

Cost of Hypertension Disease in Kediri Regency

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Abstract: The incidence of hypertension is the highest non-communicable diseases in Kediri District. The prevalence of hypertension in Kediri District is 27.9 %. Their increasing prevalence is threatening to cause significant damage both to individuals and society. From the individual perspective, it is therefore necessary to consider the economic impacts associated with hypertension diseases, and identify interventions that can reduce the burden of these diseases. This cost of illness study aims to measure cost of hypertension disease in Kediri District from individual perspective. This research is a quantitative research with cross sectional method. Primary data collection is done by interviewing 100 hypertension sufferers in Kediri District. The results estimated the direct costs is 6.220.470 rupiahs per capita and the indirect costs is 6.164.081 rupiah per capita. Cost of illness caused by hypertension is about 12.384.551 rupiahs per capita. It can be concluded that the cost of hypertension disease is very high. So it can be recommended to increasing promotive and preventive efforts to reduce the incidence of hypertension disease

1 INTRODUCTION

Health problems in Indonesia is quite complex which in the last ten years Indonesia had triple burden disease. Infectious diseases are still very high, but on the other hand occurring of an increasing number of non-communicable diseases and new emerging diseases. According to WHO (2014), mortality rate from non-communicable diseases will continue to increase worldwide. In 2030, estimated there are 52 million deaths from non-communicable diseases. One of the non-communicable diseases which counted as a public health problem is hypertension. Not only happened in developing countries but also happened in developed countries.

Hypertension is commonly called by silent killer because the symptoms are not known for sure. The symptoms that appear can be vary depend on each individual and almost the same as other diseases. In addition, hypertension is also a risk factor for deathly diseases such as stroke and coronary heart disease. Riskesdas (2013) showed that nationally 25.8% of populations of Indonesia suffered from hypertension.

The number of incidence of hypertension in Kediri District increased from year to year. In 2016 the incidence of hypertension got a first place for non-communicable disease in Kediri District.

Hypertension prevalence rate even reached 27.9 %. This number was higher than the hypertension prevalence rate of eastern Java which was 26.2 %. Some of high and unreliable incidence of hypertension can cause a loss not only economically but also on productivity and complications of other diseases. Increasing the number of incidence of hypertension can have an impact on economic burden, productivity loss and the complication appearances.

So that important to conduct a study concern to the costs which is covered by patient during illness. According to Jo C (2014) Cost of illness is a study to estimate the magnitude of the economic costs borne by an illness. The purpose from this study is to measuring cost of illness of hypertension that was experienced by a patient with hypertension in Kediri District from individual perspective.

2 METHODS

This research was a quantitative research with cross sectional design. Population in this research was total patient of hypertension in Kediri District in 2017 that is equal to 435,628 people. The sample was calculated by using Slovin formula to obtain a

large number of sample as many as 100 people who has hypertension.

The sample in this research taken by cluster random sampling. The first stage technique of sampling began with determining the cluster by using the working area of the Primary Health Care. There was a consideration in selecting the working area where to be sampled to represent the population. That was by selecting the existing primary health care in rural and mobile areas. 2 working area where to be chosen that meet the criteria are Kandangan Primary Health Care (rural village) and Pare Primary Health Care (crowded area).

Data were collected randomly by door to door way on patient who has hypertension in Pare Primary Health Care and Kandangan Primary Health Care. Instrument that used in this research is questionnaires. the study was conducted from May to July 2017. The cost of illness in this study used an individual point of view. Variables to calculate the cost of illness consists of direct cost and indirect cost. Tool for data analysis in this research used Ms.Excel.

3 RESULTS

According to WHO (2009) the cost of illness can be divided into direct cost and indirect cost. Direct cost is costs that are directly related to treatment of hypertension, while indirect cost is costs that are not directly related to the treatment of hypertension borne by the patient during treatment for the illness.

3.1 Direct cost

Direct cost is costs that are directly related to the treatment of hypertension. This cost is paid by patients who has hypertension to check-up their health. According to Istiqomah (2016) Direct cost is divided into two categories, they are routine cost and incidental cost. Routine Cost is the average of direct cost that is routinely paid by patient as long as the patient has the illness. This cost is calculated for one year.

