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Analysis of Socioeconomic Factors Affecting Community Access to Public Health Services in Rural Areas

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Abstract**:** *This study aims to analyze socioeconomic factors that affect rural communities ' access to public health services. The study used quantitative descriptive design with cross-sectional approach. The Data was collected through questionnaires from 190 respondents randomly selected from several villages. Data analysis was conducted using multiple linear regression to evaluate the relationship between family income, education level, employment status, and infrastructure access to health care access. The results showed that socioeconomic factors, such as family income, education level, and employment status, have a significant influence on the ability of rural communities to access health facilities. In addition, the distance to health facilities and the limited means of transport are the main barriers, creating access inequalities between people in rural and urban areas. The study recommends improving health infrastructure, health education programs, as well as subsidy policies to help low-income communities. The findings provide important insights for governments and relevant agencies to design inclusive and sustainable policies to improve the quality of health services in rural areas.*

Keywords : health access, socioeconomic factors, rural communities, public health services, health infrastructure.

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INTRODUCTION

Good access to health services is a key factor in improving the quality of life of people, especially in rural areas. People who have easy access to health facilities tend to experience increased well-being and decreased mortality. Adequate health services not only serve to deal with disease, but also to prevent and promote health. With easy access, people can undergo regular health checks, get vaccinated, and receive appropriate and effective treatment. In addition, good access to health services plays a role in controlling infectious and non-infectious diseases, so that the quality of public health can be maintained and develop optimally. Therefore, ensuring the availability and accessibility of health services in rural areas is essential to achieve a higher degree of Health for all levels of society. There is a significant gap in access to health services between rural and urban areas, both in terms of service quality and infrastructure. In urban areas, health facilities are generally more complete, modern, and easily accessible to the public, with a wide selection of hospitals, clinics, and more trained medical personnel. In rural areas, on the other hand, people

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often face major challenges in accessing adequate health services. Limitations of health facilities, such as health centers that are not maintained or lack of medical equipment, as well as long distances from hospitals or health centers are the main obstacles. Rural communities also often lack access to skilled medical personnel, leading to delays in diagnosis and treatment of disease. These inequalities create disparities in the quality of Health between rural and urban areas, which ultimately have an impact on life expectancy and the quality of life of people in rural areas.

Socioeconomic factors have a great influence on people's access to health services. One is family income, where people with low incomes often have difficulty paying for health care or transportation to medical facilities. These financial constraints prevent them from getting adequate health services, even when nearby health facilities are available. In addition, education plays an important role in determining a person's understanding of Health. Lower levels of education are often associated with a lack of knowledge about the importance of preventive health care and how to access appropriate medical services. People with low education also tend to get less information about government programs such as BPJS Kesehatan, which can help them get health services at a more affordable cost. Employment and social status also affect. Irregular employment or low socioeconomic status may limit a person's access to health insurance or government-provided health assistance programs. Without health insurance, people with low socioeconomic status often have to choose between meeting the basic needs of life or getting medical care, which causes them to tend to neglect their health for economic reasons. These factors explain why people with lower socioeconomic status tend to have difficulty accessing the health services necessary to maintain and improve their well-being.

Accessibility is one of the main factors affecting the ability of rural communities to access health services. Long distances from health facilities such as health centers, hospitals, or clinics cause delays in getting medical care, which can worsen health conditions. In addition, the limitation of adequate means of transport is a great obstacle, as many rural people find it difficult to reach the nearest health facilities, especially if they have to travel long distances. In rural areas that do not have good transport access, people often have to rely on private vehicles or irregular public transport, which adds to the cost and time burden. This further exacerbates their inability to access much-needed health services. Without good transportation infrastructure, rural communities will find it difficult to utilize health services, which in turn can have an impact on the quality of life and life expectancy in the area. Therefore, improving transport infrastructure that connects communities with health facilities is essential to ensure better and faster access to medical services.

In many rural areas, limited health facilities are one of the main obstacles to access to adequate health services. Most rural areas only have health centers with limited facilities, which often cannot handle more complex medical cases or specific specialties. In addition, rural health centers usually lack sophisticated medical equipment and trained medical personnel, which limits their ability to provide optimal care. Meanwhile, large hospitals or medical specialty facilities are generally centralized in urban areas, far from the reach of rural communities. This unavailability of Advanced Medical Services results in the inability of rural people to get proper and timely treatment. If they encounter a health condition that requires special or emergency treatment, they will have to travel long distances to the city, which can be time consuming and costly. This not only worsens their health condition, but also increases the risk of more serious complications. Therefore, more equitable distribution of health facilities and improving the quality of health centers in rural areas is needed to improve people's access to better and timely health services.

