

Cost Analysis from the Patient's Perspective and Economic Difficulties in Hemodialysis Patients at Fatmawati RSUP Jakarta

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Abstract

Chronic kidney disease is a global health problem with an increasing prevalence and incidence of kidney failure, has a poor prognosis and high costs. One way to overcome this high financing problem is of course by doing early treatment and for that, it is necessary to identify the risk factors of the disease. The purpose of this study was to examine the costs from the patient's perspective and the economic hardship experienced by the patient's family. The study used a case control method with a ratio of 1:1, where primary data were obtained through direct interviews with patients and/or their families. Based on the analysis, the average transportation cost required for one time hemodialysis is around Rp.12,000 - Rp.178,750, depending on vehicle type and vehicle mileage. Only 54 out of 100 hemodialysis patients need a companion with an average monthly cost of Rp.2,055,556. The cost of lost productivity per month in the study ranged from Rp.691,964 - Rp.1,942,308, depending on the patient's income. However, only 13% of patients experienced economic difficulties in the form of difficulty paying bills and daily needs. Other economic difficulties such as asking for help to selling assets were experienced by 25% of patients, and this was related to the length of time they underwent hemodialysis.

Keywords

hemodialysis; chronic kidney disease; costs from a patient perspective; economic difficulties



I. Introduction

Chronic Kidney Disease (CKD) is a global health problem with an increasing prevalence and incidence of kidney failure, poor prognosis and high costs. About 1 in 10 of the global population develops this disease at some stage (Infodatin, 2017). Every year chronic kidney disease (CKD) is experienced by 1 in 10 adults (10%) worldwide or around 500.000 people each year (Razi, 2021). In end-stage kidney damage or also called ESRD (End Stage Renal Disease), the kidney's ability has decreased to below 15%. At this stage, it is indicated to perform dialysis, either peritoneal dialysis or hemodialysis or to perform a kidney transplant. plantain is a good remedy to stop chronic diarrhoea in children and infants (Lazaniriana, 2020). Hemodialysis is a kidney replacement therapy with a complex procedure, where the patient is required to come to the hospital to perform the therapy because hemodialysis is a hospital-based treatment. The hemodialysis process requires a hemodialysis unit with standard facilities, infrastructure, and facilities and human resources according to standards and high costs (Infodatin, 2017). Hemodialysis is usually done 2 to 3 times a week, depending on the severity of the patient's kidney condition, so this process will incur a fairly large cost burden (Kausoula, 2012).

In Indonesia, treatment for kidney disease is the second largest financing provider from BPJS Kesehatan after heart disease (Infodatin, 2017). The financing is only in the form of payments for hospital costs which are already included in the INACBGs payment system

from BPJS Health, while costs from patients such as direct non-medical costs and indirect costs are not yet known. The substance of social economic problems in cases of kidney failure has not been widely studied. Loss of productivity in patients with kidney failure is a negative impact of kidney failure on the patient's quality of life. This is caused by the problems caused by kidney failure and complications that occur as a result of the disease (Kim Jong, 2013). The decrease in quality of life is proportional to the severity of the disease and the debilitating nature caused by the disease will affect the patient's ability to work so that it affects the patient's productivity which can cause his absence from work until he loses his job. Unemployment is considered a major problem of stress in patients with kidney failure. Most patients with kidney failure are unable to maintain their regular jobs, so they are forced to change or modify their professional activities after undergoing hemodialysis. This can cause economic problems for the patient and or the patient's family.

II. Research Methods

This study uses primary data obtained through interviews using questionnaires directly to respondents. This study used a case control method, with 100 hemodialysis patients in the case group and 100 non-CKD patients in the control group. Control group patients were obtained from outpatients at Fatmawati Hospital, and who met the inclusion criteria.

III. Discussion

3.1 Patient Perspective Cost

Costs that are included in the patient's perspective include transportation costs, accompanying costs, lodging costs and costs of lost productivity. However, the search did not find respondents who needed lodging costs. The results of the cost analysis are as follows:

a. Transportation Costs

The following are the results of the average calculation of transportation costs;

Table 1. Average Transportation Costs

Transportation type	Number of Patients	Distance (average)	Cost per HD (average)	Cost per Month (average)
4Wheel Vehicle	24	13.5 km	178,750	1,471,166
2 Wheeled Vehicles	75	14.5 km	88,813	691,520
Angkot/Bus/Metromini	1	7 km	12,000	96,000
Total	100			

From the data above, it can be seen that 75% of patients use two-wheeled vehicles to reach the Hemodialysis Unit at Fatmawati Hospital, either using private vehicles or motorcycle taxis. Based on the results of the analysis, the transportation costs needed for a month undergoing hemodialysis are Rp.1,471,166 for patients who use four-wheeled vehicles; Rp.691,520 for patients who use two-wheeled vehicles; and Rp.96,000 for patients who use public transportation such as angkot, bus and metromini. Patients who use four-wheeled vehicles cost 2.13 times more than patients who use two-wheeled vehicles.