The cost which is a routinely direct cost is the outpatient expense and other medical expenses. Outpatient costs be obtained from the average expenses for outpatient treatment by the patients for one year. While other medical costs are showing the average expenses of other treatments which is paid by patients for one year. The other treatments which being intended is a treatment that is not performed in

health services, like buying medicine in pharmacy by themselves or buying traditional medicine.

Incidental direct cost is a direct costs which paid at any time during the treatment for the illness. Costs that include incidental direct costs in this study is the cost of hospitalization. The cost of hospitalization is an average expenses for inpatient treatment for hypertension patients.

The average of routine direct cost during illness was derived from the multiplication of routine direct cost over for a year with the average duration time of illness. The average duration of illness of the patient was calculated by reducing life expectancy of Kediri District population which is 72 years old by the age of the first time respondent has the illness which is 55 years old. So the average value of the duration of illness is 17 years.

The following is a calculation result of direct cost that can be seen in Table 1.

Tabel 1: Direct Costs on Hypertension Patients in Kediri District

Statement	Cost (Rupiahs)
INCIDENTAL COST	
Average of Inpatient Treatment	178.500
ROUTINE COST	
Average of Outpatient Treatment	297.870
Average of Other Treatments	57.540
Average of Routine Direct Cost	355.410
Average of Routine Direct Cost during Treatment for The Illness (17 years)	6.041.970
TOTAL DIRECT COST	6.220.470

Based on Table 1 it can be concluded that the direct costs which paid by hypertensive patients is Rp 6.220.470, -. The biggest component in direct costs is in a routine direct cost that is the expenses for outpatient treatment.

3.2 Indirect Cost

Indirect cost is costs that are not directly related to the treatment of hypertension which paid by the patient for the illness. Istiqomah (2016) state that indirect cost is divided into two categories: routine indirect costs and incidental indirect costs. Routine indirect cost is an indirect cost which routinely paid by the patient as long as the patient has the illness. While incidental indirect cost is indirect costs which

paid by the patient at any time as long as the patient ill.

Routine indirect costs consist of outpatient transport cost, outpatient productivity loss, and outpatient companion productivity loss. While the incidental indirect costs consists of inpatient transportation cost, inpatients productivity loss, and inpatient companion productivity loss. Transportation cost represent transportation costs incurred when visiting health services for the treatment. Transportation cost is obtained by multiplying the number of visits with the average of one-way cost to the intended health service. The cost of aids is a cost incurred to purchase aids as long as patient suffers from hypertension. While the productivity loss is the cost of productivity loss due to the absences of the patient for leaving the job or normal activities to undergo treatment. The cost is obtained by multiplying the percentage of total absences in a month with an average monthly income.

Tabel 2. Indirect Cost on Hypertension Patients in Kediri Distric

Statement	Cost (Rupiahs)
INCIDENTAL COST	
Average of Transportation of inpatient care	48.440
Average of <i>Productivity Loss</i> on patients of inpatients care	64.268
Average of <i>Productivity Loss</i> on patient company of inpatient care	67.980
Average of Incidental Indirect Cost	180.687
ROUTINE COST	
Average of Transportation of Outpatient Care	162.020
Average of <i>Productivity Loss</i> on patients of outpatients care	120.655
Average of <i>Productivity Loss</i> on patient company of outpatient care	69.290
Average of Routine Indirect Cost	351.964
Average of Routine Indirect Cost During the Illness (17 years)	5.983.394
TOTAL INDIRECT COST	6.164.081

Based on Table 2 it can be seen that amount of indirect cost is 789,272, -. The largest component of the routine cost is productivity loss costs for outpatients and outpatient transport.

After the calculation of direct and indirect costs, it can calculate the cost of illness for each individual patients who has hypertension follows:

$$\begin{aligned}
 \text{Cost of Illness} &= \text{Direct Cost} + \text{Indirect Cost} \quad (1) \\
 &= 6,220,470 + 6,164,081 \\
 &= 12.384.551 \text{ rupiahs}
 \end{aligned}$$

Based on the above calculation can be concluded that the value of cost of illness which is borne and covered by hypertension patient in Kediri District is Rp 12.384.551, -.