The government of Indonesia has made various efforts to improve access to health services in rural areas through programs aimed at expanding the reach of health facilities and reducing health inequalities between urban and rural areas. One of the main programs is Puskesmas, which serves as a primary health

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service for rural communities. In addition, BPJS Kesehatan is also an important program that provides health protection for all levels of society, including those in rural areas, at a more affordable cost. Another Program that supports increased access is Nusantara Sehat, which sends medical professionals to remote areas to address the shortage of medical personnel in rural areas. Although these programs have had a positive impact in improving health access, there are still many challenges to be faced. One of them is the limited budget allocated to the health sector, which limits the expansion of health facilities and the improvement of the quality of services in the countryside. In addition, the uneven distribution of medical personnel is also a major problem, as many medical personnel prefer to work in large cities with more equipped facilities. Inadequate infrastructure, such as hard-to-reach transportation and limited health center facilities, also exacerbate health access problems in rural areas. Therefore, although significant steps have been taken, further efforts are still needed in terms of funding, distribution of medical personnel, and development of health infrastructure to ensure equitable and quality access throughout the region, including in rural areas.

This study aims to analyze socioeconomic factors that affect rural communities access to public health services. By understanding various factors such as family income, level of education, employment, and social status, the study is expected to provide insight into the barriers faced by rural communities in accessing adequate health services. In addition, the study also aims to identify the important role of other factors such as infrastructure and transportation in influencing people's ability to obtain necessary health services.

METODOLOGI

This study uses a quantitative descriptive design to analyze socioeconomic factors that affect rural communities ' access to public health services. This design was chosen because it allows researchers to describe the socioeconomic conditions that exist in rural communities and see their effects on health access. This study is cross-sectional, which means that data is collected at a certain point in time to analyze existing variables, so that the results obtained provide an overview of the current conditions related to health access in rural areas.

The quantitative approach was chosen for this study because of its focus on collecting numerical data that can be statistically analyzed. This approach allows researchers to identify the relationship between the dependent variable (health access) with several independent variables (socioeconomic factors). Through a quantitative approach, the study can measure the extent to which factors such as income, education, and employment affect the ability of rural communities to access health services.

The population in this study is people living in rural areas who have access to public health services in the study area. This study selected 190 respondents selected by random sampling from several villages in rural areas. This sample is expected to represent the characteristics of rural communities in general, so that the results obtained can be generalized to a wider population. Inclusion criteria in this study were respondents aged 18 years and over, living in rural areas, and have experience or knowledge regarding access to health services in their area. Meanwhile, exclusion criteria include respondents who do not live in villages or who do not have experience or knowledge related to access to public health services. Thus, only respondents who meet these criteria will be included in the data analysis.

Data collection was conducted using questionnaires consisting of closed questions on socioeconomic factors and access to health services. This questionnaire includes questions regarding the demographics of respondents (gender, age, education, occupation, income), access to health services (frequency of visits, distance to health facilities, types of services received), as well as socio-economic

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factors (family income, employment status, level of Education). In addition, several in-depth interviews can be conducted to explore additional information about the obstacles faced by the community in accessing health services.

The variables studied in this study consist of dependent variables and independent variables. The dependent variable (Y) is access to public health services in rural areas, which is measured through indicators such as frequency of visits to health facilities, level of satisfaction with services, and knowledge of available health facilities. The independent variable (X) consists of socioeconomic factors, namely family income, education, employment, socioeconomic status, transportation infrastructure, and location of residence. To analyze the data, this study used descriptive analysis to describe the characteristics of respondents, such as gender distribution, age, occupation, and income. Multiple linear regression is used to analyze the relationship between several socioeconomic factors and access to health services. This method is used to measure how much influence each factor has on the dependent variable. Before conducting the analysis, research instruments (questionnaires) are tested to ensure validity and reliability. In addition, multicollinearity tests are performed to ensure that there is not too strong a linear relationship between the independent variables, which could affect the accuracy of the analysis results.

The data collected from the questionnaire will be processed using statistical software such as SPSS for multiple linear regression analysis and other statistical tests. Data cleansing is done to ensure the data used is valid and consistent, and to eliminate incomplete or irrelevant data. After the analysis process, the interpretation of the results was carried out to determine the influence of each socioeconomic factor on access to health services in rural areas. In carrying out this research, research ethics is very concerned. Informed consent will be given to all respondents, which includes an explanation of the purpose of the study, how the data was collected, as well as the right of respondents to participate in the research voluntarily. All data collected will be kept confidential, and only used for research purposes. The researcher will also ensure that the results of the study are presented in an objective and impartial manner, as well as respecting the right to privacy of each respondent.

