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Out of Pocket Cost of Chronic Renal Failure Patients In Hemodialysis Unit Of General Hospital Of Bekasi

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Abtsract
Chronic Renal Failure (CRF) is a disease which has high mortality and morbidity rate. The prevalence of CRF increases with the increasing of risk factors and the increasing of patients undergoing dialysis therapy. One of the most commonly dialysis therapies used in Indonesia is hemodialysis and CRF is one of catastrophic disease, CRF needs to get seriuos attention because of the long treatment and high cost. The purpose of this study was to analyze the out of pocket cost or economic expense of CRF advanced renal disesase that requires hemodialysis treatment from the perspective patient at Genaral Hospital of Bekasi. This study used an observational research design with cross sectional approach using questionnaire as the primary data. The subjects of the study were 75 cases of CRF patients undergoing hemodialysis. This study used logistic regression to identify the valuable relationship between independent and dependent variables. The multivariate results showed that there was also a relationship between monthly income, family dependents, property ownership, vehicles used to hospital, and comorbidity disease with economic difficulties of CRF patients at General Hospital of Bekasi. Vehicles used to hospital withan (OR 3.5; 95% CI = 1,33-9,46) the dominant factor causing economic difficulties of CRF patients at General Hospital of Bekasi.

Keywords: Out of pocket cost, chronic renal failure, hemodialysis, general Hospital of Bekasi

I. INTRODUCTION

Chronic Renal Failure (CRF) has become an increasingly important cause of mortality and morbidity throughout the world.[1] Globally, the prevalence of CRF is estimated to be around 10%.[2] More prevalent in developing countries and certain populations.[3]

Chronic Renal Failure is one of the catastrophic disease that need serious attention because the treatment takes a long time and costs a lot.[4,5] CRF is one of eight diseases whose funding is covered by the National Health Insurance (JKN) because JKN has spent large amount and a cost sharing discourse has emerged for eight catastrophic diseases by JKN. JKN statement that the cost of treating catastrophic diseases is enough to drain JKN pocket, it is not the basis that catastrophic diseases are no longer covered by JKN and this is not in accordance with the mandate of Law 40 of 2004 concerning the National Social Security Sistem.[6,7]

In 2015, the costs spent by JKN for patients with severe chronic kidney disease reached Rp 2.68 trillion, mostly for hemodialysis.[8] If other costs (including indirect costs and intangible costs) are calculated, the burden of kidney failure is certainly much higher.[9] In fact, in the second year of the running of JKN, participants of the National Health Insurance (JKN) program reached 131 million people, around 52% of the population, and by 2019, more than 250 million Indonesians are expected to be covered by health insurance. The costs that must be covered by the JKN are more increased due to the increasing number of people suffering from serious illnesses such as stroke and kidney failure which requires a large amount of medical expenses.[7,10] Described that the CRF "multiplier effect" of morbidity and mortality, in addition to costs.[3] In Indonesia, around 60% of patients with CRF at <55 years of productive age.[11] "Multiplier effect" of chronic kidney disease on socio-economic costs is estimated to be larger.

The health care costs felt by the community are increasing due to various factors such as economic changes and treatment patterns. On the other hand, the available health costs cannot be increased due to the government's limited capacity and the role of the community that is not maximized.[11,12] Patient demands for life-saving

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actions conflict with people's needs to provide and to pay for the most effective therapy.[13] Catastrophic cure spending can trigger poverty. Therefore, the health funding system is designed not only to ensure equitable access to health services but also to protect households from catastrophic expenditure. Continuous expenditure on the treatment of chronic diseases is a major problem for all society, both poor or not.[14] According to health economics, health costs are defined as costs spent during health care, not only medical expenses but also other routine and large costs, including the cost of own dependents such as transportation costs, food costs, indirect costs such as mentoring fees and because the treatment takes time that causes loss of productivity and loss of time both patients and their families.[15,16]

Chronic kidney disease patients at the General Hospital (RSUD) of Bekasi who undergo outpatient care are increasing every year. This is because the hospital provides quite a lot of hemodialysis equipment so that it becomes a reference for the citizens of Bekasi. Based on the background, the problem that will be examined in this study is to find out how much the cost of self-care spent by chronic kidney failure patients in the hemodialysis unit, especially in RSUD of Bekasi.

The research objectives were to find out the costs borne by CRF patients and their families. The analysis is focused on the possibility of economic difficulties affecting patients and their families. The economic difficulties due to CRF in this study are defined as the inability (family) of patients to fulfill other primary needs, such as children's education, because their financial resources are mostly used for the treatment of CRF suffered by one family member potential factors that cause economic difficulties in (family) CRF patients in RSUD of Bekasi.

