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The Relationship Between Hypertension and Quality of Life in Chronic Kidney Disease Patients Undergoing Hemodialysis at Sentra Medika Hospital, Cikarang, Bekasi Regency 2025

Sinaga, H, J[1], Nadzia, S[2], Sari Retno, A, P[3]
[1,2,3]University of Medika Suherman

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ABSTRACT
Chronic Kidney Disease (CKD) has emerged as one of the most prominent causes of death and suffering in the 21st century. This study aims to indetify the relationship between hypertension and quality of life in patients with chronic kidney disease undergoing hemodialysis at the Sentra Medika Cikarang Hospital 2025. This research method is quantitative analytical with a cross sectional study design. The populatin in this study was 185 patients with chronic kidney disease, with samples being selected using the Slovin formula.so that a sampel of 72 respondent with kidney failure undegoing hemodialysis. The measuring instrumnet used in this study was a questionnaire that explored the characteristics of respondent, hypertension and the WHOQOL questionnaire to measure quality of life. The analysis used univariate and bivariat using the spearman rank test. Based on this research, the resuts of bivariate analysis using the spearman rank test, there was a significant relationship (p-value = 0,000) which was strong and in the same direction between the variables of hypertension risk factors and the quality of life of patients with chronic kidney disease. The Suggestions based on this research are expected for further researchers to be able to develop this study, by looking for the relationship of effectiveness between other independent variables and the quality of life in patients with chronic kidney disease, using methods and research design other than quantitative analytics, as well as deeper analysis for the development of new scientific knowledge on the quality of life of patients with chronic kidney disease.

Corresponding Author:
Sinaga, H, J
University of Medika Suherman
sofiatun.nadzia@gmail.com

INTRODUCTION

Chronic kidney disease (CKD) has emerged as one of the most prominent causes of death and suffering in the 21st century (Csaba P Kovesdy, 2022). According to the Kidney Disease Outcome Quality Initiative (KDQQI, 2012), as cited in Becherucci et al., 2018, CKD is defined as a glomerular filtration rate (GFR) impairment in the kidneys of <60 ml/min/1.73 m2 for 3 months or more, regardless of the cause. Chronic kidney disease is a condition in which the kidneys are unable to perform their functions properly. The development of kidney disease can be either chronic or acute. Acute kidney disease occurs when kidney function declines

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suddenly and can return to normal once the problem is resolved. Chronic kidney disease, on the other hand, develops gradually and often causes no symptoms in the early stages (Irawan et al., 2018). According to data from the World Health Organization (2019) cited in Fairuz (2024), the global incidence of chronic kidney disease (CKD) reaches 15% of the world's population and causes 1.2 million deaths in patients with chronic kidney disease (CKD) undergoing hemodialysis (HD). The incidence is estimated to increase by 8% annually. Chronic kidney disease (CKD) ranks 20th among chronic diseases with the highest mortality rate worldwide. The two main causes of chronic kidney disease are diabetic nephropathy and arterial hypertensive damage (Girndt, 2017).

Meanwhile, in Asia, data show that end-stage renal failure accounts for 40%-50% of all cases. The highest incidence and prevalence worldwide are found in Asian countries such as Taiwan (450 per million population) and Japan (300 per million population). This increase in the need for dialysis is associated with a higher demand in Asia compared to other countries. Data from 2020 showed that 2.9 million people required dialysis, and this number is predicted to grow rapidly to between 2.1 million and 5.6 million by 2030, representing a 23% increase (Nopriani, 2024).

Furthermore, in Indonesia, according to the National Center for Health Statistics, the number of patients with chronic kidney disease and hypertension increased from 86 million in 2015 to 101 million in 2020 (Feigin, 2022). According to the Indonesian Renal Registry (IRR) annual report, the prevalence of CKD with concurrent hypertension increased from 50% in 2018 to 51% in 2020, and then stabilized at 51% in 2022 (Pernefri, 2018). According to the 11th Annual Report of the Indonesian Renal Registry, comorbid hypertension was the leading cause of death in hemodialysis patients in Indonesia in 2018, accounting for 51% of all deaths in this patient population.

