

Conference Paper

Relationship Between Sleep Quality and Quality of Life in Hemodialysis Patients: A Literature Review

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ORCID:Nyayu Nina Putri Calisanie: <https://orcid.org/0000-0002-3425-4258>**Abstract**

Poor sleep quality can worsen hypertension, type 2 diabetes and obesity, thereby increasing the incidence of cardiovascular disease, as well as accelerating the progression of end-stage kidney disease and reducing survival rates. In hemodialysis patients, many factors affect the patient's quality of life start from a psychological, physiological, social, and economic perspective can decreased the patient's quality of life. To know about the relationship between sleep quality and quality of life in hemodialysis patients, this study uses a literature review method, based on the results of an article published within the last 10 years. From 5 journals that met the criteria, it was found that there was relationship between sleep quality and quality of life. There is a significant relationship between sleep quality and quality of life in hemodialysis patients.

Keywords: Hemodialysis, Sleep quality, Quality of life.Corresponding Author:
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1. Introduction

Hemodialysis therapy (HD) is a process that uses an HD machine and its various accessories where there is passive diffusion of dissolved particles and water through the blood to the dialysate fluid compartment through the semi-permeable membrane in the dialyzer [1]. According to Tannor, More than 1.8 million patients worldwide are on dialysis, one of which is less than 5% in Africa where access to kidney replacement therapy (PRC) depends on very limited government supports [2]. The dialysis rate in Africa is 20 million per-population compared to a global prevalence of around 223 million per population. Patients that undergo hemodialysis therapy usually experienced sleep disturbances and has been studied by several previous studies. According to study conducted by Yigit Y et al, it has been proven that patients with hemodialysis tend to have sleep disorders than normal people [3]. Sleep patterns are changed in these patients, and they often suffer from sleep disturbances. One of the complications of hemodialysis is sleep disorders in the form of Rest Leg Syndrome (RLS), Obstructive Sleep Apnea

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Syndrome (OSAS), Snoring, Excessive Daytime Sleepness (EDS) and Narcolepsy [4]. This type of sleep disorder will cause the hemodialysis patient's sleep quality are decreased.

Sleep quality is a sense of one's satisfaction with sleep which is only determined by a person himself preparing at night such as the ability to stay asleep, and the ease of staying asleep without the need for medical assistance [5]. In hemodialysis patients, the quality of sleep is disturbed because of several sleep disorders. In the results of study conducted by Shen, it was found that around 69.1% of them had poor sleep quality due to sleep complaints such as insomnia, difficulty starting to sleep, waking up in the morning not feeling refreshed [6]. It can be said that there is a disturbance sleep common occur in chronic renal failure patients who undergoing hemodialysis. Based on these data, there are several factors that can cause sleep disorders such as demographic factors (age, gender, occupation, education level, marital status, ethnicity/race, spiritual), lifestyle factors (smoking, consuming coffee) psychological factors, biological factors (predisposing to kidney failure, anemia), environmental factors (comfort, physical environment/pain), and factors of dialysis therapy (hemodialysis schedule, length of time of hemodialysis) [1]. The incidence of sleep disturbances among patients with hemodialysis is higher than general population. Lack of sleep and poor sleep quality can worsen hypertension, type 2 diabetes and obesity, thereby increasing the incidence of cardiovascular events, as well as accelerating the progression of end-stage kidney disease and reducing survival rates [7]. During the course of hemodialysis, patients may experience maladaptation in sleep disturbances, depressive symptoms, and decreased quality of life related to health [8].

Quality of life is a term used to describe a sense of well-being, including aspects of happiness, life satisfaction, and so on [9]. On the state of hemodialysis therapy there are several factors that affect the quality of life of the patient, such as age, gender, terminal renal failure, nutritional status, education, occupation, time to undergo hemodialysis therapy, and medical management. Information about health, environmental and social problems in the family can also affect the quality of life [9]. According to Sari, DK it is very important to improve the quality of life related to health (HRQoL) and survival [10]. According to his study, it is known that patients with end-stage chronic kidney disease experience HRQoL with high mortality and morbidity. Hemodialysis can improve survival in chronic renal failure patients and improve clinical factors. However, many patients did not report an increase in their HRQoL after hemodialysis. Undergoing hemodialysis therapy often results in a sense of threat to life, worry about impaired self-concept, fear of physical limitations, and dependence on medication/treatment.