II. Method

An observational study with a cross sectional approach was carried out in the RSUD of Bekasi in December 2017-February 2018. This study used a quantitative approach through interviews and questionnaires.[17] The subjects of the study were 75 cases of CRF patients undergoing hemodialysis.The sampling technique used total sampling.[18,19] The sample was patients suffering from chronic kidney failure who were treated outpatient in the hemodialysis unit in the last 1-15 years who had signed an informed consent that met the inclusion criteria. Inclusion criteria were Indonesian residents aged ≥ 18 years who were diagnosed with advanced stage chronic kidney disease in hospitals in the last 1-15 years. Chronic kidney patients health insurance participants are both men and women who undergo outpatient treatment. They were aware and had enough cognitive abilities to give consent and complete interviews. They also participated in interviews. The type of data in this study was primary data obtained from the main sources of individuals through interviews. The independent variables werehead of family, monthly income, family support, property ownership, duration of hemodialysis, distance from home to Hospital, vehicle to Hospital, source of income, commorbid disease and medical expenses. Dependent variable was out of pocket cost toward economicdifficulties.The Ethics Review wasconducted at the Faculty of Public Health, University of Indonesia, Depok, and at the Health Research and Development Agency, Jakarta. The interview technique used a questionnaire related to chronic renal failure (CRF) developed by the Center for Drug and Food Research (PROM) with a number of leading kidney disease specialists in Indonesia. And its results were analyzed by univariate, bivariate, and multivariate statistics.[20] The results are presented in tables. .

III. RESULTS

Table 1.The Frequency of Distribution Based on Sociodemography

Variabel	Sample (N=75)	
	Frequency	Proportion (%)
Age		
Range	23-71	-
Median	55	-
Average ± SD	11,4	-
<30 years old	4	5,3
30-40 years old	5	6,6
>40-50 years old	10	13,3
>50-60 years old	28	37,3
> 60 years old	28	37,3
Gender		

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Man	45	60,0
Woman	30	40,0
Marriage Status		
Single	3	4,0
Widow/widower	6	8,0
Married	66	88,0
Education		
Elementary school	3	4,0
Junior high school	16	31,3
High school	40	53,3
Akademy/University	16	21,3
Occupation		
Knowledge-based*	19	25,3
Physical based**	41	54,7
Work at home/Retired	14	18,7
Does not work	1	1,3
Total	75	100

Notes : * Office workers / teachers
** Labor / driver / entrepreneur / factory employee / sales

Table 1 showed that the majority of patients were in the age group> 50-60 years (74.6%), male sex (60%) based on gender, marriage (88%) based on marital status, high school education (53.3%) based on the patient's last education, and physical work (54.7%) based on occupation.

Table 2. Out of Pocket of Frequency Distribution

Variabel	Sample (N=75)	
	Frequency	Proportion (%)
Head of family		
Yes	44	58,7
Not	31	41,3
Monthly income		
<3 million	32	42,7
> 3 million - 5 million	24	32,0
> 5 million	19	25,3
Family support		
There are dependents	41	54,7
There are no dependents	34	45,3
Property ownership		
Have assets	55	73,3
Do not have	20	26,7
Duration of hemodialysis		
> 10 years	3	4,0
5-10 years	19	25,3
> 3-5 years	13	17,3
1-3 years	40	53,3
Distance from home to hospital		
> 10 km	26	34,7
5-10 km	27	36,0
<5 km	22	29,3
Vehicle to hospital		
General vehicle	34	45,3
Private vehicle	41	54,7
Source of income		

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Crops/livestock	10	13,3
Family business	28	37,3
Salary	30	40,0
Shipments / gifts	7	9,3
Comorbid Disease		
> 2 diseases	18	24,0
2 diseases	19	25,3
1 disease	31	41,3
There is no disease	7	9,3
Medical expenses		
> 4 million	18	24,0
2-4 million	24	32,0
<2 million	33	44,0
Total	75	100

Based on patient status in the family, 58.7% of patients undergoing hemodialysis were family heads, and 41.3% were not as family heads (as wives, children and parents).

Based on the average monthly income, the most dominant income of patients undergoing hemodialysis is 42.7% of patients having income <3 million and 25.3% having income> 5 million. Their monthly income comes from crops/livestock products, family businesses, salaries and from family giving.

Based on dependents in the family, 54.7% of patients have dependents, 45.3% have no dependents in the family, and based on the age of the dependents of the patient's family, 39% dependents of the patient are aged<15 years old, 33.3% are aged> 65 years, 27.7% aged between <15 years and> 65 years.

