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Analysis of Treatment Profile, Direct Medical Costs, and Quality of Life in Hemodialysis Patients in Hospital X in Banten

Lucky Dita Agustiansyah[1], Prih Sarnianto[2], Yusi Anggraini[3]
[1,2,3]*Universitas Pancasila Jakarta, Indonesia*

Abstract

Chronic kidney failure (CRF) is one of the world's health problems because its prevalence continues to increase. There was a 4-fold increase in new patients and a 16-fold increase in active patients from 2007 to 2015. Payments made by BPJS use the INA-CBGs system. This study was conducted to see the feasibility of the real treatment profile compared to the Pernefri standard (Indonesian Nephrology Association) and the cost consequences compared to the Ina-CBGs rate, as well as to see the factors that affect the patient's quality of life. This type of research is an observational study with a cross-sectional design. Treatment profile data were taken retrospectively from medical records. Direct cost data were taken retrospectively from patient treatment documents. Patient's quality of life data was collected prospectively from in-person interviews using a validated EQ-5D questionnaire. The results showed that the sexes were 43 males and 35 females, with the largest age range> 50 years, retirees and IRT, junior high school / high school education, the most marital status was married. Based on the treatment profile of the incompatibility of EPO therapy with a Hb between 8 g, dL-10 g / dL was not given EPO. Based on the calculation of real medical costs of Rp. 660,529, which is less than the ideal medical cost of Rp. 778,786 and the tariff for Ina-CBG is Rp. 879,100. Quality of life of patients with CRF have a sufficient quality of life with a mean value of 63.01% (p <0.05, Linear regression)

Keywords
Ina-CBGs; Chronic Kidney Failure; Hemodialysis; VASE; EQ5D

I. Introduction

In recent years, there has been a change in disease patterns in Indonesia, among others, with the increasing trend of catastrophic diseases every year. The catastrophic disease is a high-cost disease and if complications occur, it can endanger the life of the sufferer, for example, kidney disease, heart disease, cancer, diabetes mellitus, and hemophilia (1). CKD patients who are in the final stage require renal replacement therapy (2). By the end of 2008, approximately 2.3 million patients had received kidney transplant therapy. Approximately 530,000 patients remained with the transplanted kidney, and the remainder underwent dialysis, either hemodialysis (1,580,000 patients) or peritoneal dialysis (190,000 patients)(3). Based on the report of the Indonesian Renal Registry (IRR), the number of new hemodialysis patients in 2007 was 4,977 patients, while active hemodialysis patients in 2007 were 1,885 patients. In 2015 the number of new patients increased sharply to 21,050 patients, while active patients increased by 30,554 patients. There was a 4-fold increase in new patients and a 16-fold increase in active patients from 2007 to 2015. This indicates that more patients can undergo longer hemodialysis. JKN is one of the factors that play a role in increasing the number of hemodialysis patients (4). In 2012, the total cost of hemodialysis borne by PT Askes and other insurance coverage was

IDR 227 billion and was a medical procedure that absorbed the largest portion of health costs. Health care financing by BPJS which was spent on kidney failure, both inpatient and outpatient in 2014 amounted to Rp. 2.2 trillion. In 2015 there was an increase in costs to Rp 2.68 trillion(2). The World Health Organization defines health as a state of complete physical, mental and social well-being and not merely the absence of disease. Thus the measurement of health and health care impact should include not only an indication of changes in the frequency and severity of illness but also an estimate of well-being and this can be assessed by measuring improvements in health-related quality of life (5). Health-Related Quality of Life (HRQoL) is that portion of a person's overall quality of life that "represents the functional effects of a disease and its therapeutic consequences on the patient, as perceived by the patient." From a biomedical point of view, emphasis is placed on activities related to injury repair and reducing the impact or duration of illness. The HRQoL instrument can be used to detect undiagnosed or undetected illnesses such as depression(6). This study aims to describe the profile of treatment, direct medical costs, and quality of life in patients undergoing hemodialysis.

II. Research Methods

The research design used in this study was a method cross-sectional (cross-sectional). Retrospective data collection from medical records, documents/proof of payment from pharmacy installations and finance department, then analyzed descriptively and statistically.

III. Results and Discussion

In this study, the sample studied was 92 respondents, samples that met the inclusion criteria was 78 respondents from the hemodialysis room of X hospital in Banten. Respondents underwent hemodialysis 2 times in one week. All of the financing used by respondents came from JKN. The socio-demographic characteristics are shown in Table 1.

