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Health Center Utilization among the Elderly in the East Java Province

Hario Megatsari✉[1)], Nurhasmadiar Nandini[2)], Agung Dwi Laksono[3)]

[1] Faculty of Public Health, Universitas Airlangga Surabaya, East Java Indonesia
[2] Faculty of Public Health, Diponegoro University, Semarang, Central Java Indonesia
[3] National Research and Innovation Agency Jakarta Indonesia
✉Email: hario.megatsari@fkm.unair.ac.id

ABSTRACT

Background: According to WHO, the elderly is one of the vulnerable groups apart from children and pregnant women. This study aims to analyze the factors related to health center utilization among the elderly in East Java. Methods: This study analyzed secondary data from the Indonesia Basic Health Survey 2018. Using the stratification method and multistage random sampling, this study recruited 25,034 elderly people in East Java as samples. In addition to health center utilization as the dependent variable, residence, age, gender, marriage, education, occupation, socioeconomics, insurance, and travel time to a health center were analyzed as independent variables. Data were analyzed using binary logistic regression. Results: The results found that age was related to health center utilization. Elderly men had 0.874 times more probability than elderly women to use health centers (OR 0.874; 95% CI 0.869-0.879). Marital, education, occupation, and socioeconomic, were also found to be significantly related to health center utilization. The elderly who had health insurance managed by the government had a 1.883 times higher probability than the elderly who did not have health insurance to make use of health center services, while other types of insurance had a lower probability. Based on the travel time to health centers, the elderly who had a travel time of 10 minutes or less were 1.099 times more likely than the elderly who had a travel time of >10 minutes to use health centers (OR 1.099; 95% CI 1.094-1.105). Conclusion: Seven variables had a relationship with health center utilization among the elderly in East Java; age, gender, marriage, education, occupation, insurance, and travel time to health centers. Policymakers can use the research results to determine specific targets to accelerate the increase in health center utilization for the elderly in East Java.

***Keywords**: Elderly, Health center, Health services, Utilization of health services, Utilization of health center.*

INTRODUCTION

Health centers are places of primary healthcare that provide health services for the community and individuals. In their role of providing health services for individuals, health centers are the initial gate of health services or gatekeepers in formal health services. As gatekeepers, health centers act as first-level health facilities whose role is to provide optimal basic health services following standards (Anita, Febriawati and Yandrizal, 2019). To improve the welfare and quality of life of the elderly, quality and comprehensive services are urgently needed starting from health centers as first-level health facilities. The fulfillment of healthcare needs for the elderly is strongly influenced by the availability of health resources, adequate equipment to support programs, government policies, and other factors. Therefore, improving access to health services has become an important public policy goal for several decades (Rahayu, 2020) (Laksono, Nantabah and Wulandari, 2019; Massie, 2019).

The elderly population is one of the vulnerable social groups because they generally have lower body resistance than the adult age group. In addition, the World Health Organization (WHO) stated that the number and proportion of the population with the elderly or the population over 60 years have begun to show an increase. In 2019, there were

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around 1 billion people aged 60 years and over. This figure was expected to continue to increase in the following year. The WHO estimated that the number of people aged over 60 years would increase in 2030 to around 1.4 billion people and 2.1 billion in 2050. This increase would continue, especially in developing countries (World Health Organization, 2017). Meanwhile, according to Statistics Indonesia, in 2021, there were eight provinces that entered the old population structure, which was, the percentage of the elderly population was greater than 10%. The eight provinces were Special Region of Yogyakarta (15.52%), East Java (14.53%), Central Java (14.17%), North Sulawesi (12.74%), Bali (12.71%), South Sulawesi (11.24%), Lampung (10.22%), and West Java (10.18%) (BPS, 2021b).

As age increases, it will cause the body to experience a decline due to the aging process; almost all organ and movement functions will decrease and be followed by a decrease in the immune system. This causes the elderly population to be a group of people who are vulnerable to disease. Several problems of decreasing physical ability in the elderly include a decrease in the function of the musculoskeletal system, nervous system, cardiovascular system, and respiratory system. The decrease in some of these body systems lowers the ability to do physical activity in the elderly population (Purnama and Suhada, 2019; Syarifah and Sugiharto, 2021). Previous research in West Java showed that 77.6% of the elderly had moderate physical activity levels, and 15.5% of the elderly had low physical activity levels. These results indicate that the elderly population has quite a hard time carrying out high physical activity.

