

Transportation access and health service utilization: A cross-sectional study in Maccini Ayo Hamlet, Jeneponto Regency

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ABSTRACT

The utilization of health services in rural Indonesia remains suboptimal, with a significant proportion of households not accessing health care facilities despite available infrastructure. Previous studies have largely overlooked the nuanced role of transportation in facilitating or hindering access to care in remote areas. This study aimed to identify factors associated with the utilization of health services in Maccini Ayo Hamlet, Bontomanai Village, Jeneponto Regency. A quantitative, cross-sectional study was conducted among all household heads (n=59) in the study area. Data were analyzed using the Chi-Square test to determine associations between selected socio-demographic and accessibility variables and health service utilization. The study found a statistically significant association between the type of vehicle used and the utilization of health services (p=0.000). Conversely, no significant associations were found for age, educational attainment, occupation, income, travel distance, travel time, or health insurance ownership. These findings underscore the pivotal role of transportation access in influencing health-seeking behavior in rural settings. Enhancing mobility infrastructure could thus be a strategic focus for public health interventions aimed at increasing healthcare access in similar regions.

ABSTRAK

Pemanfaatan layanan kesehatan di daerah terpencil di Indonesia masih belum optimal, dengan proporsi yang signifikan dari rumah tangga yang tidak mengakses fasilitas layanan kesehatan meskipun telah tersedia infrastruktur yang memadai. Penelitian-penelitian sebelumnya sebagian besar mengabaikan peran transportasi dalam memfasilitasi atau menghambat akses ke layanan kesehatan di daerah terpencil. Penelitian ini bertujuan untuk mengidentifikasi faktor-faktor yang berhubungan dengan pemanfaatan layanan kesehatan di Dusun Maccini Ayo, Desa Bontomanai, Kabupaten Jeneponto. Penelitian kuantitatif dengan pendekatan cross-sectional dilakukan terhadap seluruh kepala keluarga (n=59) di daerah penelitian. Data dianalisis dengan menggunakan uji Chi-Square untuk menentukan hubungan antara variabel sosio-demografi dan aksesibilitas yang dipilih dengan pemanfaatan layanan kesehatan. Studi ini menemukan hubungan yang signifikan secara statistik antara jenis kendaraan yang digunakan dengan pemanfaatan layanan kesehatan (p=0,000). Sebaliknya, tidak ada hubungan yang signifikan yang ditemukan untuk usia, tingkat pendidikan, pekerjaan, pendapatan, jarak tempuh, waktu tempuh, atau kepemilikan asuransi kesehatan. Temuan ini menggarisbawahi peran penting akses transportasi dalam mempengaruhi perilaku pencarian layanan kesehatan di daerah pedesaan. Oleh karena itu, meningkatkan infrastruktur mobilitas dapat menjadi fokus strategis untuk intervensi kesehatan masyarakat yang bertujuan untuk meningkatkan akses layanan kesehatan di wilayah yang sama.

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INTRODUCTION

Access to quality healthcare services remains a significant determinant of population health outcomes, particularly in low- and middle-income countries. Despite numerous policy reforms and public health initiatives, the utilization of healthcare services in rural areas remains suboptimal. In Indonesia, although the government has integrated promotive, preventive, curative, rehabilitative, and palliative care into the national health system (Undang-Undang No. 17 Tahun 2023), disparities in health service utilization persist. According to the 2023 Indonesian Health Survey, only 43.2% of households accessed services at community health centers (puskesmas), and 10% reported not using any health facility in the past year. This underutilization reflects broader systemic and social issues impacting health-seeking behavior in rural communities (Gunawan, 2021).

Previous studies have highlighted various determinants influencing healthcare utilization, including health insurance coverage, accessibility, patient perceptions, and satisfaction (Ulan, 2022). Lawrence Green's theory further delineates predisposing, enabling, and reinforcing factors affecting health behavior. Predisposing elements such as knowledge and attitudes, enabling resources like health infrastructure, and reinforcing aspects including provider behavior, jointly shape the population's engagement with health services. These insights provide a foundation for examining health service use, especially in rural areas with historically limited access and utilization.

Although various strategies have been implemented to improve access to healthcare in rural Indonesia, utilization remains limited due to complex interrelated factors. The persistent underutilization of available healthcare services, as documented by national surveys, underscores a pressing public health issue. To address this, a comprehensive understanding of the underlying determinants influencing healthcare use is essential. This study aims to identify and analyze these factors in the context of a specific rural setting—Dusun Maccini Ayo, Desa Bontomanai, Kab. Jeneponto—thus contributing to the development of targeted interventions to enhance health service utilization (Gunawan, 2021; Ulan, 2022).