Table 1. Socio-Demographic Characteristics

Sociodemographic factors	***CKD patients [n total = 78].***	
	N	**Proportion**
• Age [years]]		
Range		21–78
Average		51,2
median		51,5
<40	15	19,2%
40–49	18	23,1%
50–59	25	32,1%
>60	20	25,6%
• Gender		
Girl	35	44,9%
man	43	55,1%
• Marital status		
Marry	61	78,2%
Not married	6	7,7%
Widow / widower	11	14,1%

• Level of education		
No school	3	3,9%
Elementary education [SD]	11	14,1%
Secondary education [junior high school, high school, vocational school]	44	56,4%
Higher education [Diploma, S1, S2, S3]	20	25,6%
Sociodemographic factors	***CKD Patient [n total = 78]***	
	N	**Proportion**
• Type of work		
Knowledge-intensive work	17	21,8%
Physically labour-intensive work	21	26,9%
Homework/retirement	25	32,1%
Not Work	15	19,2%
Economic level		
•Income per month		
≤ Rp 2.000.000	19	24,4%
> Rp 2.000.000 – Rp 4.000.000	29	37,2%
> Rp 4.000.000 – Rp 6.000.000	16	20,5%
> Rp 6.000.000	14	17,9%
•Family Economy		
Prosperous	8	10,3%
Quite Comfortable	47	60,2%
mediocre	14	17,9%
Poor	9	11,6%

The average age of the respondents in this study was 51.2 years, with the youngest respondent being 21 years old and the oldest respondent 78 years old. The data above shows that the highest number of respondents is in the 50-59 year age group with a total of 25 respondents (32.1%). Based on national data(6) the most age is in the range of 45-54 years. The aged figure based on table 1 looks slightly younger than Singapore but is relatively the same as Malaysia. In 2016 in Singapore, the most dialysis patients were in the age range of 60-69 years(21), while in Malaysia the most dialysis patients were in the age range 55-64 years(22). This is because in elderly patients there is a decrease in organ function. Age is a factor that can affect a person's health. With increasing age, the kidneys experience a decrease in kidney mass as a result of the loss of several nephrons, resulting in a decrease in the glomerular filtration rate resulting in decreased creatinine clearance and an increase in serum creatinine levels and continues with progressive kidney failure.

Gender characteristics of most respondents were male, with a total of 43 (55.1%) respondents and 35 female respondents (44.9%). The data above strengthens the evidence that CKD sufferers are dominated by men. In Malaysia and Singapore in 2016 there were 54.6% male patients with CKD (Malaysian renal registry) and 56.1% (Singapore renal registry). This may be because men have an unfavorable lifestyle and tend to pay less attention to factors that can increase the risk of chronic kidney disease, such as hypertension, diabetes, kidney stones, smoking, etc. Women have a lower risk of suffering from CKD compared to men because women have the hormone estrogen which can inhibit the formation of cytokines so that calcium concentrations are in a balanced state. Calcium plays an important role in preventing the absorption of oxalate which can form kidney stones. (JKD)

Based on marital status, it can be seen that from 78 respondents, 61 were married (78.2%), 6 people were not married (7.7%), widowed / widower 11 people (14,1%). Based on education, it can be seen that from 78 respondents, 3 people did not go to school (3.9%), 11 people in Elementary School (14,1%), 44 people in Middle School (56.4 %), 20 colleges/universities (25 ,6%. From the data above, most of the respondents suffering from CKD are patients with high school education. The above results are following research in 4 hospitals in Jakarta which states that most CKD sufferers have a high school education of 54.4%. Although education does not mean the main cause of high CKD sufferers. Another factor that greatly influences education is the patient's occupation, where people with low levels of education mostly have menial jobs that require physical strength, for example, laborers, construction workers, etc.

Based on occupation, it can be seen that from 78 respondents, 15 people (19.2%) are not working, 25 people (32.1%) are retirees (16 people) & householders (9 people), 21 people (26.9%) are in physical work, and 17 are unemployed. people (21.8%) intellectual work. The data above shows that most of the respondents are retirees and household workers. The results above are slightly similar when compared with the research at hospitals in Kendal and Semarang & 4 hospitals in Jakarta. Research in Kendal and Semarang & 4 hospitals in Jakarta stated that CKD sufferers were 28.2% private employees and 34.7% public and private employees respectively. This is because work is one of the factors that can affect a person's healthy lifestyle, so there is a relationship between work and the risk of CKD.

