Jurnal Eduhealth
Volume 16, Number 01 2025 DOI 10.54209/eduhealth.v16i01
ESSN 2808-4608 (Online)
https://ejournal.seaninstitute.or.id/index.php/healt

Characteristics of Hemodialysis Patients Due to Chronic Kidney Failure in 2018-2022 at Santa Elisabeth Medan Hospital

Juni Setianus Baeha[1], Rotua Elvina Pakpahan[2], Agustaria Ginting[3]

[1,2,3]Nursing Departement, Sekolah Tinggi Ilmu Kesehatan Santa Elisabeth Medan, Jl. Bunga Terompet 118, Medan, Indonesia

Article Info

Keywords:
Characteristics,
Hemodialysis,
Chronic Kidney Failure

ABSTRACT

Cronic kidney failure causes a decrease in glomerular filtration, resulting in the kidneys being unable to remove toxins and producing blood waste so that toxins in the body cannot be removed and circulate in the bloodstream and cause excess body fluids. Blood circulation containing toxic substances can cause various health complaints and can even lead to death, so medical management in the form of hemodialysis is needed to help the glomerulus filter toxic substances, fluids and electrolytes. This study aims to identify the characteristics of chronic kidney failure patients in 2018-2022 who underwent hemodialysis at the Santa Elisabeth Hospital. The study was descriptive in nature using secondary data from medical records. The study population was 24,288 people, with a sample of 100 people, where the sample was taken based on the proportional random sampling technique. Research data was taken from the patient status in the medical record room and hemodialysis room using a checklist sheet. The results showed that 41% of patients were >60 years old, male gender 58%, high school education 62%, unemployed 31%, duration of HD <12 months 60%, and hypertension as the cause of GGK 76%. It is expected that hospitals emphasize recording patient data in the medical record room carefully and completely, to facilitate access to patient data when needed for research and legality needs.

Corresponding Author:
Juni Setianus Baeha
Nursing Departement,
Sekolah Tinggi Ilmu Kesehatan Santa Elisabeth Medan,
Jl. Bunga Terompet No. 118 Medan.
junibaeha2001@gmail.com

INTRODUCTION

The kidneys are one of the most important parts of the body that function as a blood filter from metabolic waste that makes its existence irreplaceable by other body organs. Kidney damage can cause problems with the body's ability and strength to process metabolic waste. As a result of the accumulation of kidney damage that is not treated seriously for a long time, it can result in acute and chronic kidney failure from stage 1 to stage 5 and finally end-stage kidney failure which results in death (Pratama et al., 2020). This condition requires medical management in the form of hemodialysis. Hemodialysis replaces the function of the glomerulus, namely filtering and processing the exchange of solutes and waste products of the body. Waste that accumulates in patients with chronic kidney failure

Jurnal Eduhealth
Volume 16, Number 01 2025 DOI 10.54209/eduhealth.v16i01
ESSN 2808-4608 (Online)
https://ejournal.seaninstitute.or.id/index.php/healt

is withdrawn through the passive diffusion mechanism of the semipermeable membrane. The transfer of metabolic waste products occurs following a decrease in the amount of concentration from circulation into the dialysate. The hemodialysis process is expected to reduce the excretion of albumin that occurs in patients with chronic kidney failure can be reduced, symptoms of uremia are reduced, so that the patient's clinical picture can also improve (Aisara, 2018).

However, chronic kidney failure patients do not immediately receive hemodialysis therapy. Limited knowledge causes patients to refuse to receive hemodialysis and they prefer to undergo traditional medicine. This is influenced by the low level of public knowledge about hemodialysis. Knowledge is one of the factors that facilitates a person's behavior so that it is possible to prevent chronic kidney disease. When the family has good knowledge, the family will be able to predict problems so that they can help the family in preparing the decisions to be taken, including readiness to face the worst possibilities (Nopriyanti, 2018). Knowledge plays a role in a person's understanding of the disease they suffer from, which is very important in maintaining their health and psychological condition. This is inseparable from the level of education. The higher a person's education, the more rational they will be in making decisions about the health they face and solving their problems using the scientific references they have. The higher a person's education, the higher the level of resilience or ability to rise from adversity due to the disease they suffer from (Satiadama, 2018).

