



Original Research

RELATIONSHIP OF SLEEP QUALITY WITH QUALITY OF LIFE IN CHRONIC KIDNEY FAILURE PATIENTS UNDERGOING HEMODIALIZATION DURING THE COVID-19 PANDEMIC

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ABSTRACT

Introduction: Patients with chronic kidney failure (CKD) on hemodialysis (HD) therapy were often experienced poor sleep quality which can affect their quality of life. In addition, the process of hemodialysis therapy also has an impact on the quality of life. The purpose of this study was to determine the relationship between sleep quality and quality of life in chronic kidney failure patients on hemodialyzations during the COVID-19 pandemic.

Method: This research design is cross sectional. The populations were 126 patients with chronic kidney failure on hemodialysis at Panti Waluya Sawahan Hospital, Malang City. On January, we obtained 36 respondents using purposive sampling technique. Data collection techniques used the Pittsburgh Sleep Quality Index (PSQI) questionnaire and The World Health Organization Quality of Life (WHOQOL - BREF) questionnaire. Data analysis used Chi Square test (p value < 0.05).

Results: The results of the study found that most of the respondents had poor on both sleep quality and quality of life. The chi square test showed that there was a relationship between sleep quality and quality of life among chronic kidney failure patients on hemodialysis during the COVID-19 pandemic with a p-value of 0.000.

Conclusions: There is relationship between sleep quality and quality of life among chronic kidney failure patients on hemodialysis during the COVID-19 pandemic. Nurses need to carry out more specific planning and management in nursing care on the problem of sleep needs to increase quality of life in patients chronic renal failure on hemodialyzation.

Keyword: chronic kidney failure; dialysis; quality of life; sleep quality

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1. INTRODUCTION

Chronic kidney failure is still a health problem in the world, including in Indonesia with an increasing number of cases, poor prognosis and high costs (Muhani, 2019). The prevalence of chronic kidney failure in the world according to data from the World Health Organization (WHO) in 2015 stated that the incidence of chronic kidney failure worldwide reached 10% of the population, meanwhile patients with chronic kidney failure undergoing hemodialysis reached 1.5 million people worldwide (Indonesian Renal Registry, 2014). In Indonesia, the prevalence of Chronic Kidney Failure spreads widely to all

provinces from 2013 – 2018 with a prevalence of 2% in 2013 and 3.8% in 2018, while in East Java Province it is 2.6% (Risksdas, 2018).

Chronic kidney failure is a terminal disease that has an impact on a person's physiological, psychological, social and environmental imbalances (Makiyah, 2018). Patients with chronic kidney failure throughout their lives must undergo hemodialysis therapy to prolong life expectancy. Hemodialysis is a replacement therapy for damaged kidney function, in which blood is removed from the patient's body and circulated in a machine outside the body called a dialyzer (Widowati, 2011). Hemodialysis therapy is usually carried out three times a week for 3-4 hours

per therapy (Smeltzer & Bare, 2005 in Ipo, et al 2018). The existence of these routines has an impact on changes in lifestyle in patients with chronic kidney failure. Changes that will occur include the patient's diet, daily activities and rest - sleep (Lisnawati, 2021). Previous study found that patients undergoing hemodialysis in Indonesia have poor sleep quality (Kamil and Setyono, 2018). The results of this study show stark difference compared to sleep quality in eight countries including Indonesia (Stranges, Tigbe, Gómez-Olivé, Thorogood, & Kandala, 2012).

Sleep is one of the five basic human needs that must be met. A person's sleep can be said to be good in terms of the quality of his sleep. Sleep disturbance is one of the seven aspects of sleep quality, if a person has a sleep disorder, it means that the quality of sleep is poor. Sleep disturbances are often experienced by patients with chronic kidney failure undergoing hemodialysis with complaints of difficulty in starting sleep, often waking up at night and unable to go back to sleep, accompanied by complaints of not feeling fresh when waking up (Astuti, et al 2021). In addition, sleep disturbances in chronic kidney failure patients undergoing hemodialysis are also caused by breathing problems during sleep, excessive sleepiness, restless leg syndrome, age, gender, fatigue/fatigue factors, bone pain, stress and anxiety (Hamzi, 2017; Kumar, 2019). Poor sleep quality can cause physiological and psychological disturbances. Physiological disturbances such as feeling tired, weak and easily sick, while psychologically such as lack of concentration, depression, mental disorders and anxiety. If this condition is not prevented early and lasts for a long time, it can lead to a decrease in the quality of life. This means that a decrease in sleep quality in patients undergoing hemodialysis can lead to a decrease in their quality of life (Potter & Perry, 2010).

