Correlation Sleep Hygiene With Fatigue In Chronic Kidney Disease Patients Undergoing Hemodialysis

Devi Setya Putri *, Lu'luatul Fuadah, Emma Setiyo W, Heriyanti W, Luluk Cahyanti

Institut Teknologi Kesehatan Cendekia Utama Kudus, Indonesia

*Corresponding Author: depisetyaputri@gmail.com

Abstract. Therapy hemodialysis, which is implemented in House Sick in general, makes the patient experience psychological stress (anxiety) and physique Which bother such as weakness and *fatigue*. *Fatigue* experienced by patients with hemodialysis can occur due to reduced erythropoietin production and easily broken blood capillaries. Erythropoietin levels that are too low cause anemia. *Sleep hygiene* is a way to build a good day and night routine, as well as a comfortable and conducive bedroom environment, so that patients can sleep soundly at night. *Sleep hygiene behavior* consists of the sleeping environment and habits or behaviors carried out before going to bed. Changes that occur in *sleep hygiene* will improve the quality and quantity of Sleep (My Lord & Hendrati, 2015). Several behavior *sleep hygiene* Which good, like having timetable regular sleep and wake time, allowing the mind to calm and relax before going to bed, going to bed only when sleepy, and not taking a nap for more than 30 minutes. This study aims to determine the relationship between *sleep hygiene* and *fatigue* in chronic kidney failure patients undergoing hemodialysis. This type of research is a quantitative analytical correlational research, with a *cross-sectional research design*. The population in this study was kidney failure patients. chronicle, who undergo hemodialysis in RSUD Sunan Kalijaga Demak, with the number of samples is64 respondents. Sample in research: This is a patient on hemodialysis who meets the inclusion criteria, has a history of hemodialysis for at least 6 months, and is willing to be a respondent. The results of this study show that *sleep hygiene* is in the good category (42.2%), *sleep hygiene* with category (53.1%), and *sleep hygiene* with a bad category (4.7%). Also, the research results obtained patients with *fatigue* of (42.2%) and no *fatigue* of (57.8%). The results of the *Spearman rank test* with a *p value* 0.000 <0.05, which means Ha is accepted and Ho is rejected. There is a relationship between *sleep hygiene* and *fatigue* in chronic renal failure patients undergoing hemodialysis. There is correlation which significant correlation between *sleep hygiene* with *fatigue* in patients with chronic kidney disease which undergoing hemodialysis.

Key words: [Sleep Hygiene, Fatigue, Chronic Kidney Disease, Hemodialysis]

INTRODUCTION

According to data chronic kidney disease on global health on year 2021 chronic kidney disease has causes the death of 786,000 people each year. This figure shows that chronic kidney disease is ranked 12th highest as a cause of death in the world. Based on data from the Research Health Base (Basic Health Research) on year 2020, the number of patients diagnosed with chronic kidney failure was 18,613 patients. In Indonesia, the number of cases of chronic kidney failure has increased over time. This is based on data reported by WHO, namely an estimated increase in the prevalence of chronic kidney failure cases between 1995 and 2020, namely 41.4% (Melianna & Wiarsih, 2019).

According to data from the Central Java Provincial Health Service (2020), there were around 25.157 sufferers fail kidney failure in Java Middle data This includes patients undergoing dialysis therapy as well as those who have not undergone it. therapy. From the data, around 60% sufferer fail chronic kidney sufferers in Central Java are undergoing dialysis therapy. According to Pernefri data, in 2018, there was an additional number of patients on hemodialysis as high as 66,433 cases throughout Indonesia, while in Central Java, there were 7,906 new cases, which means that 11.6% of the addition of new patients was in Central Java (Pernefri, 2019). Based on information obtained from medical records in the Hemodialysis Unit of Sunan Kalijaga Demak Regional Hospital, the number of patients undergoing hemodialysis on month December 2023 was as many as 76 patients.