West Java ranked eighth out of 33 provinces in 2018, after Jakarta (38.7%) and Bali (19.3%). With an increasing prevalence of chronic kidney disease (CKD) in Indonesia, the highest prevalence of patients with or having undergone dialysis is recorded. Data shows that West Java Province is among the top five most populous provinces in Indonesia (Riskesdas, 2018). According to information from the West Java Provincial Health Office, Bekasi Regency has the highest number of kidney failure cases in West Java, with 14,796 cases (Setyorini, 2023).

Patients with end-stage chronic kidney disease (ERSD) must undergo lifelong hemodialysis. Hemodialysis is a medical therapy using a dialyzer to filter blood waste as kidney function declines to less than 10 to 15 percent (Hutagaol, 2023). Chronic kidney disease (CKD) requires hemodialysis, but this procedure cannot permanently restore kidney function or provide a cure. However, hemodialysis can also reduce the risk of damage to other vital organs due to the accumulation of toxic substances in the circulation if not properly managed. Hemodialysis can maintain life and also alter the patient's lifestyle. These changes include the patient's diet, sleep, rest, medication use, and daily activities (Ghiasi et al., 2018).

Several risk factors are associated with chronic kidney failure, including age, gender, family history, diabetes mellitus, hypertension, alcohol consumption, physical activity, and

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smoking (Adhiatma 2017, VitaHealth 2017, Setyawan, 2021, Nanayakkara et al. 2018). Several factors can cause changes during treatment, such as denial of the disease and unpreparedness for therapy, which can affect self-acceptance of the condition (Aminah, 2020). Among these factors is hypertension, also known as a comorbid disease. Research by Wijayanti (2022) found a significant relationship between blood pressure and quality of life. Patients with hypertension are at risk of a lower quality of life compared to those without hypertension.

Chronic kidney failure patients on hemodialysis are associated with physical symptoms and complications such as heart disease, anemia, and sleep disturbances that can be caused by uremia. Furthermore, neurological and gastrointestinal disorders impact patients' quality of life. Each physical change can potentially reduce quality of life (Sinuraya, 2019). According to (Fadlilah S, 2019), the quality of life of patients with chronic kidney disease undergoing hemodialysis is influenced by several factors, such as age, gender, education level, employment status, economic status, underlying diseases, comorbidities, length of hemodialysis or medical treatment received, and distance to the healthcare facility.

A study by (Suwanti et al., 2018) found that 25 patients with chronic kidney disease (61.0%) undergoing hemodialysis at Ambarawa Regional Hospital had a poor quality of life, while 16 respondents (39.0%) had a good quality of life. Another study by (Luthfa, 2019) showed that patients with chronic kidney disease undergoing hemodialysis had a poorer quality of life compared to the general population and experienced impairments or lower scores in most quality-of-life domains. This is also supported by research conducted by (Rosmiati, 2018) on patients with chronic kidney failure undergoing hemodialysis at Ciamis Regional Hospital, which showed a low quality of life in 37 patients (51.4%).

Another study conducted by (Ghiasi et al., 2018) showed that patients undergoing hemodialysis have a poor quality of life and are prone to complications such as depression, malnutrition, and inflammation. Many suffer from cognitive impairments, such as memory loss, poor concentration, and physical, mental, and social disorders that ultimately interfere with daily activities. Many researchers emphasize that improving quality of life will reduce complications associated with chronic kidney failure. Quality of life is measured based on the patient's subjective sense of general well-being, which is also used as a clinical measure in the medical care of patients undergoing hemodialysis. Several studies examining factors influencing the quality of life of patients with chronic kidney failure undergoing hemodialysis are important because these factors can influence the initial assessment of the success of the therapy provided to patients.

