Original Research

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FACTORS ASSOCIATED WITH THE UTILIZATION OF PUBLIC HEALTH CENTER IN CENTRAL JAVA

Faktor –Faktor yang Berhubungan dengan Pemanfaatan Puskesmas di Jawa Tengah

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Abstract

Background: The Public Health Center (PHC) is a gatekeeper to formal healthcare in Indonesia. PHCs in Central Java have met the basic health facility readiness standard, but there are still numerous challenges to increasing the utilization of PHCs.
Aims: This study aimed to analyze the factors related to the utilization of PHC in Central Java.
Methods: This cross-sectional study used secondary data from the 2018 Indonesia Basic Health Research, with 63,118 total samples. The independent variables were residence, age, gender, marital status, education, insurance, and socioeconomic, while the dependent variable was the utilization of PHC. The data were analyzed using a binary logistic regression.
Results: The average rate of utilization of PHC in Central Java in 2018 was 5.7%. Those aged 46-65 and >65 years old, women, married and widowers, and those with health insurance had a higher possibility of utilizing PHC. Meanwhile, those who graduated from secondary and tertiary school, the employed and the wealthiest group had a lower possibility of utilizing PHC.
Conclusion: The factors related to the utilization of PHC in Central Java are age group, gender, marital status, education level, working status, health insurance ownership, and socioeconomic status.

Keywords: basic health service, health service access, public health, public health center

Abstrak

Latar Belakang: *Puskesmas merupakan gerbang awal dari pelayanan kesehatan formal pada tingkat lanjut di Indonesia. Jawa Tengah telah memenuhi standar kesiapan fasilitas kesehatan dasar, akan tetapi masih terdapat beberapa tantangan dalam peningkatan pemanfaatan Puskesmas.*
Tujuan: *Penelitian ini bertujuan untuk menganalisis faktor-faktor yang berhubungan dengan pemanfaatan Puskesmas di Jawa Tengah.*
Metode: *Penelitian ini merupakan penelitian cross-sectional menggunakan data sekunder dari Riset Kesehatan Dasar (Riskesdas) 2018, dengan total sampel 63.118 responden .Variabel independen adalah tempat tinggal, umur, jenis kelamin, status perkawinan, pendidikan, asuransi, dan sosioekonomi, sementara variabel dependen adalah pemanfaatan Puskesmas. Analisis data dilakukan menggunakan regresi logistik biner.*
Hasil: *Rata-rata tingkat pemanfaatan Puskesmas di Jawa Tengah pada tahun 2018 adalah sebesar 5,7%. Kelompok umur 46-65 and >65 tahun, perempuan, menikah dan janda/duda, dan memiliki asuransi kesehatan memiliki kemungkinan lebih tinggi untuk memanfaatkan puskesmas. Sementara, mereka yang berpendidikan SLTA, bekerja, dan berada di kelompok paling kaya memiliki kemungkinan lebih rendah untuk memanfaatkan Puskesmas.*
Kesimpulan: *Faktor berkaitan dengan pemanfaatan Puskesmas di Jawa Tengah yaitu umur, jenis kelamin, status perkawinan, tingkat pendidikan, status bekerja, kepemilikan asuransi kesehatan, dan status sosioekonomi.*

Kata kunci*: akses pelayanan kesehatan, kesehatan masyarakat, pelayanan kesehatan dasar, Puskesmas*

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Introduction

Public Health Center (PHC/ Puskesmas) is the first-level health facility widely spread and easily accessible by the community for location and expense. According to the Regulation of the Minister of Health of the Republic of Indonesia Number 75 of 2014, the scope of PHC is at the subdistrict level and it focuses on community health development by prioritizing promotive and preventive efforts.

In the era of the National Health Insurance (NHI/JKN) system, PHC has a vital role as the gatekeeper to formal healthcare (Megatsari, Nandini and Laksono, 2023). PHC becomes the first contact and reference to the higher healthcare facilities using medical service standards (Wuri *et al.*, 2021). Reinforcing the service by providing a comprehensive and qualified primary service (Sari, Zulfendri and Sanusi, 2020), followed by an increase in quality through an accreditation system, is taken to level up the utilization of PHC in the community.