Quality of life is a subjective perception or assessment of the individual which includes several aspects at once, which includes physical, psychological, social, cognitive health conditions, relationships with roles, spiritual and environmental aspects in daily life (Azizah & Dwi Hartanti, 2016). Patients with chronic kidney failure will experience disturbances in physical health conditions caused by dependence on medical materials or medical assistance, fatigue, pain and rest - sleep. This causes the quality of life of patients with chronic kidney failure undergoing hemodialysis to decrease. Patients undergoing hemodialysis perceive their quality of life at a low level with physical conditions feeling tired, in pain, often anxious, in psychological conditions the patient does

not have the motivation to recover, in social and environmental relationships the patient withdraws (Ibrahim in Suwanti, 2019).

Based on research conducted by Rakhmawati (2016) which aims to determine the relationship between sleep quality and quality of life of patients with chronic kidney failure undergoing hemodialysis

at Wates Hospital. In line with Listyoningih's research (2017) which aims to determine the relationship between sleep quality and quality of life in hemodialysis patients at the Dr. Adhyatma, MPH Semarang and research of Rosmiati, et al (2018) regarding the quality of life of chronic kidney failure patients undergoing hemodialysis therapy at the Ciamis District General Hospital shows that the results of statistical tests have a relationship between sleep quality and quality of life.

Previous study found higher levels of depression and anxiety and lower mental health related quality of life scores, which is consistent with literature from the general population. A depression, anxiety and HRQoL scores were already pre-existent in hemodialysis patients before the COVID-19 outbreak, eventough COVID-19 not influence the severity of psychosocial problem (Nadort, et al, 2022). But, Darsini, et al (2022) was found that more than half of the respondents at Hemodialysis Patients during COVID-19 Pandemic in Gatoel Hospital, Mojokerto City had poor quality of life.

Based on a preliminary study on December 1, 2021 at in the Hemodialysis unit of Panti Waluya Sawahan Hospital, it was found that CKD patients undergoing hemodialysis during the COVID-19 pandemic in 2021 for the January - December period were 202 people with the average classification of patients being stage V. The head of the hemodialysis room at Panti Waluya Sawahan Hospital said that stage V CKD patients had hemodialysis done three times a week and had psychosocial problem since before the COVID-19 outbreak. Furthermore, the findings of this study will determine the relationship between sleep quality and quality of life in chronic kidney failure patients on hemodialysis during the COVID-19 pandemic.

2. METHODS

2.1 Design

This research design was cross sectional design, with 126 patients who joined this study from January to February at Panti Waluya Sawahan Hospital, Malang. A total 36 patients on hemodialysis were recruited using porposive sampling technique.

2.2 Population and sampling

The population of this study was all patients with Chronic Kidney Failure who underwent hemodialysis as many as 126 people at Panti Waluya Sawahan Hospital, Malang during January, 24th until February 4th 2022. Some of the patients with Chronic Kidney Failure who underwent hemodialysis were 36 people at the Panti Waluya Sawahan Hospital. The sampling technique in this study used purposive sampling.

2.3 Variable

The independent variable in this study was sleep quality while the dependent variable in this study is the quality of life.

