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Determinants of Youth Health Insurance Utilization in Eastern Indonesia: Evidence from the 2023 SUSENAS

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ABSTRACT

Introduction: Youth, as a transitional age group, are often vulnerable to health problems yet tend to underutilize health services despite experiencing complaints. Health insurance plays a critical role in ensuring equitable access, especially in Eastern Indonesia where regional disparities persist. This study aimed to identify key factors influencing health insurance utilization among youth aged 15-24 years in East Nusa Tenggara, Maluku, and Papua Highlands.

Methods: This cross-sectional study used data from the 2023 National Socioeconomic Survey (SUSENAS) conducted by Statistics Indonesia (BPS). Analysis included 2,649 youth aged 15-24 who reported health complaints in the previous month. Descriptive, bivariate, and multivariate logistic regression analyses were performed to determine the main predictors of health insurance utilization.

Results: Although more than four-fifths of respondents were insured, only about one-fourth accessed health services. Regional disparities emerged as the strongest determinant of utilization. Youth in Maluku and East Nusa Tenggara were significantly less likely to be insured compared to their peers in Papua, while those living in rural areas showed higher odds of insurance use than those in urban settings. Individual characteristics such as age, gender, education, and employment status had minimal influence.

Conclusion: Health insurance utilization among youth in Eastern Indonesia remains limited and largely shaped by structural and regional inequalities. Strengthening youth health literacy, simplifying insurance procedures, and improving service accessibility are essential steps toward equitable and youth-responsive universal health coverage in Indonesia and comparable middle-income settings.

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INTRODUCTION

One important factor influencing a community's health is access to healthcare services; however, notable differences in service utilization persist across age groups and geographical areas. The World Health Organization (WHO) defines youth as individuals aged 15-24 years, representing a transitional phase from adolescence to adulthood with distinct health needs (1). This period is characterized by increased health risks and a growing demand for healthcare services. Although the burden of chronic disease among young people is relatively lower compared to older age groups, barriers to accessing healthcare remain common. These barriers include financial constraints, low health awareness, and perceptions of lower vulnerability to health problems (2).

Health insurance schemes, particularly the national health insurance program, are designed to reduce cost barriers and promote more equitable access to health services. Evidence suggests that health insurance participation can increase service utilization and positively impact health outcomes, particularly for vulnerable groups (3-7). However, the uneven utilization of health insurance remains a challenge in middle-income countries, including Indonesia(4,8-10). Since its implementation in 2014, Indonesia's National Health Insurance (JKN) program has substantially expanded population coverage; however, effective utilization remains uneven across age groups, particularly among youth (4,8,9,11). Unlike older adults, many young people are covered as dependents within family-based insurance arrangements, are engaged in informal employment, or face limitations in navigating administrative procedures, which may constrain their utilization of JKN benefits (4,8,9,11, 12)

Eastern Indonesia, particularly East Nusa Tenggara (NTT), Maluku, and the Papua Highlands, continues to face substantial challenges related to limited healthcare infrastructure, shortages of healthcare workers, geographic barriers, and higher poverty levels compared to the national average (11,13-15). These conditions contribute to persistently lower access to and utilization of healthcare services, including health insurance, especially in rural and remote areas. Recent evidence indicates that the Papua Highlands and Maluku are among the provinces with the lowest levels of health insurance coverage in Indonesia, and utilization of health services in these regions remains limited (11). Geographic isolation, transportation constraints, and poverty further exacerbate access barriers, disproportionately affecting vulnerable groups such as young people experiencing health complaints, who may be unable to optimally utilize health insurance despite being covered (13,14,16). However, empirical evidence specifically examining health insurance utilization among young people in these regions remains scarce. Further research focusing on younger age groups is therefore needed to better understand the barriers they face and to inform context-specific policy responses (11,17).

Low utilization of health insurance in eastern Indonesia, particularly among youth aged 15-24, remains a major challenge in achieving equitable national health development. The eastern provinces, including Nusa Tenggara, Maluku, and Papua, have historically lagged behind in many aspects of development, especially in the health sector (8,18). Health insurance ownership and utilization rates in these regions remain below the national average, particularly among younger age groups, despite the government's efforts through the National Health Insurance (JKN) program to expand healthcare access (18,19).

National data indicate that individuals aged 15-24 are less likely than older adults to possess health insurance (AOR = 0.88). Those from low-income households, living in rural areas, and with lower educational attainment are also less likely to be insured (19). The limited availability of health facilities further exacerbates under-utilization, even among insured populations (8). This constraint contributes to lower health service visits, including hospital admissions and deliveries, within these eastern provinces (8,18).

Youth are a pivotal group in national health development because they are in a transitional phase toward adulthood and hold substantial potential as agents of behavioral change. Nevertheless, the low utilization of health insurance among youth may hinder progress in reducing inter-regional health inequities. Therefore, understanding the underlying factors that shape this behavior is essential for formulating effective, youth-responsive policy interventions (8,18,19).

From a theoretical perspective, youth health insurance utilization can be interpreted through Andersen's Behavioral Model of Health Services Use, which conceptualizes healthcare access as a function of predisposing, enabling, and need factors(20). Limited enabling resources such as low health literacy, complex administrative procedures, and restricted facility availability may explain why insured youth in Eastern Indonesia still underutilize available health services.

Considering the importance of youth in health development and the disparity in service utilization in eastern Indonesia, this research is relevant. The purpose of this study is to examine how young people in the provinces of East Nusa Tenggara, Maluku, and Papua Highlands who suffer from health issues use health insurance. The results are expected to provide a basis for formulating policy strategies to strengthen equitable access to health services, while also ensuring the role of national health insurance in reducing health disparities among youth in underdeveloped regions of Indonesia.