Based on the income per month, it can be seen that from 78 respondents, 19 respondents (24.4%) income <2 million, 29 respondents (37.2%) income >2-4 million, 16 respondents (20.5%) income >4-6 million,14 respondents (17.9%) income >6 million. From the data above, most of the respondents have a monthly income of between 2-4 million. A relatively low value to be able to provide adequate nutrition for his family. Food intake is the main source of a person's nutritional value, high economic demands make a person consume food only to meet basic needs without paying attention to the nutritional value of the food consumed.

Based on the family economy, it can be seen that from 78 respondents, 8 people (10.3%) have a prosperous family economy, 47 respondents (60.2%) have a fairly comfortable family economy, 14 respondents (17.9%) have a mediocre family economy, 9 respondents (11,6) poor family economy This section presents the results of the study.

3.1 Treatment Profile of Patients

Table 2. Profile of Patient Treatment

Sosiodemografi factor	***GGK Patients [n total = 78]***	
	N	**Proportion**
• Therapy suitability		
Not Corresponding	12	15,4%
Corresponding	66	84,6%
Sosiodemografi factor	***GGK Patient [n total = 78]***	
	N	**Proportion**
•Haemoglobin (Hb)		
< 8 g/dL	57	73,1%
8 g / dL – 10 g/dL	14	17,9%
> 10 g/dL	7	9,0%

•Long HD		
1-2	42	53,8%
> 2 – 3	13	16,7%
> 3	23	29,5%
•Komorbiditas		
Nothing	2	2,6%
1 Disease	53	67,9%
2 Disease	10	12,8%
> 2 Disease	13	16,7%

Based on the data in table 2 of the patient's treatment profile, the appropriateness of therapy obtained an illustration that from 66 respondents (84.6%) the therapy was appropriate. The suitability of this drug is seen based on the standards made by pernefri. HD drugs that are prescribed include Calcium carbonate, Ferrous sulfate, Sodium bicarbonate, and Folic acid. The suitability of treatment is given according to the respondent's condition, the respondent gets the drug according to the condition of his illness when doing an outpatient examination at a different time from the HD schedule. Prescribed drugs are given for a period of one month including for HD, so that when HD the patient already has the drug and brings it himself for the HD procedure. There is a therapeutic discrepancy in the administration of EPO to the patient. According to the regulations of nephropathy, EPO is given if the patient has a Hb level between 8 g/dL – 10 g/dL. Based on laboratory results, only 2 patients received EPO with Hb values between 8 g/dL – 10 g/dL. Patients with Hb less than 8 g/dL are given blood transfusions until their Hb is at least 8 g/dL. Other patients did not receive EPO because the administration of EPO was not included in the standard treatment given by the hospital. Giving EPO is only based on certain considerations given by the hospital. Giving Epo is an important hormone in charge of the maturation of red blood cells in the bone marrow. Impaired kidney function can lead to anemia, which is known as a decrease in Hb and Ht levels. EPO administration is aimed at achieving Hb levels >10 g/dL and Ht > 30%. The optimal target of Hb levels that must be achieved is 11-12 g/dL because Hb levels at these values have been shown to reduce morbidity and mortality and improve the quality of life of patients. Epo is only given to patients with Hb levels ranging from 8-10 g/dL, if < 8 g/dl blood transfusions are required to increase Hb levels. (pernefri)

Based on the Hb value, it can be seen that 57 respondents (73.1%) have Hb values less than 8 g/dL, 14 respondents (17.9%) have Hb values between 8 g/dL – 10 g/dL, and 7 respondents (9.0%) Hb value above 10 g/dL. From these results, most of the patients had Hb values less than 8 g/dL. The Hb values obtained were the patients' last Hb values before undergoing hemodialysis therapy.

Based on the length of hemodialysis, 42 respondents (53.8%) had undergone HD between 1-2 years, 13 respondents (16.7%) had undergone HD between 2-3 years, 23 respondents (29.5%) had undergone HD > 3 years. From the above results, most of the patients underwent hemodialysis between 1-2 years. Bayhakki's study stated that 58.8% of patients underwent hemodialysis in the range of 1-2 years.

Based on comorbidity, it is shown that from 78 respondents, 2 respondents (2.6%) had no comorbidity, 53 respondents (67.9%) had 1 comorbidity, 10 respondents (12.8%) had 2 comorbidities, and 13 respondents (16.7%) comorbid more than 2 diseases. From these results, most of the respondents had comorbid 1 disease.

