

INPATIENT CARE UTILIZATION AMONG ELDERLY IN INDONESIA: A CROSS-SECTIONAL STUDY FROM INDONESIA FAMILY LIFE SURVEY**Haerawati Idris^{1*}, Nur Afni¹**¹Faculty of Public Health, Universitas Sriwijaya, Palembang, Indonesia

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ABSTRACT

Introduction: The increasing number of the elderly is worrying. It is a concern in public health issues. The elderly have higher susceptibility to chronic diseases. **Aims:** To identify the factors affecting inpatient care utilization among the elderly population in Indonesia. **Methods:** Data from the 2014 Indonesian FamilyLife Survey were used, representing 83% of the Indonesian population. Additionally, Andersen's theory of healthcare service utilization model was applied. This study applied a cross-sectional design. The sample consisted of 5,325 respondents 60 years in age or older. The chi-square test and multivariate analysis using a multiple logistic regression test were used to analyze the data. **Result:** This study found 222 of its respondents utilized inpatient care (4.2%). The characteristics that had a significant correlation with the utilization of inpatient care were women, middle-school education, high education, Sumatera region, urban area, health insurance ownership, low economy status, middle economy status, high economy status, very high economy status, sick perception, smoking habit and obesity. **Conclusion:** The most dominant predictor was the high economy status. The health-insured elderly are able to receive inpatient care without bearing the financial burden. The government should provide health insurance for the elderly in Indonesia.

Keywords: Elderly, healthcare, inpatient care, Indonesian Family Life Survey, utilization

INTRODUCTION

Population aging has become a significant problem that is widely debated in various nations around the globe. The elderly demographic has been increasing in developed and developing countries, decreasing fertility and mortality rates and increasing life expectancy are factors that influence population aging. The proportion of those over 60 years in age is on the rise across the world. In 2017, there were 962 million people aged over 60 years old. It is approximated that 79% of the elderly will live in developed areas by 2050. According to WHO data, the highest percentage of the elderly population in Southeast Asia is in Singapore at 19.5%. While Indonesia is ranked 6th out of 13 countries in Southeast Asia, which is 8.6% of the elderly population, it is also estimated that in 2050 there will be around 19% of the elderly population; this number is quite large. The high population of the elderly is in line with

the increasing life expectancy. Getting old is something that happens to every human being, but how to get old but still keep the body healthy and fit is a challenge for everyone (World Health Organization, 2017). The elderly make up 8.04% of the Indonesian population, the elderly morbidity rate is 28.62%, and only 7.17% of the sick and elderly utilized inpatient healthcare. These statistics are fairly concerning (Statistik Indonesia, 2015).

According to WHO on Global Health and Aging, currently there has been an "epidemiological transition"; in the past the main cause of death was infectious diseases, but now non-communicable diseases have become the main causes of death, especially in adults and the elderly, this is the biggest burden on the population. global health. Chronic non-communicable diseases are caused by lifestyle, diet and increasing age. Age is a consistent risk associated with illness as well as death, the health status of the elderly is not as good as when they were young. The

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decline in the function of the organs of the elderly causes the elderly to tend to suffer from diseases. The World Health Organization analyzed 23 low- and middle-income countries, wherein the financial costs of three non-communicable diseases (diabetes, stroke, and heart disease) were calculated. Some of the aforementioned will majorly affect health service utilization for the elderly.

In a number of nations, healthcare expenditures have posed a threat to household finances intended to be put toward fundamental physiological needs (Igarss, 2014). Global health challenges have shifted onto the elderly population at risk for non-communicable diseases (Yang et al., 2013; Wang and Chen, 2014). The elderly are correlated with multiple morbidities (Wolff, Starfield and Anderson, 2002), higher mortality rates (Gijssen et al., 2001), and higher utilization of inpatient care (Wolff, Starfield and Anderson, 2002). In low-income countries, variables contributing to healthcare service usage include sex, age, education, marital status, chronic diseases, possession of health insurance, and urban residency (Srivastava and McGuire, 2015). Alternative factors that affect the elderly's inpatient care use are socioeconomic status based on education level or income (Dubikaytis et al., 2010; Walkom and Loti, 2012), health insurance ownership (Filipski, Zhang and Chen, 2015), health perception and chronic condition (Stirbu et al., 2011; Filipski, Zhang and Chen, 2015).

