ANALYSIS OF SOCIOECONOMIC FACTORS ON HEALTHCARE FACILITIES UTILIZATION FOR INPATIENT CARE IN INDONESIA

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ABSTRACT

Improving the quality of health services and achieve a healthy Indonesia 2025 is the goal of health development in Indonesia. From 2015 to 2016 there was an increase in inequality in the use of inpatient hospital services in Indonesia. A knowledge and understanding of the utilization of health services are essential for resource allocation and health planning. The purpose of this study was to determine the socioeconomic factors that influence the utilization of health facilities for inpatient treatment in Indonesia. This study was a secondary analysis of the data of a cross-sectional National Socio-Economic Survey (Survei Sosial Ekonomi Nasional -Susenas) 2020, including 1,258,328 respondents across the country. The research respondents were individuals who were randomly selected as many as in Indonesia. The method used in this study uses an econometric approach using the Binary Regression method, namely the logit and probit models. The results of this study found that age, education, occupation, income, and health insurance, with income assumed from the level of expenditure, all of these variables had a significant effect on the utilization of health facilities for inpatients.

Keywords : Health Facilities, Inpatient, Socio-Economy, Utilization

INTRODUCTION

According to PP (Presidential Decree) No. 47 of 2016, a health service facility is defined as a tool and/or place used to carry out health service efforts, including promotive, preventive, curative or rehabilitative efforts carried out by the government, local government, and/or the community. Health services according to the Indonesian Ministry of Health (2009) are any effort that is carried out alone or jointly in an organization to maintain and improve health, prevent and cure disease, and restore the health of individuals, families, groups, and/or communities. (Ministry of Health, 2009)
Utilization of health facilities for inpatient treatment in Indonesia has had its ups and downs. According to data from the Dewan Jaminan Sosial Nasional (National Social Security Council) for BPJS Kesehatan in 2020, the average cost of claim for first-level inpatient admission nationally during 2014-2018 is IDR 420,543 (2014), IDR 323,687 (2015), IDR 412,512 (2016), IDR 531,496 (2017), and IDR 472,984 (2018). Meanwhile, the average cost of claim for advanced inpatient admission nationally during 2014-2018 is IDR 4,871,140 (2014), IDR 4,710,827 (2015), IDR 4,560,623 (2016), IDR 4,806,550 (2017), and 4,747,547 (2018). Meanwhile, the number of first-level inpatient admissions per 10,000 participants is 114 (2014), 241 (2015), 175 (2016), 159 (2017), and 137 (2018). In terms of advanced level inpatient admissions per 10,000 participants, there are as many as 411 (2014), 440 (2015), 501 (2016), 540 (2017), 537 (2018). (Dewan Jaminan Sosial Nasional BPJS Kesehatan, 2018)

Furthermore, the total number of hospitals in Indonesia according to reported data from the Indonesian Hospital Association (PERSI) in 2018 has increased during the course of 2012 - 2018, respectively as follows: 2,083 (2012); 2,228 (2013); 2,408 (2014); 2,490 (2015); 2,601 (2016); 2,773 (2017); and 2,820 (2018). The number of hospitals by class nationwide according to data from PERSI as of April 2018: a) Class A: 71, b) Class B: 402, c) Class C: 1,380, d) Class D: 730 and without class: 2,373. (Trisnantoro Laksono and Elisabeth Listyani 2018). Moreover the number of puskesmas (local centers for public health) nationwide during 2013-2015 according to BPS 2013: 9,655, 2014: 9,731 and 2015: 9,754. (Badan Pusat Statistik, 2015)

Improving the quality of health services and achieve a healthy Indonesia 2025 is the goal of health development in Indonesia. Ariani and Pujiyanto (2019) found that from 2015 to 2016 there was an increase in inequality in the use of hospital inpatient services in Indonesia, which can be seen from the difference in the concentration index of 0.0045. This inequality is caused by differences between age, income, education, area of residence, and ownership of health insurance. (Afifa, 2021; Ariani & Pujiyanto, 2019)