METHOD

Research Type

This study employed a quantitative approach with a cross-sectional design using secondary data from the 2023 National Socioeconomic Survey (SUSENAS) conducted by Statistics Indonesia (Badan Pusat Statistik, BPS). The design was chosen to identify factors associated with youth health insurance utilization at a single point in time. Using nationally representative secondary data allowed the analysis of large-scale population trends efficiently and objectively.

Population and Sample/Informants

The study population comprised individuals aged 15-24 years residing in three eastern provinces of Indonesia: East Nusa Tenggara, Maluku, and Papua Highlands. From the SUSENAS 2023 dataset, a total of 2,649 respondents were included based on the following criteria: 1) Aged 15–24 years, and 2) Reported experiencing health complaints in the month preceding the survey.

Health complaints were identified using the SUSENAS health module variable on self-reported morbidity (*keluhan kesehatan dalam satu bulan terakhir*), which records whether respondents experienced any health-related complaints during the past month and is coded as a binary variable (yes/no). Respondents with incomplete or missing data for key analytical variables were excluded.

From the SUSENAS dataset, the analysis was conducted using unweighted data. Sampling weights provided by Statistics Indonesia (BPS) were not applied in this study. Accordingly, the results are interpreted as associations within the analytical sample rather than as population-level estimates.

Research Location

This study focused on three provinces in Eastern Indonesia (East Nusa Tenggara, Maluku, and Papua Highlands) regions that generally face geographical and infrastructural challenges affecting healthcare access. The data were collected nationwide by Statistics Indonesia, and the analysis was conducted independently by the researchers using the relevant subset of the SUSENAS dataset.

Instrumentation or Tools

The study utilized variables derived from the SUSENAS 2023 dataset. The outcome variable was health insurance utilization during healthcare access, coded as a binary variable (used vs. not used). Independent variables were coded according to their measurement scale: sex, area of residence, employment status, and access to healthcare services were treated as binary variables, while province, educational attainment, and age group were treated as categorical variables. All categorical variables were entered into the logistic regression model using appropriate reference categories. No additional primary data collection instruments were developed for this study. Data were analyzed using IBM SPSS Statistics version 27.0 (Armonk, NY, USA).

Data Collection Procedures

All data used in this study were secondary and obtained from the 2023 SUSENAS dataset, officially published by Statistics Indonesia (BPS). The SUSENAS data were collected by trained enumerators using structured interviews with households across all Indonesian provinces following standardized national protocols.

Data Analysis

Data were analyzed in three stages:

Descriptive analysis was used to summarize respondent characteristics and the distribution of health insurance utilization among youth.

Bivariate analysis using the Chi-square test identified associations between independent variables (gender, age, place of residence, level of education, and work status).

Multivariate logistic regression was employed to determine factors significantly associated with health insurance utilization, presented as Adjusted Odds Ratios (AOR) with 95% Confidence Intervals (CI).

A backward Wald elimination method was applied to obtain a parsimonious model by sequentially removing non-significant variables while controlling for potential confounders. Prior to model estimation, multicollinearity among independent variables included in the full model (Step 1) was assessed using collinearity diagnostics. All variables showed acceptable levels of multicollinearity (VIF < 10 and tolerance > 0.10), indicating that the regression estimates were stable.

All analyses were performed using IBM SPSS Statistics version 27.0, and statistical significance was set at $p < 0.05$.

Ethical Approval

This study used secondary data from the 2023 National Socioeconomic Survey (SUSENAS) conducted by Statistics Indonesia (BPS). The dataset is publicly available and fully anonymized; therefore, no additional ethical approval was required. The use of this dataset poses minimal risk of confidentiality breach, as it does not contain any personally identifiable information. Nevertheless, this study adheres to the ethical principles of research as outlined in the Declaration of Helsinki, which emphasizes the protection of the rights and interests of research subjects, including the use of non-personally identifiable secondary data(21).

RESULTS

A total of 2,649 young people aged 15-24 years with health complaints in the provinces of Maluku, East Nusa Tenggara (NTT), and Papua Highlands were analyzed in this study. The majority of respondents came from NTT (73.6%), followed by Maluku (17.8%) and Papua (8.6%). The majority lived in rural areas (77.8%), with a balanced gender composition, with 49.3% male and 50.7% female. Fifty-two percent of respondents had a high school education, while 10.8% had a primary education. Most respondents (64.2%) were not in the workforce, and 63.8% were aged 15-19 (Table 1). This demographic composition indicates that the analytical findings primarily reflect the conditions of younger adolescents and rural populations, which may influence patterns observed in subsequent analyses.