In addition to experiencing physical health problems, the elderly population is also vulnerable to mental health problems. Research in South Lampung Regency showed that most of the elderly who experienced physical health problems also experienced mental health problems such as stress due to physical health problems. Therefore, the elderly population, especially those who have experienced physical health problems, need optimal health services to deal with their health problems and support from their closest family (Bangsawan, Al Murhan and Widodo, 2017). Generally, the elderly tend to have no control over decision-making in the family for themselves. Previous research in India also stated that some elderly people tended to lack support from their families, and their health was not a priority in their families. Especially because of the high migration rate of the young population, other family members tend to pay less attention to the health status of the elderly because it is not a top priority in the family (Jadhav, 2020).

According to the World Health Assembly, the national health system in force in a country states that health services for the elderly should be provided with primary health facilities. All levels of society have the right to get the health services they need (Jadhav, 2020). The elderly population has special health and social problems and also requires specific health services. Health services are expected to meet the infrastructure needed to provide health services to the elderly population (Smith, 2016). Previous research stated that only around 54% of the elderly population utilized free basic health services. Others had never used free basic health services and chose to self-medicate if they felt they could not access health services (Massie, 2019). The results of other studies stated that there were various obstacles that reduced the ability of the elderly population to access health services, such as socioeconomic status, geographic location of residence and so on (Laksono, Nantabah and Wulandari, 2019). There needs to be special attention related to access of the elderly population to quality primary health services, especially in preventive and promotive efforts to improve the health status of the elderly population (A. Sri S., Vinsur and Sutiyarsih, 2019). Elderly people in East Java Province with health complaints still have not made optimal use of the existence of health centers in their area, which was only about 14%; this was illustrated in a report from Statistics Indonesia entitled Statistics of the Elderly Population 2021 (BPS, 2021b). Based on the background description above, the research aims to analyze the factors related to health center utilization among the elderly in East Java.

METHODS

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This study used secondary data from the Indonesian Basic Health Survey 2018. The survey was a national-scale cross-sectional survey conducted by the Ministry of Health of the Republic of Indonesia. The research population was all elderly (≥ 50 years) in Indonesia (Wulandari *et al.*, 2019). This study described 25,034 respondents as a weighted sample through stratification and multistage random sampling. Data were collected through face-to-face interviews with the elderly or caregivers.

This study used health center utilization as a dependent variable. This variable was defined as the elderly's access to health centers, both outpatient and inpatient. Outpatients were limited to the last month before the survey, while inpatients were limited to the last year before the survey. With these time limits, it was expected that respondents could remember the events of outpatient and inpatient correctly (Balitbangkes Kemenkes RI, 2019).

This study used nine factors as independent variables including type of residence, age, gender, marital status, education level, occupation type, socioeconomic status, health insurance ownership, and travel time to health centers.

This study divided the residence type into two categories: urban and rural. The urban-rural categorization was based on the provisions of the Central Statistics Agency. Age was determined based on the last birthday. Gender was divided into male and female. Marital status was classified into three groups: never married, married, and widowed. The education level was categorized into four levels: never attended school, primary education (elementary school-junior high school), secondary education (senior high school), and tertiary education. Occupation type was categorized into six: unemployed, civil servants/national armed forces/national police/state-owned corporation/regionally-owned corporation, employees, entrepreneurs, farmers/fishers/laborers, and others.

The socioeconomic level was determined based on the wealth index formula. The wealth index was determined based on a weighted average of overall family expenses. It was calculated using major household expenses such as health insurance, food, accommodation, and other items. The income index was classified into five categories: poorest, poor, middle, rich, and richest (Wulandari *et al.*, 2022).

Health insurance ownership was categorized into four types: having no insurance, having government-managed insurance, having private insurance, and having both insurance types (government-managed and private). Travel time to health centers consisted of two categories: ≤ 10 minutes and > 10 minutes.

Data Analysis

In the early stages, the Chi-Square test was used to make bivariate comparisons. Then, the collinearity test was used to ensure that the independent variables in the final regression model did not have a strong relationship with each other. Lastly, binary logistic regression was used to examine the multivariable relationship between all independent variables and the health center utilization. The IBM SPSS 22.0 application was used for the entire statistical analysis process.