The Behavioral Model of Health Service Use consists of three components, including predisposing factors, enabling factors and need factors, all of which can influence the health services utilization. Predisposing factors are not directly related to health services use, but can exert effects on health services use through enabling factors and need factors. Enabling factors are indirect influential factors while need factors are direct influential factors of health services use. In this study, we found that relative to predisposing and need factors, enabling factors contributed a lot to the health services utilization. (Zhang et al., 2018) Similar with a previous study in Ethiopia, there are three factors in the decision making process to use health care facilities, which are predisposing factors, supporting factors, and need factors (Amente and Kebede, 2016). First, the predisposing factors are age, social structure, distance, and one’s health beliefs. Second, the supporting factors are family resources, such as family income, the ability to procure health services, and participation in health insurance scheme. Thirds, the need factors are factors that directly affect the selection of health facilities. Previous research has shown a relationship between income and utilization of health facilities (Owoseni, Jegede, and Ibikunle, 2014). The increase in the population of Indonesia, coupled with the increase in availability of health facilities, is not followed with an increase in the number of studies on the utilization of health facilities for inpatient treatment in Indonesia using National Socioeconomic Survey or Survei Sosial Ekonomi Nasional (SUSENAS) 2020 data.
Susenas has been the backbone of many scientific research and public policies in Indonesia since 1960s. (Johar et al., 2019). Susenas also known as Induknya Survei (Mother of Survey). This is because the number of indicators produced from Susenas are representative at the national, provincial, and district/city levels, while the second semester Susenas can only produce indicators at the national and provincial levels. (Qomariyah, 2021)

The results of previous study using Susenas 2019 showed respondents who utilized of inpatient services were 4.8%. Moreover, the results of the analysis revealed that variable age, gender, education, occupation, area of residence, and health insurance ownership had significant relationship with inpatient utilization. (Afifa, 2021)

Therefore, the author would like to understand the socioeconomic factors that influence the utilization of health facilities for inpatient treatment in Indonesia using Susenas data in 2020.

METHODS

The design of this research is a cross sectional study. The type of data used is secondary data from the 2020 National Socioeconomic Survey (SUSENAS). The population of SUSENAS used is all of Indonesia. The sample used is 1,258,328 individuals selected at random in Indonesia. The data is analyzed through univariate analysis and multivariate analysis by using econometric approaches like mufit azz with binary regression methods, namely by using logit and probit models. The analysis is carried out using the Stata ver 15.0 application.

RESULTS

The results of the univariate analysis conducted on 1,258,328 individuals in Indonesia showed that the age group for under-21s is the age group with the highest share with a total of 481,752 (38.61%), followed by the age group 41-to-60 with 313,298 (25.11%). Meanwhile, the smallest age group is the age group above 61 years with 100,147 (8.03%). This shows that the majority of respondents are aged 30 years and under (51.79%). From the point of view of education level, the largest group of individuals is the group with their latest education being elementary school (SD) with a total of 466,407 (37.07%) and the smallest is the group with postgraduate education with a total of 5,124 (0.41%).

Then, based on their employment status, the group of individuals with the highest number is the unemployed group with a total of 737,502 (58.61%), while the employed group numbers 520,826 (41.39%). The majority of respondents do not work, considering that this group includes people who are still in school (under 21 years old) or people who are obliged to take care of the daily household matters. Then, from the health insurance variable, the majority of individuals who are respondents are recipients of BPJS Kesehatan contribution assistance (PBI) totaling 487,629 (38.75%), followed by the group of respondents who do not have any health insurance, totaling 353,139 (28.06%). Meanwhile, the smallest group is the group that has private insurance, namely 6,077 (0.48%). (Dewan Jaminan Sosial Nasional BPJS Kesehatan, 2018)

Finally, the author uses the expenditure variable as a variable that can represent income. This variable is then divided into 5 quintiles with quintile 1 being the lowest level of income and quintile 5 being the highest level of income. Quintile 1 has the highest number of individuals with 270,259 (21.48%) and quintile 5 has the least number of individuals with 218,412 (17.36%). From the gender perspective, there are 631,002 (50.15%) men in the respondents and 627,326 (49.85%) women, but these variables are not included in the multivariate analysis because they might lead to bias towards certain genders. (Table 1)
From table 2, we know that the number of respondents who utilized of inpatient services were 4.79%.

Table 2. The Utilization of Health Facilities for Inpatient Care

| Utilization of Health Facilities | n     | %    |
|----------------------------------|-------|------|
| Yes                              | 60,284| 4.79 |
| No                               | 1,198,044 | 95.21 |