Health issues in the elderly are more complicated because they are at increased risk for chronic diseases, which may lead to differing healthcare utilization tendencies in comparison with the younger population. As a result, the usage of health services may diverge. In the process of health transition, Indonesia will face a rapid rate of demographic aging. The increase in the elderly population in Indonesia raises serious concerns about the utilization of health services for them. Age affects individuals' needs in utilizing health

services. Older people are at increased risk for chronic disease when compared to the younger demographic. Studies on the elderly's utilization of inpatient care in Indonesia remain limited despite their importance for policy-making. This study's aim was to investigate the factors affecting utilization of inpatient care for the elderly population in Indonesia.

METHODS

The study took data from the 2014 Indonesian Family Life Survey (IFLS). IFLS is a constantly on-going survey intended to identify the socioeconomic and health conditions of Indonesian households. The 2014 IFLS represented 83% of Indonesian households across 13 provinces (all provinces in Java, Bali, NTB, South Sulawesi, South Kalimantan, South Sumatra, Lampung, West Sumatra, and North Sumatra). The IFLS sample was collected using multistage random sampling (Strauss, Witoelar and Sikosi, 2016).

This study utilized a cross-sectional design. The inclusion sample was respondents aged 60 or older. There was a total of 5,325 subjects selected. The dependent variable in this study is outpatient visits. Outpatient visit use was scored 'yes' if the individual reported having visited a public hospital, public health center (Puskesmas), private hospital, clinic, health worker, or doctor's practice or had been visited by a health worker or doctor for outpatient care in the past four weeks. The variable was scored 'no' if this was not the case.

This study's independent variables included sex, location, region, occupation, education status, marital status, economic status, nutritional status, health perception, chronic disease history, health insurance ownership, and smoking habits.

Inpatient visits are respondent visits to health services for inpatient to Government Hospitals (General/Special) or Puskesmas or private hospitals or private clinics during the last 12 months. The variable code is 1 if yes and 0 if no visit. Gender is divided in male and female. Education is the last formal school

level ever completed by respondents consisting of no school, elementary, junior high, high school, diploma, college divided into three categories, 0 if education is low (no school, elementary), 1 if secondary education (junior high school, high school), 2 higher education (Diploma and college). Marital status is the respondent's marital status which consists of unmarried, married, living together, divorced, living separately and divided into two categories, namely 1 if Married 0 if Other (living together, divorced, living separately).

Employment is the respondent's activity to earn income in order to fulfill daily life which consists of the formal and informal sectors. divided into two categories, namely 1 if working in the formal sector (self-employed with permanent employees, private employees, government employees) 0 if working in the informal sector (self-employed, self-employed with the help of household members, freelance workers in agriculture, freelance workers in non-residents). agriculture, unpaid family workers). Region is the province where the respondent lives which is divided into three regions, namely Java & Bali, Sumatra and the Eastern Region. This variable is divided into three categories, namely 0 if the respondent lives in the Eastern Region, 1 if the respondent lives in Java & Bali, 2 if the respondent lives in Sumatra.

The location of the area is the respondent's place of residence consisting of villages and cities, divided into two categories, namely 1 if the respondent lives in the city and 0 if the respondent lives in the village. Ownership of Health Insurance is health insurance ownership of respondents consisting of ASKES, ASTEK, health insurance from companies, clinics for employees, private health insurance, JAMKESMAS, JAMKESDA, ASKES SOCIAL, independent insurance) divided into two categories namely 1 if the respondent has insurance health and 0 if respondent doesn't have health insurance.

