

THE RELATIONSHIP BETWEEN SLEEP QUALITY AND QUALITY OF LIFE IN HEMODIALYSIS PATIENTS

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ABSTRACT

Background: Hemodialysis therapy has physical and psychological effects that can affect patients' sleep quality and quality of life and exacerbate their condition. Poor quality of life affects patients' sleep quality, partly due to anxiety or stress. If hemodialysis patients experience many problems, it will affect their quality of life, including disruption to their daily activities. The purpose of this study is to determine the relationship between sleep quality and quality of life in hemodialysis patients.

Methods: This study uses correlation and a cross-section. It uses PSQI and the European Quality of Life 5 Dimensions. We used purposive sampling. There were 42 hemodialysis patients. Data collection was conducted in October 2024 at the PMI Hospital in Bogor City.

Results: A total of 34 (81%) hemodialysis patients experienced poor sleep quality, while 16 (38.1%) experienced a moderate quality of life, and 9 (21.4%) experienced a low quality of life. There was a relationship between sleep quality and quality of life in hemodialysis patients, with a p-value < 0.004 and a correlation of -.435**.

Conclusion: This means that poor sleep quality in hemodialysis patients will have an impact on their moderate to low quality of life. Sleep quality plays an important role in improving the quality of life of hemodialysis patients. Hemodialysis patients can improve their sleep quality by creating a sleep schedule, exercising regularly, getting exposure to sunlight, and sleeping when they feel sleepy so that they do not feel tired.

Keywords: hemodialysis, nursing, quality of life, sleep quality

INTRODUCTION

Hemodialysis patients face various problems related to kidney failure (Mustofa S & Kartinah K, 2023). Sleep disturbance is a common problem for hemodialysis patients. Hemodialysis patients may face various problems that will impact their quality of life. One of these is reduced ability to do daily activities. Another problem may be a sense of resignation towards their illness (Rustendi & Inayah, 2022).

One of the effects that arises is a decline in sleep quality in hemodialysis patients. Sleep quality is a complex phenomenon because it has many aspects, such as assessment of sleep latency, sleep duration, sleep efficiency, sleep disturbances, medication use, and daytime dysfunction. Patients undergoing hemodialysis therapy are at a higher risk of poor sleep quality (Firdayanti & Sri Aprilianti Idris, 2023). Poor quality of life affects patients' sleep, partly due to anxiety or stress. Stress causes wakefulness (Ningsih & Permatasari, 2020). Sleep quality can be affected by physical conditions like tiredness or pain, causing discomfort (Budyawati Nplw, Utami Dki, 2019).

Globally, an estimated 69% of patients with chronic kidney failure choose hemodialysis as renal replacement therapy, accounting for 89% of other dialysis options such as peritoneal dialysis (Bello Ak, Okpechi Ig, Osman Ma, 2022). Based on data from the 2023

Riskesdas, doctors in Indonesia diagnosed 638,178 people with chronic kidney disease in 2023, or approximately 0.18% of the Indonesian population. Of these, 1,259 people aged ±15 years underwent hemodialysis based on their diagnosis, which was based on the characteristics of SKI 2023 in Indonesia. Meanwhile, in West Java Province, 114,619 people, or 0.20% of the population, had chronic kidney disease (Tim Penyusun SKI, 2023).

Studies show the PMI Hospital in Bogor City had about 1,800 dialysis patients a month. Some patients were new. Others had regular hemodialysis. Observations during the preliminary study of several patients revealed that since undergoing hemodialysis, they had experienced difficulty sleeping, frequent early morning awakenings, daytime sleepiness, constant anxiety before starting therapy, and boredom with their condition because they felt like a burden to their families and were unable to perform their daily tasks. Hemodialysis patients have physical and mental issues. These lower their life quality. Therefore, it is important to understand in depth the relationship between sleep quality and quality of life in order to improve nursing science so that appropriate interventions can be provided to patients.

Hemodialysis can cause side effects. These can make sleeping harder for patients. Sleep loss hurts your mind and body. You may feel weak, tired, and get sick more often. All of these can reduce a person's quality of life (Nurhayati et al, 2021). To improve sleep, create a schedule, exercise, get sunlight, avoid caffeine, nicotine, and alcohol, maintain a good environment, avoid naps, and sleep when sleepy, so you will not feel tired (I Dewa, 2022). It is important to deeply understand the relationship between sleep quality and quality of life in order to improve nursing science.

Sleep is a basic human need that must be fulfilled. It is considered good if the quality of sleep is also good. Sleep disorders are one aspect of sleep quality. Therefore, when a person experiences sleep disorders, the quality of sleep will decrease (Ulinnuha et al, 2022). A person has good sleep quality if they feel satisfied and not easily tired, restless, or lethargic. In addition, they do not yawn or feel sleepy often, and they do not have dark circles under their eyes, swollen eyelids, red conjunctiva, sore eyes, or headaches (Damanik, 2022). Each individual's sleep quality varies due to factors like illness. One of the important points that reflects health status and quality of life is sleep quality, which includes subjective sleep quality, efficiency, duration, disturbances, latency, daytime dysfunction, and the use of sleeping pills, which are some of the components that affect sleep quality (Angraini, 2021).

