Table 2. Frequency Distribution of Respondents by Gender

No	Gender	n	%
1.	Male	51	51.5
2.	Female	48	48.5
	Total	99	100.0

Table 2 shows that the majority of respondents by gender were male, totaling 51 individuals

(51.5%).

Table 3. Frequency Distribution of Respondents by Educational Background

Education Level	n	%
No Formal Education	9	9.1
Elementary School	8	8.1
Junior High School	16	16.2
Senior High School	40	40.4
Diploma (D-III)	14	14.1
Bachelor's Degree	10	10.1
Master's Degree	2	2.0
Total	99	100.0

Table 3 presents the respondents' educational background, with the highest number having graduated from senior high school (SMA), totaling 40 respondents (40.4%).

Table 4. Frequency Distribution of Respondents by Occupation

Occupation	n	%
Unemployed	9	9.1
Farmer	8	8.1
Entrepreneur	16	16.2
Private Employee	26	26.3
Civil Servant	14	14.1
Military/Police	10	10.1
Others	16	16.1
Total	99	100.0

Table 4 shows that the most common occupation among respondents was private-sector employees, with 26 respondents (26.3%).

Table 5. Frequency Distribution of Respondents by Medical Diagnosis

Medical Diagnosis	n	%
Hypertension	8	8.1
Diabetes Mellitus	5	5.1
Dengue Hemorrhagic Fever	4	4.0
Vertigo	6	6.1
Pulmonary Tuberculosis	4	4.0
Pneumonia	10	10.1
Non-Hemorrhagic Stroke	5	5.1
Acute Gastroenteritis	7	7.1
Gastroesophageal Reflux Disease (GERD)	12	12.1
Benign Prostatic Hyperplasia (BPH)	12	12.1
Soft Tissue Tumor	4	4.0
Lower Back Pain	2	2.0
Abdominal Pain	13	13.1
Varicocele	7	7.1
Total	99	100.0

Table 5 shows that the most frequent medical diagnosis among respondents was abdominal pain, with 13 respondents (13.1%).

Table 6. Frequency Distribution of Respondents by Pain Level

Pain Level	n	%
Mild Pain	17	17.2
Moderate Pain	34	34.3
Severe Pain	48	48.5
Total	99	100.0

Table 6 shows that the majority of respondents experienced severe pain, totaling 48 individuals (48.5%).

Table 7. Frequency Distribution of Respondents by Anxiety Level

Anxiety Level	n	%
No Anxiety	25	25.3
Mild Anxiety	18	18.2
Moderate Anxiety	16	16.2
Severe Anxiety	20	20.2
Very Severe Anxiety	20	20.2
Total	99	100.0

Table 7 shows that most respondents reported no anxiety, with a total of 25 individuals (25.3%).

Table 8. Frequency Distribution of Respondents by Sleep Quality

Sleep Quality	n	%
Good Sleep Quality	35	35.4
Poor Sleep Quality	64	64.6
Total	99	100.0

Table 8 shows that the majority of respondents had poor sleep quality, totaling 64 individuals (64.6%).

Table 9. Cross Tabulation of Pain Level and Sleep Quality

Pain Level	Sleep Quality				Total	
	Good		Poor			
	n	%	n	%	n	%
Mild	13	13.1	4	4.1	17	17.2
Moderate	10	10.1	24	24.2	34	34.3
Severe	12	12.1	36	36.4	48	48.5
Total	35	35.4	64	64.6	99	100
p-value = 0.002 r = 0.308 (moderate correlation)						

Table 9 shows that among respondents with severe pain (48 individuals), 12 (12.1%) had good sleep quality, while 36 (36.4%) had poor sleep quality.

The results of the Spearman Rank statistical test showed a significant value of 0.002, which is less than $\alpha = 0.05$. Therefore, the alternative hypothesis (Ha) is accepted, indicating a significant relationship between pain and sleep quality among patients. Additionally, the correlation coefficient was 0.308, indicating a moderate positive relationship, meaning that the higher the level of pain experienced by respondents, the worse their sleep quality.