According to Shen in his study have found that 50 - 80% who undergo hemodialysis therapy have several reports of sleep complaints, such as daytime sleepiness, insomnia, difficulty starting sleep, waking up in the morning feeling not refreshed are very common in hemodialysis patients [6].

2. Methods

This study aims to find the results of articles that have been previously published and the articles in this study are in English which will later be translated into Indonesian. The search was carried out on the google scholar and pubmed sites but the existing articles were found on the pubmed site because the related articles were found on that site. The keywords used were sleep quality and quality of life and hemodialysis and cross-sectional. The search only focused on journals related to study on sleep quality and quality of life in hemodialysis patients with a search span of the last 10 years from 2010-2020.

The inclusion criteria for searching articles in this study were studies conducted on hemodialysis patients, patients aged 18-20 years and over, patients undergoing hemodialysis therapy for more than 3 months, and the type of study design using a cross-sectional approach. The exclusion criteria for articles were studies conducted on patients who were more than 80 years old, the type of study was descriptive qualitative.

Assessment of the quality of each journal is carried out using the standard format of The Joanna Briggs Institute Critical Appraisal Tools (JBI) which is in English and then translated into Indonesian, because this format is a standard measure for assessing the quality of an article/journal that uses this type of study design using cross-sectional approach. The criteria used to evaluate are whether each study is of good quality and the minimum risk of bias consists of 3, namely whether the study results are valid, what are the results, will the study results help locally.

The total assessment format has 8 checklist items that are used to make an assessment with the answer choices Yes / No / Unclear / No, then after being assessed as a whole, the journal is categorized with the option Include / Exclude / Find more info. From the search results conducted through Pubmed, it was found that there were 93 journals that were used with the keyword Quality of sleep and quality of life and hemodialysis and cross-sectional. Journals published more than year 2010. These results are obtained before being filtered, after filtering by clicking or checking the words Full text, 10 years, and Humans so the journal results that obtained are 5 journals.

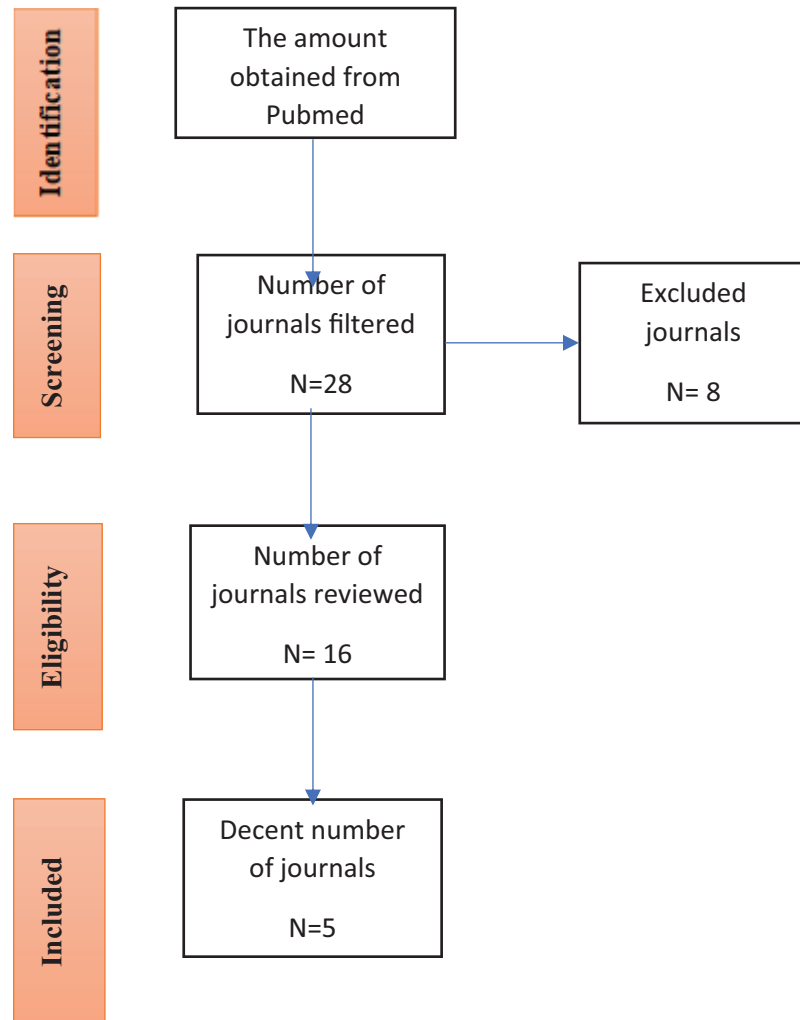


Figure 1: Diagrammatic Representation

3. Discussion

Based on the results of several studies, there are findings from each of these studies, but there are also those who are still looking for information or further study.