The number of inpatients and outpatients of PHC in Central Java from 2017 to 2018 experienced significant growth (Central Java Provincial Health Office, 2018, 2019). This increasing trend can be seen today and is probably along with the government's efforts to optimally accelerate community health levels in the subdistrict area (Sulaiman, 2021). However, the increasing number of PHC patients does not necessarily indicate the achievement in the coverage of PHC utilization in Central Java. It is because, on the other hand, there were also more than two times increasing numbers of inpatients and outpatients in hospitals and other health facilities (Central Java Provincial Health Office, 2018, 2019). This data showed that people also choose to utilize other health services besides PHC.

In general, the Java region has become a benchmark for the distribution of good quality health services. Central Java meets the basic health facility readiness standard and has better knowledge scores than East Java, West Java, Sumatra, Sulawesi, and Lesser Sunda Islands (Haemmerli *et al.*, 2021). However, this province still faces problems related to the disparity of public health facilities regarding the equitable distribution of PHCs in several districts (Wulandari *et al.*, 2023). Furthermore, numerous obstacles and challenges have been observed in PHC utilization, such as in transportation, socioeconomic factors (Laksono, Nantabah and Wulandari, 2018), and a high number of dissatisfied patients with the service (Wulandari, Ridho, *et al.*, 2019). Health-related utilization cannot be achieved only with high-quality primary services alone but is also related to the individual and the social environment factors (Chotchoungchatchai *et al.*, 2020).

For this reason, this study aimed to analyze the factors related to the utilization of PHC in Central Java Province. Research on factors related to PHC utilization in Indonesia has been carried out many times before (Mulyanto, Kringos and Kunst, 2019; Wulandari and Laksono, 2019). Even so, this article can still provide new information and complement the previous research's findings regarding PHC utilization in Central Java. This article used secondary data from a national-scale survey to provide a more comprehensive representation of the conditions at the provincial level. Therefore, this article can contribute to enriching information concerning the utilization of PHC services in Central Java.

Method

Study Design and Data Source

This research was a cross-sectional study using secondary data from the 2018 Basic Health Research (Riskesdas), a national survey conducted by Ministry of Health Republic of Indonesia. It collected the data from May to July 2018 through instrumental interviews of households and individuals. The 2018 Basic Health Research had a scope on the Indonesian household. The sample framework in this survey used the National Socioeconomic Survey conducted by the Central Agency on Statistics (BPS) in March 2018. The 2018 Basic Health Research visited the targeted samples of 300,000 households from 30,000 census blocks in the

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Socioeconomic Survey 2018 (National Institute of Health Research and Development of the Ministry of Health of the Republic of Indonesia, 2019). The population of this research was all adults (≥15 years old) in Central Java. It investigated 63,118 respondents as the average sample.

