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The health insurance and its effect on health care utilization in Indonesia

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ABSTRACT

The health insurance program has become a global commitment, encouraging governments in every country, including Indonesia, to strive to provide national coverage for all citizens. However, research on the link between health insurance ownership and health care utilization shows mixed results. This study investigates the effect of health insurance on health care utilization from a demand perspective, treating individuals as economic agents. Using national socioeconomic survey data encompassing education, health, employment, housing, and expenditure, we employed logistic regression to analyze the empirical model. Our results indicated that health insurance can increase the utilization of health care, meaning that individuals with health insurance are more inclined to access health care when ill compared to those without coverage. Health insurance is also important for women because they are more vulnerable to health problems and have the potential for increased healthcare utilization when they are sick. It highlights a stronger likelihood of healthcare utilization among the insured population. This finding also supports the previous claim that health insurance improves access to healthcare utilization. We suggest that ownership and coverage must be expanded so that, in the future, all citizens have health insurance and can access healthcare.

Contribution/Originality: This study contributes by analyzing the role of health insurance in healthcare utilization within Indonesia's unique context. It addresses mixed existing findings by providing evidence from a nation grappling with health service disparities, diverse geography, and unequal population and healthcare distribution. The research is crucial for understanding how health insurance can improve health access and utilization despite these challenges.

1. INTRODUCTION

The relationship between health insurance and health care utilization has attracted academic interest in examining their connection. Some empirical studies divide this into two main streams, namely those conducted from the supply or demand perspective (Jacobs, Ir, Brigdeli, Annear, & Van Damme, 2011). The demand side usually focuses on individual or household levels; the demand perspective refers to individual behavior as a rational economic agent seeking benefits when accessing health care facilities (Adam Wagstaff, Lindelow, Jun, Ling, & Juncheng, 2009). The supply side is usually viewed from the perspective of community disruption in utilizing health care facilities; it focuses on whether health services are good, effective, and efficient (Meemon & Paek, 2018).

Some literature states that one of the notable factors in the utilization of health care facilities is health insurance ownership. Literature provides two main conclusions: first, the ownership of health insurance increases the utilization of health services; second, there is no effect on increasing the utilization of health services from health insurance ownership (Aji, De Allegri, Souares, & Sauerborn, 2013). In addition, the literature also claims that health insurance tends to increase the demand for health services. It is based on an important question whether health insurance does not become an obstacle to access health services, such as for financial reasons. Then, they gain the certainty of health protection, so they do not need to worry about how to pay for health services (Ghose, 2010; Nguyen, 2012).

Normally, the ownership of health insurance should be able to prevent potential overspending by people when they are sick; they can still get treatment and access healthcare facilities. However, in certain conditions, when people become sick and do not have health insurance, they are often unable to access healthcare facilities. If they want to receive treatment, they need to pay additional costs, which are usually more expensive. This can cause problems when they do not have health insurance (Devadasan et al., 2010). Subsequent studies on health insurance have demonstrated its potential to enhance outpatient and inpatient visits, particularly in rural areas and among at-risk populations (Barasa, Nguhiu, & McIntyre, 2021; Okeke, Adebayo, & Olanrewaju, 2023). Furthermore, health insurance improves access to preventive services, such as routine health check-ups and early disease detection (Wang, Li, & Chen, 2022; Zhao & Li, 2024). Even during the COVID-19 pandemic, the presence of health insurance was shown to facilitate faster access to testing, treatment, and vaccination (Fiedler, McKee, & Moran, 2021).

For the Indonesian context, this topic interests some scholars because Indonesia is known to have a wide disparity and geographical variation many islands with uneven population distribution. Therefore, there is still a need to improve health care facilities, address the uneven distribution of health workers, and focus on the development of health care services (TNP2K, 2015). Several studies on health insurance and health services have been conducted in Indonesia, with mixed results. Johar investigated the health card program, which was implemented in 2000, and discovered that there was no increase in outpatient utilization of the health card program, owing to the fact that outpatient demand for health card program recipients was inelastic (Johar, 2009). Hidayat and Pokhrel investigated the impact of health insurance and social security for workers and discovered that both health insurance (Askes) and social security for workers (Jamsostek) had a positive impact on utilization, particularly in private health facilities (Hidayat & Pokhrel, 2010). Sparrow et al. reviewed the health insurance program for the poor (health insurance for the poor or Askeskin) and discovered that those who had Askeskin had a higher rate of outpatient utilization (Sparrow, Suryahadi, & Widyanti, 2013). Following that, they evaluated Askeskin with a different dataset and discovered a positive influence on the use of outpatient services (Vidyattama, Miranti, & Resosudarmo, 2014). Then, Erlangga et al. discovered that the health insurance program can increase outpatient and inpatient service utilization for those in the contribution group. Although there is an increase in utilization of access to inpatient facilities with fewer accesses, they also stated that access to outpatient and inpatient services remains unequal (Erlangga, Ali, & Bloor, 2019).

Other studies on public health insurance in Indonesia, synonymous with the National Health Insurance (JKN) program, affirm that such insurance significantly enhances the utilization of maternal, child health, and outpatient services. Public insurance effectively reduces financial barriers, thereby enabling broader social groups to access essential health services (Prabhakaran, Harimurti, & Hayati, 2020; Tjandra, Nugraheni, & Maharani, 2021). Additionally, public health insurance lowers the risk of catastrophic health expenditures and positively influences health-seeking behaviors among vulnerable populations (Suryadarma & Sumarto, 2024). The role of public health insurance is particularly significant in advancing preventive measures, such as cancer screenings, especially in urban areas, highlighting the program's potential to promote early detection and health awareness (Kristina, Endarti, & Andayani, 2022). Nevertheless, efforts must be intensified to expand coverage to mitigate the persistent disparities in health service utilization between urban and rural communities. Limited health infrastructure in remote areas

continues to undermine the effectiveness of public health insurance as an equalizing factor (Utomo, Hasnida, & Trisnantoro, 2023).

The literature on health insurance and health care utilization reveals significant progress, particularly in Indonesia, such as increasing outpatient, inpatient, and preventive care utilization. However, research gaps persist in understanding mixed findings. We conduct comparative analyses of health insurance to identify factors driving utilization outcomes, including urban-rural and socioeconomic disparities in secondary and tertiary care. Furthermore, this paper aims to provide empirical support from the demand perspective in Indonesia. Understanding the factors influencing the utilization of health service facilities will help policymakers predict disease transmission and treatment outcomes through the creation of effective health campaigns, appropriate health policies, and the development of health promotion programs. In particular, demand-side empirical studies can improve awareness, enhance understanding, and increase individuals' trust in health care utilization.

