



HYPERTENSION TREATMENT SEEKING PATTERNS AND HEALTHCARE FACILITY ACCESSIBILITY

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ABSTRACT

The World Health Organization (WHO) estimates that by 2025, approximately 29% of the global population will experience hypertension. The prevalence of hypertension in Aceh Province has increased by 21.5%. The Aceh Jaya District Health Office reported significant fluctuations in hypertension incidence at Krueng Sabee Community Health Center (Puskesmas), an area characterized by limited accessibility to health facilities due to varied topography, including highland, midland, and lowland regions. This study aimed to analyze the treatment-seeking patterns for hypertension and healthcare accessibility in the area, based on a population of 2,759 hypertensive patients registered at Krueng Sabee Puskesmas. Using a cross-sectional observational design, 335 respondents were selected through proportional random sampling. Data analysis was conducted using chi-square tests and spatial analysis. The results demonstrated significant associations between treatment-seeking patterns and factors such as age, hypertension status, education, occupation, income, and ease of transportation and information, while gender and distance showed no significant relationship. Among these factors, ease of transportation (OR = 12.591) was the most influential determinant of treatment-seeking behavior. Spatial analysis indicated that the distribution of health facilities was random ($T = 1.212$, $p = 0.089$). This study concludes that demographic and socioeconomic factors, along with transportation accessibility, significantly affect hypertension treatment-seeking patterns, whereas gender and distance do not. The random spatial distribution of health facilities suggests potential barriers to healthcare access in this region.

Keywords: accessibility and spatial; hypertension; treatment seeking patterns

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INTRODUCTION

Hypertension is a non-communicable disease (NCD) responsible for approximately 41 million deaths annually, accounting for 71% of total global mortality. In low- and middle-income countries, including Indonesia, hypertension contributes to 85% of deaths. The World Health Organization (WHO) estimates that by 2025, about 29% of the global population will suffer from hypertension (Kemenkes RI, 2023). In Aceh Province, the prevalence of hypertension has increased to 26.45%. The rising life expectancy in Indonesia is suspected to be a contributing factor to the epidemiological transition from infectious diseases to degenerative diseases, resulting in an increased prevalence of hypertension (Dinkes Aceh, 2023).

Hypertension adversely affects an individual's quality of life, impacting stamina, social roles, physical condition, affective state, and psychological functions. One approach to improving the quality of life for hypertensive patients is through treatment-seeking behavior. This behavior encompasses various individual or group efforts to seek healing, including self-medication, traditional remedies, purchasing medication, and accessing modern healthcare services (Salasi et al., 2021; Dumar et al., 2023).

Treatment-seeking patterns reflect how individuals utilize healthcare facilities, indicating their level of knowledge and trust in available services. Internal factors influencing this behavior include sociodemographic, economic, and socio-cognitive aspects such as knowledge, attitudes, motivation,

environmental perceptions, and understanding of health and disease. External factors involve institutional health systems, national policies, and local cultural contexts (Rachmadani, 2020). Accessibility to healthcare services plays a crucial role in shaping treatment-seeking patterns. Therefore, the quantity and distribution of healthcare facilities must be proportional and easily accessible to support policymakers in effectively meeting health needs (Fhitri, 2022).

Data from the Aceh Jaya District Health Office indicate fluctuations in hypertension cases: 6,318 cases in 2019, decreasing to 4,773 in 2020, rising again to 6,549 in 2021, and sharply declining to 2,759 in 2022. The highest hypertension prevalence was recorded at Krueng Sabee Community Health Center (Puskesmas) with 2,759 cases, yet only 405 patients (14.68%) received hypertension treatment. Krueng Sabee Puskesmas serves as the primary healthcare provider under the Aceh Jaya Health Office, emphasizing the critical importance of healthcare infrastructure accessibility (Dinas Kesehatan Aceh Jaya, 2023).

Effective hypertension control requires a robust information system. The use of Geographic Information System (GIS) applications can analyze areas with the highest hypertension prevalence, enabling targeted interventions and improvements in healthcare services to be conducted efficiently and effectively (Luthfiana et al., 2024; Yunus et al., 2021). The aim of this study was to analyze the treatment search patterns of hypertension sufferers and the accessibility of health service facilities at the Krueng Sabee Community Health Center.