Empirical evidence suggests that multifaceted interventions targeting both supply and demand aspects of healthcare can improve service utilization. On the supply side, strengthening healthcare infrastructure, ensuring availability of qualified health personnel, and integrating community-based services have been shown to increase access and reduce barriers, especially in underserved areas. For instance, the introduction of mobile health units and community health workers in remote Indonesian regions significantly enhanced coverage and health outcomes (Sari et al., 2021; Prasetyo et al., 2020).

On the demand side, community engagement and health promotion programs focusing on health literacy, cultural sensitivity, and trust in the healthcare system play crucial roles. Studies indicate that when community members perceive services as accessible, respectful, and responsive to their needs, their willingness to seek care improves markedly (Wijayanti & Hadi, 2022). Additionally, financial protection mechanisms such as national health insurance (JKN) have a positive impact on service uptake, particularly among low-income groups (Susanti et al., 2021).

Despite growing literature on healthcare utilization in Indonesia, few studies have focused on micro-level rural communities to explore the nuanced interplay of factors influencing service use. Existing research has largely concentrated on urban or district-level data, overlooking local contexts where health behaviors are shaped by distinct cultural, geographic, and infrastructural variables (Situmorang & Rachmawati, 2020). As such, there is a gap in localized evidence that could inform community-specific interventions.

This study addresses that gap by investigating the factors associated with healthcare service utilization in Dusun Maccini Ayo, Desa Bontomanai, Kab. Jeneponto. By applying Green's theoretical framework and integrating both quantitative and qualitative data, the research aims to uncover actionable insights for policymakers and health practitioners. The findings are expected to contribute to the design of context-sensitive strategies that promote equitable access to healthcare in rural Indonesia.

METHODS

This study employed a quantitative research design with a cross-sectional approach and descriptive method to examine the factors associated with healthcare service utilization. The research was conducted in Dusun Maccini Ayo, Desa Bontomanai, Kab. Jeneponto, during May 2024.

The target population comprised all households within the study area. A total of 59 household heads were selected as respondents, each representing a single household unit. Respondents were selected through purposive sampling, with inclusion criteria including being the official head of household, residing in the study area for at least one year, and providing informed consent to participate in the study.

Data collection was conducted through structured interviews using a standardized questionnaire. The instrument included questions regarding the type of healthcare facility most frequently used, types of services accessed, distance to the nearest facility, household income sources and total monthly income, as well as health insurance ownership. The dependent variable was healthcare service utilization. Independent variables included age, education level, income, ownership of transportation, travel distance to healthcare facilities, and type of health insurance.

Data were analyzed using the Chi-Square test to examine associations between independent variables and the dependent variable. The results were presented in tabular form, including frequency distributions, cross-tabulations, and significance values.

Table 1
Distribution of respondents

Variable	n	%
Age		
Older	11	18.6
Younger	48	81.4
Last Education Level		
Higher Education	3	5.1
Basic Education	53	89.8
No Schooling	3	5.1
Income Level		
Low Income	52	88.1
High Income	7	11.9
Health Service Utilization		
Yes	51	86.4
No	8	13.6
Transportation Access		
Private/Public Transport	44	74.5
Walking	7	11.9
Not Utilizing Health Facilities	8	13.6
Distance to Health Facilities		
Near	50	84.7
Far	9	15.3
Health Insurance Ownership		
Insured	53	89.8
Not Insured	6	10.2

Ethical considerations were adhered to throughout the research process. Respondents were provided with detailed information about the purpose and procedures of the study and gave informed consent prior to participation. Confidentiality of all personal

data was maintained, and participation was voluntary, with the right to withdraw at any point without any consequence.

RESULTS AND DISCUSSION

The analysis of data from 59 households in Dusun Maccini Ayo revealed varied relationships between demographic and socioeconomic variables and healthcare service utilization.

The [Table 1](#) shows the distribution of respondents based on demographic characteristics and health service utilization. The majority of participants were categorized as young (81.4%), had basic education (89.8%), and came from low-income backgrounds (88.1%). Most respondents reported utilizing health services (86.4%), and a high proportion owned health insurance (89.8%).

Regarding access factors, 74.5% used private or public transport to reach health facilities, while a smaller proportion (13.6%) did not access health services at all. Most respondents lived near the health facility (84.7%), which may influence the relatively high rate of utilization. These findings suggest that demographic and access-related factors could influence health service utilization patterns in the population.