2.4 Instrument

The independent variable, namely sleep quality, was measured using a Pittsburgh Sleep

Quality Index (PSQI) questionnaire consisting of 19 questions covering 7 aspects of sleep quality, namely subjective sleep quality, sleep latency, sleep duration, sleep disturbances, efficiency of sleep habits, use of sleeping pills, and sleep dysfunction during the day. The measurement of each dimension is spread in several questions and assessments according to standard standards. Component 1 question no 9 with a score of 0 – 3. Component 2 question no 2 + no 5a for number 2 less than 15 minutes is given a score of 0, 16 – 30 minutes is given a score of 2, > 60 is given a score of 3 then for question no 5a if the total the score of the two questions is 0 then the score is 0, if the number is 1 – 2 then the score is 1, 3 – 4 the score is 2, 5-6 the score is 3. Component 3 scores for question number 4 ($> 7=0$, $6-7=1$, $5-6=2$, $<5=3$). Component 4 is the number of hours of deep sleep. Question number 4 is divided by the number of beds, $(\text{question } 1 + 3) \times 100$ if the result is $> 85\%$ then it is given a score of 0.75 - 84% is given a score of 1, 65 - 74% is given a score of 2, $< 65\%$ was given a score of 3. Component 5 totals the score of questions 5b to 5j (if the number is 0 then the score is 0 the total score, if the number is 1 – 9 is given a score of 1, 10 – 18 is given a score of 2, 19 – 27 is given a score of 3). Component 6 scores question number 6 0-3. Component 7 scores for questions no 7 and number 8 if the number is 1 – 2 is given a score of 1, 3-4 is given a score of 2, 5 – 6 is given a score 3. The value of each component is then added up to become a global score of 0 – 21 with a score of 5 = good, $> 5-21 =$ bad.

The dependent variable, namely the quality of life was measured using the World Health Organization Quality of Life (WHOQoL) – BREF questionnaire consisting of 26 questions covering 4 quality of life domains. This instrument consists of positive questions, except for questions number 3, 4, 5 and 26 which are negative. Questions 1 and 2 examine the overall quality of life and health in general. Domain 1, physical health is found in questions number 3, 4, 10, 15, 16, 17, and 18. Domain 2, psychological is found in questions number 5, 6, 7, 11, 19 and 26. Domain 3, social relationships are found on questions number 20, 21 and 22. Domain 4, the environment is in questions number 8, 9, 12, 13, 14, 23, 24 and 25. Respondents will be instructed to choose one number from 1 – 5 on each question. The WHOQoL – BREF instrument provides one kind of score for each dimension. The physical health dimension has a score of 7 – 35, the psychological dimension scores 6 – 30, the social dimension scores 3 – 15 and the environmental dimension 8 – 40. In this study, the score for each domain (raw score) was transformed from 0 to 100 according to the WHOQoL – BREF determination. The higher the score, the better the quality of life, and the lower the score, the worse the quality of life.

2.5 Procedure

The data collection procedures are got permission, collecting data with questionnaire, and data process. Researchers take care of a permit to conduct research from the Tribhuwana Tungadewi

University of Malang and approved by the Panti Waluya Sawahan Hospital, Malang. After getting the research schedule from the Panti Waluya Sawahan Hospital, Malang, researchers ask patients with chronic kidney failure undergoing hemodialysis to become research respondents, then informed consent is given to be filled out. Then, researcher explained the aims and objectives of the study and explained how to fill out the questionnaire. After the respondent understands the research provisions, the PSQI questionnaire and the WHOQoL – BREF questionnaire are given to the respondent to be filled out. After the data is collected, the data is processed according to the steps specified.

2.6 Analysis

Data analysis was carried out using the Chi Square test to see the relationship between the independent variable (sleep quality) and the dependent variable (quality of life). Taking the research hypothesis is based on a significant level with a degree of confidence (alpha 0.05), the relationship is said to be meaningful if the p value < 0.05 (Sugiono, 2014).

2.7 Ethical Clearance

Researcher had approval by the Panti Waluya Sawahan Hospital with number 2291/1424/DIK/RSPW/XII/2021. Researcher also paid attention to the research ethic, respect for human dignity, respect the privacy and confidentiality of research subjects (respect for privacy and confidentiality), justice and inclusiveness (respect for justice and inclusiveness), into account the benefits and losses incurred. Researchers make sure the rights of subjects with obtain open information related to the course of research and have the freedom to make choices and prepare an informed consent form for subjects who approved. This research free from coercion to participate in research activities (autonomy). Researchers did not display information about the identity of either the name or address of the subject in the questionnaire and any measuring tools to maintain the anonymity and confidentiality of the subject's identity. This research is carried out carefully, honestly, professionally, with humanity, and pays attention to factors of accuracy, thoroughness, accuracy, and religious feelings of research subjects. Researchers also minimize the adverse impact on the subject.