2. LITERATURE REVIEW

Studies on the impact of health insurance on health care utilization have confirmed mixed findings. A study in Colombia found that the impact of the national health insurance program was able to increase the utilization of health services (Giedion, Alfonso, & Diaz, 2007) both among poor people and those who do not have insurance (Trujillo, Portillo, & Vernon, 2005). The positive effect of health insurance on health service utilization for both outpatient and inpatient care also occurs in China, although the effect is not large for those in the poor category (Adam Wagstaff et al., 2009). In Mexico, the effect of health insurance does not provide significant evidence regarding health care utilization (King et al., 2009). Turning to Southeast Asia, a study of the influence of health insurance in Vietnam shows that there is an increase in the number of inpatients and outpatients (Adam Wagstaff, 2010). In addition, the health insurance program has not been able to reduce inequality in access to health services for the poor (A. Wagstaff & Pradhan, 2005). The health insurance launched by the Thai government is quite capable of attracting the interest of high-income individuals to utilize this scheme for health services, although independent medical services are still used because not all health services can be covered by the government's health insurance scheme. This research concludes that health insurance has a positive impact on health service utilization, especially for those with low incomes (Meemon & Paek, 2018, 2020).

In Indonesia, health insurance programs have various variations and applications. This form of health insurance program began in the early 1990s with a community-based health insurance program that adopted a similar service model used in the United States, as it was based on a managed service model. There is also a health insurance scheme intended for formal sector and private sector workers, known as Employment Social Security (Jamsostek). In this early period, the national health card program was introduced and became the initial method of providing healthcare in public facilities by offering full subsidies to those in the poor category. The economic crisis that occurred between the mid-1990s and 2000 prompted the government to accelerate the distribution of health cards to mitigate the crisis's impact. Health insurance in the form of health cards evolved into health insurance for the poor (Askekin) in the mid-2000s, aiming to reach people working in the informal sector. This insurance program was expanded to become Community Health Insurance (Jamkesmas). In early 2014, the government launched a universal national health insurance scheme called National Health Insurance, which coincided with the establishment of the Social Health Security Administering Agency of the Republic of Indonesia. This agency consolidates all existing social security schemes, including National Health Insurance and Regional Health Insurance. The new health insurance scheme aims to provide comprehensive basic services, including both curative and preventive care, for all Indonesians (TNP2K, 2015).

Several studies in Indonesia show that government insurance has, in the past, provided more benefits to those not covered by subsidies. Hidayat and Pokhrel (2010) found that in the Jamsostek scheme, where each participating worker had to pay an insurance premium, the increase in health service utilization was greater for participants from

the poor group than for participants from the rich group. A study regarding health cards implemented in the 2000s found that there was no increase in outpatient visits (Johar, 2009). Utilization of private health care tends to increase among those who have health insurance and social security for workers (Hidayat & Pokhrel, 2010). Health insurance for the poor (Askekin) provides findings that Askekin owners tend to increase the utilization of health services in outpatient care (Sparrow et al., 2013; Vidyattama et al., 2014). Apart from that, Erlangga et al. (2019) observed that the impact of the JKN program in 2014 on health service utilization was higher for contributor participants compared to participants in the non-contribution category. Other studies regarding health service utilization tend to show increases in both outpatient and inpatient care among individuals in high socio-economic groups (Shihab, Nurdin, Kadir, Thabrany, & Paturusie, 2017; Sumartono, 2017).

Utilization of health services has increased compared to the period before and after the implementation of national health insurance for people in the poor and near-poor categories. For public health service providers, improvements in health services tend to increase for those who have insurance and live in urban areas (Rolindrawan, 2015). Cheng et al. (2025) found that the health insurance plays a part in ensuring that everyone in Indonesia has access to healthcare services. Furthermore, because national health insurance lowers financial barriers for specific demographic groups, it has a positive effect on the utilization of maternal health services (Rahmawati & Hsieh, 2024). The importance of government-managed health insurance in ensuring the effectiveness of increasing hospital utilization, especially among the urban poor (Wulandari et al., 2023). Future health insurance should also anticipate the use of health services due to the pandemic, which has caused a decrease in the utilization of health services by patients with chronic diseases (Ramadani, Svensson, Hassler, Hidayat, & Ng, 2024). Additionally, it is necessary to strengthen the health service system to meet the needs of the at-risk population (Kattih & Mansour, 2024).

This study aims to examine the role of national health insurance in health service utilization, which still yields mixed findings. It is hoped that this research can contribute to the literature by providing evidence from Indonesia, where disparities in health services and diverse geographical topography persist. Additionally, due to the unequal distribution of the population and health services, the role of national health insurance in health service utilization becomes increasingly important.

3. DATA, MODEL, AND ESTIMATION TECHNIQUE

3.1. Data

This study uses cross-sectional data, known as the National Socio-Economic Survey or Susenas Year 2014 & 2018. These survey activities collect information including health, education, family planning, housing, and expenditure. The first Susenas was conducted in 1963. Over the last two decades, up to 2010, Susenas data collection was carried out annually. Afterwards, Susenas data have been collected quarterly or semiannually. The national socioeconomic survey typically consists of two data sets: core data and module data. In this study, we employed the use of health care facilities as the dependent variable; some literature suggests it captures the utilization of health care. The independent variables are defined as ownership of health insurance, health status, access to health services, employment status, residence status (urban or rural), and household characteristics such as age, sex, marital status, and education level.