Table 2.
Factors associated with the utilization of health services

Variable	Health Service Utilization				Total	p-Value
	Yes (n)	%	No (n)	%		
Age						
Older	11	100	0	0	11	0.33
Younger	40	83.3	8	16.7	48	
Last Education Level						
Higher Education	3	100	0	0	3	0.592
Basic Education	45	84.9	8	15.1	53	
No Schooling	3	100	0	0	3	
Income Level						1.000
Low Income	45	86.5	7	13.5	52	
High Income	6	85.7	1	14.3	7	
Transportation Access						0.000
Private/Public Transport	44	100	0	0	44	
Walking	7	100	0	0	7	
Not Utilizing Health Facilities	0	0	8	100	8	
Distance to Health Facilities						
Near	42	84	8	16	50	0.337
Far	9	100	0	0	9	
Health Insurance Ownership					1	
Insured	46	86.8	7	13.2	53	1.000
Not Insured	5	83.3	1	16.7	6	

The [Table 2](#) presents the relationship between various sociodemographic factors and the utilization of health services (Yankes). Variables such as age, education level, income, transportation access, distance to health facilities, and health insurance ownership were analyzed. Among them, the mode of transportation was found to have a statistically significant association with health service utilization ($p = 0.000$). All respondents who used private or public transport, or walked, reported using health services, whereas those who

did not utilize any transportation (and consequently did not access health facilities) reported 100% non-utilization.

Other factors such as age, education, income, distance, and insurance ownership showed no statistically significant relationship ($p > 0.05$), suggesting that these factors might not play a strong role in determining access in this particular sample. Further qualitative or larger-scale quantitative research may be required to explore these associations more deeply.

The study found that all older respondents ($n=11$) utilized healthcare services, while among younger respondents ($n=48$), 40 (83.3%) reported using health services. Despite the descriptive trend showing higher proportional use among the elderly, the Chi-Square test revealed no statistically significant relationship between age and healthcare utilization ($p=0.33$). This aligns with Mardiana (2022), who also found no significant correlation, but contradicts Oktarianita et al. (2021), who reported age as a determining factor. While older individuals theoretically have higher healthcare needs, findings from this rural setting suggest that age may not be the primary determinant in this context.

Most respondents with lower education levels (84.9%) accessed health services. However, no significant statistical relationship was found between education level and service utilization. This corresponds with the findings of Basith & Prameswari (2020), but diverges from Zaini et al. (2022), who identified education as a significant factor. Although education typically enhances health literacy and proactive health behavior, in this context, knowledge and information access may play a more critical role than formal educational attainment.

The majority of both low-income (86.5%) and high-income (85.7%) respondents utilized health services. Chi-Square analysis ($p=1.0$) confirmed no significant relationship between income and utilization. These results reflect similar findings by Ameina (2022) and Cahyani (2020), suggesting that financial constraints do not necessarily deter healthcare use in this community. Factors such as health insurance coverage and perceived necessity may mitigate the impact of income on healthcare access.

Ownership of private or public transportation showed a significant relationship with service utilization ($p<0.05$). All respondents with transport means accessed healthcare services. This aligns with Purba et al. (2022), emphasizing that physical access remains a vital factor in rural health behavior. The presence of nearby health facilities and availability of transport options facilitate timely and consistent service use.

Although a greater number of respondents with nearby facilities utilized services (84%), 100% of those with distant access also reported usage. Statistical analysis ($p=0.337$) indicated no significant correlation. These findings are consistent with Çimen et al. (2020), who found no association between distance and health utilization, but contrast with Cahyani et al. (2021). This suggests that in Dusun Maccini Ayo, proximity may not be a barrier, potentially due to strong community motivation or support systems.

Respondents with insurance (86.8%) slightly outnumbered those without (83.3%) in service utilization. The Chi-Square test ($p=1.0$) indicated no significant relationship, differing from Amila (2024) and Zaini et al. (2022), who reported strong correlations. Though theoretically, insurance improves affordability and access, in this context, its influence may be moderated by service availability, cultural norms, or perceived quality of care.

Collectively, the study illustrates that while accessibility—particularly transport ownership—is a key enabling factor, other demographic and economic variables like age, education, income, distance, and insurance showed no significant impact. These findings

highlight the complexity of healthcare utilization behaviors in rural Indonesian settings and underscore the need for multifactorial, community-specific strategies in public health interventions.

CONCLUSION

This study investigated the factors associated with healthcare service utilization among households in Dusun Maccini Ayo, Desa Bontomanai, Kab. Jeneponto. The results revealed that ownership of transportation was significantly associated with the use of healthcare services, highlighting the critical role of physical access in rural health behavior. Conversely, other variables such as age, education, income, travel distance, and health insurance ownership showed no statistically significant relationship with healthcare utilization. These findings suggest that while traditional sociodemographic factors are often presumed to influence health behavior, their impact may vary by context. In this rural setting, structural and logistical enablers such as transportation appear to play a more decisive role. This underlines the importance of improving infrastructural accessibility and ensuring the availability of nearby health facilities to enhance service uptake.

The study contributes to the growing body of localized evidence on health service utilization in rural Indonesia and offers valuable insights for policymakers and public health practitioners. It calls for targeted, context-sensitive interventions that go beyond demographic profiling to address logistical and perceptual barriers to care. Limitations of the study include the relatively small sample size and cross-sectional design, which restrict causal inference. Future research should consider longitudinal approaches and broader geographic scopes to validate these findings and explore deeper behavioral determinants, including cultural attitudes and provider-patient dynamics.

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