Chronic kidney failure can be suffered by all individuals, both men and women. However, the incidence of kidney failure by gender is higher in men (0.3%) compared to women (0.2%) based on age, the highest incidence of CKD occurs at the age of 75 years (0.6%) where at the age of 35 years and above there is an increase (Siregar & Karim, 2019). The prevalence of hemodialysis with an age of >15 diagnosed by RISKESDAS according to age characteristics is highest at 24.06%, the prevalence by gender is greater in women at 21.98% and men 17.08%, the prevalence for the highest level of education at the college is 34.69%, the prevalence of work is 37.64% in schools, the prevalence of residence is greater in urban areas 22.36% while rural areas are 15.57% (Kemenkes RI, 2018). The variation of demographic profiles of CKD patients will affect decision making for hemodialysis. Therefore, this study aims to identify the demographic profile or characteristics of hemodialysis patients caused by chronic kidney failure in 2018-2022 at Santa Elisabeth Hospital Medan.

METHODS

The study is descriptive in nature using secondary data from patient medical records. The first step is to determine the medical records of patients with a medical diagnosis of Chronic Kidney Failure undergoing hemodialysis. The population of this study was 24,288 medical records. Then data was collected from the medical records of patients that had been determined using the proportional random sampling technique (randomly taking the medical record numbers of chronic kidney failure patients undergoing hemodialysis during 2019-2022) totaling 100 medical records. The next step was to collect data on the demographic

Jurnal Eduhealth
Volume 16, Number 01 2025 DOI 10.54209/eduhealth.v16i01
ESSN 2808-4608 (Online)
https://ejournal.seaninstitute.or.id/index.php/healt

characteristics of chronic kidney failure patients undergoing hemodialysis using an observation sheet in the form of a checklist. This study was conducted at the Santa Elisabeth Medan Hospital.

RESULTS AND DISCUSSION

Based on the results of the study, the characteristics of Chronic Kidney Failure Patients in 2018-2022 Undergoing Hemodialysis at Santa Elisabeth Hospital Medan in 2023

Table 1. Characteristics of Hemodialysis Patients due to CKD in 2018-2022 at Santa Elisabeth Hospital Medan

Demographic data	Number	Percentage
Age		
< 45 years	18	18
45 – 60 years	41	41
> 60 years	41	41
Total	100	100
Gender		
Male	58	58
Female	42	42
Total	100	100
Education		
Elementary School	4	4
Junior High School	8	8
Senior High School	62	62
University	26	26
Total	100	100
Occupation		
Civil Servant	10	10
Teacher	4	4
Lecturer	1	1
Private Worker	7	7
Farmer	18	18
Not Working (Housewife, Retiree)	31	31
Self-Employed	29	29
Total	100	100
Length of hemodialysis		
< 12 months	60	60
12 – 24 months	24	24
> 24 months	16	16
Total	100	100
Causes of chronic kidney failure		
Hypertension	76	76
DM	14	14

Jurnal Eduhealth
Volume 16, Number 01 2025 DOI 10.54209/eduhealth.v16i01
ESSN 2808-4608 (Online)
https://ejournal.seaninstitute.or.id/index.php/healt

Demographic data	Number	Percentage
Heart disease	-	-
Polycystic kidneys	5	5
Gout	5	5
Total	100	100

Table 1 shows that 41% of hemodialysis patients are over 60 years old, 58% of respondents are male, 62% have a high school education, and 31% are unemployed housewives and retirees. Based on the results of the study, 59% of respondents have undergone hemodialysis for less than 12 months and 76% of CKD disease is caused by hypertension.

Age is one of the risk factors for chronic kidney failure is age. Supported by research by Devi and Rahman (2022) which states that most respondents are 45-60 years old, namely 21 people (65.6%). This study is also in line with research by Aisara (2018) that the age group experiencing chronic kidney failure is in the age range of 40-60 years, amounting to 62.5%. Siwi and Budiman (2021) also found something that was not much different, namely that most of the ages of CKD patients undergoing hemodialysis therapy were in the age group of 45-60 years, amounting to 57.4%.