Table 1. Respondent Characteristics (n = 2,649) (SUSENAS 2023)

Variable	Category	Frequency (n)	Percentage (%)
Province	East Nusa Tenggara	1,950	73.6
	Maluku	472	17.8
	Highland Papua	227	8.6
Area of residence	Rural	2,060	77.8
	Urban	589	22.2
Sex	Female	1,343	50.7
	Male	1,306	49.3
Educational attainment	Senior secondary	1,330	50.2
	Junior secondary	653	24.7
	Tertiary (Diploma & Bachelor's degree)	379	14.3
	Primary	287	10.8
Employment status	Not in the labor force	1,701	64.2
	In the labor force	948	35.8

Age group	15–19 years	1,691	63.8
	20–24 years	958	36.2
Health insurance ownership	Insured	2,190	82.7
	Uninsured	459	17.3
Access to healthcare services	No	1,937	73.1
	Yes	712	26.9

SUSENAS: Survei Sosial Ekonomi Nasional

A total of 82.7% of respondents reported having health insurance. Of the total number of young people accessing health services (26.9%), 82% used health insurance when accessing services, 8.3% did not use insurance despite having it, and 9.7% accessed services without having health insurance. The type of health insurance most frequently used when accessing services was BPJS PBI (67.1%), followed by BPJS Non-PBI (8.6%) and Jamkesda (6.0%). Reasons for not using health insurance despite having it included not knowing how to use it (3.9%), difficult procedures (3.1%), inactive insurance cards (3.9%), lack of service personnel (3.9%), transportation costs (1.6%), long service/queue times (6.3%), and other reasons (77.3%) (Table 2).

Table 2. Health Insurance Utilization and Types among Respondents Accessing Healthcare Services (n = 712) (SUSENAS 2023)

Variable	Category	Frequency (n)	Percentage (%)
Health insurance utilization status	Used health insurance	584	82.0
	No health insurance but accessed healthcare services	69	9.7
	Did not use health insurance	59	8.3
Type of health insurance used during healthcare utilization	BPJS (subsidized, PBI)	478	67.1
	Did not use health insurance	128	18.0
	BPJS (non-subsidized, Non-PBI)	61	8.6
	Regional health insurance (Jamkesda)	43	6.0
	Employer-based insurance	2	0.3

SUSENAS: Survei Sosial Ekonomi Nasional

Bivariate analysis using the chi-square test showed a significant association between health insurance use and several respondent characteristics. Health insurance use was higher among youth living in rural areas (84.9%) compared to those living in urban areas (15.1%) ($p < 0.001$). Women used health insurance more than men (56.2% vs. 43.8%, $p = 0.001$). Province also had a significant impact, with the highest insurance use in NTT (76.2%) compared to Maluku (14.7%) and Papua (9.1%) ($p = 0.001$). Labor force status also had an impact, with youth not in the labor force using health insurance more often (68.3%) than those in the labor force (31.7%) ($p = 0.015$). No significant association was found between insurance use and age group and education level ($p > 0.05$) (Table 3).

However, these bivariate associations do not account for the potential interrelationships among sociodemographic variables, suggesting the possibility of confounding effects. Therefore, variables identified in the bivariate analysis were further examined using multivariate logistic regression to assess their independent associations with health insurance utilization after controlling for potential confounders.

Table 3. Health Insurance Utilization by Respondent Characteristics (n = 712) (SUSENAS 2023)

Variable	Category	Used Health Insurance (n, %) [95% CI]	Did Not Use Health Insurance (n, %) [95% CI]	No Health Insurance but Accessed Services (n, %) [95% CI]	p-value
Province	Highland Papua	53 (9.1)	2 (3.4)	0 (0.0)	0.001**
	East Nusa Tenggara	445 (76.2)	41 (69.5)	47 (68.1)	
	Maluku	86 (14.7)	16 (27.1)	22 (31.9)	
Area of residence	Rural	496 (84.9)	36 (61.0)	52 (75.4)	0.001**
	Urban	88 (15.1)	23 (39.0)	17 (24.6)	
Sex	Male	256 (43.8)	28 (47.5)	24 (34.8)	0.001**
	Female	328 (56.2)	31 (52.5)	45 (65.2)	
Educational attainment	Tertiary (Diploma & Bachelor's degree)	75 (12.8)	6 (10.2)	8 (11.6)	0.564
	Senior secondary	311 (53.3)	29 (49.2)	31 (44.9)	
	Junior secondary	132 (22.6)	18 (30.5)	20 (29.0)	
	Primary	66 (11.3)	6 (10.2)	10 (14.5)	
Employment status	In the labor force	185 (31.7)	18 (30.5)	18 (26.1)	0.015*
	Not in the labor force	399 (68.3)	41 (69.5)	51 (73.9)	
Age group	15–19 years	361 (61.8)	42 (71.2)	48 (69.6)	0.331
	20–24 years	223 (38.2)	17 (28.8)	21 (30.4)	

SUSENAS: Survei Sosial Ekonomi Nasional
CI: Confidence Interval

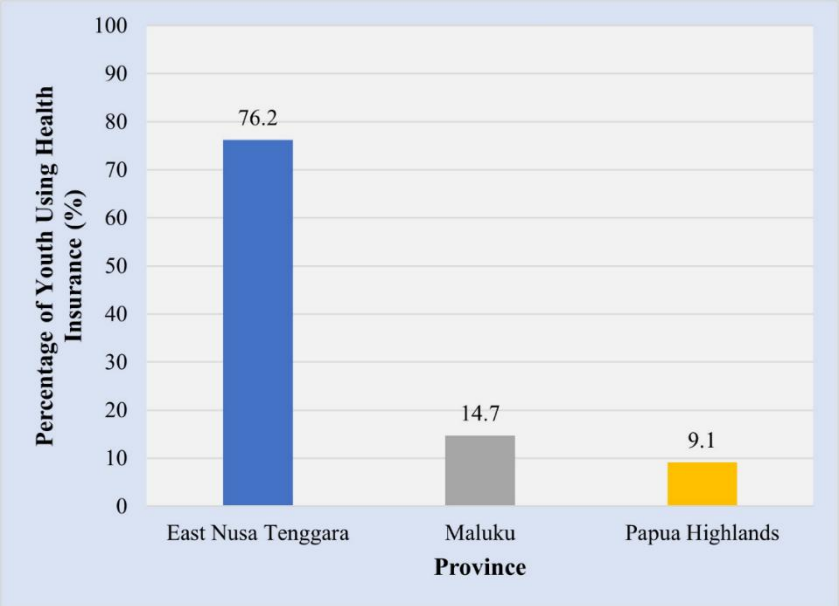

Figure 1. Proportion of Youth Using Health Insurance by Province, Eastern Indonesia (SUSENAS 2023)

