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DETERMINE THE TARGET TO INCREASE PRIMARY HEALTHCARE UTILIZATION IN INDONESIA'S DISADVANTAGED AREAS

Menentukan Target Peningkatan Pemanfaatan Puskesmas pada Daerah Tertinggal di Indonesia

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Abstract

Background: Primary health care (PHC) is the closest institution known to people in disadvantaged areas.
Aims: The study determines the policy target based on the demographic characteristics to increase PHC utilization in a disadvantaged area.
Methods: The cross-sectional research explored 42,644 respondents. In addition to PHC utilization, the study examined eight independent variables: residence, gender, marital, age, wealth, insurance, education, and travel time. We employed a binary logistic regression in the last stage.
Results: Live in urban areas had 1.967 more likely to utilize the PHC (95%CI 1.942-1.992). Males could be 1.412 higher than females (95%CI 1.402-1.421). All marital types had more chances than never married. All education was more likely than no education. The employed had 0.972 less likely than the unemployed (95%CI 0.965-0.980). All wealth groups had less possibility than the poorest. Those with government-run insurance were likelier than other types. The ≤10 minutes travel time was more likely than the >10 minutes.
Conclusion: There were seven policy target characteristics to increase PHC use in disadvantaged areas in Indonesia: live in a rural area, female, never married, have no education, employed, not the poorest, don't have government-run insurance, and have a travel time of more than ten minutes.

Keywords: disadvantaged area, healthcare evaluation, primary health care, public health

Abstrak

Latar belakang: Puskesmas merupakan institusi terdekat yang dikenal masyarakat di daerah tertinggal.
Tujuan: Kajian ini menganalisis sasaran kebijakan berdasarkan karakteristik demografi untuk meningkatkan pemanfaatan Puskesmas di daerah tertinggal.
Metode: Penelitian cross-sectional ini menganalisis 42.644 responden. Selain pemanfaatan Puskesmas, penelitian ini menggunakan delapan variabel independen (tempat tinggal, usia, perkawinan, jenis kelamin, pendidikan, kekayaan, asuransi, waktu perjalanan). Penelitian ini menggunakan regresi logistik biner pada tahap terakhir.
Hasil: Tinggal di daerah perkotaan 1.967 kali lebih mungkin memanfaatkan Puskesmas (95% CI 1.942-1.992). Pria 1.412 kali lebih mungkin memenfaatkan Puskesmas dari wanita (95% CI 1.402-1.421). Semua jenis pernikahan memiliki lebih banyak peluang daripada tidak pernah menikah. Semua pendidikan memiliki kemungkinan lebih besar daripada tidak sekolah. Yang bekerja memiliki 0,972 kali lebih kecil kemungkinannya dibandingkan dengan yang menganggur (95% CI 0,965-0,980). Semua status kekayaan memiliki kemungkinan yang lebih kecil memanfaatkan Puskesmas daripada yang termiskin. Mereka yang memiliki asuransi yang dikelola pemerintah lebih mungkin memanfaatkan Puskesmas dibandingkan jenis lainnya. Waktu tempuh ≤10 menit lebih mungkin memanfaatkan Puskesmas dibandingkan dengan >10 menit.
Kesimpulan: Ada tujuh karakteristik sasaran kebijakan untuk meningkatkan pemanfaatan Puskesmas di daerah tertinggal: tinggal di pedesaan, perempuan, tidak pernah menikah, tidak berpendidikan, bekerja, bukan yang termiskin, tidak memiliki asuransi yang dikelola pemerintah, dan memiliki waktu tempuh lebih dari sepuluh menit.

Kata kunci: daerah tertinggal, evaluasi pelayanan kesehatan, pelayanan kesehatan dasar, kesehatan masyarakat

Introduction

Primary health care (PHC), sometimes called Puskesmas in Indonesia, is the primary level of treatment available to everyone and promotes good health and disease prevention while offering diagnostic, curative, rehabilitative, supporting, and palliative services. PHC is a unit that carries out operational and technical tasks and is responsible for health development in one or part of the sub-district area (Nantabah *et al.*, 2023). PHCs such as First Level Health Facilities (FLHF) are places where participants are registered for the first time, which are determined by the Health Social Security Administering Agency (HSSAA) (Misnaniarti *et al.*, 2017). The National Social Security System aims to provide all people who have paid or have had government-paid dues with the necessities of acceptable public health. The demand for health services, especially FLHF for the Indonesian people, is increasing daily (Wulandari, Laksono, Sillehu, *et al.*, 2022; Putri, Laksono and Rohmah, 2023). FLHF is the spearhead of health services for the community (Yuliyanti and Ratnawati, 2016).

