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The Quality Of Life of Patients with Chronic Kidney Disease who Undergo Hemodialysis in RSUD Cilacap

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ABSTRACT

Chronic Kidney Disease (CKD) is one of the mayor health problems in the worldwide. The incidence of CKD continously increase every year, including in Indonesia. Hemodialysis (HD) is the most widely used process of kidney function replacement in Indonesia, including in RSUD Cilacap. This research aim is to study the quality of life (QoL) of CKD patients undergo hemodialysis in RSUD Cilacap using analytic observational design with cross sectional approach. The sampling was carried out using purposive sampling technique. The quality of life of patients was assessed based on WHOQoL-BREF questionnaire consisting of 4 domains i.e., physical, psychological, social relationships, and environment. Other aspects i.e., the CKD causes and therapy adherence were also analyzed. This research employs a descriptive design. The study conducted was univariate to ascertain the distribution of respondent characteristics, which was utilized to evaluate the variance in the quality of life domain among haemodialysis patients. Result showed that hypertension was the main causes of CKD at RSUD Cilacap (59%) beside diabetic mellitus (17%). Before HD, the blood pressure of all patients were in stage 1 hypertension condition with systole: 148.67±29.24 mmHg and dyastole: 80.10±5.47 mmHg. Result of WHOQoL-BREF questionnaire analyses, showed that none of the four domains meet the criteria of good QoL. Generally, based on this data, it can be said that the QoL of CKD patients at RSUD Cilacap were poor categories with score for all domains and a total score (48.96±7.95) below the normal rate. Therapy of hypertension condition of patients before HD with furosemide alone, furosemide+clonidine, and or furosemide+valsartan, could maintain the blood pressure of patients in target value i.e, <140/90 mmHg. Based on those data, it can be concluded that compliance of the patients are important in the improving of QoL of CKD patients who undergo HD in RSUD Cilacap..

Keyword: Chronic Kidney Disease, Hemodialysis, Quality Of Life

ABSTRAK

Gangguan ginjal kronik (GGK) merupakan salah satu masalah utama kesehatan di seluruh dunia. Angka kejadian GGK secara global meningkat setiap tahun, termasuk di Indonesia. Hemodialisis (HD) merupakan proses pengganti fungsi ginjal yang paling banyak digunakan di Indonesia. Penelitian ini bertujuan mempelajari kualitas hidup pasien GGK yang menjalani HD di RSUD Cilacap. Penelitian ini dilakukan menggunakan rancangan observasional analitik dengan pendekatan cross sectional. Teknik sampling menggunakan purposive sampling. Kualitas hidup pasien dinilai berdasarkan kuesioner WHOQoL-BREF yang terdiri dari 4 domain yaitu kesehatan fisik, psikologis, hubungan sosial, dan lingkungan. Penyebab utama GGK dan kepatuhan terapi juga dianalisis. Desain penelitian ini adalah deskriptif. Analisis data yang digunakan adalah analisis univariat untuk memperoleh distribusi data karakteristik responden yang digunakan untuk mengetahui perbedaan domain kualitas hidup pada pasien hemodialisia. Hasil menunjukkan bahwa hipertensi merupakan penyebab tertingi GGK di RSUD Cilacap (59%) selain diabetes mellitus (17%). Tekanan darah pasien berada pada kondisi hipertensi tingkat 1 dengan tekanan sistolik 148,67±29,24 mmHg dan diastolik 80,10±5,47 mmHg sebelum HD. Hasil analisis kuesioner WHOQoL-BREF yang digunakan menunjukkan tidak satupun dari keempat domain WHOQoL memenuhi kriteria kualitas hidup yang baik. Berdasarkan kuesioner WHOQoL-BREF, secara umum kualitas hidup pasien HD di RSUD Cilacap berada pada tingkat yang kurang baik dengan skor masing-masing domain dari ke-4 domain dan skor total (48,96±7,95) lebih rendah dari batas normal. Terapi hipertensi menggunakan furosemid tunggal, furosemid+klonidin, atau furosemid+valsartan dapat menjaga tekanan darah sesuai target yaitu <140/90 mmHg sebelum HD. Berdasarkan data penelitian ini, dapat disimpulkan bahwa kepatuhan pasien berperan penting dalam meningkatkan kualitas hidup pasien GGK yang menjalani hemodialisis di RSUD Cilacap.