The age of respondents, some of whom were found to be advanced or over 45, was also associated with the risk of decreased kidney function. There are changes in kidney function with increasing age after the age of 40 years and there is a progressive decrease in GFR until the age of 70 years of approximately 50% of normal. Decreased kidney function is a normal process as humans age. Increasing age shows a progressive decrease in Glomerular Filtration Rate (GFR) and Renal Blood Flow (RBF). The decrease occurs by around 8 ml/minute/1.73m2 every decade since the age of 40 years. Increasing age causes physical conditions to be more susceptible to degenerative diseases, because the older the age, the weaker the body's cells and can happen to anyone. Age is the length of time a person has lived since he was born into the world which increases or decreases susceptibility to certain diseases. The older the age, the signs and symptoms of patients starting to feel tired more quickly and get sick easily at the age of> 45 years, patients feel unable to do heavy activities such as lifting heavy loads and feel tired more easily.

This study also shows that 58% of chronic kidney failure patients undergoing hemodialysis at Santa Elisabeth Hospital Medan are male. Aisara (2018) showed the same thing that 56.7% of hemodialysis patients were male. This is similar to the study by Devi and Rahman (2022) which found that 59.4% of hemodialysis patients were male. However, Aryzki (2019) found research results stating that 59.90% of chronic kidney failure patients undergoing hemodialysis at Ulin Banjarmasin Hospital were female.

Clinically, men have a risk of experiencing chronic kidney failure 2 times greater than women. This is possible because women pay more attention to health and maintain a healthy lifestyle than men, so men are more susceptible to chronic kidney failure than women. Lifestyle between men and women can also be the reason why gender is a risk factor for CKD. High intake of protein and calorie diet in men affects kidney damage. High

Jurnal Eduhealth
Volume 16, Number 01 2025 DOI 10.54209/eduhealth.v16i01
ESSN 2808-4608 (Online)
https://ejournal.seaninstitute.or.id/index.php/healt

LDL, triglycerides, uric acid, and low HDL will also accelerate kidney function damage. Nutrition and lifestyle factors are tendencies that occur in men. This is caused by the habit of men who do not maintain their diet and activities, consume foods high in salt and sugar so that they experience diabetes and hypertension, which are factors in the occurrence of kidney dysfunction. High blood sugar levels can affect the structure of the kidneys and damage blood vessels in the kidneys, which causes damage to the glomerulus which functions to filter blood in the kidneys, causing albumin in the urine. Males have smaller urinary tracts that can be at risk for kidney stones, and men's smoking habits can increase pressure on the kidneys, making them work harder. However, it is possible that hemodialysis patients are also women due to hormonal changes during menopause.

Education cannot be separated from the demographic characteristics of an individual. This study identified that 62% of chronic kidney failure patients undergoing hemodialysis at Santa Elisabeth Hospital Medan had a high school education. The results of this study are in line with the research of Devi and Rahman (2022), stating that 46.9% of respondents had a high school/vocational high school education. However, Idarahyuni (2019) showed that good quality of life and more acceptance of their disease conditions were in diploma 3 graduates compared to patients with high school graduates and below. In addition, Sarastika (2019) stated that education does not affect the quality of life of chronic kidney failure patients.

Patients who have higher education will have broader knowledge so that they can control themselves in dealing with problems, easily understand what is recommended by health workers and can reduce anxiety so that they can help the individual in making decisions. The higher a person's education, the faster they will understand the condition of the disease they are experiencing, while someone with a low education will have less knowledge and awareness to carry out early detection in health services so that this increases the risk of patients experiencing chronic kidney failure. The higher a person's education, the more likely they are to behave positively because the education obtained can lay the foundations of understanding and behavior in a person. However, everyone can be affected by diseases from various educational backgrounds, the lower the patient's education level, the more it will affect the quality of his life.

The results of the study showed that most chronic kidney failure patients undergoing hemodialysis at Santa Elisabeth Hospital Medan were unemployed by 31%. Work is closely related to the patient's economic status which is closely related to their financial situation. Respondents did not work due to physical limitations of respondents who could not carry out activities so that it affected their social and economic status. Low income will affect the respondent's ability to meet nutritional needs and daily needs. Someone who does not work and does not have money tends to experience stress so that they do bad habits such as drinking alcohol, smoking and using illegal drugs which can cause long-term side effects such as chronic kidney failure.