Dependent Variable

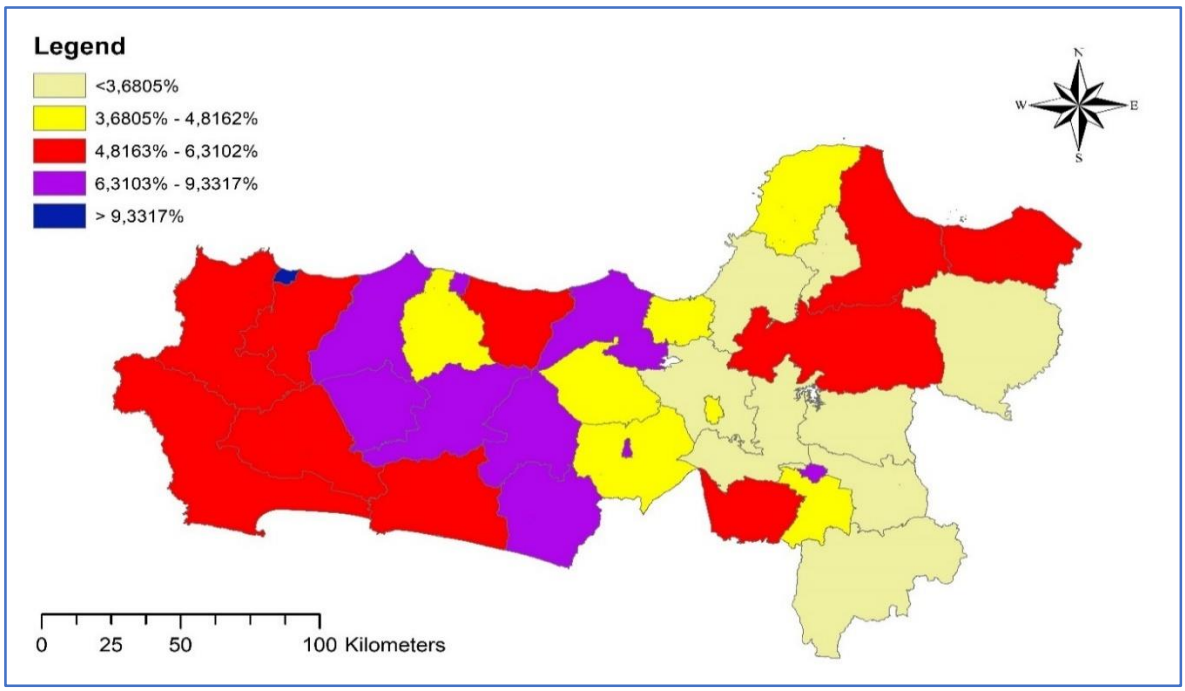
This research employed the utilization of PHC as the dependent variable. It is adult access to PHC, either outpatient or inpatient. Outpatients are limited to the range of one month, while inpatient is limited to one year. With these time limits, the respondents are expected to remember the schedule well (National Institute of Health Research and Development of the Ministry of Health of the Republic of Indonesia, 2019).

Independent Variable

This research used eight independent variables: residence, age group, gender, marital status, education level, working status, health insurance ownership, and socioeconomic status. The residence was classified into two categories: urban and rural, according to the Central Agency on Statistics. The age group was divided into ≤25 years old, 26-45 years old, 46-65 years old, and >65 years old. Gender consisted of two categories: men and women. Marital status was categorized into three: unmarried, married, and widowed.

This study defined the respondents' education as the admission of their last education certificate. There were four education levels: no school, primary-middle, secondary, and tertiary. Working status was divided into two: unemployed and employed. This survey was also categorized into having and not having health insurance ownership.

The 2018 Basic Health Research used the wealth index pattern to identify socioeconomic status. It was accounted for using the average household outcome in total. It used the household outcome in the form of health insurance, food, and housing. Furthermore, it divided the income index into five categories of socioeconomic status: poorest, poor, middle, wealthy, and wealthiest (Wulandari, Qomarrudin, *et al.*, 2019; Wulandari *et al.*, 2022).



Source: National Institute of Health Research and Development of Ministry of Health Republic of Indonesia (2019)

Figure 1. Distribution map of PHC utilization in Central Java 2018

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Table 1. Descriptive statistics on the utilization of PHC and the respondent characteristics in Central Java 2018 (n=63.118)