The amount of transportation costs depends on the type of vehicle used and the distance from the respondent's residence to the hemodialysis location. Therefore, the calculation of the average cost of transportation based on the distance is also carried out with the following results:

Table 2. Average Transportation Costs by Distance Group

Distance Group	Transportation type	N	Distance (average)	Cost per HD (average)	Cost per Month (average)
1 (1 - 9 km)	4Wheel Vehicle	9	5.8	75.111	635.556
	2 Wheeled Vehicles	22	6.3	37,636	325,091
	Angkot/Bus/Metromini	1	7.0	12,000	96,000
2 (10-19 km)	4Wheel Vehicle	9	12.6	163.222	1,380,889
	2 Wheeled Vehicles	37	15.1	94,081	777,946
3 (20-29 km)	4Wheel Vehicle	4	22.3	289,250	2,314,000
	2 Wheeled Vehicles	15	23.5	140,800	1,203,200
4 (30 km)	4Wheel Vehicle	2	38.0	494,000	3,952,000
	2 Wheeled Vehicles	1	40.0	240,000	1,920,000
Total		100			

Based on the results of the analysis of the two-wheeled distance group, group 4 with an average distance of 40 km has a cost of 1.6x compared to group 3 with an average distance of 23.5 km, 2.5 times greater than group 2 with an average distance of 15 .1 km, and 6 times larger than group 1 which is 6.3 km in average. In the use of 4-wheeled vehicles, group 4 with an average distance of 38 km costs 1.7 times for group 3 with an average distance of 22.3 km, 2.9 times greater than group 2 with an average distance of 12.6 km, and 6.2 times larger than group 1, which is only 5.8 km on average.

In the study, there was only 1 respondent who used angkot, so transportation costs could not be compared based on distance. However, it can be concluded that respondents who are in the greater distance group will incur greater transportation costs than the group that has a closer distance to the hospital. In addition, the use of 4-wheeled vehicles costs twice as much as the use of 2-wheeled vehicles.

b. Companion Fee

The value of mentoring is calculated based on the value of lost productivity of companions, because they have to accompany patients. As an average, the value of the Minimum Wage salary scale is used to find the price of the companion productivity for 1 (one) hour. The price is multiplied by the amount of time the patient requires assistance for 1 (one) month so that the average is obtained as follows:

Table 3. Average Cost of Companion

Number of Patients who need Assistance	Hours/Day (average)	Cost (average)
54	3.56	2,055,556

In tracing, not all hemodialysis patients at Fatmawati Hospital need assistance. 46% of them are very independent and can even come to the hospital without being accompanied by family/relatives. This is due to the condition of the patient who is still fresh enough to move. Of the 100 patients, 54 of them needed another person to accompany them, either only accompanying them during hemodialysis, or to assist the patient's daily activities. With an average time of needing assistance of 3.56 hours per day, the average cost of the assistance is Rp. 2,055,556.

The reason for using the calculation of companion costs based on the estimated loss of companion productivity is that most of the mentors are family/relatives of the patient, so the patient does not give salary/wages in material form to the companion. In addition, some patients who have household assistants (ART), do not make the reason that they use ART services because of their illness, but rather the needs of the family even before they are diagnosed with CKD. The enhancement must start with proper patient education about the risk factors and how they can be modified (Imran, 2021).

c. Productivity Loss Value

The average time required to undergo hemodialysis is 4 hours with an estimated round trip of 2 hours, so the time required for a patient to undergo hemodialysis 1 (one) time is 6 hours. With the average working hours per day for 8 hours, it can be stated that patients undergoing hemodialysis lose 1 working day each time they have to undergo hemodialysis.

The calculation of the cost of lost patient productivity is calculated based on the average patient's income per day with an estimated active working day of 24 days in 1 month, multiplied by the frequency of patients doing hemodialysis in 1 month. The daily income is obtained from the calculation of salaries divided by 24 working days, so that the calculation of costs is grouped as follows:

Table 4. Average Cost of Loss of Productivity

Income Group	Number of Patients	Average
< Rp. 3,000,000	56	691,964
Rp. 3,000,000- Rp. 5,000,000	21	1,226,190
> Rp. 5,000,000	13	1,942,308
Don't Know (UMP IDR 3,700,000)	10	971,250
Total	100	

Based on a search of 100 hemodialysis patients, 56 patients had incomes below 3 million and only 13 patients had incomes above 5 million. For the Don't Know category, the calculation of the estimated cost is based on the applicable minimum wage value, namely Rp. 3,700,000. Most of the patients underwent hemodialysis twice a week and only 10 patients underwent 3 (three) hemodialysis in a week.

In the income group below 3 million, the average loss of productivity for a month is Rp. 691,964. Income group Rp. 3,000,000- Rp. 5,000,000 and groups above Rp. 5,000,000 have a risk of losing income by 1.77 and 2.81 times, respectively, compared to the income group under 3 million. This happens because income is synergistic with the price of one's time. The higher a person's income, the greater the hourly price that person has. On average, patients at Fatmawati Hospital undergo hemodialysis 2-3 times a week. The frequency of undergoing hemodialysis will also affect the amount of lost productivity in hemodialysis patients.