Chronic Kidney Failure (CKF) is kidney damage that causes the kidneys to be unable to remove toxins and blood waste products, which is characterized by the presence of protein in the urine and a decrease in the Glomerular Filtration Rate. (LFG) Which is in progress for more than three months (Hanggraini et al., 2020). Hemodialysis is the main therapy for Handling failed chronic kidney disease. Chronic kidney failure patients undergo hemodialysis if the kidney failure with a level of damage of 80-90% then dialysis is usually required to prevent complications in the future. Hemodialysis patients face psychological and physical problems (Alshelleh et.al, 2023). Therapy hemodialysis, which is implemented in Hospitals, generally causes patients to experience psychological stress (anxiety) and disturbing physical conditions such as weakness, fatigue, decreased concentration, disorientation, tremors, weakness in the arms, and painful palms foot.

Fatigue experienced by patients with hemodialysis can occur due to reduced production of erythropoietin, blood capillaries that are easily broken, which can cause blood loss, a decrease in platelets, as well as happen improvement in cytokine inhibitors (Rohaeti et al., 2014).

Fatigue has a major impact on the quality of life of chronic kidney failure patients, in addition to many common chronic health conditions in the population. The dialysis term long can cause fatigue daily in patients, which can affect a person's lifestyle, causing helplessness. Fatigue in patients with chronic kidney failure appears after therapy. hemodialysis consequence dialysis term long on the patient. This will have an impact on fulfilling a healthy lifestyle, one of which is fulfilling the need for sleep and rest.

Sleep disorders in chronic kidney failure (CKF) patients occur because patients often experience fatigue, specifically moments after undergoing hemodialysis. One of the causes of fatigue is the lack of O2 supply, and when condition body experiences a lack of O_2 which muscles break down glucose, producing not energy but lactic acid. When the body continues to produce lactic acid, it will cause pain and stiffness. so that can cause sleep pattern disorders. In addition, the situation and conditions of the hospital also affect a person's sleep patterns. Sleep disorders in patients undergoing hemodialysis can influence the quality of Sleep, including achievement length of sleep (Nurative & Kusumah, 2015).

Sleep hygiene is a way to establish a good day and night routine, as well as a comfortable and conducive bedroom environment, so that you can sleep well at night. Sleep hygiene behavior consists of the sleeping environment and habits or behaviors that are carried out before going to bed. Changes that happen in sleep hygiene will lead become more improvements in both by improving the quality and quantity of a person's sleep (Sayekti & Hendrati, 2015). Some good sleep hygiene behaviors such as having a timetable for sleeping and getting up at which same time, letting thoughts be calm and relaxed before going to bed, going to bed only when sleepy, and not taking a nap for more than 30 minutes. Next, in terms of the sleep hygiene environment that can make someone sleep comfortably, such as lighting that is not too bright or dark, room temperature Which No too hot or cold, avoid noise, as well as maintaining room cleanliness if these methods are carried out, then sleep quality will be better (Rahmawati et al., 2019).

Good sleep hygiene can prevent the development of disorders and problematic sleep. The Wrong One, which becomes a cause of disturbed sleep, is the hormone melatonin because when the hormone melatonin is excessive or deficient, it can cause poor sleep quality and fatigue. This shows that good sleep hygiene behavior can help someone have good sleep quality, too. Good sleep quality provides a feeling of calm, and good sleep quality is very important for a healthy life for everyone. The application of sleep hygiene is related to quality sleep, meaning the more Good implementation of sleep hygiene the fatigue decreases (Farida, 2018).

Researchers conducted a literature study, and there was no research that discussed the relationship between sleep hygiene and fatigue in chronic kidney failure patients undergoing hemodialysis. Based on the description and phenomena above, the researcher is interested in researching the "Relationship Between Sleep Hygiene With Fatigue in Patients Fail Chronic Kidney Failure Undergoing Hemodialysis. Introduction: The important issues in general and specifically encountered, Research that has been done as the references and what has not been done (research gap), the solution offered, the importance of research conducted, the research purposes, the research benefits to science/society.