This study also used ArcGIS 10.3 (ESRI Inc., Redlands, CA, USA) to map the health center utilization among the elderly in East Java based on district/city in 2018. The Central Bureau of Statistics provided an administrative border polygon shapefile for this study.

Ethical Approval

The National Ethics Committee has approved the ethical feasibility of the Basic Health Research Ethics 2018 (Number: LB.02.01/2/KE.024/2018). All respondent identities have been removed from the dataset.

RESULTS

The results of the analysis found that the health center utilization of the elderly in East Java in 2018 reached 6.9%. Furthermore, Figure 1 illustrates the distribution map of the health center utilization among the elderly based on districts/cities in East Java. It can be seen that the distribution pattern was random. No spatial pattern or trend was found based on the map.

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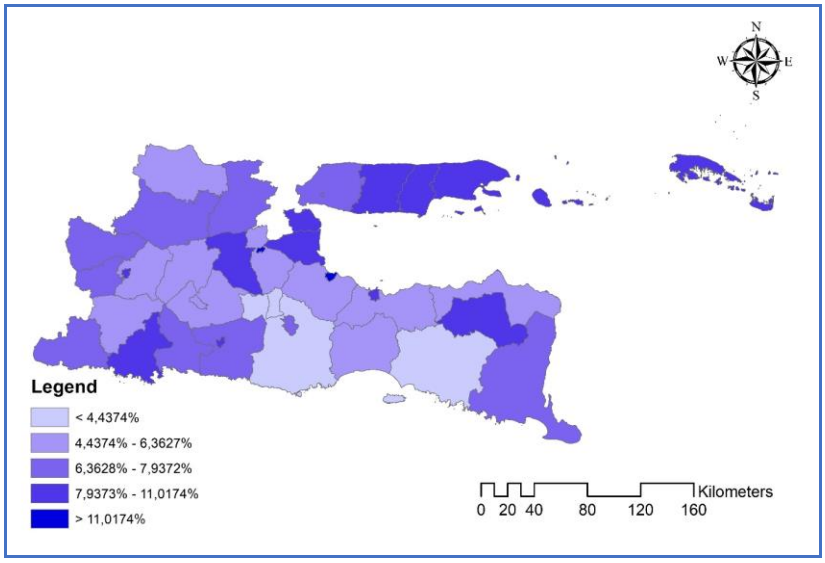

Figure 1. Distribution map of health center utilization among the elderly based on district/city in East Java, 2018.

Table 1 is the descriptive statistic of the health center utilization among the elderly in East Java. Based on the place of residence, there were slightly more elderly people living in rural areas than those living in urban areas, both in groups that utilize and did not utilize health centers. Bivariate, the relationship between these two variables was not significantly related. In general, there were five regencies/cities that had a high enough percentage in terms of health center utilization among the elderly, namely Mojokerto City (15.6%), Pasuruan City (13.5%), Blitar City (11%), Probolinggo City (10.3%), and Sampang Regency (10.3%). Meanwhile, districts with low percentages were Batu City (3.2%), Malang Regency (3.6%) and Jember Regency (4.4%).

Table 1. Descriptive Statistics of Health Center Utilization among the Elderly in East Java, Indonesia, 2018 (n=25,034)

Characteristics of the Elderly	Health Center Utilization		*p-value*
	Did Not Utilize (n=23.166)	Utilize (n=1.868)	
Residence			0.351
● Urban	49.8%	49.7%	
● Rural	50.2%	50.3%	
Gender			< 0.001
● Male	47.9%	41.5%	
● Female	52.1%	58.5%	
Age (average)	(61.39)	(62.78)	< 0.001
Marital Status			< 0.001
● Never married	1.3%	0.8%	
● Married	72.6%	68.9%	
● Widowed	26.2%	30.3%	
Education Level			< 0.001
● Never attended school	20.3%	21.5%	
● Elementary school-junior high school	64.1%	70.0%	
● Senior high school	10.4%	6.3%	
● Tertiary education	5.2%	2.2%	
Occupation Type			< 0.001