According to study conducted by Zheng, the findings of his study were that the MCS and PCS scores were significantly lower in people with poor sleep quality than good sleep quality in hemodialysis patients [11]. In this study, patients who underwent PD had lower PCS and MCS scores than those on hemodialysis, even though patients with HD were older, had longer dialysis duration, lower occupational rates, higher rates of diabetes and CVD rates. higher, all of which will reduce the quality of life. Then the findings of this study were that sedative-hypnosis use had no association with PCS scores or with MCS scores among patients on dialysis and this study showed that sedative-hypnosis did not affect the quality of life of patients on dialysis with sleep

disorders. But according to him, the quality of life when compared between people with poor sleep quality using hypnotic-tranquilizers and those who did not use this drug was the same.

Therefore, sedative-hypnosis can improve quality of life, helping patients with lower sleep quality have the same quality of life as patients with higher sleep quality. Based on these findings, there is an association between sleep quality and quality of life due to the low MCS and PCS scores in this hemodialysis patient.

According to study conducted by Nasution, the relationship between gender and sleep quality [12]. The male respondents who have poor sleep quality are 37 people (37.00%) with an average sleep quality score of 7.89 ± 3.40 , while the respondents are female. 30 people (30.00%) had poor sleep quality with an average sleep quality score of 6.45 ± 3.41 . Based on the statistical test, the value of $p = 0.019$ was obtained, so it was concluded that gender was related to sleep quality. Respondents who have poor sleep quality with good quality of life are 34 people (34.00%) with an average quality of life score of 56.10 ± 16.74 (poor quality of life), while respondents who have good sleep quality with good quality of life are 32 people (32.00%) with an average quality of life score of 74.94 ± 8.87 (good quality of life). Based on the statistical test, it was found that the value of $p = 0.001$, so it was concluded that sleep quality was related to quality of life. This study is relevant to the results of study conducted [12] which has the same results, namely the relationship between sleep quality and quality of life.

There are several findings in the results of this study including; The prevalence of sleep disturbances in regular hemodialysis patients at the Rashida Hypertension and Kidney Specialist Hospital was 67%. Most of the patients had a good quality of life (66%). This study found variables related to sleep quality, including gender (p value = 0.019), education (p value = 0.019), and nutritional status (p value = 0.005). In this study, quality of life was related to sleep quality (p value = 0.001), gender (p value = 0.003), and education (p value = 0.035). After multivariate analysis, quality of life was influenced by the interaction between sleep quality and gender and education. HD patients who have sleep disorders with male sex and with low education have the poorest quality of life where $RP = 13.5$ (CI: 0.73 - 247.15).

According to [13], the correlation between laboratory findings from subjects and QOL values and sleep was investigated. There was a positive correlation between MDRD and QOL levels ($P < 0.001$; $r = 0.260$) and a negative correlation between MDRD levels and PSQI scores ($P < 0.001$, $r = - 0.202$). In other words, with improved MDRD, QOL and sleep quality as well. increased. There was a positive correlation between HB level and PSQI score and negative correlation between HB level and QOL score. In

other words, both QOL and sleep quality improved with increasing HB level ($P < 0.001$ and $P < 0.001$, respectively). In this study, it was found that quality of life and sleep decreased significantly in patients with ESRD, who were undergoing hemodialysis treatment, compared to healthy subjects. The increasing prevalence of Chronic Kidney Disease (CKD) is an international health problem and is attracting worldwide attention. CKD is a serious health problem because of the high morbidity and mortality, the profound impact on the patient's quality of life, the high costs of diagnosis and therapy.

4. Conclusions and Suggestion

4.1. Conclusion

After analyzing several relevant studies results between previous journals that there was a significant relationship between sleep quality and quality of life in hemodialysis patients. From the results of the study, the average hemodialysis patient has a low quality of sleep and quality of life.

4.2. Suggestion

This literature still have many weaknesses such as the limitations of a number of journals and theories. The author hopes to find some other sources, either from theory or articles that are in accordance with this discussion, to achieve a comprehensive knowledge. For health providers, especially practitioners in providing nursing care, the authors suggest that after reading this literature it can provide interventions that can improve sleep quality and quality of life in hemodialysis patients.

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