Table 10. Cross Tabulation of Anxiety Level and Sleep Quality

Anxiety Level	Sleep Quality				Total	
	Good		Poor			
	n	%	n	%	n	%
No Anxiety	16	16.2	9	9.1	25	25.3
Mild Anxiety	11	11.1	7	7.1	18	18.2
Moderate Anxiety	3	3.0	13	13.1	16	16.1
Severe Anxiety	3	3.0	17	17.2	20	20.2
Panic Level Anxiety	2	2.0	18	18.2	20	20.2
Total	35	35.4	64	64.6	99	100
p-value = 0.000 r = 0.469 (moderate correlation)						

Table 10 also shows that 25 respondents had no anxiety, of whom 16 (16.2%) had good sleep quality and 9 (9.1%) had poor sleep quality.

Based on the Spearman Rank correlation test results, which further examined the relationship between anxiety and sleep quality, the p-value was 0.000, which is less than $\alpha = 0.05$. Thus, the alternative hypothesis (Ha) is accepted, indicating a significant relationship between anxiety and sleep quality among patients. The correlation coefficient was 0.469, indicating a moderate positive relationship, meaning that the higher the anxiety level of respondents, the worse their sleep quality.

Discussion

The Relationship Between Pain and Sleep Quality

In this study, an analysis was conducted to evaluate the relationship between pain and sleep quality. The findings revealed a significant association between these variables based on the calculated p-value and the Spearman Rank correlation coefficient.

According to the results, the Spearman rank correlation test indicated a p-value of 0.000, which is less than $\alpha=0.05$. Therefore, it can be concluded that the alternative hypothesis (Ha) is accepted, indicating a significant relationship between pain and sleep quality.

Furthermore, the Spearman Rank analysis showed a correlation coefficient (r) of 0.308, which falls into the moderate category. This means that pain has a moderate relationship with sleep quality.

The study also showed that among the 17 respondents experiencing mild pain, 4 reported poor sleep quality. Although mild pain is generally considered to have a lesser impact on sleep quality compared to more severe pain, there were still respondents who experienced poor sleep quality. This could be attributed to various factors, such as individual responses to pain, other sleep disturbances, stress, anxiety, or underlying health conditions. According to Latifin (2021), individual responses to pain vary depending on their pain tolerance and past experiences.

Unmanaged pain can have serious implications on a patient's quality of life and may even worsen their overall condition. Sleep disturbances caused by pain can exacerbate the situation and lead to additional health problems. Therefore, appropriate pain management is essential to ensure patient

comfort and optimal quality of life (Budiyanto, 2022).

A study conducted by Siregar (2022) also demonstrated a positive relationship between pain and sleep quality. It showed that respondents who experienced pain were more likely to have poor sleep quality. Pain can also affect the quality and direction of Rapid Eye Movement (REM) sleep, which is essential for physical and mental recovery. Sleep quality includes both quantitative aspects (such as sleep duration and latency) and subjective perceptions. A person is considered to have good sleep quality if there are no signs of sleep deprivation, such as feeling unrefreshed upon waking, excessive daytime sleepiness, dark circles under the eyes, heavy head, fatigue, or sleep insufficiency (Pramesti et al., 2019).

Additionally, a study by Sari et al. (2022) revealed that respondents experiencing moderate to severe pain tended to have poor sleep quality. This study further confirmed the relationship between pain and sleep quality, showing that higher pain levels are associated with poorer sleep. Pain can disrupt various sleep stages, particularly the REM stage, which is the deepest phase of sleep. Disruptions during this stage may lead to impaired cognitive function and decreased concentration during the day.

The researcher assumes that pain affects an individual's sleep quality. Pain can disrupt the normal sleep cycle, resulting in individuals feeling unrefreshed in the morning and experiencing difficulties initiating sleep or frequent awakenings during the night. Moreover, the study found a positive correlation between pain and poor sleep quality, suggesting that individuals who experience pain tend to have lower sleep quality. Unmanaged pain can exacerbate sleep problems, while poor sleep may increase pain perception.