PHC, as the first gateway, will be in direct contact with public health services. Primary health services benefit public health because they have greater access to needed services and focus on preventing and managing health problems (Yandrizal *et al.*, 2016). Primary care includes planning, implementation, evaluation, recording, and reporting (Yufrizal, Renaldi and Umbara, 2017). In addition to the PHC in health service facilities at FLHF, these include general practitioners, dentists, Pratama clinics or equivalent, and hospitals in D class. These five health service facilities are expected to meet the community services needs of FLHF. However, the study report in Bengkulu stated that the number of FLHF availability was still lacking. The availability of essential health services will affect the benefits provided by HSSAA (Yandrizal *et al.*, 2016).

Because of Indonesia's diverse geography, some regions are considered undeveloped. On a national scale, districts with less developed regions and communities are considered underdeveloped areas (Based on Presidential Regulation of the Republic of Indonesia Number 63/ 2020 about Stipulation of Underdeveloped Regions for 2020-2024). Due to difficult-to-reach geographic conditions and a lack of human resources and necessary infrastructure and amenities, communities in underprivileged areas need help accessing health services (Wiyanti, Kusnanto and Hasanbasri, 2016). The potential exists for growing health disparities in numerous regions of Indonesia due to unequal access to healthcare facilities. In Indonesia, there still needs to be more health facilities available, and they are not dispersed equally across all districts and cities (Misnaniarti *et al.*, 2017). For example, community access to PHC in the Sumatra region reaches 3.781 times more than communities in Papua. Meanwhile, people in Sumatra have access to hospitals 1.079 times compared to those living in Papua (Laksono, Wulandari and Soedirham, 2019; Laksono, Wulandari, *et al.*, 2023).

The Government of Indonesia currently places much emphasis on developing undeveloped areas. The economy, infrastructure, human resources, regional financial capacities, accessibility, and community features all influence regional indicators. Presidential Regulation Number 63/2020 about Determining Disadvantaged Regions for 2020–2024 specifies the development priorities for undeveloped regions.

One of the significant issues in national health development is limited access to health services. Prior investigations have shown that the availability of the FLHF ratio per resident tends to be higher in areas outside Java/Bali. For example, in the Nusa Tenggara, Maluku, and Papua regions, the FLHF ratio per 10 thousand population averages 1.43. This figure is almost twice the Java-Bali region, with an average of 0.79 (Misnaniarti *et al.*, 2017). Of people in disadvantaged and remote regions, 50.5% use PHC (Wiyanti, Kusnanto and Hasanbasri, 2016). Older adults in Norfolk,

a rural part of the UK, report difficulty accessing primary care due to connected phone lines, appointment availability, and encounters with front desk personnel, all of which they feel break the social compact (Ford *et al.*, 2018). Poor and distant locations are the primary users of health center access points (Wenang *et al.*, 2021). Regarding the research, it can be said that people in remote and underdeveloped regions very much need PHCs.

Therefore, particular policies are needed to improve the service quality by providing facilities, resources, and infrastructure, as well as improving infrastructure and the availability of drugs (Wiyanti, Kusnanto and Hasanbasri, 2016). Local governments are expected to commit to fulfilling the supply side of health services so that sick residents can access health facilities easily (Misnaniarti *et al.*, 2017). FLHF, both government and non-government, still provides the best service so that the service quality increases. According to the background, the study determines the policy target based on the most appropriate demographic characteristics to increase PHC utilization in a disadvantaged area in Indonesia.

Method

Data Source

The research examines data from the 2018 Indonesian Basic Health Survey. The Indonesian MOH performed the cross-sectional survey nationally. From May to July 2018, data for the survey were gathered. The survey also made use of household and individual instruments.

All households in Indonesia make up the survey's population. The sample composition of the study is based on the March 2018 National Socioeconomic study. The Indonesian Statistics' 2018 Socioeconomic Study also visited a target of 300,000 residences from 30,000 census blocks (The Indonesian MOH, 2018).