Demographic Characteristic	Utilization of PHC		p-value
	Unutilized (n=59,490)	Utilized (n=3,628)	
Residence			0.196
Urban	94.9%	5.1%	
Rural	94.6%	5.4%	
Age group			*< 0.001
≤ 25	96.5%	3.5%	
26-45	96.0%	4.0%	
46-65	93.0%	7.0%	
> 65	91.6%	8.4%	
Gender			
Men	96.1%	3.9%	
Women	93.5%	6.5%	
Marital Status			*< 0.001
Unmarried	97.2%	2.8%	
Married	94.5%	5.5%	
Widowed	91.3%	8.7%	
Education Level			*< 0.001
No school	91.1%	8.9%	
Primary-Middle	94.1%	5.9%	
Secondary	96.8%	3.2%	
Tertiary	98.5%	1.5%	
Working Status			*< 0.001
Unemployed	93.5%	6.5%	
Employed	95.4%	4.6%	
Health Insurance			
No	96.6%	3.4%	
Yes	93.9%	6.1%	
Socioeconomic Status			*< 0.001
Poorest	93.8%	6.2%	
Poor	94.2%	5.8%	
Middle	94.7%	5.3%	
Wealth	95.0%	5.0%	
Wealthiest	96.7%	3.3%	

Note: *p< 0.001

Data Analysis

The data were analyzed using the Chi-Square test to get a bivariate comparison. Moreover, it used the collinearity test to ensure the independent variables in the last regression model do not have any strong relations. The last point of the study used binary logistic regression to investigate the multivariate relationships among the independent variables and the utilization of PHC. This study used the IBM SPSS 26 application during the statistical analysis process. The utilization mapping of PHC in Central Java used ArcGIS 10.3 (ESRI Inc., Redlands, CA, USA). The Central Agency on Statistics provided an administrative border polygon shapefile for this study.

Results and Discussion

The analysis showed that the average rate of utilization of PHC in Central Java Province in 2018 was 5.7%. The first picture shows the distribution map of the utilization. It reported that this trend in the west side was lower than in any other area, while higher in the central areas.

Table 1 describes the descriptive statistics of the utilization. The result shows that the proportion in rural areas was less than in urban. While based on the age group, the older they were, the higher the utilization of

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PHC. Based on gender, women tended to have two times higher than men.

Table 1 informs that the widowed had the highest proportion of using PHC. Based on the education level, the higher the level, the smaller the chance to use PHC. For health insurance ownership, those who had one had two times the proportion of those who did not have any in utilizing PHC. Based on socioeconomic status, the higher the status, the lowest the proportion in utilizing PHC.

The result of the collinearity test showed that there was no strong relationship among free variables. The tolerant value for all variables was more significant than 0.10. The variance inflation factor (VIF) value was less than 10.00 for all factors. It can be concluded there were no signs of multicollinearity. Table 2 shows the binary logistic regression using PHC in Central Java Province. The analysis of the last step used it as the reference.

Table 2. Result of binary logistic regression on the utilization of PHC in Central Java 2018

Predictors	Utilization of PHC			
	p-value	AOR	95% CI	
			Below Limit	Upper Limit
Age Group				
≤ 25 (ref.)	-	-	-	-
26-45	0.833	0.984	0.851	1.139
46-65	*<0.001	1.587	1.365	1.844
>65	*<0.001	1.494	1.252	1.783
Gender				
Men (ref.)	-	-	-	-
Women	*<0.001	1.426	1.316	1.546
Marital Status				
Unmarried (ref.)	-	-	-	-
Married	*<0.001	1.552	1.328	1.813
Widowed	*<0.001	1.668	1.375	2.023
Education Level				
No school (ref.)	-	-	-	-
Primary-Middle	0.092	0.904	0.803	1.017
Secondary	*<0.001	0.595	0.510	0.694
Tertiary	*<0.001	0.266	0.200	0.354
Working Status				
Unemployed (ref.)	-	-	-	-
Employed	*<0.001	0.739	0.681	0.803
Health Insurance				
Ownless (ref.)	-	-	-	-
Owned	*<0.001	1.892	1.734	2.064
Socioeconomic Status				
Poorest (ref.)	-	-	-	-
Poor	0.668	0.979	0.887	1.080
Middle	0.114	0.919	0.828	1.020
Wealth	0.059	0.902	0.810	1.004
Wealthiest	*<0.001	0.673	0.591	0.767

Note: AOR: adjusted odds ratio; CI: confidence interval; ref= reference; *p < 0.001.