3.2. Model and Estimation Technique

The empirical model framework of the study aims to build a health insurance demand model through utility theory. Because there is an aspect of disease uncertainty, this study adjusts the form of the utility function, not following the standard form but adopting the von Neumann-Morgenstern approach that accommodates this. The utility function assumes individual preferences in making decisions about the use of health services that maximize their satisfaction by considering the risk aspect. The form of the model assumes that consumer utility (U) is a

function of disposable income (Yd). Consumers are faced with the possibility of illness (p) and spend some of their income on health/medical care (W). In the context of health insurance, consumers can buy insurance coverage by paying a premium (P = pW). If they become sick, they will receive insurance payments (I), represented by I = W. We start with expected utility without insurance (EU_{WoI}), as follows.

$$EU_{WoI} = (1 - p)\,U(Y_d) + pU\,(Y_d - W) \quad (1)$$

With EU, the expected utility, (1 – p) is the probability that the individual will not get sick, p is the probability that the individual will get sick, and (Y_d – W) is defined as the individual's income minus the health care/medical bills. The expected utility with insurance (EU_{WI}) is.

$$EU_{WI} = (1 - p)\,U(Y_d - P) + pU(Y_d - W - P + I) = U(Y_d - P) \quad (2)$$

Individuals will decide to purchase insurance premiums if the expected utility with insurance (EU_{WI}) is higher than the expected utility without insurance (EU_{WoI}), which is represented as.

$$(EU_{WI}) > (EU_{WoI}) \quad (3)$$

$$U(Y_d - P) > (1 - p)\,U(Y_d) + pU\,(Y_d - W) \quad (4)$$

Individuals who buy insurance do so because they need it, as it can provide certainty and protection when they are sick, which is often uncertain. Their decision to purchase insurance is related to their perspective on risk, which is the main determinant of demand for health insurance. Those who are risk-averse tend to buy insurance, whereas risk lovers are less interested in purchasing insurance products. Risk-neutral individuals tend not to care whether they buy insurance or not. Factors influencing the demand for insurance include the possibility of illness, the cost of illness, income, and price, as well as other factors such as socio-economic and cultural aspects, including location, social capital, and access to information technology.

Different from previous studies that discussed health insurance and health care utilization (Aji et al., 2013; Farrell & Gottlieb, 2020; Hidayat & Pokhrel, 2010; Ku, Chou, Lee, & Pu, 2019). Our paper focuses on individuals, insurance, and health facility utilization, with binary variables for health care utilization and insurance ownership, as well as individual characteristics. These characteristics include age, assets, income, gender, number of family members, education, and field of employment. The econometric model can be presented as follows.

$$Y_i = \alpha + \theta\,HI_i + \delta\,X_i + \epsilon_i \quad (5)$$

Y_i represents health care utilization, which is the use of health services when an individual is sick. HI_i is a binary variable indicating insurance ownership, while X_i represents individual characteristics, and ϵ_i is the residual term.

This paper aims to determine whether health insurance plays an important role in the level of individual health and the decision to seek treatment at healthcare facilities in Indonesia. The study employs a binary response model with probabilistic properties. A value of 1 indicates that individuals visit a health facility when they are sick, while 0 indicates the opposite. Therefore, the regression equation should be interpreted as the probability of an event, y = 1 (or nohealthfstkp* = 1), given that xj has a certain value.

$$\begin{aligned} P(nohealthfstkp* = 1|x) = {} & \beta_0 + \beta_1\,phealthguar_i + \beta_2\,poor_i + \beta_3\,urbanrural_i + \\ & \beta_4\,sicklimit_i + \beta_5\,male_i + \beta_6\,maritalstat_i + \beta_7\,age_i + \beta_8\,age2_i + \beta_9\,hhsize_i + \beta_{10}\,asset_i + \\ & \beta_{11}\,educ\_primbelow_i + \beta_{12}\,educ\_junior_i + \beta_{13}\,educ\_senior_i + \beta_{14}\,university_i + \\ & \beta_{15}\,indoorigin\_secondary_i + \beta_{16}\,indoorigin\_tertiary_i \end{aligned} \quad (6)$$

The dependent variable related to the level of individual health for treatment at a health service facility (nohealthfstkp) is influenced by three groups of independent variables: Individual characteristics, economic conditions, and socio-demographic factors, as described in Table 1. We estimate the empirical model using logistic regression. This method is chosen because the dependent variable is qualitative, valued at 0 and 1. Logistic regression is employed to examine the odds of utilizing a specific type of care. Literature indicates that this regression technique offers several advantages, including the fact that the predicted probabilities will always fall

within the range of 0 to 1. The logit model parameters are estimated using the maximum likelihood estimation procedure, and the significance of the parameters is tested through two-way null hypothesis testing. Then, overall significance, we can use the likelihood ratio statistics which can be calculated by formulas $\mathrm{LR} = 2(\ell_{\mathrm{ur}} - \ell_0)$, where this value follows the $\mathcal{X}^2$ distribution with df = k. The goodness of fit test of the logit model uses the pseudo R-squared criterion, which can be formulated with $\mathrm{Pseudo}R^2 = 1 - \frac{\ell_{\mathrm{ur}}}{\ell_0}$, where ℓ_{ur} is the log likelihood value for an unrestricted function and ℓ_0 is the log likelihood value for a restricted function. In this paper, the authors use STATA software to estimate the logistic regression model. Generally, the results of the presentation of logistic regression are expressed using Odds ratio values, which compare the risks of an event occurring to the risks of the event not occurring (Gujarati & Porter, 2009; Wooldridge, 2016).

Table 1. Description of the variables.

Variables	Description
Nohealthfstkp	1 = Individuals go to health care facility when sick; 0 = Others
Phealthguar	1 = Health insurance ownership; 0 = Not have health insurance
Poor	1 = Households are classified as poor; 0 = Others
Urbanrural	1 = Urban; 0 = Rural
Sicklimit	1 = Individuals feel disturbed when sick; 0 = Others
Male	1 = Male; 0 = Female
Maritalstat	Marital status, 1 = Married and 0 = Others
Age	Age
Age2	Squared age
hhsize	Number of household members
Asset	1 = Home ownership; 0 = Others
Educ_primbelow	1 = Finished elementary school; 0 = Others
Educ_junior	1 = Finished primary school; 0 = Others
Educ_senior	1 = Finished senior high school; 0 = Others
Educ_university	1 = Finished university; 0 = Others
Indoorigin_secondary	Dummy industrial origin, 1=Secondary sector & 0 = Others
Indoorigin_tertiary	Dummy industrial origin, 1=Tertiary sector & 0 = Others

4. RESULTS AND DISCUSSION

In this section, we will discuss how Indonesians use health services. Our findings reveal a distinct pattern. Figure 1 shows that the risk factors for females tend to be higher in the 0 to 30 years age group, whereas in the 0 to 20 years age group, they tend to increase, then decrease until reaching the age of 70. Compared to males, females use health services more frequently in the age groups of 1 to 20 years and 60 to 80 years and older. Males' risk factors for visiting a health facility when they are sick are highest between the ages of 0 and 20 years, then decline.