Based on the results of a preliminary study conducted by researchers at Ciamis Regional Hospital, Based on data from Sentra Medika Cikarang Hospital, on December 18, 2024, there were 187 chronic kidney disease patients undergoing hemodialysis at Sentra Medika Cikarang Hospital for the period September to November 2024. Interviews and observations of 15 CKD patients revealed that 13 had a history of hypertension, while four did not. Furthermore, 11 patients with chronic kidney disease experienced a poor quality of life, while the remaining four had a good quality of life. Several factors contribute to the poor quality of

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life in patients with chronic kidney disease, including underlying medical conditions, such as hypertension, a comorbidity. Furthermore, patients reported experiencing stress due to prolonged hemodialysis and experiencing numerous physical, psychological, and social changes related to their adaptation to change.

Based on this, the author aims to conduct a study entitled "The Relationship Between Risk Factors for Hypertension and Quality of Life in Patients with Chronic Kidney Failure Undergoing Hemodialysis at Sentra Medika Cikarang Hospital."

METHOD

The type of research used in this study is quantitative analytical research. This type of research analyzes the relationship between variables and tests hypotheses. This study employed a quantitative analytical research design with a cross-sectional approach, where the independent and dependent variables were observed and collected simultaneously. This study was conducted in the Hemodialysis Ward of Sentra Medika Cikarang Hospital, Bekasi Regency, in 2025. The study period was approximately two months, from the initial survey, data collection, data analysis, and the thesis seminar.

The population in this study was all patients with chronic kidney disease undergoing hemodialysis at Sentra Medika Cikarang Hospital between September and November 2024, totaling 185 people. The study sample was selected using the Slovin formula, resulting in a total of 72 patients with chronic kidney disease. The sampling technique used in this study was purposive sampling, a sampling technique in which every subject meeting the inclusion criteria was selected until the required sample size was reached (Sugiyono, 2019). The type of data used was quantitative. Quantitative data is data obtained from calculations and states quantities. The data source used is primary data. Primary data is the type of data collected directly from the primary source through interviews. Primary data is usually specific because it is tailored to the researcher's needs (Affandi, 2016). Data collection was conducted in February 2025.

A dependent variable is a variable whose value is influenced or determined by another variable (Nurailni & Sari, 2023). The dependent variable in this study is hypertension. A dependent variable is a variable whose value influences or determines another variable (dependent variable) (Nurailnil & Saril, 2023). The independent variable in the data analysis was the quality of life of patients with chronic kidney disease undergoing hemodialysis.

Data processing used SPSS 22 for Windows, with several stages: editing, which checks the accuracy and completeness of the data obtained and collected. Coding, which classifies respondents' answers into categories or classifications. Classification is carried out by assigning a numeric code to each answer. Processing: After all observation checklist entries have been completed correctly and have gone through the coding process, the next step is processing the data for analysis. Data processing is carried out by entering data from the checklist into a computer program package (SPSS). Cleaning, which rechecks the entered data for errors (Notoatmodjo, 2020).

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This research data analysis used univariate and bivariate analysis. Univariate analysis was used to obtain an overview of the frequency distribution of each variable in the study (Notoatmodjo, 2020). Univariate analysis uses frequency distribution tables to visualize the frequency distribution of respondents according to the variables studied, both dependent and independent. In this study, univariate analysis is presented in the form of frequencies and percentages for each variable. Bivariate analysis is used to examine the relationship between two variables, namely the factors related to pregnant women's knowledge of danger signs in the third trimester (Notoatmodjo, 2018).

In this study, a Chi-Square hypothesis test was used to demonstrate a relationship between the variables studied using the formula (Notoatmodjo, 2018). The analysis used in this study is bivariate, aiming to examine two variables suspected of being related or correlated. The statistical test used was the Chi-Square test using SPSS Version 22 software.

With a CI (Confident Interval) or 95% significance level, a P-value <α (0.05) indicates a relationship between the independent and dependent variables. Conversely, a P-value >α (0.05) indicates no relationship between the independent and dependent variables.

$$X^2 = \sum \frac{(Ef - Of)^2}{Ef}$$

The results of the Chi-Square test can only conclude whether there is a difference in proportion between which group has a greater risk than the other. To determine the degree of relationship between two variables, the odds ratio (OR) is used. The OR value is an estimate of the probability of an outcome occurring partially due to the influence of the independent variable. A one-unit change in the independent variable will result in a change equal to the OR value in the independent variable. The confidence interval estimate.