The research's population consists of all Indonesian adults in underprivileged regions (aged 15 and over). Of 713,783 respondents, the study examined 42,644 adults, with a response rate of 93.2%.

Setting

The research examines the use of PHC in Indonesia's less-developed regions. The borders of underdeveloped areas are outlined in Regulation of Presidential 63/ 2020 about the Determination of Underdeveloped Regions for 2020–2024. The rule lists 62 regencies in 11 provinces as Indonesia's impoverished areas, including West Sumatera, North Sumatera, Lampung, South Sumatera, West Nusa Tenggara, East Nusa Tenggara, Central Sulawesi, North Maluku, Maluku, West Papua, and Papua.

Dependent Variable

We used PHC use as the independent factor in the study—Use of primary healthcare included outpatient and inpatient access to primary healthcare for adults. Inpatient care was limited to last year, while outpatient care was only available for the prior month. Respondents were prompted to recollect specific outpatient and inpatient incidents (The Indonesian MOH, 2018).

Independent Variables

Age, marital status, gender, employment status, education level, wealth status, travel time to the hospital, and possession of health insurance were among the nine independent factors utilized in the study. There are two residence types: urban and rural. We employed the Indonesian Statistics guidelines for dividing the country into rural and urban regions.

The research used the respondents' most recent birthdays to determine their age (analyzed as a continuous variable) and included both male and female respondents. Additionally, the study split their marital status into never married, married/ cohabiting, and divorced or widowed.

Education is the acceptance of the most current respondents' degrees. The education comprises no primary, secondary, or higher education. Moreover, the employment group includes the employed and unemployed.

The poll used a formula for a wealth index to determine the respondents' wealth level. The 2018 Indonesian Basic Health Survey created a wealth index utilizing a family's overall performance weighted average survey spending. The poll used basic family expenses, including insurance, accommodation, and food, among other things, to generate the wealth index. Additionally, the survey divided respondents' wealth into poorest, poorer, middle, wealthier, and richest (Wulandari, Laksono, Prasetyo, *et al.*, 2022; Laksono *et al.*, 2023).

In addition, the poll divides health insurance ownership into didn't have insured, government-run insurance, private-run insurance, and having both insurances. Furthermore, the travel time to the health care facility is between ≤ 10 and > 10 minutes.

Data Analysis

In the first step, we used the Chi-Square analysis to compare two variables for the binary factor. Concurrently, the research employed a T-test for the study's continual variation (age). In addition, we utilized a collinearity analysis. The analysis's goal was to ensure that the independent factors in the finished equation weren't significantly correlated with one another. A binary logistic regression was employed in the study's last stage. The IBM SPSS 26 program was utilized throughout the investigation's statistical analysis phase. The authors employed this final analysis to assess the multivariate relation between all independent factors and PHC use.

Result and Discussion

Despite several weaknesses, such as limited facilities, no specialists, long queues and waiting times, and lack of privacy, PHC in disadvantaged areas is crucial in enhancing health status, including maternal services, child health, and other essential health services. Previous studies have identified PHC limitations, including lack of transportation access to health facilities, resources, infrastructure, and defects in health services patterns (Suharmiati, Laksono and Astuti, 2013). Cross-sectoral organizational relationships were also not optimal because of the lack of standard operating procedures, communication, and socialization (Winarsa, Noby; Suryoputro, 2020).

The *Nusantara Sehat* (healthy archipelago) program is a Ministry of Health breakthrough for team-based health workers in disadvantaged regions, borders, islands, and areas with health problems. They consisted of professions and were expected to have the competence to provide public health program services in remote places. After two years of placement, the program has increased the public health development index in remote regions (Sari, Hendarwan and Halim, 2019). The Ministry of Health Regulation concerning PHC stated one of the principles for PHC administration is equalization. PHC health service delivery must be accessible and affordable to everyone in the PHC working area (Wulandari, Ridlo, *et al.*, 2019). Therefore, it is crucial to identify the target for assuring equity in accessing PHC health care.

The result shows that Indonesia's average PHC utilization in a disadvantaged area in 2018 was 9.0%. This figure is higher than the national average of 5.3%. This situation is understandable because it is likely that only PHC is available in disadvantaged areas. On the other hand, Table 1 presents descriptive statistics on PHC utilization and respondent characteristics in Indonesia's impoverished areas in 2018.