Source: Survei Sosial Ekonomi Nasional (SUSENAS), 2020

Multivariate analysis is conducted to determine the likelihood and relationship between the dependent variable, which is visitation to inpatient care facilities, with the independent variables already listed in Table 1. The levels of significance used in this study are 1%, 5%, and 10%. If the p-value is below 0.01, 0.05, or 0.1, then the independent variable is considered to be significantly affecting the dependent variable. In each regression performed, the age variable is squared and the income (expenditure) variable is transformed into logistic form. The results of the logit and probit analysis show that all independent variables have a significant effect on the utilization of health facilities for inpatient care with p-value < 0.01. From the age variable, there is no tendency for certain age groups to use health facilities for inpatient care use more than the others with a logit coefficient of 0.000 and a probit of 0.000. Therefore, each age group can be concluded to have the same likelihood to utilize health facilities for inpatient care. Then, from the education variable, the higher the individual's education level is, the higher the probability of that individual is to take advantage of health facilities for inpatient care, with a logit coefficient of 0.266 and a probit of 0.127. This logit coefficient means that for every increase in level of education, the probability (odds) of utilizing health facilities for inpatient care will increase by 30.5%, assuming all other variables remain the same. A positive probit coefficient also indicates that an increase in education level will increase the predicted probability of utilizing health facilities for inpatient care.

Furthermore, from the employment status variable, if the individual does not have a job or is unemployed, then the probability of that individual to take advantage of health facilities for inpatient care is greater than individuals who are employed with a logit coefficient of -0.553 and a probit coefficient of -0.262. This logit coefficient means that working people are 0.57 times more likely than working people to take advantage of health facilities for hospitalization. A negative probit coefficient also means that the predicted
probability of using health facilities for inpatient care will decrease for people who are working or employed. Then, on the health insurance variable, individuals who have National Health Insurance (JKN) have a greater probability of utilizing health facilities for hospitalization with a logit coefficient of 0.683 and a probit coefficient of 0.304. The meaning of this logit coefficient is that people who possess JKN facilities are 98% more likely than people who do not possess JKN to utilize health facilities for inpatient care. In addition, a positive probit coefficient also means that the predicted probability of utilizing health facilities for inpatient care will increase for individuals who have JKN.

Finally, from the point of view of income represented by each individual's expenditure in quintiles, the higher the individual's income, the more likely the individual is to utilize health facilities for inpatient care, with a logit coefficient of 0.292 and a probit coefficient of 0.242. This logit coefficient means that for every increase in the income quintile above, the probability of utilizing health facilities for inpatient care increases by 34%. The probit coefficient of 0.242 also means that every increase in income quantile will increase the predicted probability to take advantage of health facilities for inpatient care.

### DISCUSSION

The result of this study shows respondents who utilized inpatient services were 4.79%. According to the National Socio-Economic Survey the percentage of the population who had been hospitalized in the past year in 2015 was 3.61%, 4.69% in 2018 and 5.05% in 2019. From these data, there is a decrease in the number of utilizations of inpatient services in Indonesia from 2019 to 2020. (Afifa, 2021). The predisposing factors in the utilization of health facilities are socioeconomic factors, which have a multidimensional concept. Dimensions related to

| Variable              | Linear Regression | Logit Regression | Probit Regression |
|-----------------------|-------------------|------------------|------------------|
|                       | Coefficient       | Coefficient      | Coefficient      |
|                       | (Robust)          | (Robust)         | (Robust)         |
|                       | Marginal          | Marginal         | Marginal         |
|                       | effect            | effect           | effect           |
| Age                   | 0.000***          | 0.000***         | 0.000***         |
|                       | (0.000)           | (0.000)          | (0.000)          |
| Education             | 0.012***          | 0.266***         | 0.127***         |
|                       | (0.000)           | (0.010)          | (0.000)          |
| Employment Status     | -0.029***         | -0.553***        | -0.262***        |
|                       | (0.000)           | (0.010)          | (0.000)          |
| Health Insurance      | 0.025***          | 0.683***         | 0.304***         |
|                       | (0.000)           | (0.012)          | (0.000)          |
| Income                | 0.014***          | 0.292***         | 0.142***         |
|                       | (0.000)           | (0.007)          | (0.000)          |
| Constant              | -0.199***         | -8.282***        | -4.202***        |
|                       | (0.005)           | (0.108)          | (0.051)          |
| Observation           | 1.071.353         | 1.071.353        | 1.071.353        |
| Pseudo R-squared      | ---               | 0.038            | 0.038            |
| Chi-square            | ---               | 17.151,126       | 15.918,033       |
| P Chi-square          | ---               | 0.000            | 0.000            |
| Log likelihood        | ---               | -195.876,31      | -195.767,56      |

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
socioeconomic status are employment status, achievements, education, income, poverty, and wealth. Based on the theory of behavior in the selection of health services proposed by Andersen, there are three factors, namely predisposition, support and needs (Babitsch, Gohl, and von Lengerke, 2012). Socioeconomic factors in this study are age, education, income, employment, and ownership of health insurance. Factors of age, education level, and employment are predisposing factors, while income and ownership of health insurance are components of supporting factors.