RESULTS AND DISCCUSION

Table 1. Frequency Distribution of Respondents Based on Age, Gender, Education Level, Employment Status, and Length of Hemodialysis

Variabel	f	%
Age		
17-35 years	14	19,4
>35 years	58	80,6
Gender		
Male	45	62,5
Female	27	37,5
Education Level		
≤ High School	57	79,2
> High School	15	20,8
Employment Status		
Not Working	57	79,2
Employed	15	20,8

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Variabel	f	%
Duration of H emodialysis		
≤12 Months	19	26,4
>12 Months	58	73,6

Table 1 shows that 19.4% of the 72 respondents were aged 17-35 (late adolescence and early adulthood), and 80.6% were over 35 (late adulthood and early elderly). 62.5% of the 72 respondents were male and 37.5% were female. 79.2% of the 72 respondents had a high school education or below, and 20.8% of those with a high school education or above. 56.9% of the 72 respondents were unemployed, while 43.1% of the employed respondents had a HD duration of 12 months or less, and 73.6% of the respondents had a HD duration of 12 months or more.

Table 2. Frequency Distribution of Hypertension in Chronic Kidney Disease Patients at Sentra Medika Hospital, Cikarang

Variable	f	%
Hypertension		
Stage II Hypertension	12	16,7
Stage I Hypertension	41	56,9
Pre-Hypertension	19	26,4

Table 2 shows that 72 respondents had stage II hypertension (16.7%), stage I hypertension (56.9%), and pre-hypertension (26.4%).

Table 3. Frequency Distribution of Quality of Life in Chronic Kidney Disease Patients Undergoing Hemodialysis at Sentra Medika Cikarang Hospital.

Variable	f	%
Quality of Life in CKD Patients	12	16,7
Poor Quality of Life	41	56,9
Fair Quality of Life	19	26,4
Good Quality of Life		

Table 3 shows that of the 72 respondents, 19.4% had poor quality of life, 43.1% had moderate quality of life, and 37.5% had good quality of life.

Table 4. Relationship between Hypertension and Quality of Life in Chronic Kidney Disease Patients in the Hemodialysis Ward at Sentra Medika Hospital, Cikarang

		Hypertension	Quality of Life of Patients with Chronic Kidney Disease
Hypertension	Correlation Coefficient	1.000	.539**
	Sig. (2-tailed)	.	.000
	N	72	72

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Quality of Life of Patients with Chronic Kidney Disease	Correlation Coefficient	.539**	1.000
	Sig. (2-tailed)	.000	.
	N	72	72

Based on the results of the study in table 4, the significance value or Sig. (2-tailed) is 0.000 ($p<0.05$), which means there is a relationship between hypertension and the quality of life of kidney disease patients undergoing hemodialysis at Sentra Medika Cikarang Hospital. And based on the coefficient number in the correlation results above, it is positive, namely 0.539, so the relationship between the two variables is unidirectional (unidirectional relationship type), thus it can be interpreted that the higher the hypertension, the higher the quality of life of chronic kidney disease patients.