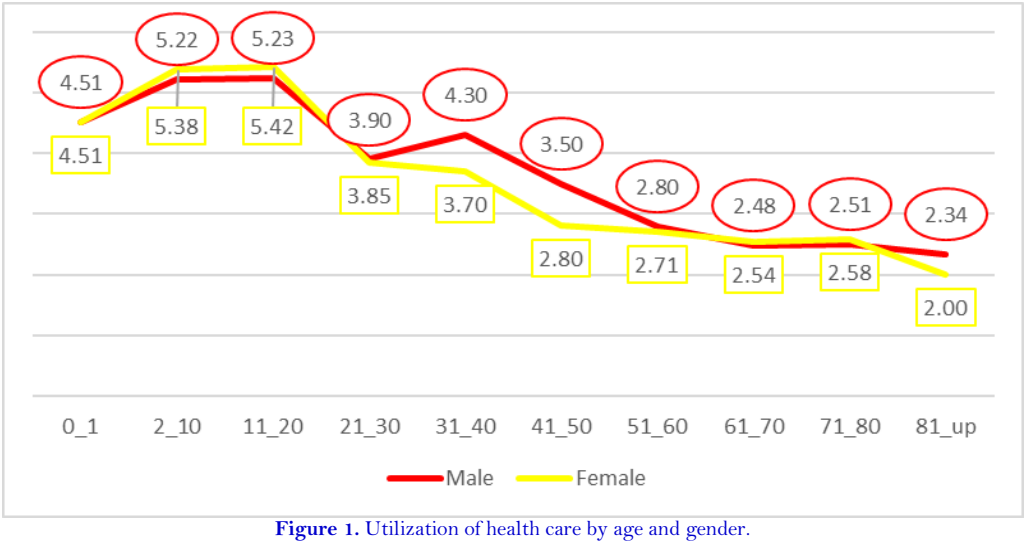

Figure 1. Utilization of health care by age and gender.

However, there is potential for an increase, specifically for those aged 20 to 40 years, followed by a downward trend. When men and women reach the age range of 71 to 80, the risk factors for visiting a health facility tend to decrease. This could be due to an estimated life expectancy within this age range, or it could be because individuals at that age feel well enough to engage in activities during their lives. Furthermore, individuals in that age range, when sick, may have no desire to seek treatment due to physical limitations preventing them from visiting a health facility.

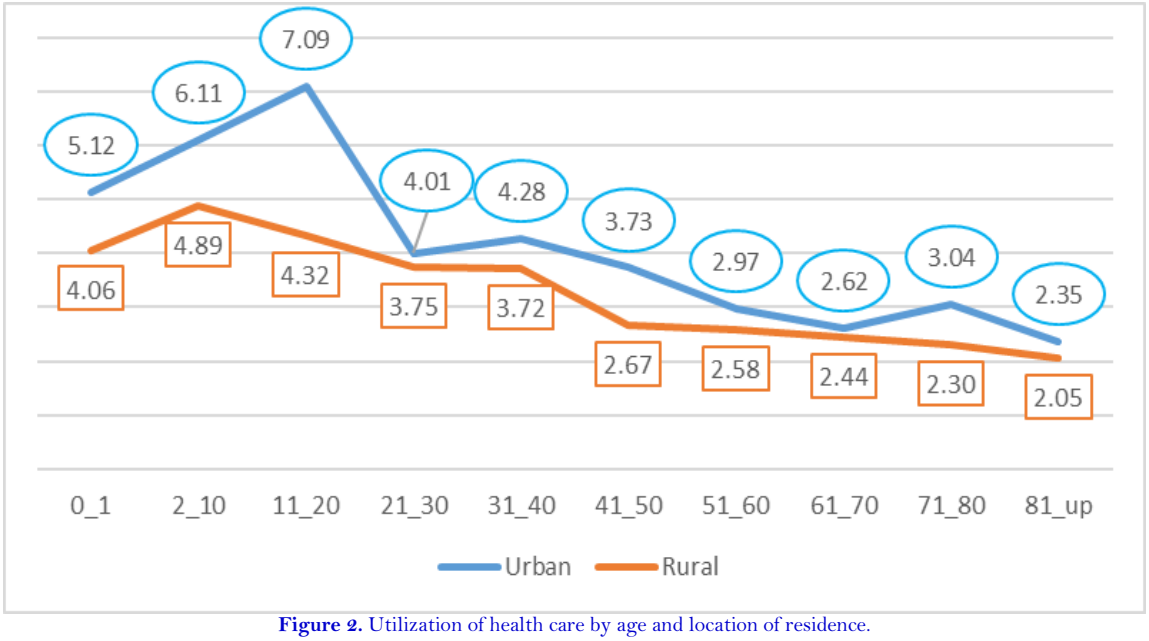

Figure 2. Utilization of health care by age and location of residence.

Figure 2 depicts the use of healthcare facilities by age group and location of residence. We observed a different pattern, with individuals living in urban areas having a higher likelihood of visiting healthcare facilities than those in rural areas. One reason for this could be that healthcare services in urban areas are more accessible than in rural areas. Limited access to healthcare services results in a mismatch between the need for and the availability of healthcare. People in urban areas are at a higher risk of seeking treatment at healthcare facilities because, in addition to being more accessible, these services are more compatible with the diseases they suffer from. Furthermore, healthcare services in urban areas tend to meet minimum service standards, providing assurance for residents to seek medical care when needed (Erlangga et al., 2019; Vidyattama et al., 2014). Another factor to consider when assessing the risk factor for visiting health facilities is that it is higher for urban residents than for rural residents because these health facilities are relatively accessible by public transportation and usually have good infrastructure, such as paved roads, strategic locations, and proximity to busy transportation routes. Several qualitative studies have concluded that as long as healthcare facilities' opening hours can be reached by public transportation, limited transportation is not an impediment to seeking treatment (Kanbarkar & Chandrika, 2017; Somkotra & Lagrada, 2009). Figure 3 illustrates the utilization of health facilities by age group based on health insurance ownership. This section distinguishes between individuals who have health insurance and those who do not. Health insurance ownership can be in the form of government health insurance or other private health insurance. According to this graph, the risk factors for visiting a health facility when sick are high for individuals with health insurance, particularly those aged 2 to 20. This trend tends to decrease in the age group of 20 to 30 years and then increase in the age group of 30 to 40 years. This pattern holds true for both those who have health insurance and those who do not. Individuals over the age of 70, on the other hand, have a higher propensity to visit healthcare facilities than those without health insurance. Another notable point is that people between the ages of 21 and 50 who have health insurance have a lower risk of visiting healthcare facilities than those in the same age group without health insurance.

