BKM Public Health & Community Medicine
Berita Kedokteran Masyarakat

Volume 41 **Number** 7, 2025, **Pages** e18765
DOI: 10.22146/bkm.v41i07.18765

Navigating access to Indonesia's National Health Insurance: determinants and barriers among informal sector workers in West Sumatra

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Submitted:
December 26th, 2024
Accepted:
June 21st, 2025
Published:
July 11th, 2025

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Abstract

Purpose: This study aimed to identify the factors that influence and barriers to the utilization of JKN for informal sector workers in West Sumatra Province. **Methods:** The study employed a quantitative cross-sectional design. The data used are secondary data from the 2022 Susenas. The population of this study consisted of informal workers aged 15-64 years, comprising approximately 10,909 people. The sample consisted of informal workers with health complaints and a history of outpatient care, specifically 4,606 individuals. This study uses JKN utilization as the dependent variable. Meanwhile, there are several independent variables: JKN ownership, age, gender, economic status, region of residence, education, and employment. Data were analyzed using the STATA application in univariate, bivariate analyses with the Chi-Squared test, and multivariate analyses with binary logistic regression. **Results:** The results showed that most respondents (59.12%) did not use JKN due to various barriers, including a preference for self-medication (76%), lack of knowledge on how to use JKN (10%), and difficulties with procedures (5%). The productive age group was significantly more likely to use JKN (OR 4.653; 95% CI 1.837 - 11.784). The poor are more likely to use JKN than those in the lower-middle income groups (OR 6.955; 95% CI 1.444-33.497). **Conclusion:** The wealth status and age had a significant influence on the use of JKN. Expand access to affordable health services for low-income individuals and older adults. Barriers to using JKN are practical and require policy interventions. Insurance subsidies, development of mobile-based services, and strategies for the dissemination of information and benefits of JKN.

Keywords: informal sector; national health insurance; utilization; wealth status

INTRODUCTION

Indonesia requires its entire population to be covered by BPJS Kesehatan as part of its efforts to achieve Universal Health Coverage (UHC) [1]. However, the World Social Protection Report 2019 shows that only 45% of the world's population is covered by UHC, while 55% or about 4 billion people remain unprotected by social security and health [2]. By 2022, JKN membership coverage in Indonesia is expected to be almost universal, at around 90%. However, a significant gap remains between the number of active participants, which is only around 78% [3]. This indicates that the benefits of the JKN program have not been fully

realized and that there are barriers related to the payment of the contributions. JKN also remains relatively underutilized.

In terms of membership categories, the largest number of participants came from PBI contributors, at 43.4%, followed by wage earners at 24.8%, PBI APBD at 16.3%, non-wage earners at 13.7%, and non-workers at 1.8%. The lowest participation category is Wage Earners and Non-Wage Earners, which consists mainly of informal sector workers and low-income individuals [3]. Increasing the number of JKN members is a priority of national healthcare reform, as health insurance provides financial protection and ensures adequate access to healthcare services [4,5]. However, a significant challenge in developing countries is the high proportion of informal sector workers with irregular incomes who tend to be financially vulnerable [6]. In Asia, the informal sector accounts for 82% of the economy, while in Indonesia, it is projected to account for 59.62% of the economy in 2021 [7]. Globally, approximately 61% of informal sector workers significantly contribute to the world's gross domestic product, yet they are often marginalized in social protection systems [8].

The province of West Sumatra has not yet achieved UHC by 2022, with JKN coverage of only 68.51%, leaving 31.49% of the population without health insurance. The lowest membership segments in West Sumatra are the PBPU category (18.7%) and the non-working category (2.7%), which primarily comprise low-income workers in the informal sector [3]. Although the JKN program aims to improve access to healthcare services, membership coverage does not always align with utilization rates. According to Susenas data, in 2023, only 43.83% of the population who experienced a health complaint used their health insurance to access outpatient care [9]. The low uptake of health insurance, particularly among informal workers, is attributed to several factors, including high premiums, financial constraints, weak social networks, inadequate risk management, and non-payment of contributions [10].