Economic status in the proxy uses

per capita expenditure (PCE). The household expenditure of the respondent for a month is calculated from the total expenditure of the respondent's household divided by the number of household members. Furthermore, after the figure is known, then it is divided into five groups, namely the bottom 20% (very poor) to top 20% (very rich). divided into 5 categories, namely 0 if quantile 1 (very poor), 1 if quantile 2 (poor), 2 if quantile 3 (intermediate), 3 if quantile 4 (rich), 4 if quantile 5 (very rich). History of Chronic Disease is respondent's data regarding if in the last five years the respondent has been diagnosed by a health worker of the following diseases: hypertension, stroke, asthma, cancer, diabetes, tuberculosis hypertension, chronic lung disease, liver, arthritis, gout, heart, kidney failure. divided into two categories, namely 0 if the respondent has a chronic disease and 0 if not.

Health Perception is the respondent's view of the health condition he feels during the interview. It is divided into two, namely 0 if the respondent considers himself very healthy, healthy and 0 if sick (unhealthy, sick). Smoking habits are respondents who have the habit of smoking tobacco using a pipe, smoking self-rolled tobacco, or smoking cigarettes/cigars, divided into two categories, namely 0 if the respondent has a smoking habit and 0 if the respondent does not. Nutritional Status in the state of the body as a result of food consumption and absorption can be measured by weight and height by calculating the Body Mass Index (BMI), divided into four categories, namely 0 if the respondent is thin (bmi <18.5), 1 if the respondent is normal (bmi 18.5 -22), 2 if the respondent is fat (bmi 23 -24.99), 3 if the respondent is obese (bmi >25).

Statistical software SPSS 23 was used to analyze data. Data were analyzed descriptively and analytically. Methods of analysis include univariate/descriptive analysis, bivariate analysis using chi-square test with significance levels of $p < 0.05$ and confidence interval (CI) of 95%, and multivariate analysis using multiple logistic regression test.

This study has been approved by the Ethics Review Center of the Faculty of Public Health, Sriwijaya University, with the ethical qualification letter Number 105/UN9.1.10/KKE/2018.

RESULTS

This study found that 4.2% of the elderly respondents used inpatient healthcare services. Most of them had lesser educational backgrounds, weremarried, had occupations in informal sectors, resided in Bali and Java, resided in rural areas, and did not have health insurance. Also, they were mostly of the lowest economic status, did not have a history of chronic diseases, were sick, had smoking habits, had a normal nutritional status. Table 1 shows respondents' characteristics.

Table 2 displays the results of the bivariate analysis on the correlation between the elderly's utilization of inpatient care and the independent variables. We used chi-square to see association between dependent variable and independent variable. We found that the variables having an association with the elderly's utilization of inpatient care utilization were sex, location, region (Sumatera), educational background (middle-high), economic status, nutritional status (obesity), health perception, health insurance, history of chronic disease, and smoking habits.

The multivariate analysis identified the predictor of the elderly's utilization of inpatient health services. Table 3 shows the final model used multiple logistic regression from the factors that contribute to the elderly's utilization of inpatient care. We can show that females had higher risk for inpatient care utilization than male subjects.

Females have probability 1.32 times to utilize inpatient care.

Location was a factor that was found to significantly influence the elderly's utilization of inpatient care. Urban area residents had a higher chance of using inpatient care than rural area residents. Respondents who lived in urban have probability 1.45 times to utilize inpatient care. Health insurance was also found to be a significant factor affecting the elderly's utilization of inpatient care. Those with health insurance were more likely to use inpatient care. Respondents who have health insurance have probability 2.20 times to utilize inpatient care.

Household economic status is another factor significantly impacting the elderly's utilization of inpatient care. The higher their status, the higher the chances for them to utilize inpatient care. Those in the very rich tier were the most likely to utilize inpatient care. Respondents who have high economic status have probability 4.37 times to utilize inpatient care.

Another significant factor for utilization of inpatient care was history of chronic diseases. The elderly population with a history of chronic diseases were more prone to utilizing inpatient care than those without chronic diseases. Respondents who have history of chronic disease have probability 2.18 times to utilize inpatient care.

The elderly with unhealthy perceptions were less likely to utilize inpatient care than those with healthy perceptions. Healthy perceptions significantly influenced the elderly's utilization of inpatient care. Lastly, it was less probable for smokers to utilize inpatient care than non-smokers.