Based on property ownership, 73.3% of patients undergoing hemodialysis had assets and 26.7% did not have assets, 45% patients have land and houses and 55% have a car / motorcycle.

Based on the frequency of patients undergoing hemodialysis, 53.3% of patients underwent hemodialysis treatment for 1-3 years, 17.3% for> 3-5 years, 25.3% for> 5-10 years and 4% for more than 10 year. The longest time to do hemodialysis is a patient from 2007 is about 1.3% and the shortest hemodialysis therapy is in 2017 is about 26.6%.

Based on the distance that patients must take to access hospital facilities, 34.7% of patients had to travel> 10 km, 36% traveled 5-10 km and 29.3% patients traveled less than 5 km. The distance of the patient's home to the closest hospital is 1 km about 9.3% of patients and the furthest is 30 km about 1.3% of patients.

Based on the vehicle used by patients to go to the hospital, 45.3% of patients use public transportation and 54.7% of patients use private vehicles, both motorcycles and cars. Public vehicles used by patients are 5% of patients using motorbike taxis, 21% using taxis, 9% using public transportation, 60% using online vehicle (cars) 60% and 5% using online vehicle (motorbikes).

Based on the patient's source of income, 13.3% of the income was obtained from crops & livestocks, 37.3% from family businesses, 40.0% from salary income, and 9.3% from shipments / gifts from children or relatives.

Based on the number of comorbid diseases suffered by patients, 24% of patients had> 2 diseases, 25.3% had 2 comorbid diseases, 41.3% had 1 comorbid disease, and 9.3% had no comorbidities.Medical expenses spent by patients every month 24% for more than 4 million, 32% for more than 2 to 4 million, 44% for more than 2 million. 89% patient of hemodialysis treatment use JKN, and 11% patient used other insurance, and for treatment 81% of patients at their own expense, 15% are funded by relatives and 4% are funded by office / government.

Risk Factors for Economic Difficulties in CRF Patients in RSUD ofBekasi

Regarding to the costs borne by the patient and his family, this study focused on the possibility of economic difficulties affecting patients and their families. Economic difficulties due to CRF in this study are defined as the inability (family) of patients to fulfill other primary needs, such as children's education, because their financial resources are mostly used for the treatment of CRF suffered by one family member. Factors that potentially causing economic difficulties to patient (family) with CRF in the RSUD of Bekasi can be seen in table 3.

Table 3. Economic Difficulties Patient with Chronic Renal Failure

Variabel	Economic Difficulties	Economic Difficulties	p Value	OR (95% ;CI)

	(Yes)	(No)		
Head of family				
Yes	27(61,4)	17(38,6)	0,401	1,5(0,58-3,77)
Not	16(51,6)	15(48,4)		
Monthly income				
<3 million	24(75,0)	8(25)	0,031	3,3(0,99-11,11)
> 3 million - 5 million	10(41,7)	14(58,3)	0.050	0,8(0,23-2,66)
> 5 million	9(47,4)	10(52,6)	0,709	1
Family support				
There are dependents	28(68,3)	13(31,7)	0,037	2,7(1,06-7,01)
There are no dependents	15(44,1)	19(55,9)		
Property ownership				
Have assets	28(50,9)	27(49.1)	0,068	1,4(0,11-1,08)
Do not have	15(75,0)	5(25,0		
Duration of hemodialysis				
> 10 years	2(66,7)	1(33,3)	0,820	1,3(0,11-15,96)
5-10 years	10(52,6)	9(47,4)	0,593	0,7(0,24-2,22)
> 3-5 years	7(53,8)	6(46,2)	0,693	0,7(0,22-2,74)
1-3 years	24(60,0)	16(40,0)	0,928	1
Distance from home to hospital				
> 10 km	15(57,7)	11(42,3)	0,827	1.1(0,36-3,56)
5-10 km	16(59,3)	11(40,7)	0,740	1,2(0,38-3,78)
<5 km	12(54,5)	10(45,5)	0,945	1
Vehicle to hospital				
General vehicle	25(73,5)	9(26,5)	0,011	3,5(1,33-9,46)
Private vehicle	18(43,9)	23(56,1)		
Source of income				
Crops/livestock	5(50,0)	5(50,0)	0,615	2,0(0,13-29,80)
Family business	18(64,3)	10(35,7)	0,469	2,4(0,21-28,95)
Salary	16(53,3)	14(46,7)	0,999	1,6(0,01-0,02)
Shipments / gifts	1(57,1)	3(42,9)	0,899	1
Comorbid disease				
> 2 diseases	7(38,9)	11(61,1)	0,157	0,3(0,03-1,69)
2 diseases	10(52,6)	9(47,4)	0,396	0,4(0,06-2,88)
1 disease	21(67,7)	10(32,3)	0,805	0,8(0,13-5,10)
There is no disease	5(71,4)	2(28,6)	0,216	1
Medical expenses				
> 4 million	8(44,4)	10(55,6)	1,270	0,5(0,16-1,67)
2-4 million	15(62,5)	9(37,5)	0,885	1,0(0,36-3,19)
<2 million	20(60,6)	13(39,4)	0,449	1
Total	43(57,3)	32(42,7)		

