

DETERMINANTS OF PAYMENT COMPLIANCE OF THE NATIONAL HEALTH INSURANCE AMONG NON-SALARIED PARTICIPANTS

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Abstract

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This study analyzed the compliance of non-salaried participants, in paying the monthly premium of the National Health Insurance (known as *Jaminan Kesehatan Nasional, JKN*) in Indonesia. The sustainability of this program is essential to realize universal health coverage (UHC) in the country, and its success heavily relies on the compliance of its participants in paying the premiums. Non-salaried workers constitute a membership category with a lower level of compliance in paying premiums compared to salaried workers and premium contribution beneficiaries. This study used the logit regression method and revealed significant findings. Specifically factors such as age, income stability, payment point, decision maker, and distance to health facilities were found to be associated with the compliance of private participants in paying the monthly premium of the JKN program. The study identified that older age is linked to higher compliance, and having a stable monthly income increases the probability of payment. Respondents who utilize bank auto-debit services for payments exhibit a higher level of compliance compared to those who make payments at modern mini-markets or e-commerce platforms. The joint decision-making by both spouses to participate in the JKN Program leads to higher compliance compared to decisions made solely by one spouse. Furthermore, the study discovered that a greater distance to health facilities corresponds to an increased likelihood of compliance in paying the monthly premium.

Keywords: Premium, Compliance, Non-Salaried Participants, National Health Insurance, Logit Regression

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1. INTRODUCTION

One of the programs implemented by the national government to ensure that all people in Indonesia can access healthcare facilities is the National Health Insurance (*Jaminan Kesehatan Nasional, JKN*) program which was launched on January 1, 2014. The JKN program is designed as an effort to achieve

universal health coverage (UHC), which is a program that ensures community access to health services without causing financial difficulties (Agustina et al., 2019; Mathauer et al., 2008). The JKN program has increased the number of people covered by health insurance. The data¹ shows that in 2014, when the JKN program started, the number of participants

¹ <https://www.bpjs-kesehatan.go.id/>

reached 121.6 million, which was 49% of the Indonesian population. The number increased to 187.98 million in 2017 and 224.1 million in 2019, covering approximately 83% of the population.

The coverage of JKN participation to achieve UHC in Indonesia has grown significantly over nearly a decade since its initiation, reaching 83%. This contrasts sharply with some other countries that have already implemented UHC. For example, Japan took 36 years while South Korea took 26 years to achieve a familiar figure (Carrin & James, 2005). However, the JKN program also faces several challenges, such as: 1) inaccuracies in the contribution assistance recipients (*Penerima Bantuan Iuran, PBI*) targeting, and 2) an increase in the number of non-salaried recipients (*Pekerja Bukan Penerima Upah, PBPU*) members who usually have high health risks but low payment compliance. Other issues include benefits exceeding premium paid, weak primary-level healthcare facilities, and fraud indications (Hossain, 2022).

The government continues to subsidize health costs, as the Social Security Administration Agency for Health (*Badan Penyelenggara Jaminan Sosial Kesehatan, BPJS Kesehatan, or BPJSK*) as the institution that administers JKN, has recorded a deficit since program's launch in 2014. Based on the 2014-2017 BPJSK financial evaluation report, the deficit decreased with an increase in participant premiums (Khasanah & Sasana, 2022). According to Asyrofi and Ariutama (2019), there are several causes of the deficit experienced, by BPJSK such as underpriced premiums, where the premium is substantially lower than actuarial calculations. This poses a deficit risk as premiums inadequate to cover the benefits provided. Adverse selection also contributes to the deficit (Carrin, 2002). Adverse selection is a condition where healthy participants feel that the premium is too expensive and therefore not willing to pay so the burden born by the insurance provider increases (Einav & Finkelstein, 2018; Setegn et al., 2021) because the provider only covers people with medium and high risks. This is illustrated by the fact that many JKN program participants register only when they are sick but then stop paying premiums when they have received health services (Atinga et al., 2015). This condition persists and is more likely to threaten the sustainability of insurance programs in the long term.