Quality of life is a state in which a person obtains satisfaction in their daily activities (Sutanto, 2024). Quality of life can take the form of personal freedom, job quality, financial status, politics, and so on. Quality of life can also take the form of a person's well-being, which focuses on improved living conditions (Mulyadi, 2018). Quality of life consists of three aspects of a good life, namely subjective quality of life, existential quality of life, and objective quality of life (Tresnawan, 2023). One of the things that can affect a person's quality of life is medical factors, which consist of the duration of illness, duration of treatment, stage of disease, comorbidities, and medical management experienced (Damayantie et al, 2022).

RESEARCH METHOD

This quantitative study uses a cross-sectional design. Data was collected directly from hemodialysis patients via questionnaires (Ramdhani, 2021). Data collection was conducted in October 2024 at the PMI Hospital in Bogor. The study included 280 hemodialysis patients from PMI Hospital in Bogor City. Purposive sampling was used, with 42 patients responding (Sukmawati et al, 2023). The research instruments used for data collection included the Pittsburgh Sleep Quality Index (PSQI) to assess sleep quality, which has seven indicators, namely subjective sleep quality, sleep duration, sleep efficiency, sleep latency,

sleep disturbances, daytime dysfunction, and use of sleeping pills (Restu, 2023). The European Quality of Life 5 Dimension assessed quality of life with 5 components: mobility, self-care, activities, pain, and anxiety (Wayan & Herowati, 2021). Validity and reliability testing were conducted using item-total correlation and Cronbach's alpha. The process in this study was to apply for permission from the PMI Hospital in Bogor City. After permission, researchers set criteria, got consent, collected data, and processed it using SPSS with Pearson's correlation (Fitriandi, 2022).

RESULTS

As presented in Table 1, the frequency distribution of sleep quality in hemodialysis patients at PMI Hospital in Bogor City from 42 respondents showed that 34 respondents (81%) had poor sleep quality, while 8 respondents (19%) had good sleep quality. Then, the frequency distribution of quality of life among hemodialysis patients at the PMI Hospital in Bogor City from 42 respondents showed that 9 respondents (21.4%) had poor quality of life, 16 respondents (38.1%) had moderate quality of life, and 17 respondents (40.5%) had good quality of life.

Table 1. Distribution Respondent Characteristics

| Variable | Frequency | Percentage (%) |
|--------------------------------|-----------|----------------|
| Age | | |
| Late adolescence (17–25 years) | 3 | 7.1 |
| Early adulthood (26–35 years) | 5 | 11.9 |
| Late adulthood (36–45 years) | 23 | 54.8 |
| Early elderly (46–55 years) | 1 | 2.4 |
| Late elderly (\$>55\$ years) | 10 | 23.8 |
| Gender | | |
| Male | 22 | 52.4 |
| Female | 20 | 47.6 |
| Lastest Education | | |
| Junior High School (SMP) | 4 | 9.5 |
| High School (SMA) | 32 | 76.2 |
| Diploma III (D3) | 1 | 2.4 |
| Bachelor's Degree (S1) | 3 | 7.1 |
| Master;s Degree (S2) | 2 | 4.8 |
| Sleep Quality | | |
| Good Sleep Quality | 8 | 19 |
| Poor Sleep Quality | 34 | 81 |
| Quality of Life | | |
| Good Quality of Life | 17 | 40.5 |
| Moderate Quality of Life | 16 | 38.1 |
| Low Quality of Life | 9 | 21.4 |

A total of 34 hemodialysis patients (81%) had poor sleep quality, 16 hemodialysis patients (38.1%) had moderate quality of life, and 8 hemodialysis patients (21.4%) had low quality of life. As presented in Table 2, the results of statistical tests using SPSS with Pearson's correlation test showed a relationship between sleep quality and quality of life in hemodialysis patients, with a p-value of 0.004 and a correlation of -.435**.

Table 2. The Relationship of Sleep Quality with Quality of Life

| | Sleep Quality | Quality of Life |
|---------------------|---------------|-----------------|
| Pearson Correlation | 1 | -.435** |
| Sig. (2tailed) | | .004 |
| Total | 42 | 42 |

DISCUSSION

Humans need sleep for important physiological functions. When we sleep, our bodies produce growth hormones that help heal damaged cells. In addition to boosting immunity, sleep also helps the body return to its normal state, making tired bodies feel refreshed again. Therefore, everyone needs a good night's sleep, especially those who are sick. Several indicators can be used to evaluate sleep quality, including ease of falling asleep, sleep duration, feeling refreshed upon waking, and not feeling sleepy during daytime activities (Astuti et al, 2021).

A person's sleep is considered good if its quality is also good. If a person gets enough sleep, they will be ready to carry out activities while awake (Woran et al, 2020). One factor affecting sleep quality is physical issues like pain from long-term illness (Ningsih & Permatasari, 2020). According to research findings involving 23 respondents aged 36-45 years (late adulthood) and 10 respondents over 55 (late elderly), age affects sleep quality. Increasing age brings physical changes and declining health, affecting sleep (Budyawati, 2019).