The researcher's assumption is supported by the research of Devi and Rahman (2022), stating that most respondents did not work, namely 20 people (62.5%). Individuals who have to undergo HD often feel worried about their unpredictable illness and disruption

Jurnal Eduhealth
Volume 16, Number 01 2025 DOI 10.54209/eduhealth.v16i01
ESSN 2808-4608 (Online)
https://ejournal.seaninstitute.or.id/index.php/healt

in their lives, usually patients will experience financial problems and difficulty in maintaining employment. Research by Venizelia et al. (2020), stated that respondents suffering from chronic kidney failure did not work, amounting to 49 people (49.5%). This condition is one of the predictors of low quality of life related to health in addition to age, gender, education, and low income and lack of exercise.

Supported by research by Masi and Kundre (2018) that most respondents worked, amounting to 37 respondents (61.7%). The results of the researcher's observations found that most of the respondents who were still actively working were civil servants, entrepreneurs or security forces, while those who were no longer working were mostly due to old age or had lost their jobs. It is possible that by working, the ability to respond and carry out one's role will also increase, this will have an impact on increasing self-esteem and quality of life.

The results of the study showed that 60% of chronic kidney failure patients had undergone hemodialysis for less than 12 months at Santa Elisabeth Hospital Medan. Sinuraya and Lismayanur (2019) supported the researchers by stating that 52% of respondents underwent hemodialysis for less than 12 months. Devi and Rahman (2022) stated something not much different that 53.1% of patients underwent hemodialysis for less than 12 months.

The researcher's assumption is that the duration of hemodialysis therapy will make patients more compliant with their treatment, patients who have undergone hemodialysis for a long time will reach the stage of accepting and feeling the benefits of hemodialysis, where a person's success in undergoing hemodialysis depends on their compliance in undergoing hemodialysis therapy. From the results of the study, most patients underwent hemodialysis for <12 months, each patient requires a different time to adapt to the changes they experience such as symptoms, complications and therapies that are undergone throughout their lives. Based on interviews conducted by researchers, respondents who have not undergone hemodialysis for long have varying levels of depression from no depression, mild depression, moderate depression and even severe depression, while patients who have undergone hemodialysis for a long time still have depression but only mild. However, Sari et al. (2022) stated something different that 55.2% of respondents had undergone hemodialysis for more than 12 months.

The longer the patient undergoes hemodialysis therapy, the more compliant the patient is, because usually the patient has reached the stage of accepting and feeling the benefits of hemodialysis, in addition, patients who routinely check and routinely undergo hemodialysis receive health education from nurses and doctors about the disease and the importance of carrying out HD regularly for them so as to accelerate the process of accepting their disease. A new patient who does not know about kidney disease can increase the risk of kidney disease which ultimately requires hemodialysis therapy. This happens to patients who have not undergone HD for long, so that patients feel unprepared to accept and adapt to the changes that occur in their lives.

Based on the results of the study, 76% of chronic kidney failure patients undergoing hemodialysis have a history of hypertension and are aggravated by the patient's age of over

Jurnal Eduhealth
Volume 16, Number 01 2025 DOI 10.54209/eduhealth.v16i01
ESSN 2808-4608 (Online)
https://ejournal.seaninstitute.or.id/index.php/healt

60 years. Increasing age can eliminate the flexibility of the arteries and become stiff so that blood in each heartbeat through the blood vessels narrows and causes increased blood pressure. According to researchers, patients who have a history of hypertension will be 2 times more likely to suffer from chronic kidney failure. Hypertension can cause kidney failure, conversely chronic kidney failure can cause hypertension. The main target organs for hypertension sufferers are the heart, brain, kidneys, and eyes. Hypertension can worsen kidney damage through increased intraglomerular pressure that causes structural and functional disorders in the glomerulus. This disorder is a direct result of ischemia due to narrowing of the lumen of the intrarenal blood vessels. Blockage of arteries and arterioles will cause glomerular damage and tubular atrophy, so that all nephrons are damaged, which causes chronic kidney failure.