The visualization in Figure 1 highlights pronounced regional disparities in youth health insurance utilization. East Nusa Tenggara demonstrates a markedly higher utilization rate compared to Maluku and the Papua Highlands, reinforcing the statistical results presented in Table 3. These findings emphasize that regional context remains a dominant factor influencing youth participation in health insurance programs in Eastern Indonesia.

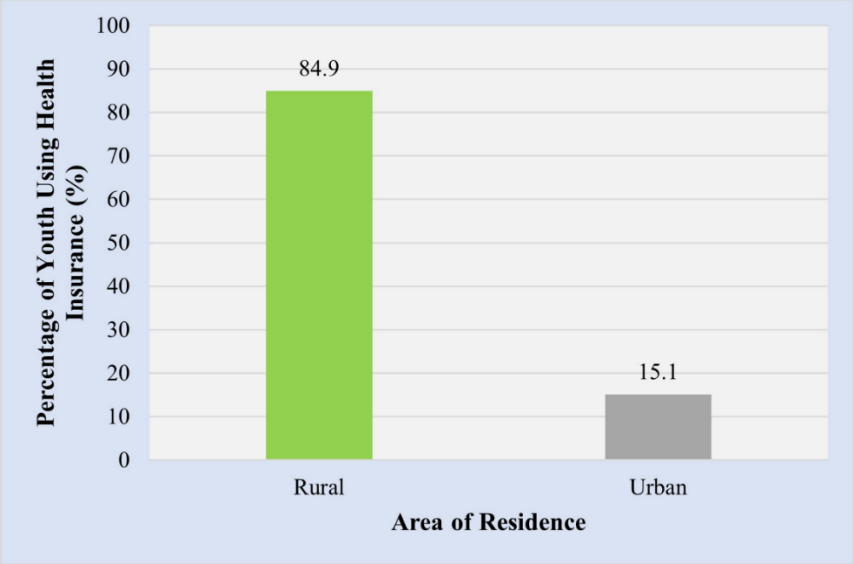

Figure 2. Proportion of Youth Using Health Insurance by Area of Residence, Eastern Indonesia (SUSENAS 2023)

Figure 2 further illustrates differences in health insurance utilization by area of residence. Youth living in rural areas showed substantially higher utilization (84.9%) compared to their urban counterparts (15.1%). This finding aligns with the dominance of subsidized insurance (PBI) coverage among rural populations and supports the notion that geographical access and economic eligibility criteria remain key determinants of insurance ownership and use among youth in Eastern Indonesia.

The observed patterns in Figures 1 and 2 underscore that geographical and structural factors remain the most prominent determinants of youth health insurance utilization in Eastern Indonesia. To further identify the independent predictors while controlling for potential confounders, a multivariate logistic regression analysis was performed. The model results, presented in Table 4, confirm that provincial disparities and area of residence remain significant after adjustment, whereas individual characteristics such as age, sex, and education show no statistically significant association with insurance utilization.

Table 4. Factors Associated with Health Insurance Utilization (Multivariate Logistic Regression, Backward Wald, SUSENAS 2023)

Variable	Category	AOR	95% CI (Lower-Upper)	p-value
Province	East Nusa Tenggara	0.211	0.050 - 0.886	0.034*
	Maluku	0.102	0.023 - 0.449	0.003**
	Highland Papua	Ref	-	-
Area of residence	Rural	2.240	1.415 - 3.544	<0.001**
	Urban	Ref	-	-
Educational attainment	Primary	0.576	0.253 - 1.313	0.190
	Junior secondary	0.557	0.276 - 1.123	0.102
	Senior secondary	0.935	0.486 - 1.801	0.841
	Tertiary (Diploma & Bachelor's degree)	Ref	-	-

SUSENAS: Survei Sosial Ekonomi Nasional
AOR = Adjusted Odds Ratio
CI: Confidence Interval
Ref: Reference category

Multivariate logistic regression analysis using the backward (Wald) elimination method identified three variables significantly associated with health insurance utilization among youth. After controlling for other sociodemographic factors, provincial disparities and area of residence remained strong predictors. Compared with

youth in Papua Highlands, those in East Nusa Tenggara (AOR = 0.21; 95% CI: 0.05–0.89; p = 0.034) and Maluku (AOR = 0.10; 95% CI: 0.02–0.45; p = 0.003) were significantly less likely to use health insurance. In contrast, youth residing in rural areas were more likely to use health insurance than those in urban settings (AOR = 2.24; 95% CI: 1.42–3.54; p < 0.001). Educational attainment did not show a statistically significant effect in this model (Table4). These findings confirm that structural and contextual factors, rather than individual-level characteristics, primarily shape youth participation in health insurance programs in Eastern Indonesia.

DISCUSSION

Interpretation of Key Findings

This study reveals significant disparities in health insurance utilization among youth aged 15-24 years in Eastern Indonesia. Youth in Papua were more likely to use health insurance than those in East Nusa Tenggara (NTT) and Maluku, indicating that, despite the national implementation of the National Health Insurance (JKN) program in 2014, utilization remains uneven across provinces. This indicates that regional and systemic inequalities persist within Indonesia's health system, disproportionately affecting populations in structurally disadvantaged regions (8,18,19).