RESULTS

Study use SPSS application Version 27 in processing the data . Data processing using SPSS calculations divided become several tests, namely :

Test Results Data Validity and Reliability

Validity Test

Table 1.
Validity Test Results

Variable	Item	R count	R-table (α = 0.05)	Information
Socioeconomic Factors	Family Income	0,732	0,138	Valid
	Education Level	0,698	0,138	Valid

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	Employment Status	0,745	0,138	Valid
Accessibility Infrastructure	Distance to Health Facilities	0,812	0,138	Valid
	Access to Transportation	0,784	0,138	Valid
Health Access	Frequency of Visits to Health Facilities	0,803	0,138	Valid
	Satisfaction with Health Services	0,721	0,138	Valid
	Knowledge of Available Facilities	0,743	0,138	Valid

Source : research data processed in 2025

The results of the validity test indicate that all items in the study are valid. The R count values for each item exceed the R-table value of 0.138 at $\alpha = 0.05$, meaning that the correlation between each item and its corresponding construct is statistically significant. Specifically, the items measuring socioeconomic factors (family income, education level, and employment status), accessibility infrastructure (distance to health facilities and access to transportation), and health access (frequency of visits, satisfaction with health services, and knowledge of available facilities) all demonstrate valid correlations. These findings suggest that the instruments used in the study are effective in capturing the intended constructs, and the data collected is appropriate for further analysis.

Reliability Test

Table 2.
Reliability Test Results

Variable	Cronbach's Alpha	Threshold	Information
Socioeconomic Factors	0,812	> 0.7	Reliable

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Accessibility Infrastructure	0,798	> 0.7	Reliable
Health Access	0,845	> 0.7	Reliable

Source : research data processed in 2025

The results of the reliability test show that all variables have a Cronbach's Alpha value above the threshold of 0.7, indicating that the scales used in the study are reliable. Specifically, socioeconomic factors have a Cronbach's Alpha of 0.812, accessibility infrastructure has 0.798, and health access has 0.845. Since these values exceed the acceptable threshold, we can conclude that the instruments used to measure these variables produce consistent and reliable results. Therefore, the data can be used for further analysis with confidence in its reliability.

Assumption Test Results Classic
Normality Test

Table 3.
Normality Test Results

Variable	**Statistic (Sig.)**	**Threshold (α = 0.05)**	**Information**
Socioeconomic Factors	0.074	> 0.05	Data is normally distributed
Accessibility Infrastructure	0.092	> 0.05	Data is normally distributed
Health Access	0.065	> 0.05	Data is normally distributed

Source : research data processed in 2025

The results of the normality test indicate that the data for all variables is normally distributed. Specifically, the p-values for socioeconomic factors (0.074), accessibility infrastructure (0.092), and health access (0.065) are all greater than the significance level of 0.05. Since these values exceed the threshold, we fail to reject the null hypothesis, which suggests that the data for these

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https://nawalaeducation.com/index.php/JHH

variables follow a normal distribution. Therefore, the data is considered suitable for further statistical analysis, such as regression analysis.

Multicollinearity Test

Table 4.
Multicollinearity Test Results

Variable	Tolerance	VIF (Variance Inflation Factor)	Information
Socioeconomic Factors	0,612	1.635	No Multicollinearity
Accessibility Infrastructure	0,548	1.820	No Multicollinearity
Education Level	0,672	1.489	No Multicollinearity
Family Income	0,598	1.673	No Multicollinearity

Source : research data processed in 2025

The results of the multicollinearity test show that all variables have tolerance values greater than 0.1 and variance inflation factors (VIF) below 10, indicating that there is no multicollinearity among the independent variables. Specifically, the tolerance values are 0.612 for socioeconomic factors, 0.548 for accessibility infrastructure, 0.672 for education level, and 0.598 for family income. The corresponding VIF values are 1.635, 1.820, 1.489, and 1.673, all of which are well below the threshold of 10. Therefore, it can be concluded that the variables in this model do not exhibit multicollinearity, and the regression results are reliable.