Several studies on JKN membership and its impact have been conducted; however, they have been limited to specific subpopulations, such as children, the elderly, and pregnant women [6,11,12]. In developing countries, community-based health insurance schemes are popular because they play a crucial role in ensuring equitable access to health services in the face of challenges such as a larger informal sector, higher unemployment rates, and low incomes [11]. Behavioral factors can also influence individuals who are insured but choose not to utilize their coverage [13].

Previous studies in western Ethiopia have shown that the age, sex, and education of the household head are associated with the use of health insurance [14]. Similarly, a study by Wang et al. in China, involving people aged 45 and older, found that education level, region of residence, type of employment, and income level were also associated with health insurance use [11].

This indicates that the government's efforts to provide health services through JKN still face significant challenges in terms of community utilization, particularly among informal workers. This gap between coverage and utilization has the potential to hinder the achievement of UHC. Therefore, this study aims to identify the determinants and barriers to utilization of national health insurance among informal sector workers in West Sumatra. This study is expected to make a significant contribution to the expansion of UHC by increasing the coverage of the JKN program, improving the quality and accessibility of services, and encouraging informal sector workers to make JKN their first choice for health services.

METHODS

This study uses secondary data from the 2022 Susenas conducted by Statistics Indonesia. This study employed household and individual instruments to assess the socio-demographic characteristics of age, gender, education, employment, economic status, and health insurance ownership, as well as health insurance utilization during health check-ups. The population of this study consists of individuals aged 15 years and above who work in the informal sector in West Sumatra. The estimated number of households used as the sampling base for the kabupaten/kota level is approximately 300,000 households. The sampling technique used was stratified random sampling, with stratification based on census block and household characteristics to ensure representation of the population from different regions. The final sample used in this study consisted of 4,606 informal workers. Informal workers who were hospitalized were excluded from this analysis. The inclusion criteria for this study were informal sector workers aged 15 years and above who experienced health complaints during the survey period and underwent outpatient examinations. Exclusion criteria were respondents with incomplete data on key variables.

The dependent variable of this study is the use of health insurance in the past year for outpatient health check-ups, as indicated in the VSEN22.K master record in block XIII, question number 1302. The category of health insurance utilization consists of two categories, utilization and non-utilization. To identify potential barriers to JKN use, we added an exploratory analysis

of respondents who did not use JKN despite having health complaints. The procedure involved selecting a group of respondents who had health insurance but did not utilize JKN during outpatient care. A descriptive analysis was conducted to determine the reasons why respondents did not use JKN.

There are seven independent variables: economic status, age, gender, education level, region of residence, employment status, and health insurance coverage. Education levels are divided into two categories: low and high. Age is divided into productive (15-64 years) and unproductive (<15 years and >65 years). In this study, gender is categorized into two groups: male and female. The economic status of the respondents is measured by their income, as reported in the questionnaire VSEN22.KP B6 VSEN22.KR B3R01 with categories based on the income of the respondents consisting of very poor (decile 1), poor (decile 2 to decile 4), lower middle (decile 5 to decile 6), upper middle (decile 7 to decile 8) and rich (decile 9 and decile 10) [15,16]. Area of residence, which is composed of rural and urban areas. Economic activity, which encompasses the areas of business, enterprise, and office where a person works, is composed of both agricultural and non-agricultural sectors. Health insurance ownership refers to a person's participation in a national health insurance program, entailing the rights and responsibilities associated with it, as measured by the VSEN22.K questionnaire, specifically question number 1101, which includes the categories of not having health insurance and having health insurance.

Analysis was performed using STATA software version 14. Descriptive analysis was employed to examine the distribution of respondents' characteristics and reasons for not utilizing JKN. To analyze the exposure variables, the authors started with bivariate comparisons using the chi-square test. Next, a collinearity test was performed to ensure that there was no strong correlation between the independent variables in the final regression model. Finally, the authors used binary logistic regression to examine the multivariate relationship between all independent variables with national health insurance use as the dependent variable.