Kata Kunci: *Gangguan Ginjal Kronik, Hemodialisis, Kualitas Hidup*

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Introduction:

Chronic kidney disease (CKD) contributes significantly to the morbidity and mortality associated with noncommunicable illnesses. Its prevalence has progressively increased over the world. Although hemodialysis and kidney transplantation are critical treatments that can save patients' lives with CKD, they are typically prohibitively expensive. The number of people undergoing kidney transplantation is predicted to reach 5.4 million by 2030. This disorder is spreading most rapidly in low- and middle-income nations. Globally, there are huge disparities in access to high-quality kidney disease care, with many low- and middle-income countries unable to fulfill the growing demand for dialysis. The prevalence of CKD in Indonesia was 0.38% (Hidayangsih et al., 2023). Hemodialysis (HD) is a renal replacement therapy that employs a dialyzer, the most often utilized apparatus in Indonesia. HD therapy seeks to substitute kidney excretory function to prevent the onset of acute uremia, hence preserving both the life and quality of life of patients (Bello et al., 2022).

In 2023, the International Society of Nephrology (ISN) reported that 9.5% of the global population had chronic kidney failure, with 18.18% having hemodialysis. According to the 2023 Indonesian Health Survey, chronic renal failure affects 0.18% of the population aged 15 and up, with Central Java Province accounting for 0.19% or 88,180 persons (Rosyid et al., 2024). The Cilacap Regional General Hospital (RSUD Cilacap) offers HD services, currently utilizing 20 hemodialysis machines and serving a regular patient population of 117 individuals. Patients with chronic kidney disease receiving hemodialysis may experience alterations in all facets of life, particularly concerning quality of life. The quality of life of chronic kidney disease patients receiving hemodialysis continues to be a concern for healthcare practitioners. Patients may endure via hemodialysis therapy; however, it presents several substantial complications as a consequence of the treatment. This study differs from the previous one in that the latter primarily focused on quality of life by analyzing factors influencing it (Nurchayati, 2010), whereas this study not only elucidates quality of life but also examines the antihypertensive therapy utilized by the respondents, given that hypertension is a primary cause in these HD patients.

Quality of life is defined as an individual's evaluation of their living conditions, considering their cultural context and environmental values, as well as its congruence with objectives, expectations, standards, and other pertinent aspects (Cai et al., 2021). Consequently, an investigation is required to evaluate the quality of life of chronic renal disease patients undergoing haemodialysis at Cilacap Hospital. Considering the substantial influence of social support on the well-being of haemodialysis patients, it is crucial to ascertain the factors that influence the degree of social support within this demographic. Comprehending these elements can assist healthcare providers in formulating targeted therapies to ameliorate the social environment and elevate the quality of life for haemodialysis patients. The research will utilize the World Health Organization's Quality of Life (WHOQoL) framework, encompassing four domains: physical health, psychological well-being, social relationships, and environmental factors. This research will also examine the primary causes of chronic kidney disease, clinical symptoms in hemodialysis patients, adherence to medication, and the adequacy of hemodialysis in the Hemodialysis Unit of RSUD Cilacap.

Methods:

This research comprises multiple phases, including the formulation of the research proposal, acquisition of research permits from the Kesbangpol and Bappelitbangda of Cilacap Regency, procurement of research authorization from the Director of RSUD Cilacap, ethical approval for health research at the Faculty of Medicine, Padjajaran University (Unpad), completion of the informed consent form, administering interviews regarding the etiology of HD, duration of HD treatment, and the patient's sociodemographic profile, data

collection, and analysis of the research findings. The research proposal preparation commenced with a literature review concerning chronic kidney disease, the quality of life of hemodialysis patients, the categorization of quality of life domains and the etiology of chronic kidney disease for chronic kidney disease patients undergoing hemodialysis. The research design was established as an analytical observational descriptive technique utilizing a cross-sectional methodology.