Adverse selection behaviour is usually observed among non-salaried recipients (PBPU) as indicated by their low compliance to pay the premiums (54%) and their high level of utility. In 2025, around 37% of the 5.5 million PBPUs did not regularly pay monthly premiums, resulting in passive participation ("Cek iuran BPJS kesehatan", 2023). The figure was 27% higher than the 2014 data. The ratio of PBPU claims in 2020 with 30 million participants was more than 400%. Such a great ratio indicates adverse selection, where most of the participants are relatively sick people with a premium payment arrears rate of more than half (Aktariyani, 2021). These problems can threaten the sustainability of the government's JKN program financing (Dartanto et al., 2020). These obstacles will have an impact on the health services provided to the other participants.

This study investigates the compliance to pay the monthly premiums among the PBPU for

the long-term sustainability of the JKN Program. This study examined the variables that affect the compliance of participants in the JKN Program to pay the monthly premiums, especially among non-salaried workers (PBPU). Participants of this type are also referred to as *private participants*, where the premium payment is different from premium contribution assistance recipients (PBI) who receive subsidies from the central or local governments, and salaried workers (*Peserta Penerima Upah, PPU*) whose premium is partially deducted from salary. PBPU is one of the participants with the highest premium arrears and the highest claim ratio. Although previous research had examined the willingness to pay and payment compliance to Indonesia's JKN (Nurhasana et al., 2022; Sunjaya et al., 2022; Ismainar et al., 2020), only a few empirically examined the segment of non-salaried workers. There are some empirical examinations in other developing countries aiming at investigating non-salaried worker compliance to pay health insurance premiums (Setegn et al., 2021; Yitayew et al., 2020; Hossain, 2022; Basaza et al., 2019; Ashagrie et al., 2020; Christmals & Aidam, 2020). Therefore, it is important to analyze the variables that affect compliance to pay the premiums in order to maintain the sustainability of the JKN Program in Indonesia to achieve UHC.

The paper is structured as follows Section 2 discusses relevant previous research and studies related to the topic and identifies gaps in the literature. Section 3 discusses the research design, sampling methods, data collection instruments and analytical methods used in the study. Section 4 presents and interprets the results of the study. Section 5 discusses the findings in relation to the research questions and objectives. Finally, Section 6 summarises the main findings of the study, their significance and implications for future research in this area.

2. LITERATURE REVIEW

2.1. Healthcare, human capital and economic growth

Health is one of the pillars in any effort to improve the quality of human resources and plays an important role in reducing poverty and driving economic growth (Gertler, 1998). Poor health conditions will increase unemployment and reduce people's purchasing power resulting in the poor continuing to live in the poverty cycle (Asgary et al., 2004). Education and health are investments that play a role in economic development. Higher levels of education and health will reduce the number of poor people as incomes and living standards increase (Li et al., 2020). Humans serve an important role in the development and improvement of the country's welfare. This role is described by Schultz (1961) using the concept of *human capital*. Health is the essence of well-being because it is a prerequisite for increasing productivity and is one of the determinants of educational success. Good health capital will increase the return on investment in education because to be able to attend school to get an education, good health is needed (Puaschunder, 2022). Healthy children tend to do better in school and learn more efficiently, so they can use education for productive activities. Health