Discussion

Age of Chronic Kidney Disease Patients

Univariate analysis revealed a frequency distribution of 72 respondents aged 17-35 (late adolescence and early adulthood) (19.4%) and those aged 35 and older (late adulthood and early elderly) (80.6%). According to Rohimah (2020), age does not directly influence the risk of developing chronic kidney disease, but it can influence the decline in organ function, such as the kidneys. Therefore, if someone develops kidney disease in old age, it is usually due to other medical factors, such as comorbidities or uncontrolled hypertension. Furthermore, age can affect mobility, anxiety, and a decreased quality of life. Late adulthood or elderly patients may experience excessive anxiety about their illness, which is exacerbated by the symptoms they experience, which can lead to a poor quality of life for those with kidney disease. These results align with research conducted by (Galaresa, 2020) in their study entitled "Factors Affecting the Quality of Life of Chronic Kidney Failure Patients Receiving Hemodialysis at Pekanbaru Medical Center Hospital," which showed that patients undergoing hemodialysis at Pekanbaru Medical Center Hospital were predominantly aged 51-60 years (56.0%), or early elderly. Furthermore, according to (Butar & Siregar, 2019), age influences a person's perspective on life, the future, and decision-making. A 35-year-old kidney failure patient with two toddlers, compared to a 78-year-old patient whose children are all independent, naturally differs in their choices regarding healthcare. Patients of productive age feel motivated to recover given their young age and high life expectancy as the breadwinners of their families, while those who are older or elderly leave decisions to their families or children. Researchers assume that many chronic kidney disease patients are elderly, tired, and facing a life-threatening situation. This results in a lack of motivation, a poor quality of life, and difficulty making decisions about undergoing hemodialysis therapy. Furthermore, hypertension in CKD patients is also due to physiological factors and changes that often occur with age, such as increased vascular resistance. Furthermore, increasing age can be a factor in a person's maturity level in making the best decisions for themselves.

Gender of Chronic Kidney Disease Patients

Of the 72 respondents, 62.5% were male and 37.5% were female. Based on theory (Csaba P Kovesdy, 2022), the body composition of men and women differs significantly. Men

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have more muscle tissue, while women have more fat. The greater the amount of fat, the lower the percentage of water in the body, resulting in a lower percentage of water in the body. Excessive water in the body will result in weight gain and affect the activities and activities of someone with chronic kidney disease undergoing hemodialysis therapy. Women and men have different thirst thresholds, men's thirst threshold is lower than women's, which causes men to experience more weight gain between two hemodialysis sessions.

This is consistent with the results of a study conducted by Galaresa (2020) entitled "Factors Affecting the Quality of Life of Chronic Kidney Failure Patients Receiving Hemodialysis at Pekanbaru Medical Center Hospital." This study showed that the gender of patients undergoing hemodialysis at Pekanbaru Medical Center Hospital was predominantly male (56.0%). This is supported by research conducted by Gultom Mai (2023), which found that the average number of patients undergoing hemodialysis was male (53.8%).

This is in line with research by Ipo et al. (2019), which found that the prevalence of men outnumbers women by several factors. This is due to men's poor lifestyles and quality of life, which can impact health, such as smoking, coffee consumption, alcohol consumption, and dietary supplements, which can trigger systemic diseases, which can also lead to decreased kidney function and impact quality of life. Researchers assume that gender can be a contributing factor to chronic kidney disease, along with other factors such as lifestyle, diet, and physical activity.

Education Level of Chronic Kidney Disease Patients

Of the 72 respondents, 79.2% had a high school education (less than high school), and 20.8% had a high school education (more than high school). According to Fadlilah (2019), there is a relationship between education level and the severity of the disease. The higher a person's education, the greater their knowledge about quality of life. This can impact quality of life, for example, by maintaining health through managing diet, activity patterns, and exercise for CKD patients, as well as the ability to seek and obtain health information.

Education is crucial for people with chronic kidney disease (CKD) in their lives. Through education, patients with chronic kidney disease can break free from barriers, thus providing them with understanding and insight into undergoing hemodialysis therapy. Education can be obtained through formal and non-formal education, one of which is education provided by healthcare providers to patients. This can also instill new capacities in patients with chronic kidney disease (CKD) to learn new knowledge and skills, resulting in more productive patients and hopefully improving their quality of life. The higher a person's education level, the more likely they are to behave positively because it can lay the foundation for self-esteem (Butar & Siregar, 2019).

This aligns with the results of research conducted by Galaresa (2020) in their study, "Factors Influencing the Quality of Life of Chronic Kidney Failure Patients Receiving Hemodialysis at Pekanbaru Medical Center Hospital." The study showed that the education level of patients undergoing hemodialysis at Pekanbaru Medical Center Hospital was predominantly high school graduates (50.0%).