The Relationship Between Anxiety and Sleep Quality

In this study, an analysis was conducted to evaluate the relationship between anxiety and sleep quality. The results revealed a significant association between these variables based on the calculated p-value and the Spearman Rank correlation coefficient.

According to the findings, the Spearman Rank correlation test showed a p-value of 0.000, which is less than α=0.05. Therefore, it can be concluded that the alternative hypothesis (Ha) is accepted, indicating a significant relationship between anxiety and sleep quality.

Moreover, the Spearman Rank analysis revealed a correlation coefficient (r) of 0.469, which falls into the moderate category. This suggests that anxiety has a moderate relationship with sleep quality.

The results showed that the largest proportion of respondents (25 or 25.3%) reported no anxiety, among whom 16 (16.2%) had good sleep quality and 9 (9.1%) had poor sleep quality. Although the majority did not experience anxiety, a portion still reported poor sleep quality. This indicates the presence of other contributing factors, such as sleep environment, sleep habits, or other health conditions (Wahdakirana and Rahayuningsih, 2021). Some individuals may possess strong coping skills that help manage anxiety, while others may be more vulnerable and struggle to manage it effectively.

These findings are consistent with a study by Elmiyanti (2022), which demonstrated a positive relationship between anxiety and sleep quality. This means that higher levels of anxiety are associated with lower sleep quality. This relationship can be explained by the fact that anxiety may cause sleep disturbances, such as difficulty falling asleep, frequent awakenings, or restless sleep.

The negative effects of poor sleep quality due to anxiety can impact overall well-being and health. Sleep deprivation may lead to reduced energy, concentration difficulties, memory decline, and physical health problems such as weakened immunity. Thus, addressing anxiety and improving sleep quality are vital for maintaining overall health and well-being.

Furthermore, a study conducted by Budiyanto (2022) revealed that respondents experiencing mild, moderate, and severe anxiety tended to have poor sleep quality. This study also confirmed a significant association between anxiety and sleep quality, where higher anxiety levels were linked to poorer sleep. Increasing anxiety levels may contribute to decreased sleep quality. Therefore, it is important to

manage anxiety through appropriate approaches such as stress management, cognitive behavioral therapy, and relaxation techniques to improve sleep quality and overall well-being.

Another study by Lumbantobing and Rahtriawati (2019) found a significant relationship between anxiety levels and sleep quality. This relationship is due to the interaction mechanism between anxiety and sleep quality. High levels of anxiety can disrupt sleep patterns and lead to frequent sleep disturbances, such as difficulty falling asleep, frequent awakenings, or poor sleep quality. In other words, the greater the level of anxiety experienced, the more disrupted the sleep quality becomes.

The researcher assumes that anxiety can affect an individual's sleep quality. High or chronic anxiety can significantly disrupt sleep and reduce its quality. When individuals experience anxiety, their racing thoughts, restlessness, and tension may interfere with the normal sleep process. People with anxiety tend to struggle to fall asleep, frequently wake up during the night, or experience restless sleep. Persistent worry or intrusive thoughts can hinder the relaxation needed for quality sleep.

Conclusion

There is a positive relationship between pain and sleep quality, with a p-value of $0.002 < 0.05$ and a correlation coefficient of 0.308. Furthermore, there is a positive relationship between anxiety and sleep quality, with a p-value of $0.000 < 0.05$ and a correlation coefficient of 0.469. This indicates that both pain and anxiety are significantly associated with sleep quality among patients at TK.III Dr. R Soeharsono Hospital.

For the hospital: The findings of this study may serve as a reference and be considered in the development of strategies to address issues related to pain, anxiety, and sleep quality among patients.

For educational institutions: The results of this study may be utilized to enhance the quality of teaching and learning processes, particularly in professional basic nursing courses.

For nurses: The results may be used as an informative reference in providing nursing care, especially in the management of pain and anxiety for hospitalized patients.

For future researchers: The findings may serve as a source of literature for conducting further research using different methods or variables, such as qualitative approaches.

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