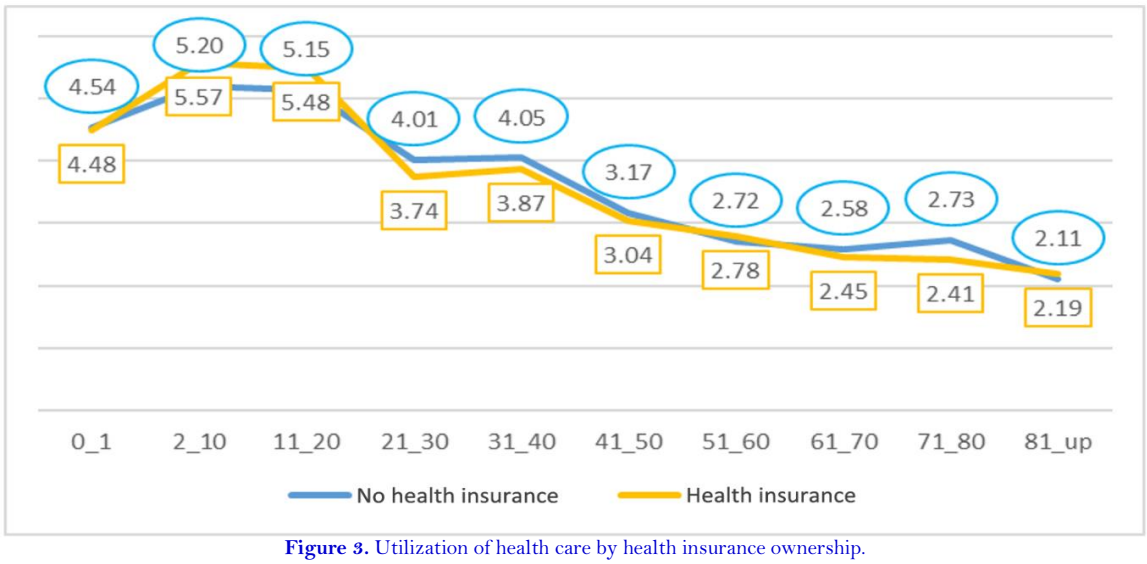

Figure 3. Utilization of health care by health insurance ownership.

There could be several reasons for the low rate of people visiting health care facilities who do not have health insurance. Some researchers argue that individuals will consider accessing health services after weighing the stages of pain so that a decision can be made whether to self-medicate for the pain they experience, which will, of course, lead to a decrease in the level of health service utilization. Furthermore, from the standpoint of income constraints, they argue that there is an allocation of meeting basic needs, which is frequently a priority, so that the cost of treatment tends to be limited, resulting in lower utilization of health services. Another reason or point of view refers to the existence of psychological theories, as revealed by several studies, in which these factors influence individual decisions regarding the use of health care services. This factor is frequently classified as a demand factor because individuals often do not feel the need for treatment, which tends to reduce the level of utilization of health services (Somkotra & Lagrada, 2009).

Table 2. The regression results.

Dep. variable: nohealthftkp	Model 1		Model 2	
	Odds.	Sign.	Odds.	Sign.
phealthguar	0.921	*	0.750	*
poor	1.381	***	1.155	
urbanrural	1.256	***	1.138	*
sicklimit	1.192	***	1.480	***
male	1.036	***	1.161	**
maritalstat	1.008		1.011	
age	0.973	*	0.973	*
age2	1.000		1.000	
hhsize	0.952	***	0.969	*
asset	1.149	***	1.179	**
educ_primbelow	3.480	***	5.146	***
educ_junior	3.798	***	5.355	***
educ_senior	4.215	***	5.713	***
educ_university	3.924	***	5.636	***
indorigin_secondary	1.184	**	0.978	
indorigin_tertiary	1.017		0.982	
Num of Obs	11650		5864	
Wald Chi-Sq	3268.170		1602.06	
Prob Chi-Sq	0.000		0.000	

Note: ***: Sign. α=1%; **: Sign. α=5%; *: Sign. α=10%; not. sign. = not significant at α=1% or α=5% or α=10%

The regression results between health insurance ownership and health facility utilization are then presented in Table 2. Two models are shown in Table 2, with Model 1 representing the regression results for 2018 and Model 2

representing the regression results for 2014. In addition, several other determinants are discussed in this section. Our findings suggest that the relationship is skewed in favor of those with health insurance, implying that individuals with health insurance are more likely than those without to have an increased risk factor for visiting a health facility when they are sick. For individuals in the poor category, they increase the risk factor of visiting health care facilities; in other words, economically disadvantaged people tend to visit health service facilities more often than wealthier individuals. Several studies have emphasized the importance of health insurance in increasing life expectancy, as it impacts the achievement of life expectancy before and after the implementation of health insurance. A study in Taiwan concluded that health insurance can reduce health disparities. The study found that a good health insurance system increases the life expectancy of disadvantaged groups and reduces health service gaps between the poor and the rich (Hamid, Roberts, & Mosley, 2011; Wen, Tsai, & Chung, 2008). These findings support the claim that improving health insurance systems and financial protection will be important and vital in efforts to increase health care utilization. By examining developing countries, the level of utilization of health facility services remains relatively low, especially among low-income populations. Several factors are suspected to contribute to this phenomenon; it could be due to an imbalance of economic resources necessary to access basic services, which may explain the low level of health care utilization in developing countries (Nadjib & Pujiyanto, 2002).

Other economic group variables (assets) have a high and significant risk factor for the probability of individuals visiting health care facilities compared to others. It shows that asset ownership can be an instrument that encourages them to seek treatment at a health care facility. This could happen when health costs are higher than the illness, so at a certain level of health costs, individuals can still bear the expenses; however, when the costs become too high, the previous mechanisms cannot be applied. As a result, individuals may take risky decisions by selling or mortgaging their assets, such as a house. This asset can serve as a last resort for individuals to cover medical expenses (Pradhan, Sahn, & Younger, 2003). Individuals who live in urban areas tend to have a greater risk factor for visiting health care facilities than those who live in rural areas. Here, individuals prefer to visit the nearest health care facility, meaning it is not too far from their residence. Additionally, basic health facilities are relatively more equitable in urban areas than in rural areas. Another reason is that the availability of health care facilities is more comprehensive in urban areas, and residents are also able to pay for these health services (Aji et al., 2013; Sparrow et al., 2013).