The researcher's assumption is supported by research (Gultom & Sudaryo, 2023), stating that the majority of respondents have a history of hypertension, 45 respondents (86.5%). Hypertension that occurs for a long time will cause afferent arteriole resistance to change with narrowing of the afferent due to changes in the microvascular structure. As a result, glomerular ischemia occurs and so does the inflammatory response which ends in the release of inflammatory mediators that occur, also endothelin, which then activates intrarenal angiotensin II and increases matrix production and deposits in the glomerular microvasculature and ends in nephrosclerosis due to hypertension.

In line with the research of Agussalim et al. (2022), stating that of the 94 respondents in the study, 52 respondents (53.3%) dominated by respondents who had a history of hypertension. A decrease in the number of nephrons will cause the body to carry out an adaptation reaction, namely increased blood flow, increased GFR (Glomerular Filtration Rate) and increased urine output in the surviving nephrons. This process results in nephron hypertrophy and vasodilation as well as functional changes. Changes in nephron function will reduce vascular resistance and tubular reabsorption in the surviving nephrons. After this disorder has been going on for a long time, sclerotic lesions formed from nephron damage will increase in number, causing glomerular obliteration, which results in further decline in kidney function, and will develop slowly and end as terminal kidney failure which results in death, this proves that the higher the level of hypertension, the greater the risk of developing chronic kidney failure.

The researcher's assumption is supported by the research of Lilia dan Supadmi (2019), stating that chronic kidney failure sufferers are mostly caused by hypertension. Clinically, patients with hypertension have a 13x greater chance or risk of experiencing chronic kidney failure than patients who do not have hypertension. Showing that hypertension is a risk factor for chronic kidney failure where blood pressure in the arteries increases. This increase causes the heart to work harder than usual to circulate blood through the blood vessels. The kidneys are one of the centers for regulating blood pressure so that if high blood pressure occurs continuously exceeding normal> 140/90 mmHg, this condition can affect the kidneys (secondary hypertension).

Jurnal Eduhealth
Volume 16, Number 01 2025 DOI 10.54209/eduhealth.v16i01
ESSN 2808-4608 (Online)
https://ejournal.seaninstitute.or.id/index.php/healt

CONCLUSION

Based on the results of the study, it was found that the characteristics of hemodialysis patients at Santa Elisabeth Hospital Medan were 82% over 45 years old, 58% male, 62% high school graduates, 31% unemployed, 60% had undergone HD for less than 12 months, and 76% had a history of hypertension. It is expected that the hospital emphasizes recording patient data in the medical record room carefully and completely, to facilitate access to patient data when needed for research and legality purposes. Complete medical records can contribute to promotive efforts for the community to maintain a healthy lifestyle and detect diseases related to degenerative processes early.

REFERENCE

Agussalim, A. S., Maulana, A. E. F., Putradana, A., & Marvia, E. (2022). Hubungan Hipertensi Dengan Kejadian Gagal Ginjal Kronik Di Rumah Sakit Umum Daerah Kabupaten Lombok Utara. *Research of Service Administration Health and Sains Healthys*, *3*(2), 64–69. https://doi.org/10.58258/rehat.v3i1.4691/

Aisara, S., Azmi, S., & Yanni, M. (2018). Gambaran Klinis Penderita Penyakit Ginjal Kronik yang Menjalani Hemodialisis di RSUP Dr. M. Djamil Padang. *Jurnal Kesehatan Andalas*, *7*(1), 42. https://doi.org/10.25077/jka.v7i1.778

Aryzki, S., Wanda, M. N. R., Susanto, Y., Saputera, M. M. A., Putra, A. M. P., & Karani. (2019). Pengukuran Kualitas Hidup Pasien Hemodialisis Gagal Ginjal Kronik Di Rsud Ulin Banjarmasin Menggunakan Instrumen Eq5d. *Jurnal Ilmiah Ibnu Sina*, *4*(1), 210–224.

Devi, S., & Rahman, S. (2022). Hubungan Lama Menjalani Terapi Hemodialisis Dengan Kualitas Hidup Pasien Penyakit Ginjal Kronik Di Rumah Sakit Khusus Ginjal Rasyida. *Jurnal Ilmiah Kohesi*, *4*(1), 61–67.