Beyond geographic differences, these findings also reflect age-specific vulnerabilities among youth, a population group in transition from dependency to autonomy (22,23). During this life stage, young people often face distinctive behavioral and structural challenges, including limited health literacy, financial dependency on family, low perception of illness severity, and unfamiliarity with health insurance procedures (24). Consequently, even when insured, many youth do not fully utilize health services mirroring global patterns observed among young populations in other low- and middle-income countries (12,25,26).

In the multivariate model, other sociodemographic factors were controlled for, allowing the independent effect of regional classification to be more clearly observed. This finding underscores the importance of multivariate analysis in minimizing biased conclusions due to confounding. The results provide empirical evidence that regional disparities remain a key determinant of health insurance utilization among youth, reflecting broader structural and access-related inequalities within Indonesia's health system (8,11,19). Moreover, it reinforces the notion that youth health behavior cannot be separated from systemic and structural inequities where institutional barriers, limited service availability, and administrative complexity intersect with individual-level limitations such as knowledge gaps and perceived invulnerability (12,24). It is important to note that this study did not directly measure underlying mechanisms such as health insurance literacy, administrative complexity, or procedural barriers**.** However, previous studies have documented that limited understanding of insurance entitlements, complex administrative requirements, and difficulties in navigating health insurance systems may hinder utilization, particularly among younger populations and residents of structurally disadvantaged regions (27-29). These mechanisms are therefore discussed as contextual interpretations based on existing literature, rather than as empirical findings of the present study.

Overall, these results suggest that regional inequalities remain a primary determinant of health insurance utilization among youth, reflecting broader structural and access disparities within Indonesia's health system. At the same time, they contribute to the global discourse on youth health equity, emphasizing that equitable access to healthcare requires not only geographical inclusion but also age-responsive and regionally adaptive approaches within universal health coverage frameworks (12,23,25,30,31).

Comparison with Previous Studies

Interprovincial disparities in healthcare utilization are nothing new in Indonesia. Previous studies have shown that geographic factors, facility distribution, and service quality contribute to disparities in healthcare utilization across regions (32). This is in line with the results of this study, where provinces with island geographical conditions and limited health infrastructure, such as NTT and Maluku, show lower utilization of health insurance.

The results of this study are also in line with previous studies that found disparities in ownership and utilization of health insurance in eastern Indonesia, where low health access and literacy are the main obstacles (11,19). Another study confirmed that even though health insurance ownership is quite high, utilization remains low due to limited services and lack of knowledge of usage procedures (8,19). In addition, the limited availability and uneven distribution of health facilities in the eastern region reinforce the empirical finding that regional differences play an important role in health insurance utilization among youth (8). The present study demonstrates substantial

variation in utilization across provinces and between rural and urban areas, indicating that disparities in access to healthcare facilities remain a key contextual factor shaping patterns of insurance use in Eastern Indonesia.

Beyond these structural access-related differences, non-structural barriers have also been discussed in the literature as potential factors influencing health service utilization among young populations. A cross-national study across 30 middle-income countries reported that young people may face unique challenges in accessing health services, including low perceived need for care despite experiencing symptoms and limited health literacy (24). As these mechanisms were not directly measured in the present study, they should be interpreted as contextual explanations rather than empirical findings, and are discussed here to complement the observed regional and rural–urban disparities identified in this analysis.

Evidence from Indonesia further supports the role of health insurance in increasing healthcare utilization, particularly in rural settings. Research conducted in Southeast Sulawesi showed that health insurance substantially increases healthcare consumption in both rural and urban areas; however, utilization among insured individuals tends to be higher in rural areas because insurance plays a more prominent role in reducing financial barriers where alternative financing options are limited (33). Similarly, national studies have found that vulnerable groups, including rural residents, are more likely to benefit from the National Health Insurance (JKN) scheme and therefore show higher utilization of available health services (6,15).

Several contextual factors discussed in national literature may help explain why rural communities demonstrate higher utilization of insurance-based health services. These include broader coverage of government premium subsidies through the JKN contribution assistance scheme (PBI) (15), limited availability of non-insurance health financing alternatives (6,33), and greater reliance on primary healthcare facilities such as community health centers that are integrated within the JKN system (15). In addition, previous studies have noted that dissemination of insurance program information and perceptions of insurance benefits may be stronger in rural areas (33,34). These factors are presented as supporting context for the rural–urban differences observed in this study, rather than as direct explanatory variables.

International evidence further contextualizes these findings by showing that rural populations in several low- and middle-income countries may experience increased utilization of insurance-based healthcare following inclusive insurance reforms. For example, studies from China reported that integration of urban and rural health insurance schemes under the Urban and Rural Residents Basic Medical Insurance (URRBMI) was associated with increased inpatient service utilization among rural residents, particularly among low-income groups and individuals with chronic conditions (35). Similarly, studies from Ethiopia and other African settings found that rural households enrolled in community-based health insurance (CBHI) schemes were more likely to access healthcare services compared to uninsured households (36).

These cross-country examples are discussed to contextualize the empirical rural–urban and regional disparities identified in the present study, rather than to draw direct comparisons across countries. They illustrate how differences in healthcare availability, financing arrangements, and insurance design may influence utilization patterns in settings with comparable health system challenges.