METHODS

This study is a descriptive correlational study using quantitative methods. This study uses a cross-sectional design. A cross-sectional study is a study that is conducted once without any continuation (Sugiyono, 2022). The total population taken is 64 respondents. Sample in the study. This is a patient on hemodialysis, which fulfills the criteria for inclusion & exclusion in the unit Hemodialysis with a total of 64 respondents. The sampling technique used was nonprobability sampling. This study was conducted in the Hemodialysis (HD) unit at RSUD Sunan Kalijaga Demak. This study was conducted on May 14-17, 2024. This study used a questionnaire measuring instrument that consists of from SHI questionnaire, which consists of 13 questions, and the FACIT questionnaire, which consists of 13 questions. The statistical analysis used is univariate analysis and bivariate

analysis. Univariate analysis in this study consists of age, gender, education, and occupation, while bivariate analysis in this study is the *Spearman's rank test.* Methods Include: Explanation of how / step of research in a systematic way, and detailed step-by-step instructions are provided in the section. The method does not contain any theory, but rather emphasizes what has been done in research to obtain results in line with the objectives.

RESULTS AND DISCUSSION

This study analyzes the relationship between *sleep hygiene* and *fatigue* in chronic kidney failure patients undergoing hemodialysis. The variables in this study are *sleep hygiene* as an independent variable and *fatigue* as a dependent variable. The results of the analysis below are:

Table 1. Sleep hygiene and fatigue in chronic kidney failure patients undergoing hemodialysis

Variables	Fatigue				Total		p value	r
	Fatigue		Not Fatigue					
Sleep Hygiene	f	%	f	%	f	%		
Good	27	100,0	0	0,0	27	100	0.000	0,972
Moderate	0	0,0	34	100,0	34	100		
Bad	0	0,0	3	100,0	3	100		
Total	27	42,2	37	57,8	64	100		

The table above it shows that 64 of the respondents had chronic kidney failure. The majority of respondents are in on category sleep hygiene, Good with fatigue, as many as 27 respondents (100.0%), respondents who have good sleep hygiene with fatigue, 27 respondents (100.0%). Respondents have good sleep hygiene but still feel fatigue is caused by some big Respondent aged ≥40 years. Age more than 40 years. The degenerative process that will cause physiological and biochemical changes in the body begins, and the kidneys will decrease in function by around 1% each year (Natasia et.al., 2020). The results of this study are in line with the research of Pande et.al. (2022), at the age of >40 years, kidney function begins to decline, as well as prone to experience syndrome metabolic (hypertension, hyperglycemia, hyperuricemia) due to weight gain due to increased fat composition (Pande et.al., 2020).

Respondents who had poor sleep hygiene with fatigue were 0 respondents (0.0%), respondents who had good sleep hygiene bad with no fatigue were as many as 3 respondents (100.0%). Respondents did not feel fatigue. This due to because some patients are still active in their work and are active. This is in line with research conducted by Vanessa (2019), which states that dialysis patients who work or do other physical activities are healthier and more energetic than patients hemodialysis not work or No Once do other physical activities, such as exercise, because working makes them feel better. Patients who do not work or do fewer other activities will have high fatigue (Vanessa, 2019).

Based on the results of statistical tests using the Spearman rank test, it shows that the p value is 0.000, which means that Ha is accepted and Ho is rejected, namely that there is a relationship between sleep hygiene and fatigue in chronic kidney failure patients undergoing hemodialysis with a correlation of 0.972, indicating a strong correlation.

The results of this study are in line with the research results of Faeze et al. (2023), from results study state that fatigue patients in the intervention group experience a decline after the implementation training sleep hygiene. The results of the study showed a significant increase in sleep quality and sleep hygiene scores. The results of sleep quality scores increased for patients in the intervention group (P = 0.001). Implementing good sleep hygiene can improve sleep quality and reduce fatigue (Faeze et al., 2023). Hemodialysis patients can experience fatigue, but this fatigue can be reduced by achieving good sleep requirements. Results study show that there is Which significant relationship between sleep hygiene and fatigue (Faeze et al., 2023).