METHOD

This observational study used a cross-sectional design. The population in this study was all 2,759 hypertensive patients. A sample of 335 respondents was selected using proportional random sampling. This study was conducted in Krueng Sabee District in May 2024. The data collection technique used a questionnaire adopted from Mawanti (2020) with a reliability value of >0.60 . The study was conducted through interviews. Data analysis used chi-square, logistic regression and spatial analysis.

RESULT

Table 1.
Univariate analysis

Variable	f	%
Gender		
Male	180	53,7
Female	155	46,3
Age		
< 35 years	50	14,9
≥ 35 years	285	85,1
Hypertension Status		
Prehypertension	49	14,6
Hypertension	286	85,4
Education Level		
High	46	13,7
Low	289	86,3
Employment		
Permanent	60	17,9
Variable	275	82,1
Income Level		
In Accordance with UMR	82	24,5
Not in Accordance with UMR	253	75,5
Distance		
Affordable	124	37,0
Unaffordable	211	63,0
Travel Time		
Near	124	37,0
Far	211	63,0

Variable	f	%
Ease of Transportation		
Easy	308	91,9
Difficult	27	8,1
Ease of Information		
Available	89	26,6
Not Available	246	73,4
Treatment Layout		
Medical Treatment	236	70,4
Combination Treatment	99	29,6

Table 1 shows that among the 335 study respondents, the majority were female (53.7%), most were aged over 35 years (85.1%), and the majority had a hypertension status classified as hypertensive (85.4%). Most respondents had a low education level (86.3%), and in terms of occupation, the majority were engaged in informal or unstable jobs (82.1%). Regarding income, most respondents fell below the regional minimum wage category (75.5%). Additionally, a majority reported having an inaccessible travel distance to health facilities (63.0%) and a long travel time (63.0%). Ease of transportation was reported as high by 91.9% of respondents, while 73.4% indicated that health information was unavailable. Furthermore, most respondents (70.4%) exhibited a pattern of seeking medical treatment.

Table 2.
Bivariate analysis

Variable	Treatment Pattern				RR (95% CI)	P Value
	Medical Treatment		Combination Treatment			
	f	%	f	%		
Gender						
Male	124	37,01	56	16,72	0,891 (0,638 - 1,245)	0,500
Female	112	33,43	43	12,84	11,21 (0,802 - 1,566)	
Age						
< 35 years	16	4,78	34	10,15	0,335 (0,251-0,446)	0,000
≥ 35 years	220	65,67	65	19,40	29,81 (2.239 - 3.968)	
Hypertension Status						
Prehypertension	16	4,78	33	9,85	0.342 (0.256 - 0.456)	0,000
Hypertension	220	65,67	66	19,70	29,18 (2,188 -3,891)	
Education Level						
High	39	11,64	7	2,09	20,91 (1,036- 4,223)	0,022
Low	197	58,81	92	27,46	0,478 (0,2367- 0,9652)	
Employment						
Permanent	51	15,22	9	2,69	21,81 (1,167- 4,079)	0,006
Variable	185	55,22	90	26,87	0,458 (0,245- 0,856)	
Income Level						
In Accordance with UMR	69	20,60	13	3,88	21,44 (1,265- 3,633)	0,002
Not in Accordance with UMR	167	49,85	86	25,67	0,466 (0,275- 0,7903)	
Distance						
Affordable	89	26,57	35	10,45	10,746 (0,759- 1,5208)	0,683
Unaffordable	147	43,88	64	19,10	0,930 (0,657- 1,3169)	
Travel Time						
Near	89	26,57	35	10,45	10,746 (0,759- 1,5208)	0,683
Far	147	43,88	64	19,10	0,930 (0,657- 1,3169)	
Ease of Transportation						
Easy	231	68,96	77	22,99	32,593 (2,502- 4,244)	0,000
Difficult	5	1,49	22	6,57	0,306 (0,235 -0,399)	
Ease of Information						
Available	77	22,99	12	3,58	26,22 (1,509 - 4,558)	0,000
Not Available	159	47,46	87	25,97	0,381 (0,219- 0,6626)	

Table 2 indicates significant associations between treatment-seeking patterns for hypertension and the variables of age (p = 0.000), hypertension status (p = 0.000), education level (p = 0.022), occupation type (p = 0.006), income level (p = 0.002), ease of transportation (p = 0.000), and ease

of information access ($p = 0.000$). In contrast, gender ($p = 0.500$), travel distance, and travel time ($p = 0.683$) showed no significant relationship with treatment-seeking behavior.