Physical fatigue is a factor often experienced by chronic kidney failure patients undergoing hemodialysis, with 60-97% of patients experiencing sleep disorders. The adverse effects on sleep quality can reduce physical activity levels, functional ability, and mental fatigue, characterized by lack of concentration, while physical fatigue requires muscle weakness, and muscle weakness results in feelings of tiredness. The more fatigued an individual becomes, the shorter their REM sleep duration. Additionally, daytime sleepiness can also be considered a significant factor contributing to fatigue (Benetou et al., 2022).

Studies show that 50%-80% of chronic kidney disease patients undergoing hemodialysis experience sleep disturbances. There are several factors that contribute to sleep disturbances in these patients, such as the duration of hemodialysis therapy, high urea and creatinine levels, pain, disability, malnutrition, peripheral neuropathy, and somatic problems (Nurhayati et al, 2021). The results of a study conducted by Mustofa at Pandan Arang Boyolali Regional General Hospital found that only 13.3% of patients had good sleep quality, while 86.7% had poor sleep quality. This is related to the characteristics of the respondents and also the dimensions of sleep quality, such as subjective sleep quality, sleep latency, sleep duration, sleep efficiency, sleep disturbances, and daytime activity dysfunction. Sleep disturbances in this study had a percentage of 18.8%, which was the highest among the other dimensions (Mustofa S & Kartinah K, 2023).

The results of this study are consistent with the findings of a previous study conducted by Lulu' Luthfiyatun Ulinnuha and her team (2022) on the relationship between sleep quality and quality of life in chronic kidney failure patients undergoing hemodialysis during the COVID-19 pandemic. The study showed that most respondents experienced poor sleep quality, with 30 respondents (83%) falling into this category (Ulinnuha et al, 2022).

In this study, the main assumption is that certain factors can influence most cases of poor sleep quality. These factors include age, physical, and psychological conditions. Poor sleep quality is characterized by insufficient sleep duration, difficulty falling asleep, and frequent waking during the night. Factors such as the sleeping environment and psychological factors play an important role in influencing sleep quality.

Patients undergoing hemodialysis will experience physical health problems caused by dependence on medical equipment, fatigue, pain, and lack of rest and sleep. This causes a decline in the quality of life and sleep quality of chronic kidney failure patients undergoing hemodialysis (Ulinnuha et al, 2022). The results of this study are consistent with the findings of a previous study conducted by Lu'lul' Luthfiatun Ulinnuha, Sirli Mardianna Trishinta, and Yanti Rosdiana on the relationship between sleep quality and quality of life in patients undergoing hemodialysis during the COVID-19 pandemic. The study identified a relationship between sleep quality and quality of life in hemodialysis patients at Panti Waluya Sawahan Hospital in Malang City, with a p-value of $0.00 < 0.05$ (Ulinnuha et al, 2022).

Various factors can affect a person's quality of life, including sociodemographic factors such as gender, age, marital status, occupation, and beliefs. Psychological factors include motivation, depression, and family and social support. Finally, there are medical factors such as the duration of the illness, the duration of treatment, the stage of the disease, comorbidities, and the medical management experienced et al, 2022).

According to research conducted by Whitney et al. in 2025, the quality of life based on physical and psychological health was categorized as moderate. This was because several respondents said they still often felt cramps, nausea, and headaches. Some respondents also said they lacked confidence in their physical appearance, which became a psychological problem in itself. Therefore, it is hoped that efforts can be made to improve the quality of life, particularly in terms of physical and psychological health. (Hillary et al., 2025).

The relationship between sleep quality and quality of life is that sleep disturbances experienced by hemodialysis patients can significantly affect their quality of life due to the discomfort of the procedure or physical disturbances that negatively impact their quality of life, including physical and mental well-being and daily functioning. Sleep disturbances contribute to a decline in quality of life, such as increased fatigue, decreased physical capacity, and psychological disturbances, such as stress.

CONCLUSION

Sleep quality plays an important role in the quality of life of hemodialysis patients. The better the sleep quality of a hemodialysis patient, the better their quality of life, especially in the physical, psychological, and social aspects. Conversely, sleep disturbances such as insomnia and night pain can negatively impact their physical condition, emotional stability, and ability to carry out daily activities. Poor sleep quality causes chronic fatigue, impaired concentration, and decreased immune function, which ultimately worsen the patient's perception of their quality of life. Furthermore, psychological stress due to chronic illness and the strict hemodialysis routine can also worsen sleep quality. Hemodialysis patients can improve their sleep quality by setting a sleep schedule, exercising regularly, getting sun exposure, and sleeping when feeling drowsy so they will not feel fatigued. These efforts are expected to improve the overall well-being of hemodialysis patients and help them undergo therapy better and more meaningfully.

RECOMMENDATIONS

Further research can develop and test the effectiveness of exercise intervention programs, such as yoga, regular walking, and resistance exercise, to improve sleep quality and quality of life.

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