Health conditions (sick limit) have a significant and positive impact on risk factors for health care utilization. It could be interpreted that individuals who feel sick and have health insurance are more likely to use health insurance to visit health services and seek treatment at existing health care facilities. In particular conditions, the basic assumption that individuals are always rational suggests they will consider the benefit-cost ratio when making decisions to access health care facilities. It is important to carefully consider whether an individual chooses to treat themselves or visit a health facility, as this decision impacts the level of health care utilization. Additionally, perceptions of healthy pain often vary between individuals. The decision to seek treatment or utilize health care facilities may depend on whether a person becomes ill and experiences limitations in their activities. Consequently, individuals may choose not to seek care or may opt to visit health facilities when necessary (Pandey et al., 2019; Pradhan, Saadah, & Sparrow, 2007).

The gender variable (male) indicates that men have higher risk factors for visiting health care facilities compared to women. Although some research suggests that women tend to be more vulnerable to health problems than men, there are several reasons that can explain why men have higher risk factors for visiting health facilities than women (TNP2K, 2015). Literature states that first, awareness of healthy living is not only a necessity for women but also for men. Second, in the majority of households in Indonesia, men are the primary household members and have health insurance through their employers, which increases their awareness of staying healthy and maintaining productivity.

The increase in age is a higher risk factor for visiting health care facilities. It could be a consequence of aging, which reduces some physical capabilities as people get older. It can also indicate that health conditions tend to decline with age, prompting individuals who are aware of the importance of health to visit health care facilities more often. Some individuals experience the effects of aging, especially when they are not accustomed to living a healthy lifestyle, are stuck in routines, or lack physical activity. The efforts of individuals to interpret their life's journey often play an important role in reducing potential physical limitations, especially when they can still perform daily activities independently or in groups with peers (Devadasan et al., 2010; Jacobs et al., 2011). The marital status variable indicates that married individuals have a higher probability of accessing health services. Several reasons support this claim: first, married people with health insurance tend to incur lower costs for health services; second, sociodemographic factors are significant determinants of healthcare utilization; third, unmarried individuals often have reduced access to healthcare resources and are more vulnerable to health risk activities. Some literature discusses the concept of "marriage protection," which emphasizes the role of couples in protecting and supporting each other through social interaction, potentially leading to better health behaviors. For women, this support often extends both physically and morally to their spouses (Pandey et al., 2019).

The size of the household (hhsize) has a positive and significant impact on the risk factors for treatment at a health care facility. In large households, when one member becomes ill, other household members are more likely to seek medical treatment, especially if they have health insurance, which can protect their families (Hamid et al., 2011). In terms of education (educ), higher education tends to increase the risk factors associated with visiting health facilities when sick. It indicates that education can improve the quality of life. This is because individuals with higher education have accumulated more knowledge and are increasingly aware of the importance of a healthy lifestyle as a preventive measure. They also have alternative options for using health insurance and can select the most beneficial plans after careful consideration (Nadjib & Pujiyanto, 2002).

The comparison of individual risk factors for treatment at health care facilities tends to be higher among those who have health insurance (both government and private). Our findings provide a positive indication of the relationship; in other words, individuals who have health insurance ownership tend to have increased risk factors for visiting health care facilities when they become ill, compared to individuals who do not have health insurance. The findings suggest that health insurance has a positive impact on community access to health care facilities, although not all health insurance owners utilize it for health services (Pradhan et al., 2003; Waters, Saadah, & Pradhan, 2003). Because there are other factors that also influence the individual's willingness to visit health care facilities when sick, these factors such as income (Ku et al., 2019) respondent knowledge and community access to health facilities (Zhang et al., 2015) and travel time because it is related to use or need to health facility (Bernard, Banthin, & Encinosa, 2009).

According to the Basic Health Research Report (Riskesdas) for 2018, several health indicators tend to increase, although they remain well below the World Health Organization's health standards. Some indicators show a downward trend. In terms of health service availability, it is still evident that health services are unevenly distributed, including disparities in health development in Indonesia (Ministry of Health, 2018). The existence of inequality in health infrastructure highlights the gap. Since some people participate in health insurance and this participation is expected to increase, additional health facilities that are part of the program must provide health services for participants. Therefore, it is important to assess the level of benefit in terms of both demand and supply for healthcare availability. It is also necessary to consider individuals' ability to access healthcare services (Robyn, Fink, Sié, & Sauerborn, 2012; Zhang et al., 2015). In developing countries such as Indonesia, there is still a relatively low level of utilization of health facility care services, which is most common in low-income communities. Many factors are believed to contribute to this, such as disparities in economic resources and infrastructure, which are viewed as the primary contributors to the low level of health service utilization (O'Donnell, Higgins, Chauhan, & Mullen, 2007).

5. CONCLUSION

The health insurance has a positive impact on increasing the utilization of healthcare facilities. Empirical results show that when individuals have health insurance, the risk factor for treatment at a health facility tends to be higher. Generally, this study supports the idea that the increased risk factor for utilizing health facilities among people who have health insurance is higher than among others. People with health insurance are more likely to access healthcare facilities when they are ill, compared to those without coverage. Women should have health insurance because it is important for them. They are more vulnerable regarding their health and have the potential for increased healthcare utilization and health spending when they are sick.

Our study has limitations regarding information on the diversity of insurance owned by individuals, as this information cannot be obtained through the data sources used in this paper. Additionally, the study has not captured conditions before and after health insurance ownership related to healthcare utilization. For future research, we recommend utilizing other microdata sources beyond those employed in this study. Furthermore, the use of panel data could be beneficial to examine the effect of health insurance on healthcare facility utilization, particularly in understanding how healthcare utilization changes before and after health insurance ownership.

This paper offers recommendations for the government as the policyholder. First, the government should work to expand health insurance ownership and coverage so that every citizen has access to health insurance. Second, attention should be given to women. Third, efforts are needed to address the weaknesses and shortcomings in health insurance implementation, including considering potential or predicted disease trends, cost and treatment method trends, stages of claims and payment processes, more equitable health facilities, and the possibility of increased government expenditure on health insurance. Fourth, the government must improve access to healthcare and enhance quality for residents in rural areas to reduce potential disparities in risk factors among those living in rural communities and their access to health services.