Table 1 shows those who live in rural regions dominated by both types of PHC use. People who used the PHC are older than those who didn't use the PHC. Regarding gender, males dominated the unutilized PHC category, while females dominated the used PHC category. Additionally, people who are married or cohabiting with a spouse predominate in both types of PHC use.

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Table 1. Descriptive statistics of adults in underdeveloped areas in Indonesia (n=42,644)

Demographic Characteristics	PHC utilization		p-value
	Unutilized (n=38,516)	**Utilized (n=4,128)**	
Type of Residence			< 0.001
Urban	12.6%	6.2%	
Rural	87.4%	93.8%	
Age (mean)	(36.78)	(42.96)	< 0.001
Gender			
Male	51.2%	42.7%	
Female	48.8%	57.3%	
Marital			< 0.001
Never married	23.3%	12.3%	
Married	69.9%	77.4%	
Divorced or Widowed	6.8%	10.3%	
Education			< 0.001
No formal education	15.7%	16.5%	
Primary	57.6%	64.8%	
Secondary	19.9%	14.2%	
Higher	6.8%	4.6%	
Employment			< 0.001
Unemployed	30.3%	27.3%	
Employed	69.7%	72.7%	
Wealth			< 0.001
Poorest	34.0%	40.2%	
Poorer	20.7%	19.3%	
Middle	16.9%	17.4%	
Richer	14.3%	12.3%	
Richest	14.1%	10.9%	
Health Insurance			< 0.001
Uninsured	29.1%	17.8%	
Government-run	70.1%	82.1%	
Private-run	0.6%	0.0%	
Government-run and Private-run	0.2%	0.1%	
Travel Time			< 0.001
≤10 minutes	34.8%	31.5%	
>10 minutes	65.2%	68.5%	

Regarding education, primary education dominated both groups of PHC utilization-meanwhile, the employed dominated both PHC utilization groups based on employment status. Moreover, the poorest led in both groups of PHC utilization according to wealth status. Table 1 indicates that those with government-run insurance dominated unutilized and utilized PHC groups. Furthermore, based on travel time to PHC, those with more than ten minutes dominated both PHC utilization categories.

The following analysis was a collinearity test. The findings show no significant association between the independent factors. Additionally, each variable's VIF (variance inflation factor) value is lower than 10.00, and the tolerance value for every element is more extensive than 0.10. The results found no multicollinearity in the model of regression. Moreover, the binary logistic regression findings are illustrated in Table 2.

Table 2. The binary logistic regression findings (n=42,644)

Predictor	p-value	PHC Utilization		
		AOR	95% CI	
			Lower Bound	Upper Bound
Residence: Urban	< 0.001	1.967	1.943	1.992
Residence: Rural	-	-	-	-
Age	< 0.001	1.025	1.024	1.025
Gender: Male	< 0.001	1.412	1.402	1.421
Gender: Female	-	-	-	-
Marital: Never married	-	-	-	-
Marital: Married	< 0.001	1.254	1.240	1.267
Marital: Divorced or Widowed	< 0.001	1.205	1.186	1.224
Education: No formal education	-	-	-	-
Education: Primary	< 0.001	1.418	1.406	1.430
Education: Secondary	< 0.001	1.254	1.239	1.268
Education: Higher	< 0.001	1.127	1.108	1.145
Employment: Unemployed	-	-	-	-
Employment: Employed	< 0.001	0.972	0.965	0.980
Wealth: Poorest	-	-	-	-
Wealth: Poorer	< 0.001	0.782	0.776	0.789
Wealth: Middle	< 0.001	0.869	0.861	0.876
Wealth: Richer	< 0.001	0.753	0.745	0.760
Wealth: Richest	< 0.001	0.714	0.707	0.722
Insurance: Uninsured	-	-	-	-
Insurance: Government-run	< 0.001	1.925	1.910	1.940
Insurance: Private-run	< 0.001	0.155	0.135	0.179
Insurance: Government-run & Private-run	< 0.001	0.615	0.544	0.695
Travel time: less than 10 minutes	< 0.001	1.067	1.060	1.074
Travel time: more than 10 minutes	-	-	-	-

Note: AOR: Adjusted Odds Ratio; CI: confidence interval.