Beyond Indonesia, similar challenges in health insurance utilization among youth have been reported in other low- and middle-income countries. Studies from India indicate that despite large-scale national insurance programs such as Ayushman Bharat, disparities in regional access and low utilization among young populations persist, often discussed in relation to administrative complexity, geographic barriers, and limited health literacy (12,25,26). These global parallels highlight the importance of youth-centered and equity-focused strategies such as targeted digital health promotion, simplification of insurance procedures, and stronger community engagement to improve health insurance utilization (25,26). As these factors were not directly assessed in the current analysis, they are discussed as literature-based interpretations that help situate the findings from Eastern Indonesia within broader global efforts toward equitable and youth-responsive universal health coverage (12,25,31).

Limitations and Cautions

There are various restrictions on this study. First, researchers are unable to determine causal relationships between variables due to the cross-sectional design (11,19). Second, the data used come from the 2023 SUSENAS, which is secondary in nature. Therefore, other important variables, such as knowledge of the National Health

Insurance (JKN), perceptions of service quality, or cultural factors, cannot be explored. Self-reported data are potentially subject to reporting bias. Furthermore, supply-side variables such as service quality and the availability of healthcare facilities have not been analyzed in depth, even though these factors are highly influential in Eastern Indonesia (8). Third, the research results are limited to three provinces in Eastern Indonesia and this study did not apply sampling weights from the SUSENAS survey, which may limit the generalizability of the findings to the broader youth population in Eastern Indonesia.

Recommendations for Future Research

This study highlights that health insurance utilization among youth in Eastern Indonesia remains influenced by regional disparities rather than individual characteristics. Building on these findings, future research should aim to explore deeper dimensions influencing health insurance behavior among young people.

First, it is important to examine behavioral and cultural factors that shape youth decision-making in accessing healthcare, particularly their perception of illness and attitudes toward insurance use. Understanding these aspects could explain why insured youth still underutilize available services.

Second, longitudinal or mixed-method studies are recommended to capture temporal changes in youth health-seeking behavior and the long-term impact of socialization programs such as *Jaminan Kesehatan Nasional* (JKN). These approaches can also help identify causal pathways that cannot be explored in a cross-sectional design.

Third, comparative or multi-provincial studies involving both eastern and western regions of Indonesia may provide a more comprehensive understanding of contextual determinants that drive disparities in health insurance utilization. Such research could support evidence-based policy formulation to strengthen equity in national health coverage.

Lastly, future investigations may incorporate supply-side perspectives, such as service availability, provider attitudes, and administrative accessibility, which were beyond the scope of this study but crucial for understanding systemic barriers to equitable healthcare access.

CONCLUSION

Health insurance utilization among young people in Eastern Indonesia is more influenced by location and province, rather than education or age. Key barriers include unfamiliarity with procedures, inactive cards, and access to services. Efforts to increase literacy and improve access to services are essential to increase health insurance utilization among this group. International and national research shows that integration and simplification of health insurance schemes, increased benefits (reimbursement), and strengthening of health service facilities in rural areas are very effective in increasing access to and utilization of health insurance. In China, combining rural and urban health insurance greatly improved inpatient service utilization and decreased access inequalities, particularly in underprivileged areas. Increasing reimbursement rates has also been shown to encourage the use of health services in rural areas.

The finding that province and regional classification significantly influence health insurance utilization underscores the importance of region-based policies. Interventions should focus on program integration, increased benefits, simplified procedures, and equitable distribution of facilities and education in rural areas and provinces with low coverage.

The implications of these results underscore the importance of policy responses that are closely aligned with the specific empirical patterns identified in this study. The observed disparities in health insurance utilization across provinces and between rural and urban areas suggest that strategies to improve utilization among youth should prioritize provinces and settings with lower observed use, particularly areas where access to healthcare facilities remains limited. Rather than focusing solely on insurance enrollment, policy efforts may benefit from greater emphasis on ensuring that insured youth can effectively access available services in these settings.

Given that the study population was predominantly composed of younger adolescents aged 15-19 years, the findings also highlight the relevance of youth-focused approaches to health insurance utilization. Policies that strengthen linkages between the National Health Insurance (JKN) scheme and primary healthcare facilities commonly accessed by adolescents, as well as context-specific outreach activities in provinces with lower utilization, may help

address the observed gaps. These recommendations are derived directly from the empirical findings of this study and should be interpreted as context-specific rather than generalized national policy prescriptions.

Beyond the Indonesian context, the patterns identified in this study provide comparative insights for other low- and middle-income countries facing similar regional and demographic challenges in health insurance utilization. For example, both Indonesia's JKN and India's Ayushman Bharat aim to advance universal health coverage, yet evidence from both settings indicates that youth-specific barriers and regional disparities persist. In this regard, the findings from Eastern Indonesia may offer relevant lessons for countries with comparable geographic and infrastructural contexts, particularly in highlighting the need for policies that explicitly address subnational and youth-related disparities in health insurance utilization.

AUTHOR'S CONTRIBUTION STATEMENT

Melly Cosmalinda Widyaningsih contributed to the conceptualization, study design, definition of intellectual content, literature search, data acquisition, data analysis, statistical analysis, manuscript preparation, manuscript editing, and overall manuscript review. She also served as the guarantor of the study.

Mahmudah contributed to the conceptualization, study design, definition of intellectual content, statistical analysis, and manuscript review.

Devina Dwi Kurnia contributed to the literature search, data analysis, manuscript preparation, manuscript editing, and manuscript review.

All authors have read and approved the final version of the manuscript and agree to be accountable for all aspects of the work.