The criteria for research subjects comprise inclusion criteria such as patients undergoing routine hemodialysis twice weekly, individuals aged ≥18 years, those receiving antihypertensive therapy, and patients who have been on routine hemodialysis for a minimum of 3 months. The exclusion criteria include routine hemodialysis patients with oral communication impairments, illiteracy, and altered consciousness. The sample size was determined using the Bernoulli formula, and the analytical method utilized was descriptive analysis. A total of 98 respondents were sampled. The subsequent phase entailed acquiring authorization from the research site and securing clearance from the health research ethics committee at the Faculty of Medicine, Unpad, identified by Ethical Clearance (EC) Number 570/UN6.C10/PN/2017. Health research involving human beings must prioritize ethical considerations about the respect for human dignity. The objective is to safeguard the research participant against physical threats, psychological distress (such as depression or remorse), social repercussions (including stigma or societal exclusion), and legal ramifications (such as prosecution) arising from their involvement in the study.

The data source was obtained from patient information collected via medical records, interviews, and questionnaires conducted by the researcher. The primary research tool is the WHOQoL-BREF questionnaire. This questionnaire consists of 26 items and assesses four domains: physical health, psychological health, environmental health, and social connections. The comprehensive quality of life index spans from 0 to 100. This questionnaire effectively evaluates individuals' opinions of their life circumstances, considering the cultural and value systems of their environment, and correlates with their aspirations, expectations, standards, and personal ambitions. This notion encompasses diverse methods via which an individual might attain sufficient physical and psychological well-being, functional autonomy, social relationships, and connections to their environment (Rasyid et al., 2022). In general, the WHOQOL-BREF questionnaire does not require revalidation because it has already established itself as a valid and trustworthy measurement tool on a global scale. The WHO produced this questionnaire, which has been widely used in a number of countries, including Indonesia, and has demonstrated strong internal consistency (Almarabheh et al., 2023). The quality of life of patients was assessed based on WHOQoL-BREF questionnaire consisting of 4 domains *i.e.*, physical, psychological, social relationships, and environment. Other aspects *i.e.*, the CKD causes and therapy adherence were also analyzed. This research employs a descriptive design. The study conducted was univariate to ascertain the distribution of respondent characteristics, which was utilized to evaluate the variance in the quality of life domain among haemodialysis patients.

Secondly, patient compliance with antihypertensive medication was assessed by the Morisky Medication Adherence Scale (MMAS-8). MMAS-8 comprises eight inquiries regarding drug utilization, requiring responses of "yes" or "no." A high MMAS-8 score signifies a diminished level of patient compliance with treatment. Scores ranging from 0 to 4 signify high adherence, whilst scores of 5 or above denote low adherence.

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Results:

Table 1. Patients Characteristiscs

Characteristics	Number of patients	%
Age (Years)		
≤ 45	39	39.8
>45	59	60.2
Gender		
Male	49	50.0
Female	49	50.0
Education		
Low (Elementary, Middle School)	68	69.4
High (High School, University)	30	30.6
Occupation		
Employed	43	43.9
Unemployed	55	56.1
Duration of HD (Months)		
3 – 12	30	30.6
13 – 48	41	41.9
49 – 96	23	23.5
>96	4	4.0
Duration of HD (Months)		
Mean±Std	35.09±30.19	
Range	3.00-145.00	
Marital Status		
Married	80	81.6
Unmarried	18	18.4

in total = 98 people

Table 2. Distribution of Blood Pressure in Patients Before HD

Blood pressure classification	Systolic (mmHg)	Diastolic (mmHg)	Number of patients	(%)
Optimal	< 120	and < 80	8	8.2
Normal	120 – 129	and/or 80 – 84	12	12.2
High normal	130 – 139	and/or 85 – 89	16	16.3
Hypertension stage 1	140 – 159	and/or 90 – 99	24	24.5
Hypertension stage 2	160 – 179	and/or 100 – 109	16	16.3
Hypertension stage 3	≥ 180	and/or ≥ 110	22	22.5

in total = 98 people

Table 3. Patterns of Antihypertensive Drug Consumption among Patients

Antihypertensive therapy	Number of patients	Systolic (mmHg)	Diastolic (mmHg)
Furosemide alone	20	129.00±25.82	76.83±7.25
Furosemide, Clonidine	3	135.55±28.33	76.67±5.00
Furosemide, Valsartan	3	128.89±11.67	78.89±3.33
Furosemide, Amlodipine	1	110.00±10.00	73.33±5.77
Furosemide, Valsartan, Clonidine	61	147.43±23.75	80.00±3.63
Furosemide, Irbesartan, Amlodipine	1	183.33±20.82	86.67±5.77
Furosemide, Valsartan, Amlodipine	1	163.33±41.63	83.33±5.77