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REFERENCES

Aji, B., De Allegri, M., Souares, A., & Sauerborn, R. (2013). The impact of health insurance programs on out-of-pocket expenditures in Indonesia: An increase or a decrease? *International Journal of Environmental Research and Public Health*, *10*(7), 2995-3013. https://doi.org/10.3390/ijerph10072995

Barasa, E., Nguhiu, P., & McIntyre, D. (2021). Measuring progress towards sustainable development goal 3.8 on universal health coverage in Kenya. *BMJ Global Health*, *6*(1), e004475.

Bernard, D. M., Banthin, J. S., & Encinosa, W. E. (2009). Wealth, income, and the affordability of health insurance. *Health Affairs*, *28*(3), 887-896. https://doi.org/10.1377/hlthaff.28.3.887

Cheng, Q., Fattah, R. A., Susilo, D., Satrya, A., Haemmerli, M., Kosen, S., . . . Hayen, A. (2025). Determinants of healthcare utilization under the Indonesian national health insurance system – a cross-sectional study. *BMC Health Services Research*, *25*, 48. https://doi.org/10.1186/s12913-024-11951-8

Devadasan, N., Criel, B., Van Damme, W., Manoharan, S., Sarma, P. S., & Van der Stuyft, P. (2010). Community health insurance in Gudalur, India, increases access to hospital care. *Health Policy and Planning*, *25*(2), 145-154. https://doi.org/10.1093/heapol/czp044

Erlangga, D., Ali, S., & Bloor, K. (2019). The impact of public health insurance on healthcare utilisation in Indonesia: Evidence from panel data. *International Journal of Public Health*, *64*, 603-613. https://doi.org/10.1007/s00038-019-01215-2

Farrell, C. M., & Gottlieb, A. (2020). The effect of health insurance on health care utilization in the justice-involved population: United States, 2014–2016. *American Journal of Public Health*, *110*(S1), S78-S84. https://doi.org/10.2105/AJPH.2019.305399

Fiedler, M., McKee, M., & Moran, V. (2021). Health insurance coverage and utilization during the COVID-19 pandemic in the US: Cross-sectional analysis. *Health Affairs*, *40*(11), 1787-1795.

Ghose, A. J. (2010). Reinventing development economics. *Economic and Political Weekly*, *45*(42), 41–50.

Giedion, U., Alfonso, E., & Diaz, Y. (2007). The impact of subsidized health insurance on access, utilization and health status in Colombia. iHEA 2007 6th World Congress: Explorations in Health Economics Paper.

Gujarati, D., & Porter, C. D. (2009). *Basic econometrics* (5th ed.). New York: McGraw Hill.

Hamid, S. A., Roberts, J., & Mosley, P. (2011). Can micro health insurance reduce poverty? Evidence from Bangladesh. *Journal of Risk and Insurance*, *78*(1), 57-82. https://doi.org/10.1111/j.1539-6975.2010.01402.x

Hidayat, B., & Pokhrel, S. (2010). The selection of an appropriate count data model for modelling health insurance and health care demand: Case of Indonesia. *International Journal of Environmental Research and Public Health*, *7*(1), 9-27. https://doi.org/10.3390/ijerph7010009

Jacobs, B., Ir, P., Brigdeli, M., Annear, P. L., & Van Damme, W. (2011). *Addressing health barriers to health services: An analytical framework for selecting appropriate intervensions in low – income Asian countries*. London: OUP.

Johar, M. (2009). The impact of the Indonesian health card program: A matching estimator approach. *Journal of Health Economics*, *28*(1), 35-53. https://doi.org/10.1016/j.jhealeco.2008.10.001

Kanbarkar, P. N., & Chandrika, K. B. (2017). Health care seeking behavior – A theoretical perspective. *Indian Journal of Research*, *6*(1), 790–792.

Kattih, N., & Mansour, F. (2024). The impact of the COVID pandemic on health, healthcare utilization, and healthcare spending. *Research in Economics*, *78*(2), 100951. https://doi.org/10.1016/j.rie.2024.100951

King, G., Gakidou, E., Imai, K., Lakin, J., Moore, R. T., Nall, C., . . . Ávila, J. E. H. (2009). Public policy for the poor? A randomised assessment of the Mexican universal health insurance programme. *The Lancet*, *373*(9673), 1447-1454. https://doi.org/10.1016/S0140-6736(09)60239-7

Kristina, S. A., Endarti, D., & Andayani, T. M. (2022). The influence of health insurance on cancer screening utilization in Indonesia. *Asian Pacific Journal of Cancer Prevention*, *23*(4), 1231–1237.

Ku, Y.-C., Chou, Y.-J., Lee, M.-C., & Pu, C. (2019). Effects of National Health Insurance on household out-of-pocket expenditure structure. *Social Science & Medicine*, *222*, 1-10. https://doi.org/10.1016/j.socscimed.2018.12.010

Meemon, N., & Paek, S. C. (2018). Health-seeking behavior of the uninsured before and after the universal coverage scheme in Thailand. *Asia-Pacific Social Science Review*, *18*(1), 2. https://doi.org/10.59588/2350-8329.1144

Meemon, N., & Paek, S. C. (2020). Analysis of composition change of public facility care users after the Universal Coverage Scheme in Thailand. *SAGE Open*, *10*(3), 2158244020947423. https://doi.org/10.1177/2158244020947423

Ministry of Health. (2018). *Basic health research*. Jakarta: GOI Ministry of Health.

Nadjib, M., & Pujiyanto, P. (2002). Health expenditure pattern by marginal and vulnerable group. *Makara Health Series*, *6*(2), 35–46.

Nguyen, C. V. (2012). The impact of voluntary health insurance on health care utilization and out-of-pocket payments: New evidence for Vietnam. *Health Economics*, *21*(8), 946-966. https://doi.org/10.1002/hec.1768

O'Donnell, C. A., Higgins, M., Chauhan, R., & Mullen, K. (2007). "They think we're OK and we know we're not". A qualitative study of asylum seekers' access, knowledge and views to health care in the UK. *BMC Health Services Research*, *7*, 75. https://doi.org/10.1186/1472-6963-7-75

Okeke, E., Adebayo, A., & Olanrewaju, T. (2023). Health insurance coverage and health care utilization in Nigeria: A multilevel analysis. *Health Policy And Planning*, *38*(2), 175-184.

Pandey, K. R., Yang, F., Cagney, K. A., Smieliauskas, F., Meltzer, D. O., & Ruhnke, G. W. (2019). The impact of marital status on health care utilization among Medicare beneficiaries. *Medicine*, *98*(12), e14871. https://doi.org/10.1097/MD.0000000000014871

Prabhakaran, S., Harimurti, P., & Hayati, E. (2020). Health insurance and maternal health service utilization: Evidence from Indonesia. *Health Policy and Planning*, *35*(7), 787– 795.