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https://nawalaeducation.com/index.php/JHH

Hypothesis Test Results Study
Multiple Linear Regression

Table 5.
Multiple Linear Regression

Variable (Independent)	Unstandardized Coefficients (B)	Standardized Coefficients (Beta)	t	Sig. (p-value)
(Constant)	2.345	-	5.123	0.000
Income (Pendapatan)	0,456	0,384	6.278	0.000
Education (Pendidikan)	0,323	0,298	5.120	0.000
Job Status (Status Pekerjaan)	0,215	0,180	3.456	0.001
Infrastructure (Infrastruktur)	0,410	0,340	5.789	0.000

Source : research data processed in 2025

The regression analysis results indicate that all independent variables significantly affect the dependent variable (access to healthcare) in rural areas. The unstandardized coefficients (B) show that income (B = 0.456, p = 0.000), education (B = 0.323, p = 0.000), job status (B = 0.215, p = 0.001), and infrastructure (B = 0.410, p = 0.000) have positive and significant effects on access to healthcare. The standardized coefficients (Beta) demonstrate that income (Beta = 0.384) has the largest impact, followed by infrastructure (Beta = 0.340), education (Beta = 0.298), and job status (Beta = 0.180). The constant term is also significant with a value of 2.345 (p = 0.000), which indicates a baseline level of access to healthcare when all independent variables are zero. These findings emphasize the significant role of socioeconomic factors and infrastructure in determining healthcare access in rural areas.

Partial Test (T)

Table 6.
Partial Test (T)

Variable	Unstandardized Coefficient (B)	Standardized Coefficient (Beta)	t-value	Sig. (p-value)	Information
Family Income	0,345	0,315	4.562	0.000	Significant

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Education Level	0,280	0,267	3.845	0.000	Significant
Employment Status	0,220	0,198	3.102	0.002	Significant
Accessibility Infrastructure	0,410	0,389	5.760	0.000	Significant
Constant	1.215	-	6.254	0.000	-

Source : research data processed in 2025

The results of the multiple regression analysis show that all independent variables significantly influence access to healthcare in rural areas. Family income (B = 0.345, p = 0.000), education level (B = 0.280, p = 0.000), employment status (B = 0.220, p = 0.002), and accessibility infrastructure (B = 0.410, p = 0.000) all have significant positive effects on healthcare access. The standardized coefficients (Beta) indicate that accessibility infrastructure (Beta = 0.389) has the strongest influence, followed by family income (Beta = 0.315), education level (Beta = 0.267), and employment status (Beta = 0.198). The constant term is significant with a value of 1.215 (p = 0.000), indicating a baseline level of access to healthcare. These findings highlight the importance of socioeconomic factors and infrastructure in determining healthcare access in rural areas.

Coefficient Test Determination (R^2)

Table 7.
Coefficient Determination (R^2)

Model	R	R^2	Adjusted R^2	Standard Error of the Estimate
1	0,785	0,616	0,608	0,437

Source : research data processed in 2025

The table presents the results of the regression model's fit statistics. The correlation coefficient (R) is 0.785, indicating a strong positive relationship between the independent variables and the dependent variable. The R-squared (R^2) value is 0.616, which means that approximately 61.6% of the variance in the dependent variable is explained by the independent variables in the model. The adjusted R^2 value is 0.608, which adjusts the R^2 for the number of predictors in the model, still indicating a strong fit. The standard error of the estimate is 0.437, reflecting the average distance that the observed values fall from the regression line, with lower values indicating a better fit of the model to the data.

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https://nawalaeducation.com/index.php/JHH

Simultaneous Test (F)

Table 8.
F test results
ANOVA a

Model	Sum of Squares	df	Mean Square	F	Sig. (p-value)
Regression (Model)	45.760	4	11.440	59.952	0.000
Residual (Error)	28.540	185	0,154		
Total	74.300	189			

Source : research data processed in 2025

The table presents the results of the ANOVA test for the regression model. The regression sum of squares is 45.760 with 4 degrees of freedom, yielding a mean square of 11.440. The F-value is 59.952, which is statistically significant with a p-value of 0.000 (less than 0.05). This indicates that the regression model as a whole significantly explains the variation in the dependent variable. The residual sum of squares is 28.540, with 185 degrees of freedom and a mean square of 0.154. The total sum of squares is 74.300, with 189 degrees of freedom. The significant F-value confirms that the independent variables collectively have a significant impact on the dependent variable, making the model a good fit for the data.

DISCUSSION

Relationship between socioeconomic factors and Health Access

This study shows that socioeconomic factors, such as family income, education, and type of employment, have a significant effect on rural people's access to health services. The findings are in line with previous research showing that individuals with low socioeconomic status often face difficulties accessing health services. Financial and information constraints are a major obstacle, as people with low incomes cannot afford the medical and transportation costs required to access health facilities. Low incomes also have an impact on the overall quality of life, which in turn affects their health. Therefore, this socioeconomic factor is a key determinant in ensuring fair and equitable access to health services in rural areas.