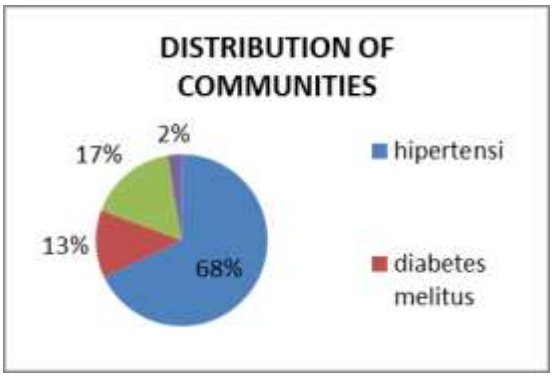

Figure 1. *Distribution of comorbidities*

Based on Figure 1 distribution of comorbidities, the most common comorbidities were hypertension by 68%, and at least 2% had no comorbidities. According to the 2015 IRR, hypertension is the main cause of kidney failure.

3.2 Medical Costs

Medical costs analyzed in this study consist of real medical costs and ideal medical costs. Average real medical costs are costs that are recorded in the finance department and are borne by the hospital. The average ideal medical cost is the medical cost that should be borne by the X Hospital that arises if some services/treatments are not carried out by the hospital. This average ideal cost is based on the use of EPO that should be received by CKD patients based on the Hb value of CKD patients in 2017. Medical costs include the cost of medical consumables (BMHP), medical and paramedical service costs, drug costs, laboratory fees, and other costs -other.

Based on the results of the Normality test using the Kolmogorov-Smirnov test, the real medical cost Sig value is 4.755 and the ideal medical cost sig value is 0.000, meaning that the data is not normally distributed because the sig value is less than 0.05.

Table 3. Description of Real Medical Expenses

	INA-CBG rates	Real medical costs	Difference	%	Sig
Mean	Rp 879.100,00	Rp 660.529,02	Rp 218.570,98	25	
Median	Rp 879.100,00	Rp 657.417,00	Rp 221.683,00	25	
Mode	Rp 879.100,00	Rp 657.417,00	Rp 221.683,00	25	4,755
Minimum	Rp 879.100,.00	Rp 657.417,00	Rp 221.683,00	25	
Maximum	Rp 879.100,00	Rp 778.786,00	Rp 100.314,00	11	

The statistical results in table 3 show that the average real cost of hemodialysis in X Hospital is Rp. 660,529.02. The minimum real cost borne by RS X is IDR 657,417.00 and the maximum real cost is IDR 778,786.00.

Based on the T-Test (T-Test) obtained a description of the INA-CBG's tariff and real costs, it is known that the median INA-CBG's tariff is Rp. 879,100.00 and the median real cost is Rp. 657,417.00. The results of the analysis of the T-test (T-Test), p-value (Sig.) of 4.755 (Sig. < 0.05) means that Ho is rejected so it can be concluded that there is a significant difference between INA CBG's rates and real costs. This significant difference can be seen in the difference in the average profit obtained by RS X, which is Rp. 221,683,00 (21%).

Table 4. Description of Ideal Medical Costs

	INA-CBG rates	Real medical costs	Difference	%	Sig
Mean	Rp 879.100,00	Rp 778.786,00	Rp 100.314,00	11	0,000
Median	Rp 879.100,00	Rp 778.786,00	Rp 100.314,00	11	
Mode	Rp 879.100,00	Rp 778.786,00	Rp 100.314,00	11	
Minimum	Rp 879.100,.00	Rp 778.786,00	Rp 100.314,00	11	
Maximum	Rp 879.100,00	Rp 778.786,00	Rp 100.314,00	11	

According to PERNEFRI, the EPO is intended to correct anemia if Hb is 10 g/dL. In X Hospital, EPO is given if the laboratory results of Hb are between 8 - 10 g/dL. Less than 8 g/dL the patient should receive a blood transfusion. The results of the study found some CKD patients with Hb between 8 g/dL – 10 g/dL but did not receive EPO therapy. In this study, the cost of the EPO is included in the cost of the drug that should be Statistical results obtained an average ideal cost of Rp 778,786.00. There is a difference of IDR 100,314.00 (11%). The minimum and maximum real costs are IDR 778,786.00.

Based on the T-Test (T-Test) obtained a description of the INA-CBG's tariff and ideal cost, it is known that the median INA-CBG's tariff is Rp. 879,100.00 and the median ideal cost is Rp. 778,786.00. The results of the Mann Whitney test analysis, p-value (Sig.) of 0.000 (Sig. < 0.05) means Ho is rejected so it can be concluded that there is a significant difference between INA CBG's rates and ideal costs. This significant difference can be seen in the difference in the average profit obtained by RS X, which is Rp. 100,314.00 (11%).