Table 3.
Multivariate analysis

Variable independent	OR	95% CI	P value
Age	0.12006	0.0598144- 0.2409655	0,000
Ease of Transportation	12.5921	4.440145 – 35.71054	0,000
Ease of Information	2.73470	1.329031 – 5.627094	0,006

Multivariate analysis revealed that ease of transportation was the most dominant variable influencing hypertension treatment-seeking patterns, with a p-value of 0.000 ($p < 0.05$) and an odds ratio (OR) of 12.592, indicating a strong positive association.

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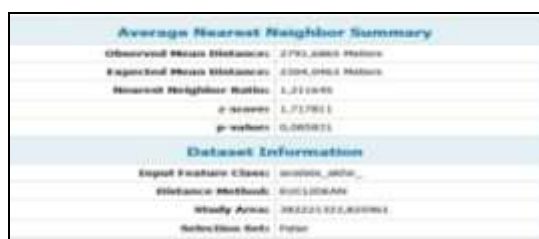


Figure 1. Result of Nearest Neighbour Analysis

Spatial quantitative analysis of health facility distribution using the Nearest Neighbor Ratio yielded a value of 1.212 ($T = 1.211$) with a p-value of 0.088, which falls within the range of 0.01 to 0.10, suggesting that the distribution pattern of health facilities is random or unevenly dispersed.



Fiure 2. Buffer Analysis of Community Health Center Service Radius

Based on spatial buffer analysis, the service radius of the Community Health Center (Puskesmas) covers the villages of Paya Semantok, Padang Datar, Datar Luas, Keude Krueng Sabee, Kabong, and Mon Mata, which are categorized as villages located within a relatively close distance to the Puskesmas. Conversely, villages outside this accessibility classification, including Panggong, Curek, Alue Tho, and Buntha, lie beyond the Puskesmas service radius.



Figure 3. Results of Buffer Radius Analysis of Assistant Health Center Services

Buffer analysis of the Auxiliary Health Center (Puskesmas Pembantu) service radius indicates that the services provided are relatively accessible, with most facilities located within a radius of 1.5 to 3 kilometers. The study findings illustrate that healthcare service coverage targets six villages: Paya Semantok, Padang Datar, Keude Krueng Sabee, Kabong, and Mon Mata. Among these, four villages Paya Semantok, Padang Datar, Keude Krueng Sabee, and Datar Luas fall within the accessible radius of the Auxiliary Health Center and represent the central population area of Krueng Sabee, where four health facilities are situated in close proximity.

DISCUSSION

Relationship Between Respondent Characteristics with Hypertension Treatment-Seeking Patterns

The study results indicate significant associations between age and hypertension status with hypertension treatment-seeking patterns. Similar findings were reported by Yunus et al. (2021) and Wirmando et al. (2022), who noted that older age is associated with a higher risk of hypertension, and individuals with prehypertension have an increased likelihood of developing hypertension (Yunus et al., 2021; Wirmando et al., 2022). Gender, however, was not significantly related to treatment-seeking behavior for hypertension. This finding aligns with previous research demonstrating no significant relationship between gender and preferences in hypertension treatment-seeking patterns. The researchers hypothesize that factors influencing treatment choices include differences in knowledge and understanding of behavior, prevention, and management of chronic diseases (Ama et al., 2020).

Hypertension is perceived as a serious condition with high-risk complications, leading patients to predominantly seek medical treatment. Conversely, prehypertension is often regarded as a normal or less severe condition, which may reduce motivation among prehypertensive individuals to seek treatment. Gender-based perceptions also influence treatment-seeking behavior; men tend to downplay hypertension symptoms such as dizziness and fatigue, viewing them as non-serious. Additionally, masculine stereotypes may discourage men from seeking medical help, unlike women who generally have stronger social support networks that facilitate treatment decisions.