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Table 2 shows that the age group 46-65 had 1.587 times more probabilities than ≤25 years old (95% CI 1.365-1.844) in using PHC. The age group of >65 years old had a possibility of 1.494 times higher than ≤25 years old (95% CI 1.252-1.783) in using PHC. It was supported by the condition that most of society in Central Java was in the productive age (Central Java Provincial Health Office, 2021). In old age, physical function is impaired; therefore, a high health problem is possible. For diabetics, for instance, most patients were in the age range of 55-74 years old (Ministry of Health of the Republic of Indonesia, 2021).

The same result was found in East Java, showing that older people (>65 years old) used PHC service more than younger (Laksono, Megatsari and Zuardin, 2023). It was also in line with the research in North Carolina, which showed that the average rate of mental health check-up visits in health care every year was by the age group of 50 (Brathwaite *et al.*, 2022).

Based on gender, women had 1.426 probabilities greater than men (95% CI 1.316-1.546) to utilize PHC. In developed countries, such as Indonesia, the health care program was mostly addressed to women, especially for increasing maternal health and decreasing maternal mortality (Chakhtoura *et al.*, 2019). The priority programs for women that were included in the minimum health standard in PHC were as follows: the scope of implementation of early detection of cervical cancer and breast cancer, pregnancy check-ups, childbirth, and family planning programs, including lifestyle monitoring for non-communicable disease control (Ministry of Health of the Republic of Indonesia, 2021). The national data also showed that diabetes prevalence in women was higher than in men (Ministry of Health of the Republic of Indonesia, 2019).

Based on marital status, those who were married and widowed had a higher probability of utilizing PHC than those who were unmarried. Previous research also showed that married working women had more chances to finish four or more pregnancy checks (Denny *et al.*, 2022). Some other health care can be used, such as maternity and postnatal services (Istifa *et al.*, 2021), as well as maternal and child health services (Osaki *et al.*, 2018).

According to the education level, people who graduated from secondary and tertiary school had a lower possibility of utilizing PHC than those who were not in school. This finding contradicted the previous study, where the higher the education that a person had, the higher the possibility of utilizing PHC or any health care (Mulyanto, Kringos and Kunst, 2019).

Several possibilities may explain the results of this study. Tertiary education is associated with better health conditions due to better health knowledge and awareness about health and better critical healthcare behavior. On the other hand, lower education is related to poor health (Raghupathi and Raghupathi, 2020). In addition, the education level influences people's choice to use health services. Those with higher education may choose not to use PHC facilities because they tend to consider the quality and service at PHC to be lower than secondary care (Mulyanto, Kringos and Kunst, 2019).

The employed group had 0.739 lower possibilities than the unemployed group (95% CI 0.681-0.803) to utilize PHC. Other research showed a similar case, stating that mothers and the unemployed community utilized PHC service in most places (Oktarianita, Sartika and Wati, 2021). Generally, outpatient service in PHC was not conducted in an emergency. Therefore, there is a possibility that the employed community will tend to find health services that can be accessed outside working hours. Other research showed that patient's loyalty to the health service correlated with working status. In terms of services provided by health workers, patients who were working have more expectations than those who did not work. Therefore, there is a possibility that those with working status will choose another health service place that can meet their expectations (Cahyani *et al.*, 2021).

Those who owned health insurance had a 1.892 higher possibility of PHC utilization than those who did not have any (95% CI 1.734-2.064). Insurance ownership affects healthcare utilization

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(Wulandari, Laksono and Matahari, 2020), including PHC utilization (Ridwanah, Nugraheni and Laksono, 2022). The poor population with contribution assistance recipients of NHI in remote areas mostly use primary care facilities. In contrast, the population group without contribution assistance recipients of NHI in non-remote locations prefers to go directly to an advanced medical facility (Wenang *et al.*, 2021). Insurance ownership can be a protective factor because it covers risk groups such as pregnant women and the elderly (Wulandari, Laksono and Matahari, 2020; Megatsari, Nandini and Laksono, 2023).