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The researchers' assumption is the importance of education as a medium or conduit of knowledge and impact on changing mindsets and behaviors, especially in patients with kidney failure, who require a deeper understanding of their chronic kidney disease and the lifelong hemodialysis management they undergo.

Employment Status of Chronic Kidney Disease Patients

Of the 72 respondents, 56.9% were unemployed, while 43.1% were employed. According to Butar & Siregar (2019), having a job as a young adult will impact quality of life and individual happiness, especially in patients with chronic kidney disease. Employment is a significant demographic factor influencing happiness compared to other demographic factors. Employment is a key factor because it occupies a third of an individual's time (8 hours per day), which is equivalent to the time spent sleeping and engaging in other activities.

The results of this study align with research conducted by Gultom Mai (2023), which found that 52.9% of patients with chronic kidney disease were unemployed. Furthermore, when linked to the phenomenon of unemployment in patients with chronic kidney disease, the various negative and positive impacts of being unemployed will undoubtedly impact their happiness and, furthermore, their quality of life.

The researchers' assumption is that work can have both positive and negative impacts, and this is certainly something that can be addressed by both the patient and their family members. Unemployed individuals with chronic kidney disease may experience anxiety due to their inability to contribute financially to the family. Those who are able to work, especially those who perform heavy work, may experience numerous complaints.

Hemodialysis Duration in Chronic Kidney Disease Patients

Of the 72 respondents, 26.4% had HD for ≤12 months, and 73.6% had HD for more than 12 months. The Kidney Disease Outcome Quality Initiative (KDOQI) recommends that patients with low residual kidney function (less than 2 ml/min) undergo hemodialysis three times a week, lasting 3 hours each time (Limayanur, 2021). Patients who underwent hemodialysis for more than 10 years and then underwent a kidney transplant had poorer outcomes compared to transplant patients who had previously undergone hemodialysis for a shorter period. Furthermore, the duration of hemodialysis is categorized into three categories: less than 12 months, 12-24 months, and more than 24 months (Butar & Siregar, 2019).

This aligns with research conducted by (Galaresa Achmad, 2020), which showed that chronic kidney disease patients are predominantly those undergoing hemodialysis for ≤12 months. The duration of illness can impact adherence and quality of life in patients with chronic kidney disease. Several chronic diseases often experience quality-of-life issues. The impact of prolonged illness, along with the many complex lifestyle changes and complications that often arise as a result of prolonged illness, impacts not only the patient's physical well-being but also their emotional, psychological, and social well-being. Research on hemodialysis patients, examining the quality of life of patients with chronic kidney disease for less than 1 year compared to those with more than 1 year, showed that the longer the duration of illness, the greater the risk of experiencing poor quality of life due to complications during hemodialysis therapy (Widayati, 2022).

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However, (Mayuda, 2021) stated that the longer a patient undergoes hemodialysis, the better their adaptation because they receive more health education or necessary information from healthcare professionals. This is supported by the statement that the longer a patient undergoes hemodialysis, the more compliant they are. Non-compliant patients tend to be those who have recently undergone hemodialysis, as they have reached a stage of acceptance through health education from healthcare professionals. This stage of acceptance allows a person to undergo a hemodialysis program with a full understanding of the importance of fluid restriction and the impact of weight gain between hemodialysis sessions on their health and quality of life.

The researchers assumed that the longer a patient undergoes hemodialysis, the more likely they are to have more experience with fluid restriction diets and prevent complications that occur during the hemodialysis process. This will undoubtedly increase understanding and experience, which can foster good health behaviors and positively impact their lifelong hemodialysis therapy.

Hypertension in Chronic Kidney Disease Patients

Table 2 shows that 72 respondents had stage II hypertension (16.7%), stage I hypertension (56.9%), and pre-hypertension (26.4%). Hypertension plays a significant role in the development of chronic kidney disease (CKD). This occurs because fat intake is transported by the blood to cells through the blood vessels, which can cause thickening and narrowing of the blood vessel walls, which can lead to chronic kidney failure. Hypertension can also cause the blood vessels around the kidneys to constrict, disrupting the flow of nutrients to the kidneys and causing damage to kidney cells. If this condition persists for a long time, it can lead to severe kidney damage, known as end-stage renal failure, which is irreversible and can only be treated with hemodialysis or a kidney transplant (Asriani 2017).