Relationship Between Socioeconomic Factors with Hypertension Treatment-Seeking Patterns

The findings reveal significant relationships between education level, occupation type, income level, and hypertension treatment-seeking patterns. Respondents with higher education levels were approximately twenty times more likely to choose medical treatment as their primary hypertension management strategy compared to those with lower education levels. This is consistent with theories positing education as a key determinant of help-seeking behavior, where individuals with higher education possess greater knowledge and tend to seek assistance more promptly than those with lower education (Yukha, 2022).

A significant association was also observed between occupation type and treatment-seeking behavior. Previous studies similarly identified occupation as a risk factor for hypertension, with physically demanding jobs contributing to elevated blood pressure (Lestari & Nugroho, 2019; Irani, 2022). Respondents earning at or above the regional minimum wage (UMR) were more inclined to select medical treatment as their primary option, whereas those earning below UMR tended to prefer alternative treatments or forego treatment altogether. This aligns with prior research linking low socioeconomic status to higher blood pressure and significant correlations with income level (Lestari & Nugroho, 2019; Windarsih & Devianto, 2017).

The researchers suggest that respondents with lower education levels have limited access to health information, hindering their understanding of the benefits of medical treatment and leading them to perceive alternative treatments as equally effective but less risky. Respondents with stable employment and income above UMR generally have better financial stability and healthcare access, motivating them to prioritize and maintain continuity in medical treatment over basic living needs. Conversely, those with unstable employment and income below UMR tend to prioritize

fundamental needs such as food and housing, viewing alternative treatments as cost-effective solutions.

Relationship Between Accessibility with Hypertension Treatment-Seeking Patterns

The study also found significant associations between ease of transportation and information access with hypertension treatment-seeking patterns, whereas travel distance showed no significant relationship. According to theoretical frameworks, healthcare accessibility is defined as an individual's ability to obtain health services as needed, influenced by factors such as transportation networks, road availability, transportation modes, road quality and quantity, and land use planning (Sukma et al., 2018).

Healthcare accessibility is often measured by transportation mode, travel time, and costs incurred to reach health services (Rukmana, 2019; Zulaikha & Rahma, 2023). The researchers posit that social support for transportation, infrastructure quality such as road availability, and clear information regarding hypertension treatment facilitate faster travel to healthcare facilities and expedite decision-making processes, thereby reducing anxiety related to treatment outcomes.

Multivariate Analysis

Multivariate analysis demonstrated that respondents with ease of transportation were approximately twelve times more likely to choose medical treatment over combined treatment modalities. This finding is supported by previous studies indicating that income, transportation access, and residential location are significantly related to community access to healthcare facilities (Maulany dan Dianingati, 2021). The researchers infer that respondents with better transportation access tend to be more autonomous in utilizing health services, whereas those facing transportation difficulties experience challenges coordinating transportation availability with healthcare service hours.

Spatial Analysis

Spatial analysis revealed that the distribution pattern of health facilities falls under a random or unevenly dispersed category (Random Pattern). Buffer analysis showed that the service radius of the primary Community Health Center (Puskesmas) covers six villages, while the auxiliary Puskesmas serves six villages with one village located outside the service radius. Similar findings have been reported in previous studies, where the random distribution of Puskesmas facilities within a region, often due to location constraints, results in limited service coverage for distant areas (Dhewi, 2019; Rahmah et al., 2023).

CONCLUSION

The variables of age, hypertension status, education level, occupation type, and income level showed significant associations with hypertension treatment-seeking patterns, whereas gender did not demonstrate a significant relationship. Conversely, accessibility factors such as travel distance and travel time were not significantly related, but ease of information access exhibited a significant association. Multivariate analysis identified ease of transportation as the most dominant independent variable influencing hypertension treatment-seeking behavior. Spatial analysis revealed that the distribution of health facilities is random and uneven, affecting healthcare accessibility, with some areas having better access than others.

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