Based on socioeconomic status, the wealthiest group had 0.673 possibilities lower than any other group (95% CI 0.591-0.767) to utilize PHC. In line with the result, previous research informed that a society with a low socioeconomic level tended to have higher PHC utilization than the higher socioeconomic group (Wulandari *et al.*, 2022). PHCs have advantages in terms of low or even no costs, and they can be found in almost every sub-district. Thus, transportation costs are more affordable for all, especially those with lower economic status (Johar *et al.*, 2018). In comparison, the wealthiest group preferred to use secondary care health services (Mulyanto, Kringos and Kunst, 2019) due to better quality of service, good-quality equipment, and longer opening hours (Sokang, Westmaas and Kok, 2019).

Limitation of the Study

The study analyzed big data to represent information at the province level, but on the other hand, it analyzed secondary data. Thus, the accepted variables limited the analyzed factors. Several other characteristics related to the utilization of PHC found in previous studies, such as travel time, travel costs, and type of disease, could not be investigated (Wei *et al.*, 2018; Laksono and Wulandari, 2020; Laksono, Wulandari and Efendi, 2020).

Conclusion

Seven factors related to PHC utilization in Central Java were observed, including age group, gender, marital status, education level, working status, health insurance ownership, and socioeconomic status.

The vulnerable groups dominated the utilization of PHC in Central Java. Insurance ownership has also become one of the factors related to PHC utilization. These results show that PHCs in Central Java have successfully provided an easily accessible health facility to vulnerable groups. However, this study's findings also indicate that the role of the PHC as a gatekeeper has not been maximized because it was only reaching certain groups.

PHC utilization can still be increased by reaching out to these groups: young people and adults, unmarried, male, highly educated, employed, and those at the wealthiest socioeconomic level. Efforts must be made to increase the trust of community groups who did not use the PHC facilities. Several strategies can be implemented, such as increasing the quality and completeness of PHC services and the adequacy of medical personnel at the PHC. It is also crucial to strengthen the PHC role, mainly in a promotive and preventive role.

Abbreviations

PHC: Public Health Center; NHI: National Health Insurance; UHC: Universal Health Coverage; VIF: Variance Inflation Factor.

Declarations

Ethics Approval and Consent Participant

The 2018 Basic Health Research Ethical clearance was obtained from the National Ethics Committee Ministry of Health Republic of Indonesia (Number: LB.02.01/2/KE.024/ 2018). Respondents have been informed about the objective of the research and signed the informed consent to participate in the study. All respondents' identities have been removed from the dataset.

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Conflict of Interest

The authors have no conflict of interest to declare.

Availability of Data and Materials

Data is available by request to the management data laboratory Ministry of Health Republic of Indonesia. The authors, as a third party, have no authorization to reveal data publicly.

Authors' Contribution

MK wrote and edited the manuscript; ADL conceptualized the manuscript and analyzed the data; SP, SS, and AN wrote the manuscript. All authors contributed equally and approved the final version of the manuscript.

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References

Brathwaite, D. *et al.* (2022) 'Age and Sex Trends Among Mental Health-related Emergency Department Visits in North Carolina', *Healthcare Analytics*, 2(January), p. 100056. Available at: https://doi.org/10.1016/j.health.2022.100056.

Cahyani, N.R. *et al.* (2021) 'Correlation of Patient Characteristics and Patient Satisfaction with Patient Loyalty in Public Health Center', *Jurnal Aisyah : Jurnal Ilmu Kesehatan*, 6(3), pp. 427–432. Available at: https://doi.org/10.30604/jika.v6i3.608

Central Java Provincial Health Office (2018) *Health Profile of Central Java Province in 2017*. Semarang.

Central Java Provincial Health Office (2019) *Health Profile of Central Java Province in 2018*. Semarang.

Central Java Provincial Health Office (2021) *Health Profile of Central Java Province in 2020*. Semarang.

Chakhtoura, N. *et al.* (2019) 'Importance of Research in Reducing Maternal Morbidity and Mortality Rates', *Am J Obstet Gynecol*, 221(3), pp. 179–182. Available at: https://doi.org/10.1016/j.ajog.2019.05.050.