Table 5. Comparison of HD Costs by Type of Cost in Hospital X in 2017

Type of Cost	***Average Hemodialysis Cost [n total = 78]***		
	Per Visit	**Per Month**	**Per Year**
INA CBGs	Rp 879.100,00	Rp 7.032.800,00	Rp 91.426.400,00
Riil	Rp 660.529,00	Rp 5.284.232,00	Rp 68.695.016,00
Ideal	Rp 778.786,00	Rp 6.230.288,00	Rp 80.993.744,00

Based on Table 5, there is a difference of around Rp 218,571 per visit HD patients between the real cost and the cost of INA-CBGs, assuming 2 times per week and 8 times per month. There is a profit of Rp. 1,748,568 per patient per month, but this does not include other operational costs that have not been calculated. The costs contained in these costs do not include electricity costs, giving epo to patients, and others.

Comparison of real costs with ideal costs there is a difference of around Rp. 118,257 per visit for HD patients. The difference occurs because of differences in standards between hospitals and treatment guidelines issued by Pernefri.

3.3 Quality of Life

1. EQ-5D

Table 6. Distribution of EQ-5D

Sociodemographic factors	***GGK Patient [n total = 78]***	
	N	**Proportion**
• Mobility		
I can still walk around	64	82,0%
I have a problem walking here and there	12	15,4%
I have to be in bed	2	2,6%

Sociodemographic factors	*GGK Patient [n total = 78]*	
	N	**Proportion**
•Taking Care of Yourself		
I can still take care of myself	72	92,3%
I have trouble taking a shower or wearing my clothes	4	5,1%
I really can't afford to shower and take care of myself anymore	2	2,6%
• Daily activities		
I have no problem doing my usual activities	57	73,1%
I have difficulty doing my usual activities	19	24,3%
I really can't do my usual activities anymore	2	2,6%
• Pain / Discomfort		
I suffer no pain or discomfort	31	39,8%
I have some pain or discomfort	43	55,1%
I feel very sick or uncomfortable	4	5,1%
•Worry / Depression		
I don't feel anxious or depressed	38	48,8%
I have some feelings of anxiety or depression	36	46,1%
I feel anxious or depressed	4	5,1%

From the data above, it can be seen that from 78 respondents, 64 people (82%) have no mobility problems, 12 people (15.4%) have a little mobility problem, and 2 people (2.6%) must always be in bed. . From these results, most patients do not have mobility problems such as walking.

From the data above, it can be seen that from 78 respondents, 72 people (92.3%) can still take care of themselves, 4 people (5.1%) have difficulty taking care of themselves, and 2 people (2.6%) are unable to take care of themselves. alone. From these results, most patients did not experience problems in taking care of themselves such as washing, bathing, and dressing.

From the data above, it can be seen that from 78 respondents, 57 people (73.1%) have no problems in carrying out daily activities, 19 people (24.3%) have problems in carrying out daily activities, and 2 people (2.6%) unable to perform daily activities. From these results, most patients do not have problems in carrying out daily activities such as doing routine work.

From the data above, it can be seen that from 78 respondents, 31 people (39.8%) had no problem with pain, 43 people (55.1%) experienced a little pain, 4 people (5.1%) experienced pain. From these results, most experienced little pain or discomfort with the conditions they were experiencing.

From the data above, it can be seen that from 78 respondents, 38 people (48.8%) did not experience worry, 36 people (46.1%) experienced a little worry, 4 people (5.1%) experienced anxiety. Worry. From these results, most of the patients did not feel worried/depressed about their condition. The feeling that emerged after several times undergoing hemodialysis towards the healing was his hope.

2. Visual Analogue Scale

Table 7. Distribution of VAS

Visual Analog scale	***GGK Patients [n total = 78]***	
	N	**Proportion**
Low (≤50)	26	33,3
Fair (51-65)	11	14,1
Good (66-75)	22	28,2
Very Good (76-100)	19	24,4

Based on table 7, the description of the distribution of VAS values from 78 respondents is as follows, 26 people (33.3%) have low VAS values, 11 people (14.1%) have sufficient VAS values, 22 people (28.2%)) had good VAS scores, and 19 people (24.4%) had very good VAS scores. From these results, most of the patients had low VAS values. The VAS value was obtained by using the VAS diagram. The average value of the VAS obtained is 63.1.