RESULTS

The results showed that most (68.39%) informal sector workers in West Sumatra Province have national health insurance, while fewer than 1% have private health insurance. Respondents with the highest economic status had the lowest poverty rate at 29.22%. The majority (87.71%) of respondents were in the productive age category. The majority of respondents (53.78%) were male. The majority of respondents (94.81%) had a low level of education. Most respondents (72.64%) lived in rural areas and worked in the agricultural sector. The results showed that most respondents (59.12%) did not use NHI/JKN for health checks (Table 1).

Based on the data in Figure 1, the majority of respondents (76%) reported self-medicating. A small proportion of respondents (1.4%) were unsure about how to use JKN, and 1.9% found the JKN procedures too complicated. Additionally, 2.1% of respondents reported that their JKN card was not active. A total of 1.03% of respondents indicated that difficult access to health facilities was the main obstacle. A total of 0.14% of respondents cited additional costs such as transportation as the main reason for not using JKN, especially for those who live far from health facilities. 5.3% of respondents complained about long waiting times or queues at health facilities. Additionally, 0.53% of respondents opted for an alternative insurance plan outside of JKN, which they considered more suitable for their needs. A total of 10.71% of respondents gave other reasons that were not specified.

Table 1. Respondent characteristics (N=4,606)

Variable	%
NHI/JKN membership	
Non-member	31.61
Member	68.39
Local health insurance membership	
Non-member	87.21
Member	12.79
Commercial health insurance membership	
Non-member	99.39
Member	0.61
Wealth status	
Poorest	8.10
Poorer	29.22
Lower middle	22.06
Upper middle	22.41
Wealthy	18.22
Age group	
Non-productive	12.29
Productive	87.71
Gender	
Female	46.22
Male	
Education level	
Low	94.81
High	5.19
Type of residence	
Rural	72.64
Urban	27.36
Type of employment	
Non-agriculture	45.16
Agriculture	54.84
NHI/JKN utilization	
No	59.12
Yes	40.29

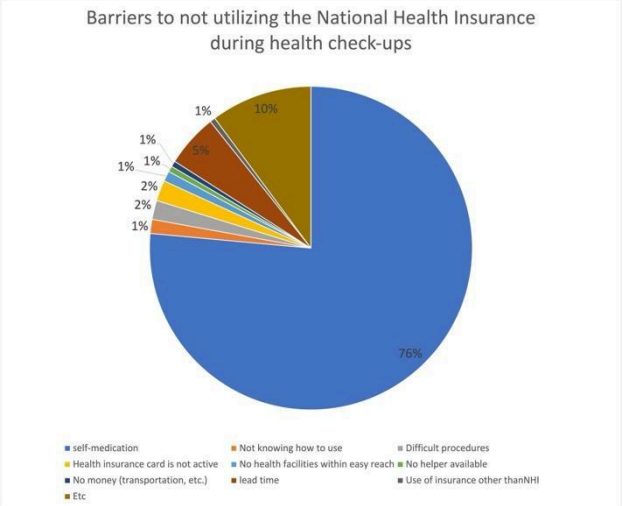

Figure 1. Barriers to not utilizing the NHI

Table 2 shows that the use of National Health Insurance (JKN) was significantly associated with JKN ownership, economic status, age, education, and place of residence (p<0.001). The majority of respondents who used JKN were those who had JKN, with the higher the ownership of health insurance, the more likely they were to use it. JKN use was more prevalent among the very poor and the poor compared to other economic groups. Those with less education (93.83%) were also more likely to use JKN. In terms of gender, JKN use was higher among women (51.91%) than among men (48.09%). JKN use is also higher among people of working age and is more prevalent in rural areas (65.11%) than in urban areas (34.89%). By sector of work, JKN use is evenly distributed between agricultural and non-agricultural workers, although it is slightly higher among agricultural workers (52.34%).