3.2 Economy Crisis

The following is a list of the economic difficulties experienced by hemodialysis patients at Fatmawati Hospital:

Table 5. List of Events of Economic Distress

Characteristics of Economic Difficulty	Occurrence (%)	Frequency of Occurrence (Σ Patient)
Never Trouble Paying	87%	
Ever had trouble paying?	13%	
Types of Difficulty Paying experienced as follows:		
• Unable to pay rent or mortgage installments		3
• Unable to pay medical fees or doctor consultations		1
• Can't afford to pay for medicine		4
• Can't afford insurance		1
• Unable to pay for children's school		4
• Can't afford transportation		3
Never Experienced	75%	
Ever Experienced	25%	
The types of events experienced are as follows:		
• Moving house		4
• Using savings that should be for other purposes		13
• Ask for financial help from friends or relatives		11
• Ask for financial assistance from the government or NGOs		2
• Borrow money with personal guarantee		4
• Selling other assets/assets		7
• Doing other strategies in order to continue to pay for living		2

Of the 100 hemodialysis patients, 87% have never experienced inability to pay bills and their daily needs, while the other 13% experience 1 - 3 of the difficulties including being unable to pay electricity bills, house rent/installments, medical costs, drug costs, insurance fees, children's school fees, and transportation costs.

Then, due to financial difficulties experienced during hemodialysis, 25% of respondents had to experience things such as moving house, using savings that should have been for other purposes, asking for help from others, selling valuable assets/goods, and 2 of them had to change professions because can no longer continue his old job. As many as 3%

of respondents admitted that they now live in poverty and mediocre. This occurs especially in patients who have hemodialysis period of more than 3 years.

In the study, the opinion of patients and/or their families regarding their level of well-being was asked. Here are the results found:

Table 6. Patient Opinion on Level

His well-being		
Prosperity level	n	%
Prosperous	6	6
Quite Comfortable	78	78
mediocre	13	13
Poor	3	3
Total	100	100

The results above show that only 3 out of 100 hemodialysis patients feel they are really poor and 6 patients claim that their lives are prosperous. Patients who claim that their lives are prosperous indeed come from well-to-do families, some even use other health insurance besides BPJS Kesehatan. They use BPJS Health to get hemodialysis therapy, while for health care or other disease treatment they use other insurance. Then 78 patients admitted that they lived a mediocre life with their notes that they thought that with the existence of BPJS Health, they were very grateful that they no longer had to worry about expensive hemodialysis costs.

Some of the patients and/or their families who claim that their lives are quite comfortable and mediocre are from upper middle class families, but some patients who underwent hemodialysis before the national health insurance program started. They claimed to have spent a lot of money in the past for treatment and paying for hemodialysis. They admitted that their family finances were disrupted by the expensive cost of hemodialysis, plus they were no longer able to work as actively as before. However, since BPJS Kesehatan runs and hemodialysis is part of the BPJS Health program, they feel that it has been very helpful. Loss of productivity is not a big problem when compared to the hemodialysis costs they have to pay if BPJS Kesehatan does not exist.

Research in Canada showed that 50% of hemodialysis patients experienced a decrease in income since they experienced kidney failure and had to undergo hemodialysis. Most said the decline in income was more than 40% of their normal income. The condition of kidney failure does not have a cure for it, therefore the patient has no other choice but to undergo hemodialysis and wait for the opportunity to have a kidney transplant. However, a kidney transplant is not easy. Finding a suitable donor is not easy, and transplant costs are expensive (The Kidney Foundation Canada, 2018).

Patients with kidney failure and their families will experience a very large cost problem. Not only is hemodialysis expensive, but the potential loss of income is often associated with starting hemodialysis. Not only the patient, but also the family. Relatives of healthy patients must take the time to accompany patients undergoing hemodialysis, some even need assistance to support their daily activities. (Giuseppe, 2017; Stavroula; 2016; The Kidney Foundation Canada, 2018).

IV. Conclusion

4.1 Cost from the Patient Perspective

- The average transportation cost required to carry out hemodialysis at home is Rp.178,750 for patients who use four-wheeled vehicles; Rp.88,813 for patients who use two-wheeled vehicles; and Rp.12,000 for patients who use public transportation such as angkot, bus and metromini.
- Only 54 out of 100 hemodialysis patients need a companion with an average monthly cost of Rp.2,055,556.
- The cost of lost productivity per month in research is Rp.691,964 for the income group below 3 million, and Rp.1,942,308 for the income group above 5 million. Income is directly proportional to the value of lost productivity in hemodialysis patients.

4.2 Economy Crisis

Hemodialysis patients at Fatmawati Hospital who have economic difficulties in the form of inability to pay bills and daily needs are as much as 13%. Patients who experience economic difficulties to have to ask for help and to sell assets is as much as 25%.

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