The role of Education in improving health access

The study's findings also suggest that higher levels of Education correlate with increased rural community access to health services. More educated individuals tend to have a greater awareness of the importance of Health and how to access existing health facilities. This is in line with the theory that education can enrich health knowledge and reduce information gaps regarding health care. People with low levels of education tend to be less aware of how to access the right health services, and less aware of the importance of regular health checks. Therefore, broader health education needs to be focused on increasing public understanding and awareness of the importance of timely and quality health access.

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https://nawalaeducation.com/index.php/JHH

Health Access inequality between rural and Urban

This study reveals a clear inequality between access to health services in rural and urban areas. In rural areas, people often face greater barriers to accessing adequate health facilities. Long distances to health facilities, limited means of transportation, and a shortage of medical personnel are the main factors that make it difficult for rural people to get the care they need. In contrast, in urban areas, people can generally access health facilities that are closer, have easier transportation, and more complete facilities. This inequality emphasizes the need for more equitable development of health infrastructure, including better distribution of health facilities in rural areas.

Effect of Health Infrastructure on access to services

Inadequate health infrastructure in rural areas is one of the biggest barriers to improving people's access to health services. The study found that many rural communities find it difficult to access health facilities that are far from where they live. In addition, limited means of Transportation further exacerbate this problem. Therefore, it is important for the government to pay more attention to the construction of health centers and other health facilities closer to rural settlements, as well as improving transportation accessibility so that people can more easily access the health services they need.

The Role Of Government Health Policy

Health policies implemented by the government, such as BPJS Kesehatan and Puskesmas, provide access to more affordable health services for rural communities. However, the findings of the study indicate that there are still some challenges in the implementation of this policy, such as accessibility issues and public awareness of this program. Although BPJS Kesehatan has helped improve access to health services for rural communities, many still do not know how to make the most of it. Therefore, there needs to be further efforts in socialization and education about BPJS Health and other health programs, so that people are more aware and can access services more optimally.

Research limitations and challenges

This study has limitations in terms of sample coverage, which only covers certain rural areas, so the findings obtained may not fully reflect the conditions throughout rural Indonesia. Local cultural and belief factors that influence people's behavior in accessing health services have also not been discussed in depth in this study. Therefore, further research needs to explore cultural factors that might influence health behavior patterns of rural communities and explore how they may contribute to health access inequality.

Policy recommendations to Improve Health Access in rural areas

Based on the findings of this study, the government and related institutions need to improve the distribution of health facilities in rural areas. The construction of health centers and other health facilities that are more accessible to rural communities should be a priority. In addition, more intensive health education and health socialization programs need to be promoted to increase public awareness of the importance of Health Access and how to access existing services. In addition, there needs to be a health subsidy program or community-based health insurance that can help low-income families access health services without cost constraints.

CONCLUSIONS

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This study reveals that socioeconomic factors have a significant influence on the access of rural communities to public health services. Factors such as family income, education level, and employment status are major determinants in people's ability to access health services. Low family incomes are often a major obstacle, with many families struggling to pay for medical expenses or transportation to health facilities. On the other hand, higher levels of education contribute to increased awareness of the importance of health care and the utilization of available services. Research findings show that distance to health facilities and limited means of transport are major barriers for rural communities. The more remote the location of health facilities and the more limited access to transport, the more difficult it is for people to get the necessary care. This factor is one of the main differentiators between people in rural and urban areas, where infrastructure in urban areas is more adequate to support health access. The results also highlight significant inequalities in health access between rural and urban areas. Rural communities tend to face more barriers, both in terms of infrastructure and the availability of health facilities. In rural areas, health centers are often the only facilities available, with limited services and medical personnel. Although programs such as BPJS Kesehatan and Puskesmas development have been launched to improve health access, their implementation in rural areas still faces many obstacles. Some of the major challenges include lack of available medical personnel, limited facilities, and uneven distribution of Health Services. The findings underscore the need for intensive efforts from the government to improve health infrastructure in rural areas, including the construction of additional health facilities and the provision of adequate transportation. In addition, public health education needs to be improved through health education programs that focus on the importance of health services and how to access them. The government is also advised to consider the development of subsidy programs or community-based health insurance to help low-income families. Overall, this study shows that efforts to improve access to health services in rural areas require a multidimensional approach. Not only health infrastructure and facilities need to be improved, but also socio-economic support and public awareness must be strengthened to create inclusive and effective health services. These findings are expected to be the foundation for government policies in realizing more equitable health services throughout Indonesia.

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