Gultom, M. D., & Sudaryo, M. K. (2023). Hubungan Hipertensi dengan Kejadian Gagal Ginjal Kronik di RSUD DR. Djasamen Saragih Kota Pematang Siantar Tahun 2020. *Jurnal Epidemiologi Kesehatan Komunitas*, *8*(1), 40–47. https://doi.org/10.14710/jekk.v8i1.11722

Idarahyuni, Erna, L. S., & Haryanto, E. (2019). Kualitas Hidup Pasien Gagal Ginjal Kronis (Ggk)Yang Menjalani Terapi Hemodialisis Di Unit Hemodialisa Rsau Dr . M . Salamun Bandung. *Jurnal Kesehatan Aeromedika*, 17–23.

Kemenkes RI. (2018). Laporan Riskesdas 2018 Kementrian Kesehatan Republik Indonesia. In *Laporan Nasional Riskesdas 2018* (Vol. 53, Issue 9, pp. 154–165). http://www.yankes.kemkes.go.id/assets/downloads/PMK No. 57 Tahun 2013 tentang PTRM.pdf

Lilia, I. H., & Supadmi, W. (2019). *Faktor Risiko Gagal Ginjal Kronik Pada Unit Hemodialisis Rumah Sakit Swasta di Yogyakarta*. *4*(Suppl 1), 60–65.

Masi, G. N. M., & Kundre, R. (2018). *PERBANDINGAN KUALITAS HIDUP PASIEN GAGAL GINJAL KRONIK DENGAN COMORBID FAKTOR DIABETES MELITUS DAN HIPERTENSI DI RUANGAN HEMODIALISA RSUP. Prof. Dr. R. D. KANDOU MANADO*. *5*(April), 1–9.

Nopriyanti. (2018). *No Title*.

Pratama, A. S., Pragholapati, A., & Nurrohman, I. (2020). Mekanisme Koping pada Pasien Gagal Ginjal Kronik yang menjalani Hemodialisis di Unit Hemodialisa RSUD Bandung. *Jurnal Smart Keperawatan*, *7*(1), 18. https://doi.org/10.34310/jskp.v7i1.318

Sarastika, Y., Kisan, Mendrofa, O., & Siahaan, J. V. (2019). Faktor-Faktor Yang Mempengaruhi Kualitas Hidup Pasien Gagal Ginjal Kronik (Ggk) Yang Menjalani Terapi Hemodialisa Di Rsu Royal Prima Medan. *Jurnal Riset Hesti Medan Akper Kesdam I/BB Medan*, *4*(1), 53–60.

Sari, S. P., AZ, R., & Maulani. (2022). Hubungan Lama Hemodialisis dengan Kualitas Hidup Pasien Penyakit Ginjal Kronik di Ruang Hemodialisa Rumah Sakit Bhayangkara Kota Jambi. *Jurnal Ilmiah Ners Indonesia*, *3*(November 2022).

Satiadama. (2018). *No Title*.

Setyaningrum, Y., Rosiana Masithoh, A., & Zulia Alfijannah, I. (2018). Hubungan Dukungan Sosial Dengan Kemampuan Sosialisasi Anak Autisme Di Yayasan Pondok Pesantren Abk Al-Achsaniyyah Kudus Tahun 2017. *Jurnal Ilmu Keperawatan Dan Kebidanan*, *9*(1), 44. https://doi.org/10.26751/jikk.v9i1.399

Sinuraya, E., & Lismayanur. (2019). Hubungan Lama Menjalani Terapi Hemodialisis Dengan Kualitas Hidup Pada Pasien Gagal Ginjal Kronik Yang Menjalani Hemodialisis Di Rumah Sakit Ginjal Rasyida Medan. *Jurnal Online Keperawatan Indonesia*, *2*(1).

Siregar, S., & Karim, M. I. (2019). Characteristics of Chronic Kidney Disease Patients Treated in Hospital. *Jurnal Pengabdian Kepada Masyarakat*, *4*(4), 82–85.

Siwi, A. S., & Budiman, A. A. (2021). *Kualitas Hidup Pasien Gagal Ginjal Kronik Yang Menjalani Terapi*. *09*.

Venizelia, D., Andhini, D., & Purwanto, S. (2020). *HUBUNGAN EFIKASI DIRI DENGAN MEKANISME KOPING PASIEN GAGAL GINJAL KRONIK YANG MENJALANI HEMODIALISIS*. *04*, 0–4.