CONFLICTS OF INTEREST

The authors declare that there is no conflict of interest regarding the publication of this article. All authors conducted the study independently, and no financial, personal, or institutional relationships could have influenced the results or interpretation of the findings.

DECLARATION OF GENERATIVE AI AND AI-ASSISTED TECHNOLOGIES IN THE WRITING PROCESS

In preparing and refining this manuscript, the authors made limited use of generative artificial intelligence (AI) tools, including ChatGPT (OpenAI) and Grammarly, to enhance language clarity, check grammar consistency, and improve readability. These tools were used solely for linguistic and formatting purposes, while all conceptual frameworks, analyses, interpretations, and conclusions were developed independently by the authors.

The application of AI-assisted technologies remained under the full supervision and critical judgment of the authors. No AI tools were used to generate data, perform analysis, or create original content. This declaration is made to ensure transparency and uphold ethical standards in responsible scientific writing.

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BIBLIOGRAPHY

1. Organization WH. Adolescent health: WHO Southeast Asia Regional Office; 2019 [cited 2025 26 Agustus]. Available from: https://www.who.int/southeastasia/health-topics/adolescent-health.
2. Rahma AR, Amiruddin R, Dwinata I, Rismayanti R. Persepsi Pemuda dalam Mencegah Covid-19 Menggunakan Pendekatan Health Belief Model di SMAN 9 Kecamatan Rappocini Kota Makassar Tahun 2021. Care Journal. 2022;1(1):84-91. Available from: https://doi.org/10.35584/carejournal.v1i1.8
3. Rahmawati T, Hsieh HM. Appraisal of universal health insurance and maternal health services utilization: pre- and post-context of the Jaminan Kesehatan Nasional implementation in Indonesia. Front Public Health. 2024;12:1301421. Available from: https://doi.org/10.3389/fpubh.2024.1301421
4. Anindya K, Lee JT, McPake B, Wilopo SA, Millett C, Carvalho N. Impact of Indonesia's national health insurance scheme on inequality in access to maternal health services: A propensity score matched analysis. J Glob Health. 2020;10(1):010429. Available from: https://doi.org/10.7189/jogh.10.010429
5. Wang W, Temsah G, Mallick L. The impact of health insurance on maternal health care utilization: evidence from Ghana, Indonesia and Rwanda. Health Policy Plan. 2017;32(3):366-75. Available from: https://doi.org/10.1093/heapol/czw135
6. Setyawati A, Marohabutr T, Meemon N, Paek SC. National Health Insurance in Indonesia and Its Impact on Health-Seeking Behavior. Asia-Pacific Social Science Review. 2021;21(3).Available from: https://doi.org/10.59588/2350-8329.1396
7. Wulandari RD, Laksono AD, Mubasyiroh R, Rachmalina R, Ipa M, Rohmah N. Hospital utilization among urban poor in Indonesia in 2018: is government-run insurance effective? BMC Public Health. 2023;23(1):92. Available from: https://doi.org/10.1186/s12889-023-15017-y
8. Pratiwi AB, Setiyaningsih H, Kok MO, Hoekstra T, Mukti AG, Pisani E. Is Indonesia achieving universal health coverage? Secondary analysis of national data on insurance coverage, health spending and service availability. BMJ Open. 2021;11(10):e050565. Available from: http://dx.doi.org/10.1136/bmjopen-2021-050565
9. Cheng Q, Fattah RA, Susilo D, Satrya A, Haemmerli M, Kosen S, et al. Determinants of healthcare utilization under the Indonesian national health insurance system – a cross-sectional study. BMC Health Services Research. 2025;25(1). Available from: https://doi.org/10.1186/s12913-024-11951-8
10. Firman H, Annisa A, Utter P, Aleisha W. The Impact of Universal Health Coverage Policies on Health Equity Metrics: A Longitudinal Analysis in Indonesia. Community Medicine and Education Journal. 2025;6(1):625-36. Available from: https://doi.org/10.37275/cmej.v6i1.696
11. Laksono AD, Wulandari RD, Zuardin Z, Nopianto N. The disparities in health insurance ownership of hospital-based birth deliveries in eastern Indonesia. BMC Health Serv Res. 2021;21(1):1261. Available from: https://doi.org/10.1186/s12913-021-07246-x
12. Chen S, Geldsetzer P, Chen Q, Moshabela M, Jiao L, Ogbuoji O, et al. Health Insurance Coverage In Low- And Middle-Income Countries Remains Far From The Goal Of Universal Coverage. Health Affairs. 2022;41(8):1142-52. Available from: https://doi.org/10.1377/hlthaff.2021.00951
13. Rahman, Kamrin, Ruwiah. Utilization of health service facilities for all communities in Indonesia. World Journal of Advanced Research and Reviews. 2024;24(2):827-34. Available from: https://doi.org/10.30574/wjarr.2024.24.2.3392
14. Rahmi Mughni Hanipah SM, M Denis Faisal, Siti Hajar, . Comparative Analysis of Unmetneed Services in Health in Indonesia in 2020 and 2023 Jurnal Ilmu Manajemen Retail (JIMAT) 2024 Vol 5, No 1. Available from: https://doi.org/10.37150/jimat.v5i1.2873
15. Wenang S, Schaefers J, Afdal A, Gufron A, Geyer S, Dewanto I, Haier J. Availability and Accessibility of Primary Care for the Remote, Rural, and Poor Population of Indonesia. Front Public Health. 2021;9:721886.Available from: https://doi.org/10.3389/fpubh.2021.721886
16. Anne B. Health challenges in Indonesia. Journal of Community Medicine and Health Solutions. 2023;4(1):007-9. Available from: https://doi.org/10.29328/journal.jcmhs.1001027