3. RESULTS

Based on Table 1 shows most of the respondents, namely 17 respondents (47%) aged 46-65 years and most of the respondents, namely 19 respondents (53%) were female. Based on table 2 shows that most of the respondents, namely 30 respondents (83%) had poor sleep quality. Most of the respondents, namely 27 respondents (75%) had poor quality of life.

Table 1 Frequency distribution based on characteristics of chronic kidney failure patients undergoing hemodialysis during the COVID-19 pandemic

Characteristics	f	(%)
Age		
26 – 45	13	36 %
46 – 65	17	47 %
66 – 85	6	17 %
Gender		
Male	17	47 %
Female	19	53 %
Total	36	100 %

Table 2 Frequency distribution based on research variables in chronic kidney failure patients undergoing hemodialysis during the COVID-19 pandemic

Variable	f	%
Sleep Quality		
Bad	30	83 %
Good	6	17 %
Quality of Life		
Bad	27	75 %
Good	9	25%
Total	36	100 %

Table 3 Frequency distribution of the relationship between sleep quality and quality of life in chronic kidney failure patients undergoing hemodialysis during the COVID-19 pandemic

Variable	Quality of Life				Total	p- value
	Bad		Good			
Sleep Quality	f	%	f	%	f	%
Bad	27	75	3	8	30	83
Good	0	0	6	17	6	17
Total	27	75	9	25	36	100

Based on table 3 shows the results of the chi square test analysis, the p value = $(0.000) < (0.050)$, so there is a relationship between sleep quality and quality of life in chronic kidney failure patients undergoing hemodialysis during the COVID-19 pandemic at Panti Waluya Hospital Sawahan, Malang. The results of the cross tabulation showed that poor sleep quality related with bad QoL and good sleep quality related to good QoL.

4. DISCUSSION

Sleep quality in chronic renal failure patients undergoing hemodialysis

The results of the study based on table 2 show that most of the respondents, 30 respondents (83%) had poor sleep quality. Poor sleep quality in chronic kidney failure patients undergoing hemodialysis is associated with sleep disturbances caused by sleep disturbances, excessive sleepiness, restless leg syndrome, age, gender, fatigue/fatigue factors, bone pain, stress and anxiety (Hamzi, 2017; Kumar, 2019). Sleep disturbances were found in patients with chronic kidney failure undergoing hemodialysis with

complaints of difficulty in starting sleep, often waking up at night and unable to go back to sleep, accompanied by complaints of not feeling fresh when waking up (Astuti, et al 2021).

Factors that contribute to sleep disturbances include the duration of hemodialysis therapy, high urea and/or creatinine, pain, disability, malnutrition, muscle cramps, peripheral neuropathy, and somatic problems. In addition, several factors can cause sleep pattern disturbances, such as demographic factors (age & gender), lifestyle factors, psychological factors (anxiety & depression), biological factors (diseases causing chronic kidney failure), environmental factors and other factors. dialysis therapy (Nurhayati, et al., 2021).

Poor sleep quality in patients with chronic renal failure undergoing hemodialysis can have an impact on the patient's daily activities and affect the body both physiologically, psychologically, socially, and environmentally and can lead to a decrease in appearance such as cognitive and memory dysfunction, irritability, decreased alertness and concentration and aggravate the condition of the disease (Nurhayati, et al., 2021).

Quality of life in chronic renal failure patients undergoing hemodialysis

The results of the study based on table 2 show that most of the respondents, 27 respondents (75%) have poor quality of life. The quality of life in chronic kidney failure patients undergoing hemodialysis in four domains, namely physical, psychological, social and environmental, is basically lower than chronic kidney failure patients undergoing kidney transplantation (Mailani, 2015).

Chronic renal failure patients undergoing hemodialysis have a poor quality of life and tend to experience complications such as depression, malnutrition, and inflammation. Many of them suffer from cognitive disorders, such as memory loss, low concentration, physical, mental, and social disorders that will interfere with daily activities. Some researchers emphasize that improving quality of life will reduce complications associated with this disease (Mailani, 2015).