This is consistent with the results of a study conducted by (Galaresa, 2020) entitled "Factors Affecting the Quality of Life of Chronic Kidney Failure Patients Receiving Hemodialysis at Pekanbaru Medical Center Hospital," which showed that the quality of life of patients with chronic kidney disease and patients undergoing hemodialysis was dominated by hypertension (53.3%) at Pekanbaru Medical Center Hospital. Another study using data from the Non-Communicable Disease Cohort Study for patients aged 25-65 years showed that people with hypertension had a 3.71 times greater risk of developing chronic kidney failure than those without hypertension (Sulistiowati and Idaiani, 2015). Hypertension is also a risk factor for chronic kidney failure, with a risk approximately 5.652 times greater than that of those without hypertension (Adhiatma, 2017).

The researchers assume that blood pressure control is one of the efforts that can be taken in the prevention and treatment of patients at risk of or who have experienced complications of chronic kidney disease. Therefore, it is important to control blood pressure in patients by providing health education to patients about how to check blood pressure and control it by taking antihypertensive drugs.

Quality of Life in Chronic Kidney Disease Patients Of the 72 respondents, 19.4% had a poor quality of life, 43.1% had a moderate quality of life, and 37.5% had a good quality of life.

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Quality is the extent to which a person enjoys the important possibilities in life. The quality of life of chronic kidney disease patients undergoing hemodialysis remains a topic of concern for healthcare professionals. Patients can survive on hemodialysis, but they still face a number of significant issues as a result of the therapy. Achieving quality of life requires a fundamental change in the patient's perspective on chronic kidney disease (Butar & Siregar, 2019).

Furthermore, quality of life is a concept analyzing an individual's ability to live a normal life, related to their perceptions of goals, expectations, standards, and specific concerns about life, influenced by the values and culture of their environment. Quality of life is a primary goal to be achieved in development, so it aligns with the level of well-being. This quality of life is influenced, among other things, by the level of health. The higher a person's health, the higher the quality of life (Hutagoul, 2017). This aligns with research conducted by Fadlilah (2019), which showed that chronic kidney disease patients predominantly had moderate to poor quality of life (56.7%).

The researchers assumed that the quality of life of a patient with chronic kidney disease can be caused by several factors, both medical and non-medical. This requires a deeper understanding and knowledge to address the impacts and symptoms of hemodialysis in patients with chronic kidney disease. Without this knowledge, there will be no positive changes in health behaviors in patients with chronic kidney disease, which can lead to a decreased quality of life. Therefore, a health education strategy, monitoring, and evaluation are necessary for each patient undergoing hemodialysis.

Bivariate Analysis Results (Relationship Between Hypertension and Quality of Life in Patients with Chronic Kidney Disease)

The Spearman rank test revealed a significance value (Sig. The 2-tailed correlation coefficient ($p<0.05$) is 0.000, indicating a positive correlation between hypertension risk factors and the quality of life of kidney disease patients undergoing hemodialysis at Sentra Medika Cikarang Hospital. The correlation coefficient is positive at 0.539, indicating a unidirectional relationship between the two variables. This implies that as hypertension risk factors increase, the quality of life of chronic kidney disease patients improves.

Quality of life is the extent to which a person enjoys the important possibilities in life. The quality of life of chronic kidney disease patients undergoing hemodialysis remains a significant concern for healthcare professionals. Patients can survive on hemodialysis, but they still face significant challenges as a result of the therapy. Achieving quality of life requires a fundamental change in how patients view chronic kidney disease (Butar & Siregar, 2019).