In line with Vanessa's research (2019), the results of the study stated that fatigue occurs in chronic kidney failure patients who have just undergone hemodialysis or an average of the first six to eight months but will decrease insignificantly in the following months, patients with chronic

kidney failure experience increased uremia, anemia and depression, this clinical condition is what causes fatigue. Over time, chronic kidney failure patients who undergo regular hemodialysis therapy will experience improvements such as increased Hb, normal uremia, and increasingly controlled stress due to information and education provided by health workers on duty in the hemodialysis room. Fatigue occurs in the early stages of chronic kidney failure patients undergoing hemodialysis, and they will then experience a decrease in fatigue due to improving clinical conditions (Vanessa, 2019).

The results of the study suggest that the relationship is a reciprocal one, where if sleep hygiene is good, fatigue is reduced. Hemodialysis patients at Sunan Kalijaga Demak Hospital have good sleep patterns, so that the SHI category is good. Based on this, maintaining sleep hygiene and reducing daytime activities to avoid fatigue for patients undergoing hemodialysis is very necessary (Faeze et al., 2023).

The implementation of sleep hygiene will be optimal if combined with the implementation of sleep extension, which is done by filling in the sleep schedule (Dewald-Kaufmann et al. 2014). The results of the study showed that the existence of Sleep causes fatigue reduction, existence of Sleep combined with sleep hygiene can have a good sleep pattern. A calmer atmosphere can help achieve an alpha wave condition, a condition that requires somebody to they can enter an earlier sleep phase. A relaxed state can provide comfort before going to sleep so that on patient fail kidney chronicle can start sleeping easily. Sleep hygiene can be better to can lower fatigue in chronic kidney failure patients (Samsiyah, 2019).

CONCLUSION

Conclusion from the study:

1. The majority o f respondents in category most Lots *sleep hygiene* currently as much as 34 respondents (53.1%).
2. The majority of respondents were categorized with the most fatigue, as much as 37 (57.8%).
3. There is a correlation between sleep hygiene with fatigue in patients with chronic kidney failure undergoing hemodialysis.

REFERENCES

Blessings, E. (2023). Connection Long Undergo Hemodialysis And Support Family with Quality of Life of Chronic Kidney Disease Patients in Sustainable Kidney and Hypertension Clinic BMS Jrakah Semarang.

Dear Sir, S. & Sodikin And. (2015). *fatigue* on Patient Fail Kidney Terminal (GGT) Undergoing Hemodialysis at Prof.DR.Margono Soekardjo Purwokerto Regional Hospital (http://download.portalgaruda.org) accessed on September 15, 2018.

Mrs. Purwati, S. 2018. Analysis Factor Risk Reason Incident Disease Chronic Kidney Failure (CKF) in the Hemodialysis Room of Dr. Moewardi Hospital. JGK (Global Nursing Journal), 3 (1), 1-5.

Natashia, D. I. (2020). *Fatigue* And Quality Life on Patient Fail Chronic Kidney Disease with Hemodialysis Therapy. *Muhammadiyah Nursing Journal*, 5(2), 209-218.

Notoadmodja, S. (2017). *Health Research Methodology*. Rineka Cipta.

Nuratif & Kusuma. (2015). *Nursing Care Application Based on Nanda (NIC-NOC)*. Yogyakarta.

Nursalam. (2016). *Methodology Study Knowledge Nursing Approach Scientific*. Salemba Medica.

Pipit Nur Fitriya, IP (2018). *The Effect of Instrumental Music and Sleep Hygiene on Sleep Disorders in Chronic Kidney Failure Patients Undergoing Hemodialysis at PKU Mumammadiyah Hospital*, Yogyakarta.

Rohmawati, F. (2018). The Relationship Between *Sleep Hygiene* and Physical Fatigue with the Fulfillment of Sleep Needs of Elderly Traders at the Plaosan Babat Agrobusiness Market, Lamongan Regency, 54-55.

Suparti, S., & Nurjanah, S. (2018). The Relationship between Depression and *Fatigue* in Hemodialysis Patients. *Ejournal* Unisa Yogya, 2(01).

Vanessa. (2019). Connection Long Hemodialysis With Level Fatigue On Chronic Kidney Disease Patients At STELLA MARIS Hospital MAKASSAR.