Chotchoungchatchai, S. *et al.* (2020) 'Primary Health Care and Sustainable Development Goals', *Bulletin of the World Health Organization*, 98(11), pp. 792–800. Available at: https://doi.org/10.2471/BLT.19.245613.

Denny, H.M. *et al.* (2022) 'The Determinants of Four or More Antenatal Care Visits Among Working Women in Indonesia', *Asia Pacific Journal of Public Health*, 34(1), pp. 51–56. Available at: https://doi.org/10.1177/10105395211051237.

Haemmerli, M. *et al.* (2021) 'Poor Quality for the Poor? A Study of Inequalities in Service Readiness and Provider Knowledge in Indonesian Primary Health Care Facilities', *International Journal for Equity in Health*, 20, p. 239. Available at: https://doi.org/10.1186/s12939-021-01577-1.

Istifa, M.N. *et al.* (2021) 'Analysis of Antenatal Care, Intranatal Care and Postnatal Care Utilization: Findings from the 2017 Indonesian Demographic and Health Survey', *PLoS ONE*, 16(10), pp. 1–13. Available at: https://doi.org/10.1371/journal.pone.0258340.

Johar, M. *et al.* (2018) 'Inequality in Access to Health Care, Health Insurance and the Role of Supply Factors', *Social Science & Medicine*, 213, pp. 134–145. Available at: https://doi.org/10.1016/j.socscimed.2018.07.044.

Laksono, A.D., Megatsari, H., and Zuardin (2023) 'Policy to Accelerate Primary Health Care Usage in East Java: Who

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i2.2023.221-230

is the Target?', *Journal of Southwest Jiaotong University*, 58(1), pp. 341–353. Available at: https://doi.org/10.35741/issn.0258-2724.58.1.26.

Laksono, A.D., Nantabah, Z.K. and Wulandari, R.D. (2018) 'Access Barriers to Health Center for Elderly in Indonesia', *Buletin Penelitian Sistem Kesehatan*, 21(4), pp. 228–235.

Laksono, A.D. and Wulandari, R.D. (2020) 'Predictors of Hospital Utilization among Papuans in Indonesia', *Indian Journal of Forensic Medicine and Toxicology*, 14(2), pp. 2319–2324. Available at: https://doi.org/10.37506/ijfmt.v14i2.3374.

Laksono, A.D., Wulandari, R.D. and Efendi, F. (2020) 'Determinants of Hospital Utilisation among Urban Poor Societies in Indonesia', *International Journal of Innovation, Creativity and Change*, 12(9), pp. 375–387.

Megatsari, H., Nandini, N. and Laksono, A.D. (2023) 'Health Center Utilization among the Elderly in the East Java Province', *Jurnal Promkes: The Indonesian Journal of Health Promotion and Health Education*, 11(1), pp. 26–35. Available at: https://doi.org/10.20473/jpk.V11.I1.2023.26-35.

Ministry of Health of the Republic of Indonesia (2019) *Infodatin: World Diabetes Day 2018*. Kementerian Kesehatan.

Ministry of Health of the Republic of Indonesia (2021) *Indonesia Health Profile 2020*. Kementerian Kesehatan Indonesia.

Mulyanto, J., Kringos, D.S. and Kunst, A.E. (2019) 'Socioeconomic inequalities in healthcare utilisation in Indonesia: a comprehensive survey-based overview', *BMJ Open*, 9(7), p. e026164. Available at: https://doi.org/10.1136/bmjopen-2018-026164.

National Institute of Health Research and Development Ministry of Health of the Republic of Indonesia (2019) *National Report: The 2018 Basic Health Research*. National Institute of Health Research and Development Ministry of Health of the Republic of Indonesia.

Oktarianita, Sartika, A. and Wati, N. (2021) 'Relationship of Employment Status and Income with Utilization of Public Health Center as Primary Services in Public Health Center of Sidomulyo', *Avicenna: Jurnal Ilmiah*, 16(2), pp. 91–96.