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Antihypertensive therapy	Number of patients	Systolic (mmHg)	Diastolic (mmHg)
Furosemide, Clonidine, Nifedipine	1	150.00±10.00	80.00±0.00
Furosemide, Candesartan, Clonidine	1	140.00±10.00	80.00±0.00
Furosemide, Valsartan, Clonidine, Amlodipine	6	158.89±21.93	80.55±2.36

in total = 98 people

Table 4. Distribution of Patient Quality of Life Domains

Domain	Score	Good quality of life score criteria*)
Physical health	19.28±2,83	28
Psychological	17.56±2,45	24
Social relationships	9.88±1,69	12
Environment	24.36±3,33	32

in total = 98 people, *) Murphy et al., 2000

Discussion :

Patients Characteristics

In this study, 98 patients volunteered to participate. According to the subject characteristics, the majority of the patients were over 45 years old, totaling 59 (60.2%), while the remainder were under 45 years old, totaling 39 (39.8%). The patients in this study had an average age of 48.8 years. This is consistent with the Pernefri agreement (2015) that the majority of HD patients are between the ages of 45 and 64 years. Community CKD predominantly affects the elderly, who have experienced prolonged exposure to cardiovascular risk factors, hypertension, and diabetes, all of which can adversely influence renal function. The mean rate of GFR reduction in this demographic is between 0.75 to 1 mL/min/year after age 40 to 50 (Pernefri, 2015; Vaidya & Aeddula, 2024).

In this study, the number of male and female patients having routine HD at RSUD Cilacap is equal, with each group consisting of 49 people. Several studies have found that gender has little affect on CKD patients. This indicates that men and women are equally likely to get CKD. The majority of patients had a low level of education (elementary and junior high school), totaling 68 (69.4%), while those with a high level of education (high school and college) numbered 30 (30.6%). According to Liu Y (2006), education is critical for CKD patients to understand and regulate their own lifestyle, including reducing food and drink intake. There are fewer patients who work than those who do not work, with 43 (43.9%) and 55 (56.1%), respectively. Patients who are still working include company personnel, farmers, civil servants, and business owners. According to data on the duration of HD treatment, the majority of patients have been on HD for 13-48 months, with an overall average of 35.09 months. According to marital status, there are more married patients than unmarried (single, widowed, or divorced), with 80 (81.6%) and 18 (18.4%), respectively. Looking at marital status, the majority of patients still have a life partner. This can be an effective support system in improving the patient's health (Liu, 2006). Presently, awareness of kidney illness is minimal, with just 6% of the general public and 10% of those at high risk cognizant of their chronic kidney disease status globally. Patient advocates for chronic kidney disease (CKD) aggressively advocate for the advancement of early CKD screening and diagnosis. Seventeen They also promote the integration of CKD detection with patient and family education and engagement to enhance access to appropriate healthcare, as well as awareness and adherence to prescribed lifestyle modifications and drugs (Stevens & Paul E. et al., 2024).

According to the research findings, hypertension is the most common cause of CKD

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in patients at RSUD Cilacap, accounting for 59%. This is supported by Rahman et al. (2022), who indicate that hypertension is still the leading cause of CKD in Medan Rasyida Kidney Hospital, Indonesia (Rahman & Santika, 2022). It is followed by diabetes mellitus at 17%, nutrition at 7%, kidney stones at 7%, drugs at 5%, hypertension and diabetes combined at 4%, and urinary tract infections (UTI) at 1% among all patients. Nutritional factors that contribute to CKD include the usage of energy-boosting supplements, alcohol, and bottled drinks on the market. This is done virtually daily, resulting in kidney damage. Patients who develop renal problems as a result of pharmaceutical use include those who take analgesic, anti-inflammatory, and anticancer treatments on a daily basis (Pernefri, 2015). All high-risk individuals, particularly those with diabetes or hypertension, should be evaluated for CKD and counseled on the symptoms and signs of the disease. Approximately 85% of people with chronic kidney disease (CKD) have hypertension. They should be instructed to measure their blood pressure everyday and maintain a record of their blood pressure measurements and daily weights. It is advisable to consult a dietitian for best dietary control and to circumvent high-potassium foods (Vaidya & Aeddula, 2024).