From the results of the bivariate analysis shown in Table 3 above, it can be seen that 58.7% of patients with CRF who experience economic difficulties and risk factors that have the potential to pose a risk of financial difficulties in hemodialysis patients in RSUD Kota Bekasi, have a p-value <0.250, is monthly income, family expenses, property ownership, and vehicle ownership (which is used to hospitals). However, in further analysis, namely multivariate analysis with logistic regression, only vehicle ownership is a risk factor for economic difficulties. (Families) patients who do not have private vehicles and must ride public vehicles have a risk of experiencing economic difficulties 3.5 times

more than (families) patients who do not have private vehicles which can be seen in Table 4 (shown on the following page) :

Table 4. Most Dominant Out of Pocket Cost Toward Economic Difficulties

Variabel	P Value	OR (95% CI)
General vehicle Private vehicle	0,001	3,5(1,33-9,46)

Notes : OR = Odd Ratio, CI = Confidence Interval

This implies that (the family) of patient have low income (so that it cannot afford to own a private vehicle) veryburdened by transportation costs that must be borne. Hemodialysispatients at leastmust undergo hemodialysis therapy 2 times perweek at the hospital which means at least 8 times permonth. In addition to demand transportation and dining costs, the high frequency of hemodialysis therapycan also reduce revenue. Costs spent by patients and families for transportation per trip with a range of Rp. 80,000 - Rp. 100,000 with a distance of 5-10 km, so the total transportation costs incurred for 1 month with a range of Rp. 1,280,000 - 1,600,000, in additionpatients also have to pay other costs, namely the cost of food and drug costs that are not covered by JKN and the monthly income of patients with CRF most dominant <3 million, from the comparison between income and expenditure where the amount of expenditure is greater than income, so chronic kidney failure patients undergoing hemodialysis have economic difficulties.[21]

The cost burden of undergoing hemodialysis therapy is not a concern for patients and families to undergo hemodialysis therapy.[22] The results showed that 78% of patients were not worried about the cost of hemodialysis because it was guaranteed by the BPJS, however, 28% of patients were still worried about the cost of treatment undergoing hemodialysis so patients borrowed money to anticipate the costs that must be covered during hemodialysis.[23] Patients who expressed concern about the cost of hemodialysis and asked for financial assistance to the family as much as 50% of patients, 15% of patients used savings, 12% of patients moved from large-sized homesto smallsized homes, and 23% of patients sold their valuable assets.

This study has several limitations that can cause distortions in the interpretation of results, one of which is related to representation. The data source only took data on CRF patients in RSUD of Bekasi as samples in December 2017 - February 2018. Patients aged>18 years and expressed willingness to be interviewed to enter the inclusion criteria. Selection bias that occurs makes the sample difficult to expect to represent the population. Child and adolescent patients, for example, can certainly not be chosen. Likewise, patients diagnosed less than 1 year, are not willing to be interviewed. In addition, patient representation may also be inadequate. Because the data is only taken from the RSUD of Bekasi, so that the results obtained do not reflect the results of the national study.

IV. CONCLUSIONS

Based on the results of this study, it can be concluded that the largest component of the cost of dependents issued by patients with CRF in the hemodialysis unit of RSUD of Bekasi is the vehicle they use to the hospital. They use public transportation with an OR 3.5. In fact, patients must undergo therapy at least 2 times per week. CRF patients must bear considerable costs for transportation, food, supplements and other costs that are not borne by JKN so that 58.7% (CRF patients in RSUD of Bekasi) have economic difficulties, namely inability to pay for other primary needs, including children's education. Among the cost components that cause economic difficulties, transportation is a major problem, especially for those who do not have private vehicles and must use public transportation such as taxis because of their inability to ride two-wheeled vehicles, except for short distances.

Based on this evaluation study, as for suggestions and recommendations that can be given is that the government needs to improve the welfare of CRF patients who undergo hemodialysis by providing financial assistance used by patients for other costs incurred by patients in addition to medical expenses. Continuous Ambulatory Peritoneal Dialysis (CAPD) therapy needs to be considered to minimize transportation costs.[24]

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especially for patients with chronic kidney failure who undergo hemodialysis.

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