Table 8. Distribution of VAS and economic Level

Visual Analog scale	***GGK Patients [n total = 78]***	
	N	**Proportion**
low VAS	26	33,3%
Income/month		
<Rp 2.000.000	6	23,1%
>Rp 2.000.000 - Rp 4.000.000	10	38,5%
>Rp 4.000.000 – Rp 6.000.000	6	23,1%
> Rp 6.000.000	4	15,3%
Family economy		
Enough	13	50%
Mediocre	7	26,9%
Poor	5	19,2%
Very Poor	1	3,9%
Sufficient VAS	11	14.1%
Revenue/month		
<Rp 2.000.000	3	27,3%
>Rp 2.000.000 - Rp 4.000.000	4	36,3%
>Rp 4.000.000 – Rp 6.000.000	2	18,2%
> Rp 6.000.000	2	18,2%
Family economy		
Sejahtera	1	9,1%
Cukup	7	63,6%
Pas-pasan	2	18,2%
Miskin	1	9,1%

Visual Analog scale	*CKD Patients [n total = 78]*	
	N	**Proportion**
VAS Good	22	28,2%
Income/month		
<Rp 2.000.000	7	31,9%
>Rp 2.000.000 - Rp 4.000.000	9	40,9%
>Rp 4.000.000 – Rp 6.000.000	3	13,6%
> Rp 6.000.000	3	13,6%
Family economy		
Prosperous	3	13,6%
Enough	15	68,2%
Mediocre	3	13,6%
Poor	1	4,6%
VAS Very Good	19	24,4%
Income/month		
<Rp 2.000.000	3	15,8%
>Rp 2.000.000 - Rp 4.000.000	6	31,6%
>Rp 4.000.000 – Rp 6.000.000	5	26,3%
> Rp 6.000.000	5	26,3%
Family economy		
Prosperous	4	21,1%
Enough	12	63,2%
Mediocre	2	10,5%
Poor	1	5,2%

Based on the data above, it can be seen the distribution of each VAS value. The distribution of respondents with a low VAS value of 38.5% have an income of >2-4 million per month, 40% of respondents consider the family economy to be quite comfortable. Respondents with a sufficient VAS value of 36.3 7% have income > 2-4 million/month, 60% of respondents consider the family economy to be quite comfortable. Respondents with a good VAS value of 40.9% had income >2-4 million/month, and 77.8% considered the family economy to be quite comfortable. Respondents with a very good VAS value of 31.6% have incomes between > 2-4 million/month, and 50% of respondents consider the family economy to be quite comfortable. Quality of life can be affected by various factors. Income is one of the factors that can affect it, although there are many other factors besides the economy that can affect the quality of life of patients.

3.4 Regression VAS Model

Data analysis used is multiple linear regression. This model was chosen to determine how much influence the independent variables have on the dependent variable either partially or jointly. Before the regression model is used to test the hypothesis, it is first carried out including hypothesis testing. If all the requirements for researching a regression model have been met, then the next step is to determine whether the hypothesis proposed in this study is accepted or not, data analysis is carried out with the T-test (50).

Multiple regression hypothesis testing in this study using t-test with a level of = 5%. Testing the variable VAS as the dependent variable explained by the independent variables (Age, Gender, Marital Status, Education Level, Occupation, Monthly Income, Family Economy, Epo Therapy Suitability, Length of HD, Comorbidity, Mobility, Self-care, Daily Activities, Pain, Worry). The multiple regression model in this study is as follows:
VAS = b_0 + b_{1*}gender + b_{2*}age + b_{3*}profession + b_{4*}education+ b_{5*} monthly income+ b_{6*} family economy+ b_{7*}value HB + b_{8*} appropriateness of epo therapy + b_{9*} suitability of HD drug therapy + b_{10*} suitability of comorbid drug therapy+ b_{11*} frequency of HD + b_{12*} comorbidity + b_{13*} mobility + b_{14*} take care of yourself + b_{15*} daily activities + b_{16*} pain + b_{17*}worry + e_i

From the results of Multiple Regression processing on the VAS model (appendix 4), it is known that the coefficient determination R2= 0.656. This means that all independent variables (Age, Gender, Marital Status, Education Level, Employment, Monthly Income, Family Economy, Suitability of Epo Therapy, Length of HD, Comorbidity, Mobility, Self-care, Daily Activities, Pain, Worry) can explain the variation of the dependent variables (VAS) amounted to 65.6% while the rest (34.4%) is explained by factors that are not included in the model, the more variable then R2 will be higher.

a. T-Test

The t-test (Individual Test) is testing the regression coefficients of each independent variable on the dependent variable to find out how much influence the independent variable has on the dependent variable. With the following hypothesis:
H_0: $\beta_n = 0$ There is no effect of the independent variable on the dependent variable.
H_a: $\beta_n \neq 0$ There is an effect of the independent variable on the dependent variable.
Jika *p*-value < 0.05 or t-hit > t-table then H_0 rejected, meaning the variables tested to affect the VAS.