Pradhan, M., Saadah, F., & Sparrow, R. (2007). Did the health card program ensure access to medical care for the poor during Indonesia's economic crisis? *The World Bank Economic Review*, *21*(1), 125-150. https://doi.org/10.1093/wber/lhl010

Pradhan, M., Sahn, D. E., & Younger, S. D. (2003). Decomposing world health inequality. *Journal of Health Economics*, *22*(2), 271-293. https://doi.org/10.1016/S0167-6296(02)00123-6

Rahmawati, T., & Hsieh, H.-M. (2024). Appraisal of universal health insurance and maternal health services utilization: Pre- and post-context of the Jaminan Kesehatan Nasional implementation in Indonesia. *Frontiers in Public Health*, *12*, 1301421. https://doi.org/10.3389/fpubh.2024.1301421

Ramadani, R. V., Svensson, M., Hassler, S., Hidayat, B., & Ng, N. (2024). Effects of the COVID-19 pandemic on healthcare utilization among older adults with cardiovascular diseases and multimorbidity in Indonesia: An interrupted time-series analysis. *BMC Public Health*, *24*, 71. https://doi.org/10.1186/s12889-023-17568-6

Robyn, P. J., Fink, G., Sié, A., & Sauerborn, R. (2012). Health insurance and health-seeking behavior: Evidence from a randomized community-based insurance rollout in rural Burkina Faso. *Social Science & Medicine*, *75*(4), 595-603. https://doi.org/10.1016/j.socscimed.2011.12.018

Rolindrawan, D. (2015). The impact of BPJS health implementation for the poor and near poor on the use of health facility. *Procedia-Social and Behavioral Sciences*, *211*, 550-559. https://doi.org/10.1016/j.sbspro.2015.11.073

Shihab, A. N., Nurdin, A., Kadir, A., Thabrany, H., & Paturusie, I. (2017). Equity in utilization of inpatient for National Health Insurance (JKN) program in Indonesia. *International Journal of Science*, *31*, 58-74.

Somkotra, T., & Lagrada, L. P. (2009). Which households are at risk of catastrophic health spending: Experience in Thailand after universal coverage. *Health Affairs*, *28*(Suppl1), w467-w478. https://doi.org/10.1377/hlthaff.28.3.w467

Sparrow, R., Suryahadi, A., & Widyanti, W. (2013). Social health insurance for the poor: Targeting and impact of Indonesia's Askeskin programme. *Social Science & Medicine*, *96*, 264-271. https://doi.org/10.1016/j.socscimed.2012.09.043

Sumartono, I. D. (2017). *Effects of universal health coverage on health care inequality in Indonesia*. Master's Thesis, Erasmus University.

Suryadarma, D., & Sumarto, S. (2024). The impact of health insurance on health care utilization and financial risk Protection in Indonesia. *World Development*, *176*, 106432.

Tjandra, Y., Nugraheni, W. P., & Maharani, A. (2021). The association between JKN and outpatient service utilization in Indonesia. *BMC Health Services Research*, *21*(1), 1-9.

TNP2K. (2015). *The journey to national health insurance*. Jakarta: TNP2K.

Trujillo, A. J., Portillo, J. E., & Vernon, J. A. (2005). The impact of subsidized health insurance for the poor: evaluating the Colombian experience using propensity score matching. *International Journal of Health Care Finance and Economics*, *5*, 211-239. https://doi.org/10.1007/s10754-005-1792-5

Utomo, A., Hasnida, A., & Trisnantoro, L. (2023). Equity of health care access under JKN in Eastern Indonesia: A mixed-methods study. *International Journal for Equity in Health*, *22*(1), 54.

Vidyattama, Y., Miranti, R., & Resosudarmo, B. P. (2014). The role of health insurance membership in health service utilisation in Indonesia. *Bulletin of Indonesian Economic Studies*, *50*(3), 393-413. https://doi.org/10.1080/00074918.2014.980380

Wagstaff, A. (2010). Estimating health insurance impacts under unobserved heterogeneity: The case of Vietnam's health care fund for the poor. *Health Economics*, *19*(2), 189-208. https://doi.org/10.1002/hec.1466

Wagstaff, A., Lindelow, M., Jun, G., Ling, X., & Juncheng, Q. (2009). Extending health insurance to the rural population: An impact evaluation of China's new cooperative medical scheme. *Journal of Health Economics*, *28*(1), 1-19. https://doi.org/10.1016/j.jhealeco.2008.10.007

Wagstaff, A., & Pradhan, M. (2005). Insurance health impacts on health and non-medical consumption in a developing country. *ICFAI Journal of Risk and Insurance*, *2*(1), 56–69.

Wang, Z., Li, X., & Chen, M. (2022). The impact of health insurance on health care utilization and health outcomes: Evidence from China. *BMC Health Services Research*, *22*(1), 613.

Waters, H., Saadah, F., & Pradhan, M. (2003). The impact of the 1997–98 East Asian economic crisis on health and health care in Indonesia. *Health Policy and Planning*, *18*(2), 172-181. https://doi.org/10.1093/heapol/czg022

Wen, C. P., Tsai, S. P., & Chung, W.-S. I. (2008). A 10-year experience with universal health insurance in Taiwan: Measuring changes in health and health disparity. *Annals of Internal Medicine*, *148*(4), 258-267. https://doi.org/10.7326/0003-4819-148-4-200802190-00004

Wooldridge, J. M. (2016). *Introductory econometrics: A modern approach* (6th ed.). New Hampshire: Cengage.

Wulandari, R. D., Laksono, A. D., Mubasyiroh, R., Rachmalina, R., Ipa, M., & Rohmah, N. (2023). Hospital utilization among urban poor in Indonesia in 2018: Is government-run insurance effective? *BMC Public Health*, *23*, 92. https://doi.org/10.1186/s12889-023-15017-y

Zhang, X., Wu, Q., Shao, Y., Fu, W., Liu, G., & Coyte, P. C. (2015). Socioeconomic inequities in health care utilization in China. *Asia Pacific Journal of Public Health*, *27*(4), 429-438. https://doi.org/10.1177/1010539514565446

Zhao, Y., & Li, H. (2024). Health insurance and preventive health care utilization: Longitudinal evidence from China. *Social Science & Medicine*, *342*, 115524.