Furthermore, hypertension plays a significant role in the development of chronic kidney disease (CKD). This occurs because fat intake is transported by the blood to cells through the blood vessels, which can cause thickening and narrowing of the blood vessel walls, leading to chronic kidney failure. Hypertension can also cause the blood vessels around the kidneys to constrict, disrupting the flow of nutrients to the kidneys and causing damage to kidney cells. If this condition persists for a long time, it can lead to severe kidney damage, commonly known as end-stage renal failure, which is irreversible and can only be treated with hemodialysis or kidney transplantation (Asriani 2017).

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The pathophysiology of chronic kidney disease initially depends on the etiology or underlying disease. This is particularly true in patients with chronic kidney disease with a history of hypertension. The reduction in kidney mass results in structural and functional hypertrophy of the remaining nephrons as a compensatory effort, mediated by vasoactive molecules such as cytokines and growth factors. This results in hyperfiltration, followed by increased capillary pressure and glomerular blood flow. This condition is followed by a maladaptation process, namely nephron sclerosis, and ultimately a progressive decline in nephron function. Increased intrarenal renin-angiotensin-aldosterone axis activity, mediated by growth factors such as Transforming Growth Factor β (TGF-β), causes hyperfiltration, sclerosis, and progression. Furthermore, the progression of chronic kidney disease is also influenced by hypertension, albuminuria, hyperglycemia, and dyslipidemia (Suwitra, 2019).

According to (Gultom Mai, 2023), research results indicate that patients with hypertension have a 5.52 times greater chance of developing chronic kidney disease compared to patients without hypertension, with an OR of 5.5 (95% CI: 2.10-14.53). This study aligns with the theory that there is a positive association between hypertension and the incidence of chronic kidney disease. The emergence of several symptoms caused by chronic kidney disease and hypertension can cause discomfort, dizziness, pain, and anxiety in sufferers, as well as a lack of self-acceptance of their illness. Furthermore, a lack of motivation and support, both moral and material, from close family members can contribute to a poor quality of life for patients with chronic kidney disease.

This is in line with research conducted by (Wijayanti, 2021), which found a significant relationship between blood pressure and quality of life (p-value = 0.003). Patients with hypertension are at risk of a decreased quality of life compared to those without hypertension. This is supported by research conducted by (Galaresa, 2020) in their study, "Factors Affecting the Quality of Life of Chronic Kidney Failure Patients Receiving Hemodialysis at Pekanbaru Medical Center Hospital," which showed a relationship between hypertension risk factors and quality of life in patients with chronic kidney disease and patients undergoing hemodialysis (p-value = 0.002) at Pekanbaru Medical Center Hospital.

This is supported by research conducted by (Luh Gede, 2021), which suggests a link between hypertension and a low quality of life, primarily in the domain of physical health function. The exact mechanism is unknown, but it is thought to be due to complications caused by comorbidities. Hypertension, along with diabetes, is defined as the presence of another disease condition that accompanies chronic kidney disease and can affect other organs, including kidney function. Hypertension is also a major risk factor for kidney disease, heart disease, congestive heart failure, stroke, and vision impairment. High blood pressure generally increases the risk of these complications. Untreated hypertension affects all organ systems, ultimately impacting quality of life and shortening life expectancy by 10-20 years (Channel, 2018).

Researchers assume that hypertension is closely related to patients with chronic kidney disease and this affects the quality of life of hemodialysis patients, especially those with hypertension. The pathophysiology of hypertension in chronic kidney disease patients is very

complex, with several mechanisms involved in blood pressure dysregulation in hemodialysis patients. The side effects and symptoms experienced by patients with chronic kidney disease and hypertension will worsen their condition, so education is needed to increase patient knowledge and understanding in order to manage and overcome these complications, such as diet, regulating rest patterns, and physical activity to improve the quality of life in chronic kidney disease patients.

CONCLUSION

Based on the results of research conducted by researchers regarding "The Relationship between Hypertension and Quality of Life in Chronic Kidney Disease Patients Undergoing Hemodialysis at Sentra Medika Cikarang Hospital, Bekasi Regency", it was concluded that there is a strong and unidirectional significant relationship between the risk factor variables for hypertension and the quality of life of chronic kidney disease patients.

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