Table 9. Multiple Linear Regression Model on VAS

Summary Model VAS	R^2	F-hit	Sig.
Early Model	0.656	3.712	0.000
Late Model	0.517	27.730	0.000

b. Early Model

From the results of Multiple Regression processing in the initial VAS model (appendix 4), it is known that the coefficient of determination R2= 0.656. This means that all independent variables (Age, Gender, Marital Status, Education Level, Employment, Monthly Income, Family Economy, Suitability of Epo Therapy, Length of HD, Comorbidity, Mobility, Self-care, Daily Activities, Pain, Worry) can explain the variation of the dependent variables (VAS) amounted to 65.6% while the rest (34.4%) is explained by factors that are not included in the model, the more variables included the R2 will be higher.

c. Final Model

From the results of Multiple Regression processing in the final VAS model (attachment 1), it is known that the coefficient of determination R2= 0.517. This means that all independent variables (occupation and depression) can explain the variation of the dependent variable (VAS) by 51.7% while the rest (48.3%) is explained by other factors not included in the model.

Table 10. Multiple Linear Regression Test Results

VAS Model	Coefficient	t-hit	Sig.	Information
(Constant)	73.451	3.053	.003	
patient age	.087	.431	.668	Not Significant
Profession	4.294	1.870	.066	Not Significant
Gender	7.271	1.518	.134	Not Significant
Marriage	4.560	1.516	.135	Not Significant
co-morbidities	1.726	.658	.513	Not Significant
Mobility	-10.543	-1.511	.136	Not Significant
Take care of yourself	7.503	.949	.346	Not Significant
Daily activities	3.540	.545	.588	Not Significant
Pain	-7.025	-1.498	.139	Not Significant
Depression	-11.984	-2.653	.010	**Significant**
Education	-1.490	-.482	.631	Not Significant
Income	-.102	-.057	.954	Not Significant
Family finance	-4.351	-1.728	.089	Not Significant

Linear regression equation: $Y = a + bx$

$Y = 91.071 + (-17.939_{X1})$

From the results of the regression analysis, it was found that there was 1 significant variable, namely depression. Based on the results of the linear regression test, it is known that the p-value of 0.000 is smaller than 0.05, meaning that there is a significant effect between depression and the VAS.

According to Kaplan (2010), the definition of depression is a period of disturbance of human function associated with feelings of sadness and accompanying symptoms, including changes in sleep patterns and appetite, psychomotor, concentration, anhedonia, fatigue, hopelessness, and helplessness, and suicide.

Depression is one of the factors that can affect the patient's quality of life.

Based on table V.6, out of 78 respondents, 38 people (48.8%) did not experience worry, 36 people (46.1%) experienced a little worry, 4 people (5.1%) felt worried. . From these results, most of the respondents experienced a sense of worry/depression about the situation they were experiencing. Of the 36 respondents who experienced a little anxiety, 9 people were in the age range of 40-49 and 11 people were in the age range of 50-59. Of the 36 respondents who have a sense of worry, as many as 23 male respondents and 13 female respondents. Of the 36 respondents who have a sense of worry, as many as 12 respondents have physical work and 10 respondents have jobs as retirees and household workers. Of the 36 respondents who have a sense of worry, as many as 24 respondents have education in high school.

Respondents with an age range of 50-59, male and have a greater physical work experience depression. The age and occupation of the respondent greatly affect the income of the family left behind, some of whom have physical work within that age range, their productivity has decreased due to their age, coupled with the respondent's health condition, the obligation to carry out hemodialysis 2 times per week causes their productivity to decrease. The results of this study are following research conducted by Ayu Wulandari Utami, who stated that respondents with a secondary education level had a greater likelihood of depression(23). Other factors such as age, gender, occupation can be an influence on depression experienced by respondents. From the results of this study, patients

who have anxiety are dominated by respondents with an age range of 40-59, male gender, secondary education, and respondents with physical work.

The results of this study explain that the socio-demographic and economic level of respondents can be the cause of an increase in depression in CKD patients and become one of the causes of a decrease in the quality of life of patients. With an average VAS value of 63.01, this value is in the category of sufficient value.

IV. Conclusion

The results showed that the socio-demography of 78 hemodialysis patients in X Hospital consisted of 55.1% male and 44.9% female, mostly in the age range of 50-59 years. Comorbidities experienced by CKD patients about 67.9% suffer from 1 comorbidity. The treatment profile of the patients at X Hospital is good, although the administration of drugs is based on patient visits to the polyclinic outside of the HD's routine schedule. The suitability of EPO therapy was 84.6% because the administration of EPO was only for certain patients.