17. Agustina R, Dartanto T, Sitompul R, Susiloretni KA, Suparmi, Achadi EL, et al. Universal health coverage in Indonesia: concept, progress, and challenges. Lancet. 2019;393(10166):75-102. Available from: http://dx.doi.org/10.1016/S0140-6736(18)31647-7
18. Rizkianti A, Saptarini I, Rachmalina R. Perceived Barriers in Accessing Health Care and the Risk of Pregnancy Complications in Indonesia. Int J Womens Health. 2021;13:761-72.Available from: https://doi.org/10.2147/IJWH.S310850
19. Sukartini T, Arifin H, Kurniawati Y, Pradipta RO, Nursalam N, Acob JRU. Factors Associated with National Health Insurance Coverage in Indonesia. F1000Res. 2021;10:563. Available from: https://doi.org/10.12688/f1000research.53672.2
20. Andersen RM. Revisiting the behavioral model and access to medical care: does it matter? Journal of health and social behavior. 1995:1-10. Available from: https://doi.org/10.2307/2137284
21. Kurihara C, Baroutsou V, Becker S, Brun J, Franke-Bray B, Carlesi R, et al. Linking the Declarations of Helsinki and of Taipei: Critical Challenges of Future-Oriented Research Ethics. Front Pharmacol. 2020;11:579714. Available from: https://doi.org/10.3389/fphar.2020.579714
22. Sawyer SM, Afifi RA, Bearinger LH, Blakemore S-J, Dick B, Ezeh AC, Patton GC. Adolescence: a foundation for future health. The Lancet. 2012;379(9826):1630-40. Available from: https://doi.org/10.1016/S0140-6736(12)60072-5
23. Patton GC, Sawyer SM, Santelli JS, Ross DA, Afifi R, Allen NB, et al. Our future: a Lancet commission on adolescent health and wellbeing. The Lancet. 2016;387(10036):2423-78. Available from: https://doi.org/10.1016/S0140-6736(16)00579-1
24. Nachiappan N, Mackinnon S, Ndayizeye JP, Greenfield G, Hargreaves D. Barriers to accessing health care among young people in 30 low-middle income countries. Health Sci Rep. 2022;5(4):e733. Available from: https://doi.org/10.1002/hsr2.733
25. Afriyie DO, Krasniq B, Hooley B, Tediosi F, Fink G. Equity in health insurance schemes enrollment in low and middle-income countries: A systematic review and meta-analysis. International Journal for Equity in Health. 2022;21. Available from: https://doi.org/10.1186/s12939-021-01608-x
26. Adebayo E, Uthman O, Wiysonge C, Stern E, Lamont K, Ataguba J. A systematic review of factors that affect uptake of community-based health insurance in low-income and middle-income countries. BMC Health Services Research. 2015;15. Available from: https://doi.org/10.1186/s12913-015-1179-3
27. Organization WH. Health literacy The solid facts. 2013. Available from: https://iris.who.int/server/api/core/bitstreams/2af06b64-bd8f-4d76-93f9-725af381bad5/content
28. Moreira L. Health literacy for people centred care: Where do OECD countries stand? OECD Health Working Papers No 107. 2018. Available from: https://dx.doi.org/10.1787/d8494d3a-en
29. Organization WH. Tracking universal health coverage 2023 global monitoring report. 2023. Available from: https://iris.who.int/server/api/core/bitstreams/3d4572d2-30a5-4cf0-bf73-0062d677bbf0/content
30. Organization WH. Global Accelerated Action for the Health of Adolescents (AA-HA!) Guidance to Support Country Implementation. 2017. Available from: https://www.who.int/publications/i/item/9789240081765
31. Erlangga D, Suhrcke M, Ali S, Bloor K. The impact of public health insurance on health care utilisation, financial protection and health status in low- and middle-income countries: A systematic review. PLoS ONE. 2019;14. Available from: https://doi.org/10.1371/journal.pone.0219731
32. Agung Dwi Laksono RR, Ratna Dwi Wulandari , Nikmatur Rohmah, Tumaji Tumaji. Regional disparities in hospital utilisation in Indonesia: a cross-sectional analysis data from the 2018 Indonesian Basic Health Survey. BMJ Open. 2022. Available from: http://dx.doi.org/10.1136/bmjopen-2022-064532
33. Farit R, Rahman. The relationship of health insurance ownership with the utilization of health services in coastal rural and urban communities (Case Study: Kapoiala Health Centre, Soropia and Nambo Health Centre) Southeast Sulawesi Province, Indonesia, 2023. International Journal of Science and Research Archive. 2024;11(2):625-9. Available from: https://doi.org/10.30574/ijsra.2024.11.2.0481
34. Ajar SB, Samadi. Identification of Community Characteristics and Perceptions Toward Health and Life Insurance in Rural Indonesia. KnE Social Sciences. 2024. Available from: https://doi.org/10.18502/kss.v9i2.14887

35. Li Q, Zhang L, Jian W. The impact of integrated urban and rural resident basic medical insurance on health service equity: Evidence from China. Front Public Health. 2023;11:1106166. Available from: https://doi.org/10.3389/fpubh.2023.1106166
36. Abdelkadir KS, Hagos BH. Comparing healthcare service utilization in insured vs. noninsured households in Rural Atsbi Womberta, Ethiopia. Journal of Life Science and Biomedicine. 2024:09-29. Available from: https://dx.doi.org/10.54203/jlsb.2024.2