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Characteristics of the Elderly	Health Center Utilization		*p-value*
	Did Not Utilize (n=23.166)	Utilize (n=1.868)	
● Unemployed	30.6%	39.2%	
● Civil servants/national armed forces/national police/state-owned corporation/regionally-owned corporation	2.8%	1.6%	
● Employee	4.1%	2.6%	
● Entrepreneur	14.9%	15.9%	
● Farmer/fisher/laborer	43.2%	37.0%	
● Others	4.5%	3.7%	
Socioeconomic Status			< 0.001
● Poorest	25.6%	27.3%	
● Poor	20.4%	22.2%	
● Middle	17.2%	19.3%	
● Rich	18.6%	18.1%	
● Richest	18.2%	13.0%	
Insurance Ownership			< 0.001
● No insurance	36.0%	24.1%	
● Government insurance	61.8%	75.5%	
● Private insurance	1.6%	0.4%	
● Government + private insurances	0.6%	0.1%	
Travel Time to the Health Center			< 0.001
● ≤ 10 minutes	52.2%	53.9%	
● > 10 minutes	47.8%	46.1%	

Based on gender, elderly women dominated both health center utilization groups. Meanwhile, based on marital status, married elderly also dominated both health center utilization groups.

Table 1 shows that the elderly with elementary-junior high school education levels dominated both health center utilization groups. Based on occupation, the elderly who worked as farmers/fishers/laborers dominated the group that did not utilize health centers, while the elderly who did not work dominated the groups that utilized health centers.

Based on socioeconomic status, the poorest elderly dominated both health center utilization groups. Meanwhile, the elderly with government-managed insurance dominated both health center utilization groups. Furthermore, the elderly with a travel time of ≤ 10 minutes to health centers were also found to dominate both health center utilization groups.

The collinearity test of the health center utilization among the elderly in East Java showed that all independent variables did not have a strong relationship with each other. The tolerance value was more than 0.10 for all variables, and the variance inflation factor (VIF) value was less than 10.00 for all factors simultaneously. Based on the decision-making test, it can be stated that the regression model did not have multicollinearity symptoms.

Table 2 shows the binary logistic regression results of the health center utilization among the elderly in East Java. The analysis in this final stage used 'not utilizing health centers' as a reference.

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Table 2. Binary logistic regression of health center utilization among the elderly in East Java, Indonesia, 2018 (n=25,034)

Predictor	Utilizing Health Centers			
	p-value	OR	95% *Confidence Interval*	
			Lower Limit	Upper Limit
Age	**< 0.001	1.009	1.009	1.009
Gender: Male	**< 0.001	0.874	0.869	0.879
Gender: Female	-	-	-	-
Marital: Never Married	**< 0.001	0.761	0.740	0.782
Marital: Married	**< 0.001	1.040	1.034	1.047
Marital: Widowed	-	-	-	-
Education: Never Attended School	-	-	-	-
Education: Elementary-Junior High School	**< 0.001	1.105	1.098	1.112
Education: Senior High School	**< 0.001	0.622	0.614	0.630
Education: Tertiary Education	**< 0.001	0.408	0.400	0.417
Occupation: Unemployed	-	-	-	-
Occupation: Civil servants/National Armed Forces/National Police/State-Owned Corporation/Regionally-Owned Corporation	**< 0.001	1.071	1.046	1.096
Occupation: Employee	**< 0.001	0.814	0.801	0.827
Occupation: Entrepreneur	*0.013	0.990	0.982	0.998
Occupation: Farmer/fisher/laborer	**< 0.001	0.688	0.683	0.692
Occupation: Others	**< 0.001	0.764	0.754	0.775
Socioeconomic: Poorest	-	-	-	-
Socioeconomic: Poor	**< 0.001	1.018	1.011	1.025
Socioeconomic: Middle	**< 0.001	1.059	1.051	1.067
Socioeconomic: Rich	**< 0.001	0.957	0.950	0.965
Socioeconomic: Richest	**< 0.001	0.779	0.772	0.786
Insurance: None	-	-	-	-
Insurance: Government-Managed	**< 0.001	1.883	1.872	1.894
Insurance: Private	**< 0.001	0.527	0.508	0.548
Insurance: Both (government and private)	**< 0.001	0.305	0.281	0.332
Travel time: ≤ 10 minutes	**< 0.001	1.099	1.094	1.105
Travel time: > 10 minutes	-	-	-	-

Notes: *Significant at level < 0.05; **Significant at level < 0.001

Table 2 indicates that age is related to the health center utilization among the elderly in East Java. Based on gender, male elderly were 0.874 times more likely than female elderly to utilize health centers (OR 0.874; 95% CI 0.869-0.879).