Hypertension Therapy Patterns in Patients

In this investigation, the patients' blood pressures varied. The patients' average systolic and diastolic blood pressures were 148.67±29.24 mmHg and 80.10±5.47 mmHg, respectively. The NKF-KDOQI (2005) clinical practice guideline suggests pre- and post-dialysis blood pressure objectives of 140/90 and 130/80 mmHg (Jung, 2024; National Kidney Foundation, 2005). Table 2 shows the distribution of blood pressure before HD. Table 2 reveals that the number of patients with blood pressure over the therapeutic target is 62 (63.3%), while the remainder 36 (36.7%) had blood pressure <140/90. According to blood pressure classification, the average patient is in stage 1 hypertension. Individuals with any rise in systolic blood pressure (SBP) from pre- to post-HD had the highest adjusted risk of death, when compared to other threshold-based classifications (Singh et al., 2022). The study found that 27 people (27.5%) who used single furosemide, a combination of furosemide and clonidine, and a combination of furosemide and valsartan were able to maintain blood pressure below 140/90 mmHg before HD, while the remaining 71 people (72.5%) were still above the target value. Table 3 shows the distribution of antihypertensive usage trends.

The furosemide diuretic group used the most antihypertensives (100%), followed by the combination of furosemide, valsartan, and clonidine (62.2%). Furosemide is the most widely used loop diuretic among CKD patients undergoing dialysis. The goal of employing this class is to reduce the risk of heart failure caused by increased fluid and sodium volume in the body, which can increase the heart's workload (National Kidney Foundation, 2005). Furosemide's adverse effects can affect electrolyte balance, resulting in hypokalemia, hence periodic potassium checks are required when using this medication. Furosemide reduces fluid buildup in the body due to its diuretic effect, reducing fluid accumulation during interdialytic periods, edema, and shortness of breath in CKD patients. Jo et al. (2023) present current findings regarding the potential significance of diuretics in reducing blood pressure, decelerating kidney disease development, and mitigating cardiovascular risk in patients with chronic kidney disease (CKD) (Jo et al., 2023)

The NKF-KDOQI recommendations guide the selection of Angiotensin Receptor Blockers (ARBs) such as valsartan, irbesartan, and candesartan as antihypertensives. Various studies have shown that ARBs and ACEIs have equal blood pressure-lowering effects. However, ARBs are distinguished by their superior pharmacological tolerance. Most notably, clinical evidence shows a relevant protective function of ARBs against the development of CV and renal damage, as well as the occurrence of serious adverse CV events in hypertensive patients (Gallo et al., 2022). This class of drugs works by directly blocking the angiotensin II receptor, causing vasodilation and lowering blood pressure.

Clonidine was administered in this trial to prevent a substantial rise in blood pressure during

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the interval between hemodialysis sessions. Clonidine is frequently utilized for refractory hypertension. The abrupt cessation of central α-2 agonists may induce rebound hypertension. Certain people who continue to have hypertension following clonidine treatment may do so due to abrupt cessation of the medication and transition to a different class of antihypertensives without appropriate medical advice (Whelton et al., 2018). Amlodipine effectively regulates blood pressure in patients exhibiting a systolic/diastolic blood pressure of 130/80 mmHg or above, as well as those with diabetes or chronic kidney disease, without exacerbating glucose levels or renal function. Amlodipine is economically advantageous and anticipated to yield cost savings relative to standard treatment (Wang et al., 2023). The study by Tepel et al. (2008), conducted over 30 months with 251 hypertension patients undergoing hemodialysis, shown that amlodipine significantly reduced death and cardiovascular events. Furthermore, the CCB class remains intact throughout the dialysis procedure, hence no supplementary dose is required post-dialysis (Tepel et al., 2008).

