



Factors Related to Sleep Quality in Chronic Kidney Disease Patients Undergoing Haemodialysis

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ABSTRACT

Approximately 50 to 60% of haemodialysis patients suffer from sleep disturbances. This study aims to identify factors associated with sleep quality in patients with chronic kidney disease (CKD) at Fatimah Cilacap Hospital. This type of research is an analytic survey with a cross sectional design of 57 post-HD CKD patients taken using purposive sampling method. The data were analysed using chi-square test. The tool used was a questionnaire to determine the demographic characteristics of respondents, that is age, comorbidities, gender, occupation, Hb level, environment, and HD duration. Anxiety levels were measured with an anxiety questionnaire from the Hamilton Anxiety Rating Scale (HARS) and a questionnaire to determine the quality of sleep using the Pittsburgh Sleep Quality Index questionnaire (PSQI). The results showed that there was a relationship between age, comorbidities, and anxiety level with sleep quality in post-HD CKD patients ($p < 0.05$). There was no relationship between gender, occupations, environment, and HD duration with sleep quality in post-HD CKD patients ($p > 0.05$). Patients with CKD undergoing HD without comorbidities will have 5 times better sleep quality than CKD patients undergoing HD with comorbidities ($p = 0.043$, OR = 5.749 CI: 1.060 – 31.190). Sleep quality disorder in haemodialysis patients with CKD can be overcome by giving complementary therapy such as music therapy, massage, aromatherapy and Benson therapy.

Keywords: *Chronic kidney Disease; Haemodialysis; Sleep Quality*

1. INTRODUCTION

Chronic Kidney Disease (CKD) needs attention because it has become a public health problem with a high incidence rate and has a major impact on morbidity, mortality and socioeconomics of the community because of the cost of treatment. The number of cases around the world is increasing by over 50%, especially in developing countries, including Indonesia. According to the 2018 Basic Health Study, the prevalence of chronic kidney disease, diagnosed by a physician as chronic kidney disease, has increased from 2% to 3.8% [1].

The National Kidney Foundation states that based on the Glomerular Filtration Rate (GFR), CKD consists of 5 stages. In stage 5 of chronic kidney disease, the patient must undergo renal replacement therapy (RRT) to save his life. Haemodialysis undertaken by CKD patients can maintain their survival and at the same time change the patient's lifestyle. These lifestyle changes include diet, sleep and rest, drug use and daily activities which in turn will affect the patient's quality of life. CKD is a chronic disease that reduces the quality of life due to problems such as hypotension, muscle cramps, nausea and

vomiting, and headaches. These problems have an impact on the patient's sleep quality because it affects the physical, mental, and emotional.

Sleep disturbances occur in approximately 50 to 80% of haemodialysis patients. The occurrence of changes and disturbances in the bodily functions of patients on haemodialysis, Poor sleep quality experienced an average of 86.6% in each group haemodialysis and peritoneal dialysis patients [2]. Research conducted among 69 patients who underwent HD for more than 3 months, prevalence of depression (47.8%), insomnia (60.9%), increased risk of sleep apnoea (24.6%) [3]. Sleep management is important because it can help patients overcome anxiety, stress, and tension which are common problems that occur in haemodialysis patients [2][4].

Fatimah Cilacap Hospital has a haemodialysis room with 135 patients undergoing routine HD with details of 29 using femoral access, 4 using a double lumen catheter and the remaining 102 using AV-Shunt access. The results of the preliminary survey showed that some patients complained of sleep disturbances. Researchers have not found data on the sleep quality of CKD patients

undergoing haemodialysis at the Cilacap Hospital, so researchers are interested in researching the factors associated with sleep quality in chronic kidney failure patients undergoing HD. This research aims to identify factors associated with sleep quality in patients with chronic kidney disease, namely age, comorbidities, gender, occupation, Hb level, anxiety level, environment, and HD duration.

2. METHOD

The research was carried out in Fatimah Cilacap Hospital. The number of respondents to the survey was 57 people with CKD undergoing HD. The survey instrument used was a questionnaire of the characteristics of the respondent, i.e., age, comorbidities, gender, occupation, Hb level, environment, and HD duration.

Anxiety levels were measured with an anxiety questionnaire from the Hamilton Anxiety Rating Scale (HARS) and a questionnaire to determine the quality of sleep using the Pittsburgh Sleep Quality Index questionnaire (PSQI). Analyse the data using chi square to determine the factors associated with the sleep quality of CKD patients undergoing haemodialysis.

3. RESULT AND DISCUSSION

3.1. Results

Demographics of respondents include age, comorbidities, gender, occupation, Hb level, environment and HD duration. The characteristics of the respondents are listed in table 1.

Table 1 Demographics of respondents

No.	Variables	f	%
1	Age:		
	a. Early Adulthood	14	24.6
	b. Late Adulthood	32	56.1
2	Gender:		
	a. Female	30	52.6
	b. Male	27	47.4
3	Occupation:		
	a. Employee	19	33.3
4	Comorbidities:		
	b. Un-employment	38	66.7
5	Comorbidities:		
	a. No comorbid	15	26.3
6	Have comorbid	42	73.7
	Haemoglobin level:		
7	a. Normal	3	5.3
	b. Low	54	94.7
8	Environment:		
	a. Quite environment	36	63.2
	b. Unsettled environment	21	36.8
9	HD duration:		
	a. < 12 months	5	8.8
	b. 12 – 24 months	24	42.1
10	> 24 months	28	49.1
	Anxiety levels:		
	a. No anxiety	35	61.4
11	b. Mild anxiety	19	33.3
	c. Moderate anxiety	3	5.3
12	Sleep qualities:		
	a. Good sleep quality	30	52.6
13	b. Bad sleep quality	27	47.4
	Total	57	100.0