Table 1. Characteristics of respondents

Variable	n=5.325	%
Inpatient visit		
Yes	222	4.2
No	5,103	95.8
Sex		

Variable	n=5.325	%
Female	2,274	42.7
Male	3,051	57.3
Education		
Low	4,239	79.6
Middle	900	16.9
High	186	3.5
Married status		
Married	3,777	70.9
Others	1,548	29.1
Job		
Formal	663	12.5
Informal	4,662	87.5
Region		
Sumatera	1,020	19.2
Java & Bali	3,513	66
East region	792	14.9
Area location		
Urban	2,535	47.6
Rural	2,790	52.4
Health insurance ownership		
Yes	2,298	43.2
No	3,027	56.8
Economic status		
Poorest	1,473	27.7
Poor	1,131	21.2
Middle	996	18.7
Rich	843	15.8
Richest	882	16.6
Chronic disease		
Yes	525	9.9
No	4,800	90.1
Health perception		
Healthy	1,785	33.5
Sick	3,540	66.5
Smoking habit		
Yes	2,751	51.7
No	2,574	48.3
Nutritional status		
Thin	984	18.5
Normal	2,364	44.4
Fat	816	15.3
Obesity	1,161	21.8

Table 2. Bivariate Analysis of Inpatient Visit

Variables	Inpatient Visit		PR	95% CI		
	Yes %	No %		Lower	Upper	
Sex						
Female	5.0	95.0	1.42**	1.09	1.83	
Male	3.5	96.5	1			
Education						
Low	3.7	96.3	1			
Middle	5.7	94.3	1.57***	1.14	2.17	
High	8.1	91.9	2.29***	1.32	3.98	
Marriage Status						
Married	4.1	95.9	0.91	0.69	1.20	
Others	4.5	95.5	1			
Occupation						
Formal	5.0	95.0	1.23	0.86	1.76	
Informal	4.1	95.9	1			
Region						
Sumatera	6.2	93.8	2.42***	1.46	3.99	
Java & Bali	3.9	96.1	1.50	0.94	2.93	
Eastern area	2.7	97.3	1			
Area Location						
Urban	5.4	94.6	1.81***	1.39	2.36	
Rural	3.0	97.0	1			
Health Insurance Ownership						
Yes	6.1	93.9	2.29***	1.75	2.99	
No	2.7	97.3	1			
Economic Status						
Poorest	1.6	98.4	1			
Poor	3.7	96.3	2.33***	1.40	3.87	
Middle	3.6	96.4	2.26***	1.34	3.82	
Rich	5.0	95.0	3.17***	1.90	5.27	
Richest	8.8	91.2	5.18***	3.68	9.33	
History of Chronic Disease						
Yes		10.9	89.1	3.16***	2.37	4.21
No	3.4		96.6	1		
Health Perception						
Sick	3.4		96.6	0.59***	0.46	0.77
Healthy	5.7		94.3	1		
Smoking Habit						
Yes	3.4		96.6	0.67***	0.52	0.88
No	5.0		95.0	1		
Nutritional Status						
Thin	3.0		97.0	0.92	0.60	1.41
Normal	3.3		96.7	1		
Fat	4.4		95.6	1.35	0.90	2.02
Obese	6.7		93.3	2.11***	1.53	2.91

*p<.05; **p<.01; ***p<.001

Table 3. Multivariate analysis of factors affecting inpatient care utilization among the elderly

Variables	Sig.	Exp(B)	95% C.I	
			Lower	Upper
Sex (Male)				
Female	0.152	1.32	0.90	1.94
Region (East Region)				
Java & Bali	0.135	1.44	1,89	2,32
Sumatera	0.001	2.37	1.42	3.97
Area Location (Rural)				
Urban	0.015	1.45	1.07	1.95
Insurance (No)				
Yes	0.000	2.20	1.64	2.94
Economic status (Poorest)				
Poor	0.004	2.20	1.64	3.94
Middle	0.003	2.19	1.29	3.71
Rich	0.000	2.57	1.53	4.32
Very Rich	0.000	4.37	2.70	7.06
Chronic Diseases (No)				
Yes	0.000	2.18	1.55	3.05
Health perception (healthy)				
Poor	0.015	0.70	0.53	0.93
Smoking habit(No)				
Yes	0.252	0.80	0.54	1.17

DISCUSSION

We found that 4.2% of participants utilized inpatient care. Those with chronic diseases tend to utilize more healthcare services with the intention to be cured (Nafiu et al., 2011). In other words, the older an individual is, the higher their risk for chronic disease (Boyd and Fortin, 2010). Most of the elderly population who did utilize inpatient care were female, resided in Sumatera and urban areas, had middle-high educational backgrounds, had occupations in the informal sector, had a high income, had health insurance, had health perceptions, had a history of chronic diseases, were obese, and were not smokers.