Based on marital status, the elderly who were never married had 0.761 times the probability of utilizing health centers (OR 0.761; 95% CI 0.740-0.782). Meanwhile, married elderly were 1.040 times more likely than widowed elderly to utilize health centers (OR 1.040; 95% CI 1m034-1.047).

Table 2 shows that the elderly who graduated from elementary-junior high school were 1.105 times more likely than the elderly who had never attended school to utilize health centers (OR 1.105;

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95% CI 1.098-1.112). The elderly who graduated from high school had 0.622 times the probability than the elderly who had never attended school to utilize health centers (OR 0.622; 95% CI 0.614-0.630). Furthermore, the elderly who graduated from tertiary education were 0.408 times more likely than the elderly who had never attended school to utilize health centers (OR 0.408; 95% CI 0.400-0.417).

The results of the analysis showed that the elderly who worked as civil servants/national armed forces/national police/state-owned corporation/regionally-owned corporation had 1.071 times more probability than the elderly who were unemployed to utilize health centers (OR 0.1071; 95% CI 1.046-1.096). Meanwhile, other occupation types of the elderly had a lower probability than those who were unemployed to utilize health centers in East Java.

Based on the socioeconomic level, the poor and middle had a higher probability than the poorest elderly of utilizing health centers. On the other hand, the rich and the richest had a lower probability than the poorest elderly of utilizing health centers.

Table 2 illustrates that the elderly with health insurance managed by the government were 1.883 times were more likely than the elderly who did not have health insurance to utilize health center services (OR 1.883; 95% CI 1.872-1.894). Meanwhile, other types of insurance had lower probabilities of utilizing health centers.

Based on the travel time to health centers, the elderly with a travel time of ≤ 10 minutes had a 1.099 times greater probability than the elderly with a travel time of > 10 minutes to utilize health centers (OR 1.099; 95% CI 1.094-1.105).

DISCUSSION

Based on the analysis results, the age variable became the variable that affected the health center utilization. This result was in line with several existing research, both in Indonesia and outside Indonesia. One of the articles that discussed this age aspect was a study conducted by Kurniawati in 2019 which stated that most respondents (70%) accessed integrated coaching post services in the Kuta Alam health center working area (Kurniawati and Hasanah, 2019). Several studies outside Indonesia also showed the same pattern, one of which was a study conducted by Yang in 2019; the results stated that elderly age was related to accessing health services in China (Yang *et al.*, 2021).

The analysis results found that, based on gender, elderly men had a lower probability than elderly women of utilizing health centers. These results might mean that elderly women were more active and had a positive attitude toward visiting health centers and controlling their health compared to elderly men (Kusmiati, 1999; Rusdiyanti, 2018). The results were also supported by previous research, which stated that gender had a relationship with activeness in visiting health services (Irawan and Ainy, 2018). More women visited non-communicable diseases integrated coaching posts than men (Kurnia, Widagdo and Widjanarko, 2017; Rusdiyanti, 2018).

The study's results informed that marital status was also related to health center utilization. These results were supported by previous studies, which stated that the elderly who were married had a better rate of visits to health centers than the elderly who were not married (Kurnia, Widagdo and Widjanarko, 2017). The married elderly had a higher probability of getting support from their families and partners in accessing health services. Support from the family had 39.58 times more chance to make the elderly actively visit the integrated service posts for the elderly compared to families who did not support it (Gestinarwati, Ilyas and Manurung, 2016). Integrated service posts for the elderly, which are part of the health centers, are also one of the aspects related to the utilization of primary health services in the elderly, hence the utilization of the integrated service post services for the elderly is indirectly associated with the utilization of the health center services.

Furthermore, the education level was significantly related to the health center utilization. The elderly who did not attend school had a lower probability of utilizing health centers than the elderly who did. However, the higher the education of the elderly, the lower their activeness in utilizing health centers compared to the elderly with lower

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education, one of the factors was that the elderly with higher education tended to have a better quality of life than the elderly with lower education (Hidayah *et al.*, 2021). The results of the study were also supported by a previous study which stated that the education level had a relationship with the utilization of health services (Erdiwan, Sinaga and Sinambela, 2020). However, this contradicted the study conducted by Irawan and Ainy (2018), which stated that the education level was not related to the utilization of health services.