Table 2 shows that the total percentage of respondents who used JKN (30.61%) and those who did not (44.27%) was only 74.88%. This suggests that 25.12% of respondents do not fall into either category. This discrepancy suggests that a segment of respondents accesses health services through alternative channels outside the JKN scheme. In this case, respondents may rely on out-of-pocket payments, family support, or support from their workplace facilities that are not affiliated with the JKN system. These findings suggest that JKN has not entirely replaced or covered all forms of access to healthcare among informal sector workers, making it essential to understand the socio-cultural, economic, and structural factors that influence their choices.

Table 3 shows the results of the binary logistic regression on JKN use among informal sector workers in West Sumatra Province. The variable of health insurance ownership was excluded from the model because it did not provide additional information, as JKN ownership is already a prerequisite for service utilization, so the analysis focused more on other factors that influence JKN utilization. Gender had no significant effect on JKN use. However, men were slightly more likely (1.27 times) to use JKN than women. Meanwhile, age was found to have a significant association with JKN use. Respondents in the productive age group were 4.65 times more likely to use JKN than those in non-productive age groups (OR 4.653; 95% CI 1.837-11.784). The productive age group was more likely to use JKN for health screening. In addition to age, this study also found that the poor were 6.96 times more likely to use JKN than those in the lower-middle (OR 6.955; 95% CI 1.444-33.497). The lower-middle group was 3.42 times more likely to use JKN, but this association was marginal and had a significant adverse effect on JKN use. Based on place of residence, informal sector workers living in urban areas are 17.5% less likely to use JKN, but this relationship is not statistically significant. Meanwhile, informal sector workers in the agricultural sector are 37% less likely to use JKN than those in the non-agricultural sector (OR 0.626; 95% CI 0.219-1.789). Logistic regression results showed that wealth status and age had a significant influence on JKN use. The productive age group was significantly more likely to use JKN, while the poor were more likely to use JKN than the lower-middle.

Table 2. Determinants of JKN utilization among informal workers in West Sumatra Province (N=3,499)

Characteristic	NHI/JKN utilization		p-value
	No (n=2,039)	Yes (n=1,410)	
NHI/JKN membership			< 0.001
Non-member	12.36	3.33	
member	87.64	96.67	
Wealth status			< 0.001
Poorest	8.78	8.58	
Poorer	31	29.58	
Lower middle	21.92	21.77	
Upper middle	21.82	21.42	
Wealthy	16.48	18.65	
Age group			<0.050
Non-productive	11.28	12.27	
Productive	88.72	87.73	
Gender			0.093
Female	43.85	51.91	
Male	56.15	48.09	
Education level			<0.050
Low	94.65	93.83	
High	5.35	6.17	
Type of residence			<0.001
Rural	71.7	65.11	
Urban	28.3	34.89	
Type of employment			0.466
Non-agricultural	45.22	47.66	
Agricultural	54.78	52.34	

Table 3. The result of binary regression of NHI utilization among informalsector workers (n=3,499)

NHI Utilization	OR (95% CI)	P > |z|
NHI membership	1 (omitted)	
Age		
Productive	4.653 (1.837 – 11.784)	<0.001*
Non-productive (ref)		
Gender		
Male	1.271 (0.511 – 3.1659)	0.606
Female (ref)		
Education level		
High	0.414 (0.114- 1.497)	0.179
Low (ref)		
Wealth status		
Poorer	6.955 (1.444 – 33.497)	<0.001*
Lower middle	3.423 (0.894 – 13.108)	0.072
Upper middle	1.579 (0.547 – 4.561)	0.398
Wealth	1 (Omitted)	
Type of residence		
Urban	0.825 (0.295 – 2.305)	0.714
Rural (ref)		
Type of employment		
Agriculture	0.626 (0.219 -1.789)	0.383
Non-agriculture (ref)		