Age
Based on the results of the multivariate analysis which has been carried out, age is one of the independent variables that affects the utilization of health facilities for inpatient care in Indonesia. There is no tendency for certain age groups to make more use of health facilities for inpatient care. A study conducted in Tehran, Iran, showed that people aged over 65 years and under 5 years were more likely to utilize health facilities than other age groups (Nouraei Motlagh et al., 2015). The reason is that the health level of the two age groups is below the average health level of other age groups, so they need more medical personnel and also health facilities. However, the multivariate analysis conducted shows that there is no tendency for certain age groups to make more use of health facilities for inpatient care. This means that the age group above 60 years has the same tendency as other age groups in utilizing health facilities for hospitalization in Indonesia. The difference with the Tehran study may be attributed to other variables not included in this study, such as the availability of healthcare facilities or the possibility that certain groups are prohibited from accessing health facilities, such as by the need to be accompanied by other people (for older people above 60 years of age and children under 5 years of age).

Education
In addition to age, the education variable is another independent variable that has a significant effect on the utilization of health facilities for inpatient care, where the higher a person's education level is, the more likely the person is to utilize health facilities for inpatient care. A study conducted in Ethiopia, found that the utilization of health facilities was more likely to be carried out by patients with higher education (Amente and Kebede, 2016). This is in line with the results of the multivariate analysis that has been carried out, where the higher a person's education level in Indonesia, the more likely the person is to use health facilities for inpatient care. Higher education would usually render a person more aware of their health, so they tend to use health facilities for inpatient care when needed.

Employment status
In addition to that, the employment status variable is also an independent variable that significantly affects the utilization of health facilities for inpatient care, where people who have jobs tend to use health facilities more for inpatient care. By having a job or being employed, a person would have less free time which is needed to undergo inpatient treatment at a health facility compared to people who do not have a job. In fact, diseases that require hospitalization or inpatient care in health facilities certainly take longer to be cured than other types of diseases that do not require hospitalization. The results of the multivariate analysis also show that if a person does not have a job, he or she is more likely to use health facilities for inpatient care. This is also in line with the study conducted by Economou et al., where someone who does not have a job tends to use health facilities more (Economou, Nikolaou, and Theodossiou, 2008). This study, which was conducted in the European Union, shows that people who have to work actually have less time to utilize health facilities.
Because in reality people who have jobs also usually have better financial resources than people who are not employed, the job variable must be related to the income variable.

Income
In this study, the level of income is assumed to correspond to the level of expenditure which is easier to observe, and actually the level of income can measure a person’s level of consumption (Johar et al., 2019). The results of multivariate analysis show that the higher a person’s income level, the more likely he or she is to utilize health facilities for inpatient care. This is in line with a study conducted by Economou et al., where an increase in the level of household income will increase the expectation of the number of days of hospitalization in Denmark (Economou, Nikolaou, and Theodosiou, 2008).

Health Insurance
The last independent variable studied in determining the utilization of health facilities for inpatient care is the health insurance variable. The multivariate analysis shows that patients who have National Health Insurance (JKN) have a higher tendency to use health facilities for inpatient care. The study conducted by Buchmueller et al. also confirms this finding, where ownership of health insurance in the United States increases the utilization of health facilities for inpatient care (Buchmueller et al, 2005). One of the reasons that can explain this finding is the relieving of patients from hospitalization costs which can be quite large, so that patients are more likely to take advantage of health facilities for hospitalization. Afifa R (2021) in her research show that health insurance ownership is the most important factor of utilization inpatient service in Indonesia (p-value <0.001). PR of 2.220 (95% CI = 2.117-2.328) after controlled by other factor. Health insurance ownership is the most important factor of utilization inpatient services. Equitable ownership of health insurance distribution in Indonesia can be an effort to increase the equality of utilization of health services in Indonesia.(Afifa, 2021)

CONCLUSION
It can be concluded that age, employment status, education level, income level, and ownership of health insurance have a significant effect on the utilization of health facilities for inpatient care in Indonesia. The findings in this study are expected to be the basis for policy makers, especially in the realm of public health policies. One suggestion that can be given to the Government of Indonesia is to increase the income level of the community, both from creating job opportunities so that the head of the family has sufficient financial capacity to pay JKN contributions for their family members for inpatient care when needed. In addition, the Government is also advised to strengthen the compulsory schooling program, especially in places far from the city in order to increase the education level of the local community. Lastly, improving the quality of the management of the existing health insurance, JKN, so that the income gained from insurance members’ contributions improves and the provision of health funds from the state budget remains stable in order to reach more patients who do not have the financial capacity to pay for inpatient care.

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