The analysis found that the occupation type was related to the health center utilization. The elderly who worked as civil servants/national armed forces/national police/state-owned corporation/regionally-owned corporation had a higher probability of utilizing health centers when compared to the elderly who were unemployed. The results of this study were supported by a previous study, which stated that the elderly who worked tended to visit the non-communicable diseases actively integrated coaching post by 0.251 times compared to the elderly who did not work (Rusdiyanti, 2018). However, the results contradicted a study by Erdiwan, Sinaga and Sinambela (2020), which stated that occupation had no relationship with the utilization of health services. It also contradicted the results of research conducted by Irawan and Ainy (2018) which stated that employment status had no relationship with the utilization of health services at health centers.

The analysis results indicated that the poor and middle had a higher probability than the poorest elderly of utilizing health centers. On the other hand, the rich and the richest had a lower probability than the poorest elderly to utilize health centers. These results were supported by a previous study, which stated that income was related to the utilization of non-communicable diseases integrated coaching posts (Rusdiyanti, 2018). It was also supported by research conducted by Rabbaniyah *et al*. (2019) that the income of the head of the family affected the utilization of health facilities. However, the results contradicted the study conducted by Oktarianita, Sartika and Wati (2021) that income was not related to the health center utilization as a primary service.

The elderly who had health insurance managed by the government had a higher probability than the elderly who did not have health insurance of utilizing health center services. Meanwhile, other types of insurance showed a lower probability of utilizing health services. The results were supported by a study conducted by Napitupulu, Carolina and Rahmawati (2018) that respondents who did not have insurance had a lower chance of utilizing health services than respondents who had insurance. The ownership of health insurance, especially the ownership of government-owned health insurance, would make it easier for people to get health services at a low cost or even free. However, a study by Fatimah and Indrawati (2019), which showed that there was no relationship between insurance ownership and utilization of health services, contradicted the results of the current study. On the other hand, the results related to the lower probability of utilizing health centers by the elderly who had other types of health insurance (not government-run insurance) could be due to the perception of comparison with other health facilities, where they feel that other health facilities were better thus they preferred visiting those health centers (Fatimah and Indrawati, 2019).

The results of the study informed that the elderly who had a travel time of ≤ 10 minutes had a better chance than the elderly who had a travel time of >10 minutes to utilize health centers. The faster the travel time, the more active the elderly were in utilizing health centers. Several things related to travel time included the close distance and ease of access. The easier it was for the community to access health centers both in terms of geography, social, and economy, the better the community would be in utilizing services at health centers (Fatimah and Indrawati, 2019). A study by Bregida, Anwary and Anggraeni (2021) stated that access had a significant relationship with interest in revisiting health centers, both long-distance access and difficult transportation. The results of the study contradict the study conducted by Kurnia, Widagdo and Widjanarko (2017) that ease of access had no relationship with community visits to health centers. Research conducted by

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Yosa aand Wahyuni (2015) also showed that distance had no relationship with the level of visits to health centers.

From several variables analyzed based on secondary data, this article has confirmed from several previous studies that the factors that strengthened the elderly to access services at health centers were age, gender, marital status, education level, type of work, insurance ownership, and travel time to health centers. six of the seven variables mentioned above could be classified as internal factors of the elderly, namely age, gender, marital status, education level, type of work and insurance ownership.

This internal factor could be attributed to the fact that East Java Province was a province with a relatively high Human Development Index (HDI) (BPS, 2021a). Meanwhile, one other factor was an external factor from the elderly, namely the travel time to health centers.

CONCLUSION

Based on the study's results, it can be concluded that there were seven variables related to health center utilization among the elderly in East Java. The seven variables were age, gender, marital status, education level, occupation type, insurance ownership, and travel time to health centers.

Policymakers can use the results of this study as specific targets to accelerate the increase in health center utilization among the elderly in East Java. Program managers at health centers related to the elderly can develop innovations so that the elderly are comfortable and have easier access when utilizing health centers. On the other hand, further research can be done with a qualitative approach to explore the reasons for the reluctance of the elderly who do not utilize health centers.

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