Uncontrolled blood pressure may result from various circumstances, including patient non-compliance with fluid and sodium intake management. The findings of this study indicate that 38.8% of patients exhibit limited adherence to fluid limits, while over 50% infrequently comply with the advised dietary modifications, including salt limitations. A contributing reason to patients' persistent hypertension is non-adherence to antihypertensive therapy. Observational results indicate that most patients exhibit low adherence to antihypertensive medication, with 57 individuals (58.2%) demonstrating low adherence, whereas 41 individuals (41.8%) show excellent adherence. This non-compliance results from patients experiencing boredom with prolonged treatment, a lack of variation in blood pressure, and the substantial quantity of pharmaceuticals required for consumption. Alongside medication adherence, it is crucial to assess additional variables contributing to therapeutic failure, including unsuitable drug combinations, drug interactions, improper dosages, impractical administration schedules, ambiguous instructions, and the onset of adverse drug effects.

Quality of Life of Hemodialysis Patients

In May 2017, 98 CKD patients who were undergoing HD at RSUD Cilacap participated in this quality of life study. The study found that HD patients at RSUD Cilacap had an average total quality of life score of 48.96±7.95. This suggests that the average patient has a poor quality of life. A cut-off points of ≥60 was used as an indicator of good or satisfactory quality of life in older adults (Kim & Lee, 2023; Silva et al., 2014). In this study, 11 persons (11.2%) had an excellent quality of life, while the remaining 87 people (88.8%) had a lower quality of life.

Table 4 shows the distribution of each domain of patient quality of life. In this study, patients' quality of life was evaluated using the domains of physical health, psychological health, social interactions, and environment. The average overall score for physical health was 19.28±2.83, suggesting poor physical health. This is supported by interviews with patients who stated that the assessment of how satisfied they are with their work ability has the lowest score, as well as observations during HD therapy, in which many patients complained of dizziness, weakness, difficulty urinating, shortness of breath, nausea, loss of appetite, bloating, high blood pressure, difficulty sleeping, and itching all over the body.

Psychological health is the harmony between oneself and others, which allows for rational thinking, self-appreciation, spirituality, a sense of purpose in life, and the ability to pursue desired goals. This domain has an average score of 17.56±2.45. The results show that the psychological domain is similarly in poor condition. According to interviews, patients felt their lives had become less meaningful, they had not yet accepted their current appearance, they were sad, scared, hopeless, disappointed, and some were even depressed, especially when they were first told by healthcare professionals that they had chronic kidney disease and needed to undergo hemodialysis. Social relationships can be established when an individual interacts well with others or a group, irrespective of each person's

standing. Social support is a fundamental human need that fosters motivation, belonging, and the exchange of experiences through interpersonal interactions. Effective assistance can assist patients in confronting any challenges they experience. Further examination revealed that pleasure in sexual life had the lowest score within the social connection sector. The primary areas of suffering in the lives of patients undergoing haemodialysis were the loss of freedom, which was manifested as a reliance on the haemodialysis machine as a lifeline, and the caregivers. This dependence was time-consuming and exhausting, and it had an impact on one's social, familial, and marital life. To alleviate suffering, it is possible to maintain autonomy by being perceived as an individual by the caregivers and to tolerate dependence on the haemodialysis machine (Elias et al., 2025). Table 4 suggests that the social relationship category reflects a low quality of life score.

The final domain considered in patients' quality of life is environmental health. Environmental health refers to the interaction of persons and their surroundings that allows for a sufficient economic level, recreational activities, acceptable and cheap healthcare services, physical security, and personal safety. The availability of finances to satisfy daily demands can be used to determine economic status, and the majority of patients reported having enough money to cover their expenses. The average score for the environmental health area was 24.36±3.33, indicating that patients continue to have a low quality of life. In this study, environmental health can shift because patients must adjust their lifestyle practices from before being unwell. Most patients must leave their employment temporarily or permanently to undergo HD therapy, which can lead to financial difficulties. Kidney failure negatively affects opportunities for work participation (Alma et al., 2022). Another difficulty in environmental health is that patients feel unsafe participating in activities since their sickness significantly affects daily activities, causing emotions of fear and anxiety. As a result, patients prefer to stay at home and avoid outdoor activities, including recreation.

Conclusions:

Compliance of the patients are important in the improving of quality of life of chronic kidney disease patients who undergo hemodialysis in RSUD Cilacap.

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