Table 2 shows that those living in urban regions are 1.967 times more likely to utilize the PHC (AOR 1.967; 95% CI 1.942-1.992). The use of PHC is related to geographical characteristics and ease of population mobility; therefore, accessibility and utilization vary widely (Wulandari, Laksono and Rohmah, 2021). The more accessible geographic characterization and the higher population mobility could be why people living in urban regions had more PHC utilization than the rural population. The condition differs from a study in Mongolia that provided free access to PHC and stated that essential health services at PHC in urban areas were small, indicating that utilization was concentrated in rural regions (Dorjdagva *et al.*, 2017).

The research also indicated age to be associated with PHC utilization. The condition is similar to the previous study, showing higher age as a significant factor for PHC utilization (Panezai, Ahmad and Saqib, 2020). Several reasons could explain this result, including other demographic factors related to a higher age. Previous studies found that even age was associated with PHC utilization regarding chronic disease prevalence. The most decisive factor was a chronic disease experienced more frequently among older people (Wulandari and Laksono, 2019; Rukmini *et al.*, 2022). Besides the risk factors, higher age is related to higher screening behavior, better health beliefs and disease prevention, alleged

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responsibility, and anticipative action for well-being (Megatsari, Nandini and Laksono, 2023). A better judgment could lead to better PHC utilization at a higher age.

Based on gender, males can be 1.412 higher than females using the PHC (1.412; 95% CI 1.402-1.421). The result indicates men have more possibilities than women to use the PHC. The services of PHC are crucial to offering medical, social, and emotional assistance; therefore, analyzing the PHC services used to identify the marginalized gender (Canuto *et al.*, 2018). This study differs from the previous study, which showed women accessing PHC more (Kim *et al.*, 2016). A closer health service alternative for women could cause the low utilization of PHC. In previous research in remote areas in Indonesia, many women choose more affordable women's health care options, namely village midwives and even traditional birth attendants (Suharmiati, Dwi Laksono and Wahyu Dwi Astuti, 2013). Previous research found women use PHC more frequently due to the supply-side policies, initiatives, and innovations that lead to increased utilization of PHC for maternity care (Wulandari, Ridlo, *et al.*, 2019). Village midwives could significantly fulfill primary maternity care for women in disadvantaged areas, lowering PHC utilization (Yesica *et al.*, 2021; Denny *et al.*, 2022).

Meanwhile, regarding marital status, all types have more chances than those who have never been in the union to utilize the PHC. Several studies discovered that more fabulous health-seeking activities were favorably associated with the mother and household head (Apuleni, Jacobs and Musonda, 2021). According to earlier research, marriage and partnerships have several beneficial impacts, including improved financial security, more accessible insurance access, and better kinds of social relationships and support (Stokes and Moorman, 2018). Better health-seeking behavior and protective factors could lead to better PHC utilization. To enhance health-seeking behavior and PHC utilization among unmarried, we must strengthen protective factors such as insurance coverage and social connection.

According to education, all groups are likelier than those without formal education to utilize the PHC. This result is contrary to a study on women in rural Nigeria, which revealed that higher education level was significantly correlated to lower PHC utilization for antenatal care because of the perception of poor reproductive health service and preference to opt for service in private clinics and hospital (Okonofua *et al.*, 2018). Higher PHC utility is associated with higher education. The results align with a previous study, which showed that education and occupation were the most critical factors related to PHC utilization (Omonona, Obisesan and Aromolaran, 2015). Previous studies indicated that better education is related to better socioeconomic and better health education understanding of messages, especially in reading materials with various methods (Megatsari *et al.*, 2018; Rohmah *et al.*, 2020).

The employed are 0.972 less likely to utilize the PHC than the unemployed (AOR 0.972; 95% CI 0.965-0.980). Meanwhile, all wealth groups have less possibility than the lowest-income to utilize the PHC. Moreover, regarding owning health insurance, those with government-run insurance are 1.925 more likely to use the PHC than those uninsured (AOR 1.925; 95% CI 1.910-1.940). On the contrary, all other types are less likely than the uninsured to utilize the PHC.