Osaki, K. *et al.* (2018) 'Maternal and Child Health Handbook use for Maternal and Child Care: A Cluster Randomized Controlled Study in Rural Java, Indonesia', *Journal of Public Health*, 41(1), pp. 170–182. Available at: https://doi.org/10.1093/pubmed/fdx175.

Raghupathi, V. and Raghupathi, W. (2020) 'The Influence of Education on Health: An Empirical Assessment of OECD Countries for the Period 1995-2015', *Archives of Public Health*, 78(1), pp. 1–18. Available at: https://doi.org/10.1186/s13690-020-00402-5.

Ridwanah, A.A., Nugraheni, E. and Laksono, A.D. (2022) 'The Role of Education Level in the Utilization of Puskesmas on Madura Island, East Java, Indonesia', *Jurnal Keperawatan Indonesia Timur*, 2(1), pp. 8–17.

Sari, F.N., Zulfendri and Sanusi, S.R. (2020) 'Referral Demand of Patients in Pantai Cermin Public Health Center Langkat', *Bio HS Journal*, 2(1), pp. 314–320.

Sokang, Y.A., Westmaas, A.H. and Kok, G. (2019) 'Jakartans' Perceptions of Health Care Services', *Frontiers in Public Health*, 7, p. 277. Available at: https://doi.org/10.3389/fpubh.2019.00277.

Sulaiman, E.S. (2021) *Management and Health: Theory and Practice in Puskesmas (Manajemen Kesehatan: Teori dan Praktik di Puskesmas)*. UGM Press.

Wei, Y. *et al.* (2018) 'Hospital Efficiency and Utilization of High-Technology Medical Equipment: A Panel Data

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i2.2023.221-230

Analysis', *Health Policy and Technology*, 7(1), pp. 65–72. Available at: https://doi.org/10.1016/j.hlpt.2018.01.001.

Wenang, S. *et al.* (2021) 'Availability and Accessibility of Primary Care for the Remote, Rural, and Poor Population of Indonesia', *Frontiers in Public Health*, 9, p. 721886. Available at: https://doi.org/10.3389/fpubh.2021.721886.

Wulandari, R.D., Ridho, I.A., *et al.* (2019) 'Pengaruh Pelaksanaan Akreditasi Puskesmas terhadap Kepuasan Pasien', *Media Kesehatan Masyarakat Indonesia*, 15(3), p. 228. Available at: https://doi.org/10.30597/mkmi.v15i3.6195.

Wulandari, R.D., Qomarrudin, M.B., *et al.* (2019) 'Socioeconomic Disparities in Hospital Utilization among Elderly People in Indonesia', *Indian Journal of Public Health Research and Development*, 10(11), pp. 1800–1804. Available at: https://doi.org/10.5958/0976-5506.2019.03885.3.

Wulandari, R.D. *et al.* (2022) 'Socioeconomic Disparities in Hospital Utilization Among Female Workers in Indonesia: A Cross-Sectional Study', *Journal of Primary Care & Community Health*, I3(2), pp. 1–7. Available at: https://doi.org/10.1177/21501319211072679.

Wulandari, R.D. *et al.* (2023) 'Regional Differences in Primary Healthcare Utilization in Java Region-Indonesia', *PLoS ONE*, 18(3), p. e0283709. Available at: https://doi.org/10.1371/journal.pone.0283709.

Wulandari, R.D. and Laksono, A.D. (2019) 'Urban-Rural Disparity: The Utilization of Primary Healthcare Centers among Elderly in East Java, Indonesia', *JAKI*, 7(2), pp. 147–154. Available at: https://doi.org/10.20473/jaki.v7i2.2019.147-154.

Wulandari, R.D., Laksono, A.D. and Matahari, R. (2020) 'The Effects of Health Insurance on Maternity Care in Health Services in Indonesia', *IJICC*, 14(2), pp. 478–497.