Table 2 The results of bivariate analysis using the chi square test

No	Variables	Sleep Quality				pv	OR (95% CI)
		Good		Poor			
		f	%	f	%		
1	Age:						
	a. Early Adulthood	10	71.4	4	28.6	0.025	-
	b. Late Adulthood	18	56.3	14	43.8		
	c. Elderly	2	18.2	9	81.8		
2	Gender:					1.000	-
	a. Female	16	53.3	14	46.7		
	b. Male	14	51.9	13	48.1		
3	Occupation:					0.399	-
	a. Employee	12	63.2	7	36.8		
	b. Un-employment	18	47.4	20	52.6		
4	Comorbidities:					0.043	5.749 (1.060-31.190)
	a. No comorbid	12	80.0	3	20.0		
	b. Have comorbid	18	42.9	24	57.1		
5	Haemoglobin level:					0.925	-
	a. Normal	1	33.3	2	66.7		
	b. Low	29	53.7	25	46.3		
6	Environment:					0.160	-
	a. Quite environment	22	61.1	14	38.9		
	b. Unsettled environment	8	38.1	13	61.9		
7	HD duration:					0.615	-
	a. < 12 months	2	40.0	3	60.0		
	b. 12 – 24 months	12	50.0	12	50.0		
	c. > 24 months	16	57.1	12	42.9		
8	Anxiety levels:					0.000	
	a. No anxiety	26	74.3	9	25.7		
	b. Mild anxiety	3	15.8	16	84.2		
	c. Moderate anxiety	1	33.3	2	66.7		

The results in table 2 showed that there was a relationship between age, comorbidities, and anxiety level with sleep quality in post-HD CKD patients ($p < 0.05$). Patients with CKD who do not have comorbidities will have 5.749 times better sleep quality than patients with CKD who have comorbidities.

3.2. Discussion

The results showed that gender, occupation, Hb levels, environment and duration of HD did not affect the sleep quality of CKD patients undergoing HD. The factors that affect the quality of sleep of CKD patients undergoing HD are age, comorbidities, and anxiety level. In several reference journals it is stated that men and women have differences in sleep characteristics, where men have more varied sleep disorders than women. Changes in roles and decreased social interactions as well as job loss due to kidney disease can cause men to become vulnerable to mental problems including depression which causes disturbed sleep quality. Therefore, every different character and nature, both women and men in a disturbed psychological state, must be given support so that things that have a bad impact can

be immediately overcome or the problem of depression is minimized which causes disturbed sleep quality, this means that between female respondents and men did not show any difference in the level of depression, and there was no significant relationship between gender and the level of sleep quality of CKD patients [5] [6].

Normal sleep is influenced by several factors such as age. The older you get, the less sleep you need. Individuals who have become adults, sleep time is about 8-10 hours a day. While individuals who have become old adults, sleep time is about 6-8 hours a day. Based on research, the elderly group experienced more sleep disorders than other age groups [7]. This condition can be caused by other factors such as fatigue, stress, environment, or comorbidities [4].

The results of the study are not in line with Rompas, Tangka & Roti that haemoglobin levels affect the sleep quality of patients with chronic kidney disease, the lower the haemoglobin level the worse the sleep quality [8]. The results of this study can be due to the effects of anaemia such as weakness, nausea and lack of appetite which are also side effects of haemodialysis so that CKD patients are relatively familiar with these effects so that

this has less effect on the sleep quality of post HD CKD patients [9]. In addition, the ultrafiltration process during haemodialysis can increase haemoglobin levels after dialysis.

The results of the study showed that there is no relationship between HD duration and sleep quality in post-HD CKD patients. It can be caused because the patient has begun to accept his current state or condition. In treatment that requires long-term, it will give effects for sufferers such as psychological pressure for patients without complaints or symptoms of illness when declared sick and must undergo long treatment, but respondents who have been undergoing haemodialysis therapy for a long time tend to have lower levels of anxiety compared to respondents. who just underwent haemodialysis, this is because the longer a person undergoes haemodialysis, the person will be more adaptive to dialysis measures and the old HD patient psychologically is already in the acceptance phase [10].

Research showed that even after undergoing haemodialysis, not all uremic toxins can be removed. This can lead to various kinds of comorbidities. This will affect the sleep quality of CKD patients because it increases discomfort and anxiety [11]. Several comorbidities after experiencing kidney disorders in CKD patients undergoing haemodialysis cause discomfort, stress, and anxiety.

This study showed that although haemodialysis provides patients with more chances of survival, it causes stress to patients. Patients will do 2 times of dialysis per week and for several hours (3-4 hours per therapy) so that they feel the negative impact both physically and mentally. The state of dependence on dialysis machines for the rest of his life as well as adjustment to illness results in changes in the patient's life that can cause the sufferer to feel anxious and depressed either because of his illness or the therapy he is undergoing.

4. CONCLUSION

Patients with CKD undergoing HD without comorbidities will have 5 times better sleep quality than CKD patients undergoing HD with comorbidities. It should be able to improve the sleep quality of post-HD CKD patients by providing non-pharmacological therapy as complementary therapy, especially in post-HD CKD patients with comorbidities such as massage therapy, Benson therapy, relaxation therapy, music therapy and aromatherapy. Assessment of the level of anxiety in HD patients should be one of the assessments that are routinely carried out by nurses, because the level of anxiety affects the quality of sleep of patients.

The recommendation for the next researcher is to examine sleep quality of CKD patients using measuring devices such as smart watches, so that sleep quality data can be measured accurately. Further research

needs to be done to determine the effectiveness of complementary therapies to improve sleep quality of CKD patients undergoing HD.

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