Economic constraints were known as important factors related to limited healthcare access. PHC is usually the closest health service facility in the community, which gives essential health services at a low cost (Wulandari, Qomarrudin, *et al.*, 2019; Wulandari, Laksono, Prasetyo, *et al.*, 2022). This result is similar to research in Mongolia regarding free and universal PHC services with government insurance. Groups with lower incomes tended to utilize PHC more frequently than those with higher incomes (Dorjdagva *et al.*, 2017). The higher utilization of PHC among people with low incomes in underdeveloped regions of Indonesia could be related to the availability

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of government insurance, which allows economic accessibility of PHC utilization. This study also showed that those with government-run insurance were likelier to use the PHC than those who are uninsured or have other types of health insurance. Economic barriers are the most frequent reason for not using primary healthcare services (Ekawati and Claramita, 2021). The PHC utilization by the poorest indicated that government-run insurance had overcome economic barriers (Laksono, Wulandari and Matahari, 2021).

The condition also could partially explain the higher PHC utilization among the unemployed when unemployment was related to lower financial resources. Several indicators of economic constraint related to higher PHC utilization indicate that universal coverage for health insurance had an excellent range among the poor and unemployed in disadvantaged areas in Indonesia (Agustina *et al.*, 2019). In the non-government insurance group, PHC utilization was also lower than those with government-run insurance. Previous surveys showed private clinics were generally the most popular source of primary care, while PHC is more widely used by poor households (Sinuraya *et al.*, 2017). The condition shows a possible tendency to choose treatment outside the PHC when there is a chance to choose various health service providers, like other health insurance groups in this study. One of the reasons for the decline in PHC utilization is the lack of optimal PHC health services. There is a need to optimize PHC utilization among the population above the poorest (poorer and middle) economic status and employed persons without insurance. The situation is in line with research on universal health coverage (UHC) in Indonesia, which identifies the missing-median level, a term used to define the lower percentage of people listed in UHC among Q2–Q3 quintiles of wealth compared to other quintiles (Laksono, Nugraheni, *et al.*, 2023; Suharmiati *et al.*, 2023).

Finally, based on travel time to the PHC, the ≤10 minutes are 1.067 more likely than the >10 minutes to use the PHC. The result means the faster travel times to PHC,

the more likely it is to take advantage of PHC. The importance of travel time to PHC is also in line with previous studies. However, in this study, the travel span was shorter. This study's PHC utilization short travel time cut-off could also explain why people in urban areas in disadvantaged regions had higher PHC utilization. Geographical conditions in rural areas usually cause longer travel times. Access to health centers generally requires private/public transportation or walking (Ipa, Laksono and Wulandari, 2023).

Strength and Limitation

The strength of this study is that it analyzes big data so that the information can be nationally representative. However, because the analysis only looks at secondary data, the factors that may be examined are limited by the accepted variables. Other factors connected to PHC use in prior research, like travel expenses and disease types, cannot be discussed in this study (Wei *et al.*, 2018). Some of these things are important, especially to understand costs outside the services cost that might affect people's access to primary health care.

Conclusion

According to the findings, the research concluded that there are seven policy targets to increase PHC use in Indonesia's disadvantaged areas. The seven lived in a rural region, were female, never married, had no education, were employed, were not the poorest, didn't have government-run insurance, and had a travel time of more than ten minutes.

The government needs to understand these characteristics to identify which parts of society have low access to primary healthcare. The author recommends that the government make policies that are right on target according to the results of this study.

Abbreviations

PHC: Primary Healthcare; AOR: Adjusted Odds Ratio; CI: Confidence Interval.

Declarations

Ethics approval and consent participant

The 2018 Indonesian Basic Health Survey was approved by the National Ethics Committee (LB.02.01/2/KE.024/2018). The study's participants have given their written informed consent to participate.

Conflict of Interest

We clarify that the author has no competing interests.

Availability of data and materials

We cannot publicly disclose the data since neither a third party nor the Indonesian MOH, the data's owner, is authorized. For researchers who meet the requirements, the data set is accessible online at https://layanandata.kemkes.go.id/.

Authors' contributions

RDW created the proposal and conducted the patient data analysis and interpretation. ADL contributed substantially to the study's execution, data interpretation, and manuscript authoring. The research was carried out, and the text was written with assistance from NR, LL, and HA. The final manuscript was read and approved by all writers.

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