Medical costs there are around Rp. 218,571 per visit for HD patients between the real costs and the costs of INA-CBGs, but this does not include other unaccounted operational costs such as electricity costs, nursing staff, and others. The quality of Life of HD Patients on average was 63.01%. Many things affect the quality of life, the value is influenced by the patient's sense of depression.

References

Kementrian Kesehatan Republik Indonesia. Hari Ginjal Sedunia 2016 ; Cegah Nefropati Sejak Dini. Jakarta, 9 Maret 2016. Diakses dari http;/www.depkes.go.id/article/view/16031000001/hari0ginjal-sedunia-2016-cegah-nefropati-sejak-dini.html

Depkes. (2017). InfoDATIN Pusat Data dan Informasi Kementerian Kesehatan RI: Situasi Penyakit Ginjal Kronis, 1–10. Retrieved from www.depkes.go.id/resources/download/pusdatin/infodatin/

Badan Penelitian dan Pengembangan Kesehatan, Kementrian Kesehatan. Laporan Hasil Riset Kesehatan Dasar. Jakarta: 2013.

Indonesian, P., Registry, R., Renal, I., Indonesia, P. N., Kesehatan, D., Kesehatan, D., … Irr, L. (2016). 8 th Report Of Indonesian Renal Registry 2015.

Atmojo, S. D. (1999). Prinsip dan indikasi hemodialisis. Pertemuan Ilmiah Tahunan Ilmu Penyakit Dalam Yogyakarta, 167.

Rascati KL, Walters Kluner, Lippincott Willian dan Wilkins Essentialy of pharmacoeconomis; 2009:112-120.

Lee, E., Choon, J., Choong, L., Lin, H., Ms, B., Gek, L., … Foong, S. (2018). Acknowledgement SINGAPORE RENAL REGISTRY ADVISORY COMMITTEE Secretary A/Prof Members Prof A Vathsala A/Prof Terence Kee, 1–84.

MSN. (2016). 24th Report of the Malaysian Dialysis & Transplant 2016. Malaysian Society of Nephrology, 263.

Aidillah mayuda, Shofa chasani, & Fanti saktini. (2017). Hubungan Antara Lama Hemodialisis Dengan Kualitas Hidup Pasien Penyakit Ginjal Kronik (Studi Di Rsup. Jurnal Kedokteran Diponegoro, 6(2), 167–176.

Ariyanto, A., Hadisaputro, S., Lestariningsih, L., & Adi, M. S. (2018). Beberapa Faktor Risiko Kejadian Penyakit Ginjal Kronik (PGK) Stadium V pada Kelompok Usia Kurang dari 50 Tahun (Studi di RSUD dr.H.Soewondo Kendal dan RSUD dr.Adhyatma,MPH Semarang). Jurnal Epidemiologi Kesehatan Komunitas, 3(1), 1. doi:10.14710/jekk.v3i1.3099

Delima, D., & Tjitra, E. (2017). Faktor Risiko Penyakit Ginjal Kronik : Studi Kasus Kontrol di Empat Rumah Sakit di Jakarta Tahun 2014. Buletin Penelitian Kesehatan, 45(1), 17–26. doi:10.22435/bpk.v45i1.7328.17-26

Kemenkes RI, 2016. (2016). Indonesian Case Based Groups (INA-CBG's) dan non Indonesian Case Based. Peraturan Menteri Kesehatan Republik Indonesia Nomor 52 Tahun 2016 Tentang Standar Tarif Pelayanan Kesehatan Dalam Penyelenggaraan Program Jaminan Kesehatan.

Perhimpunan Nefrologi Indonesia. (2001). Konsensus Manajemen Anemia Pada Pasien Gagal Ginjal Kronik, 11–38.

Kaplan, H.I., Sadock B.J. and Grebb J.A. 2010. Sinopsis Psikiatri : Ilmu Pengetahuan Perilaku Psikiatri Klinis. Edisi 2: .Dr. I. Made Wiguna S. Jakarta: Bina Rupa Aksara.

Utami, A. W., Gusyaliza, R., & Ashal, T. (2018). Hubungan Kemungkinan Depresi dengan Kualitas Hidup pada Lanjut Usia di Kelurahan Surau Gadang Wilayah Kerja Puskesmas Nanggalo Padang. Jurnal Kesehatan Andalas, 7(3), 417. doi:10.25077/jka.v7i3.896