OR: Odds Ratio; CI: confidence interval; *p < 0.001

DISCUSSION

There is a segment of respondents who access health services through alternative channels outside the JKN scheme. Theoretically, this aligns with the concept of health system pluralism, which emphasizes that in developing country contexts, individuals often utilize multiple sources of health services simultaneously or interchangeably [15]. In addition, this finding aligns with Penchansky and Thomas' (1981) access to care approach, which emphasizes that access to health services is not only determined by availability and affordability, but also by acceptability, accommodation, and accessibility [16]. Therefore, although JKN is available as a national scheme, not all individuals—particularly those in the informal sector—feel at ease or comfortable accessing it. This could be due to a lack of information, negative perceptions of JKN services, complicated administrative processes, or a preference for non-JKN services that are perceived to be faster and more flexible. In addition, a study by Cheng et al. (2024) showed that although the distribution of healthcare utilization in Indonesia tends to be even based on predisposing factors such as age and gender, health insurance status remains a significant determinant of access to hospital services. Individuals who are uninsured or receive government subsidies are less likely to utilize hospital services compared to those who pay for their care independently [17]. These findings underscore the importance of a more holistic approach in understanding and addressing barriers to healthcare access among informal sector workers. Efforts to increase JKN coverage should consider the social, economic, and cultural factors that influence individuals' decisions to utilize health services.

Low utilization of JKN risks increasing health problems due to ignoring symptoms and health complaints. Another reason is the lack of access to health facilities, and people feel financially burdened by the cost of treatment in the absence of health insurance [18-20]. Studies show that nearly half of informal workers have not utilized JKN, despite being registered. This is due to inequalities in health services between regions, particularly in remote areas [7, 21]. The low utilization of health insurance among informal sector workers is attributed to several factors, including socioeconomic reasons, perceptions of insurance, and financial implications [22]. Workers with low economic status tend to avoid health check-ups, as shown in a Japanese study in which only 39.6% of participants attended a health check-up [23]. Research in Iran also found that low socioeconomic status and unemployment contributed to the inability to utilize health insurance, despite the availability of assistance programs [24]. Many people choose to self-medicate because they do not feel the need or ability to manage health problems without professional medical care. This may be related to the availability of medications or the belief that their condition does not require medical attention. In terms of barriers to JKN use, research indicates that informal sector workers face several challenges, including self-medication, complex procedures, high costs, and a lack of knowledge on how to utilize JKN (see Figure 1). This finding is consistent with research by Ohnishi et al., which suggests that time constraints and procedures perceived as burdensome are major barriers to seeking healthcare [23]. Additionally, individuals in the pre-contemplation stage of health behavior change tend to be uninterested in attending health screenings, often due to a lack of information.

Inadequate information about the benefits of JKN led to a lack of understanding among informal sector workers in the study area on how to utilize JKN effectively. This finding is similar to research in the sub-Saharan Africa region, where Tran et al. (2017) identified a lack of knowledge and misconceptions about health insurance schemes as one of the factors influencing low participation rates in their study in northern Vietnam [25]. Individuals who are not well informed are less likely to enroll in health insurance. A similar study by Green, Hayek, Tarabeia, Yehia, and

HaGani (2017) showed significant gaps in people's understanding of health insurance policies and the benefits they receive when using services [26]. Many people are unaware of how health insurance works, where to access services, or how to enroll in it. This can lead to misunderstandings among the public. Ensuring accurate information about health insurance mechanisms is therefore crucial in encouraging informal sector workers to participate in the various insurance schemes available to them. Study results indicate that the primary reason for not using JKN is the inactivity of JKN cards. The inability to pay health insurance premiums is a major constraint for households with unstable incomes, especially for informal sector workers. Our study shows that they do not use health insurance because their income is too low to pay premiums. Similar studies in Tanzania and Rwanda support this finding, revealing that unaffordable premium rates are a major barrier for the poor [27,28]. The lack of involvement of informal sector workers in setting premium rates also reduces their participation in insurance schemes [29]. Efforts to increase the participation of informal workers in the JKN program include socializing benefits, simplifying procedures, improving access to health facilities, and improving the queuing system.