Factors that affect the quality of life of chronic kidney disease patients undergoing hemodialysis are socio-demographic factors such as gender, age, education level, marital status, employment status or economic status. Other factors are depression, severity/stage of kidney disease, presence of comorbidities, duration of hemodialysis, non-adherence to medication, high body mass index, social support, hemodialysis adequacy, and interdialytic weight gain (IDWG), urine output, interdialytic and hemoglobin values. (Mailani, 2015).

Relationship between sleep quality and quality of life in chronic kidney failure patients undergoing hemodialysis during the Covid-19 pandemic

The results of the study based on table 3 show the results of the chi square test analysis obtained p value = $(0.000) < (0.050)$, so there is a relationship between sleep quality and quality of life in chronic kidney failure patients undergoing hemodialysis during the covid-19 pandemic at Panti Waluya Sawahan Hospital, Malang.

Poor sleep quality in chronic kidney failure patients undergoing hemodialysis can cause physiological, psychological, social and environmental disturbances. Chronic kidney failure patients undergoing hemodialysis will experience disturbances in physical health conditions caused by dependence on medical materials or medical assistance, fatigue, pain and rest - sleep. This causes the quality of life of patients with chronic kidney failure undergoing hemodialysis to decrease. Patients undergoing hemodialysis perceive their quality of life at a low level with physical conditions feeling tired, in pain and experiencing difficulties in daily activities, in psychological conditions the patient does not have the motivation to recover or feels frustrated, in social and environmental relationships the patient withdraws (Ibrahim in Suwanti, 2019).

While the quality of life of patients with chronic kidney failure in the psychological domain shows that the average respondent feels normal life satisfaction, respondents are dissatisfied with their health aspects,

respondents do not enjoy life, feel their life is less meaningful, respondents are also unable to concentrate optimally, respondents do not have enough money to meet their needs, respondents feel lonely, hopeless, anxious, and depressed. In the social domain, it deals with the problem of dissatisfaction in sexual life, and social relationships. Quality of life in the social domain in chronic kidney failure patients undergoing hemodialysis also depends on the social support received by the respondent. Both emotional support from family and social groups in the respondent's environment, as well as instrumental and informational support. In the environmental domain, respondents feel that their presence in the place where they live and work is less needed, respondents do not work. Respondents are considered not to have the ability to do activities also in terms of opinion. Respondents are rarely asked for their opinion and are rarely involved in decision making (Inshan, 2017 in Suwanti, et al., 2019). In line with research (Nurhayati, et al., 2021) that poor sleep quality in chronic kidney failure patients undergoing hemodialysis can have an impact on the patient's daily activities and affect the body, both physiologically, psychologically, socially, and environmentally. This can lead to a decrease in their quality of life.

Chronic kidney failure patients undergoing hemodialysis feel the difference experience while pandemic, such being upset about unexpected things, unable to control important things in life, feeling nervous and stressed, not being able to cope with things that should to do, feeling angry about things outside of control and not being able to overcome difficulties. Hemodialysis patients with more severe symptoms of depression and lower levels of mental health related quality of life prior to the COVID-19 pandemic, are more susceptible to experience stress caused by the pandemic (Nadort, et al, 2022). COVID-19 pandemic also made hemodialysis patient experienced restriction of activity, fear and panic, restricted hospital access and social isolation (Lee, et al, 2020). So this pandemic condition makes worse their sleep quality and quality of life.

Research Limitations

Some respondents experienced weakness during data collection. This is influenced by external factors such as the respondent's family and internal such as the respondent cannot read and write which can affect the results of the study.

5. CONCLUSION

Research on the relationship between sleep quality and quality of life in chronic kidney failure patients undergoing hemodialysis during the COVID-19 pandemic at Panti Waluya Sawahan Hospital, Malang City, concluded that most of the respondents have poor sleep quality and poor quality of life. This research concluded that is a relationship between sleep quality and quality of life in chronic kidney failure patients undergoing hemodialysis during the

COVID-19 pandemic at Panti Waluya Sawahan Hospital, Malang with a p-value of 0.000. Nurses need to carry out more specific planning and management in nursing care on the problem of sleep needs to increase quality of life in patients chronic kidney disease on hemodialyztion.

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