This study's analysis indicated that elderly women utilized inpatient care more than elderly men. This was consistent with results from previous studies (Dias, Severo and Barros, 2008). Elderly women were prone to having worse health than elderly men (Gong, Kendig and He, 2016). Obese

females used inpatient care more than males (Vals, Kiivet and Leinsalu, 2013). Regional differences may also affect the elderly's inpatient care utilization. Varying regional population densities, disease endemics, degrees of trust, and government policies are all possible contributors. Elderly residents in urban areas were more likely to utilize inpatient care. This can be attributed to easier access (Vals, Kiivet and Leinsalu, 2013). Urban area residents were more likely to have health insurance than rural residents. As a result, utilization of inpatient care would be more common in urban areas in comparison with rural areas (Liu et al., 2007).

Elders with health insurance have a higher possibility of using inpatient care. This finding was similar to that in previous studies (Kim and Lee, 2016). The elderly population who do not have health insurance and are of middle-low economic status may pass over inpatient care even when needed (Insaf, Jurkowski and Alomar, 2010). Inpatient care is relatively expensive when compared to

outpatient care, which could delay the uninsured elderly's utilization of it (Thabrany, 2003).

Economic status was found to be the primary predictor in determining the elderly's utilization of inpatient care. Those of the highest economic status were also the most likely to utilize inpatient care. A number of other studies had similar results (Thabrany, 2003; Insaf, Jurkowski and Alomar, 2010; Kim and Lee, 2016). Utilization of healthcare was not only influenced by health factors, but also by economic status, which is what allows the elderly to utilize inpatient care (Stein et al., 2012). Income is another direct contributor to utilization of inpatient care. The higher an individual's income, the higher their chances of inpatient care utilization. Inpatient care's expensive cost in comparison with outpatient care may explain this (Lu et al., 2007).

The elderly with a history of chronic diseases were more likely to utilize inpatient care. This finding was in line with those in other studies (Liu et al., 2007; Kim and Lee, 2016; Nafiu et al., 2011). Having a history of chronic diseases may impact daily life activities, such as bathing, walking, or dressing, which could encourage inpatient care utilization (Zacharias et al., 2005; Schafer and Ferraro, 2007). Other studies found that those with chronic diseases, a lower economic status, and lacking health insurance are likely to utilize inpatient care (Blackwell et al., 2009). The elderly with sick perception were less likely to utilization inpatient care. This was consistent with results from other studies (Exavery, 2010; Gong, Kendig and He, 2016). Through interviews, elderly respondents with chronic diseases and health perceptions confirmed they had a history of using inpatient care (Onyeneho et al., 2016). Smoking habits were another influential factor on the elderly's utilization of inpatient care. According to this study's results, the elderly smokers were less likely to use inpatient care. This result was in line with findings in other studies (Sari et al., 2017). Lung cancer

is known as the most common, dangerous chronic disease caused by smoking. Lung cancer patients were found to have the longest average inpatient stays (43 days), with 22 years being the longest history of smoking (Ross, Trung and Phu, 2007). Over half of the respondents had quit smoking due to worsening health conditions. Those who had quit smoking by the time of the interview had utilized more inpatient care than respondents who still smoked (Baha and Le Faou, 2010).

CONCLUSION

We found that 4.2% elderly utilized inpatient care. Elderly living in Sumatera, urban, health insurance ownership, economic status, having chronic disease and poor health perception had association with the elderly's utilization of inpatient care utilization. High economic status would increase inpatient care utilization. It is expected that the government would ensure that elderly could own health insurance for helping them to access healthcare.

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