Studies show that the more people have health insurance, the more likely they are to use outpatient care. Other studies also support this finding, indicating that individuals with insurance are more likely to seek outpatient care for health problems. However, there is variation based on demographic factors such as income and health status [30,31]. In contrast, in Saudi Arabia, although health insurance enrollment is associated with lower outpatient utilization, factors such as income and health status play an important role in determining access to services [30]. Before the introduction of JKN in 2014, health financing for the poor was provided through different insurance schemes in each district. With the introduction of JKN, health coverage became more equitable. However, the previously covered poor are not automatically enrolled in JKN. Enrollment depends on the financial capacity of the district, which creates uncertainty, especially for those with low education and difficulty understanding complex system changes [32,33]. Therefore, it is important to increase education on JKN benefits among informal sector workers to encourage health service utilization. Additionally, adjusting JKN policies to account for demographic factors such as income and health status may help improve access to and utilization of health services.

Studies show that individuals with lower socioeconomic status tend to use JKN more frequently. The more affluent groups prefer private healthcare due to its higher quality of care and the ability to pay higher insurance premiums [34-36]. JKN use is higher among the very poor and poor, which is influenced by economic status, knowledge of the program, and access to health services [37,38]. Economically disadvantaged families rely on JKN due to subsidies that enhance their access to health services [37]. Improvements to the JKN system are necessary to address ongoing challenges related to the quality of care and accessibility, which continue to limit the program's effectiveness. Additionally, it is essential to offer more flexible premium payment policies and solutions for families who struggle to meet their financial obligations related to health insurance.

With increasing age, the likelihood of using JKN also increases. This finding is consistent with other research indicating that younger individuals are less likely to be enrolled in NHI [38]. This study reveals that the productive age group (15-64 years) is more likely to use JKN than those under 15 or over 65 years old. Some of the factors underlying this finding include increased physical activity, exposure to work-related health risks, and heightened awareness of the importance of access to healthcare. Individuals in the working-age group often engage in a variety of physical activities that may increase healthcare needs, especially those related to potential occupational health risks [39,40].

Regular health check-ups are essential for this group, as they are more susceptible to health issues related to their work or daily life. In addition, the working-age group tends to be more informed about the importance of healthcare, so they are more likely to use JKN for routine check-ups and care related to daily activities [40,41]. These findings suggest that expanding access to JKN to non-productive groups, such as the elderly, is essential to increase JKN utilization more equitably. In addition, improving health facilities in rural areas or the agricultural sector may also help reduce the urban-rural gap in JKN use, allowing more informal workers of different ages to benefit from the health services provided by JKN.

This research has the advantage of using big data for analysis, which allows the results to be examined nationwide. However, limitations arise because the data used are secondary, so the study only includes variables available from the Indonesian National Statistics Agency. Some variables were removed or had insignificant results, which may indicate the need for additional data or more complex analytical models to capture broader relationships.

CONCLUSION

This study finds that economic status and age have a significant impact on the use of the National Health Insurance (JKN) among informal sector workers in West Sumatra. Respondents with poor status are more likely to use JKN compared to those with lower-middle status, which is attributed to limited access to information, administrative barriers, and geographical constraints. In addition, productive age groups were more likely to use JKN than non-productive age groups, indicating the need to expand access to services and information for the elderly.

Meanwhile, the variables of gender, education level, region of residence, and employment sector did not show a significant association with JKN use. This suggests that structural and systemic factors are more important than demographic factors in access to health services. The main barriers identified in this study are practical and fundamental, including ignorance of card activation procedures, a lack of understanding of JKN benefits, and a tendency to self-medicate. The government needs to collaborate with the private sector, professional associations, and local communities to enhance community-based health insurance schemes through educational initiatives and technical support, particularly during the re-registration, contribution reporting, and card activation processes.

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