4 DISCUSSION

According to WHO (2014) nearly 45% burden of disease that occurring in low-income and middle-income countries is caused by non-communicable diseases. Hypertension is one of them which counted as the major risk factors for global disability, death and disproportionate impacts in low-income and middle-income countries. Two-thirds suffer from hypertension. In 2010 estimated that 9.4 million deaths and 162 years are lost due to hypertension worldwide. The prevalence of hypertension continues to increase worldwide and it is estimated to affect more than 500 million people by 2025. Based on the health profile of Kediri District, Hypertension is a non-communicable disease with the highest number of cases in 2016.

This study showed that the routine direct cost of hypertension in one year is obtained from outpatient and other medical expenditure every month. Besides outpatient visits in health services, some patients also buy their own medicines at pharmacies, buy traditional medicines and other alternative treatments. The results showed there was a cost for other treatments of Rp 57,540 per month.

Besides identifying the direct costs, cost of illness analysis also needs to identify indirect costs. In this study, indirect cost consist of outpatient and inpatient transportation costs and productivity loss during outpatient and inpatient care.

The value of transportation costs incurred by the patient is influenced by the frequency of visits to health services. The higher frequency of visits then the higher also the cost of transportation cost. In this study the patient uses a variety of transportation to go to health services. For the example is motorcycles, cars, public transportation or walk. This study also found that some patients who live in crowded population areas (working area of Pare Primary Health care) go to health services by riding a bicycle or walking. This is because the location of health services is easily accessible. While transportation in patients in rural areas (working area

Kandangan Primary Health Care) go to health services by motorcycle.

Components that affect the value of patient productivity loss is the frequency of visits and income per month. This study found that the percentage of unemployment patient is 22%. This is because of most of them are elderly sufferers, so they have no job and the final effect is the productivity loss becomes low. If anyone at his productive age suffer from hypertension, his work activities will be distrubed due to the illness. In the other hand, the work's time will be reduced when he had to undergo the treatment such as outpatient care and hospitalization. According to Hyder et al (2012) productive age is generally associated with people aged 15th-64th years. At that age, people is considered to spend more of his life to move and work. At the under 15th years and age above 64th years it is considered a dependent in domestic life.

The elderly sufferer, who usually have entered the age of retirement and not working, have lower productivity loss than patient on productive age. At this age, the patient has entered an old age that caused organ function's decreased. The process of degeneration and disease suffered will increase the severity of the illness. Therefore, the patient will need the help from the others while visiting health services for outpatient and inpatient.

When someone who has no money suffered from hypertension, the cost of the treatment will depend on his family. If the income is low then it will make the economic situation of the family worse off. Because of that, the JKN program will help public ensure the health needs in order to remain the public to check his health so it won't get worse.

Based on research conducted by Catherine (2016) it is estimated that the value of *Dissability Adjusted Life Years* in almost all the world due to high blood pressure ranks second after the risk of illness due to diet. According to Chataut et al (2011) in a study conducted in Nepal in 2011 mentioned that gender and old age are independent factors or hypertension risk factors that can not be changed. In other hand, there are many risk that preventable. Such as healthy diet, healthy lifestyle.

Based on the results of the research can be concluded that the indirect costs which paid by patients is not really different with the direct costs. But in reality there are still many people who are unaware that besides the direct costs of the treatment, there are another economic losses such as expenditures for transportation costs and productivity loss.

5 CONCLUSION

The results showed that the cost of illness of hypertension in Kediri District is Rp 12.384.551 per capita. This means that every individual who suffers from hypertension will bear the economic burden which is Rp 12.384.551. Based on the analysis it can be concluded that during suffered from hypertension there are much of indirect costs that must be covered by patient due to the illness. The indirect costs which paid by patients is not really different with the direct costs. But in reality there are many people who do not realized that hypertension can caused the economic loss which is indirectly affect the economic conditions of households, regional even a country.

The point is to make awareness to public for increasing preventive and promotive of hypertension disease. Preventive and promotive efforts need a Government support. It can be done by increasing the budget for the promotive and preventive efforts to make more activity programs to reduce the prevalence of hypertension. Preventive and promotive efforts also require commitment and active participation from the human resources of health sector and the public to ensure the programs can be done well.

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