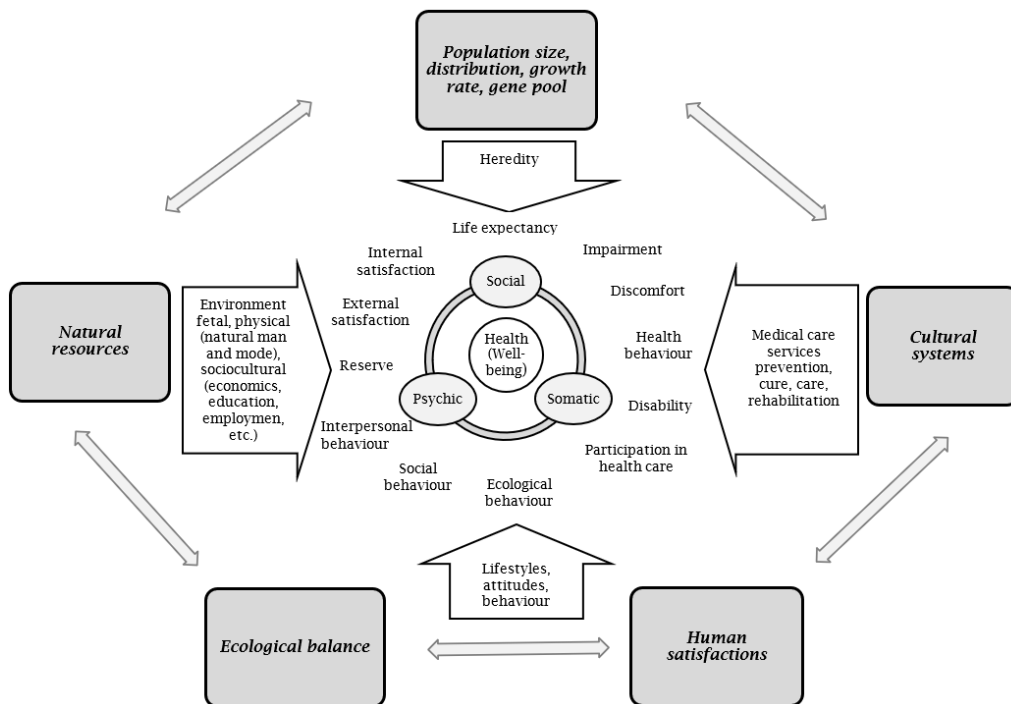
will also increase life expectancy and the return on investment in education and, therefore, have a long-term effect on the human development of a country (Malm et al., 2019). Moreover, human resources transform into human capital through effective inputs such as educational values, health values, and moral values. Human capital is a term used for the education, health, and human capacity sectors that can be used to increase productivity (Woldemichael & Shimeles, 2019). Investments made in human capital are used to improve the quality of education and health and ultimately improve human welfare due to increased income. According to Todaro and Smith (2009) competence, knowledge, expertise, skills, and health are essential because all of these factors are outputs of education and health care to form human capital.

To analyze this context, the *life-cycle theory of consumption* is useful as one of the theories developed by Ando and Modigliani (1963). It defines the choices a person makes to maintain a stable standard of living in the face of continuous change over time (Dornbusch et al., 2001). This theory assumes that individuals plan their consumption and savings behaviour with the aim of allocating their consumption over a long period to improve their living standard (Deaton, 2005). Individuals tend to consume a stable amount or the same level in every period such as weekly or monthly. This lifestyle is achieved not by saving massively in one period of time to gain a large income in the next period, but by consuming the same level in each period. Based on this theory, how much a person spends for consumption purposes depends on the amount of income expected throughout their life. Life cycle consumption theory assumes that

humans go through several stages in their lives: 1) not yet productive, 2) productive, and 3) no longer productive. These stages will affect the pattern of their consumption, which depends on the income allocation. They will take steps to save to guard against uncertain conditions in the future, especially when their productivity is declining (Hsu et al., 2015). The income earned by a person is usually low in youth, increases and peaks in middle age, and starts to decline in old age. Age also affects their health condition, which usually declines so it affects their productivity. To maintain their quality of life, they will take several ways, such as positive savings in middle age to cover needs in old age, where at that age a person will be in a negative saving position. Such conditions usually make the elderly a burden on development.

Specifically, in Indonesia, according to Law on Health (Law No. 36/2009), *health* is defined as a healthy state physically, mentally, spiritually, and socially that allows everyone to live socially and economically productive. The World Health Organization (WHO) constitution states: "Health is a state of complete physical, mental and social well-being, not merely the absence of disease or infirmity" (WHO, 2020, p. 1). Health is a basic need for humans so that they can carry out normal and productive activities. The degree of human health according to Blum (1980) is influenced by several factors: lifestyle, environment — such as social, economic, political and cultural conditions, health services — including the type, scope, and quality, and genetics. The interaction of these four factors will build a person's health and the level of health in the community, as shown in Figure 1.

Figure 1. The force field and well being paradigms of health



Source: Authors' elaboration.

The above figure shows that health (well-being) is at the centre of the cycle. As can be seen, the most influential factor is the environment and followed by lifestyle, which is a manifestation of a person's behavioural choices. A person's or society's behaviour regarding health highly depends on knowledge, attitudes, beliefs, and traditions. Human behaviour encompasses various dimensions and can be categorized into *internal and subjective dimensions*, only known by themselves, and *external and open* — known by others (Martin et al., 2019).

In terms of the effectiveness of treatment of diseases, depending on the length of hospital stay and cost, treatment in PJS PBI's participants patients is more effective than in general patients (Widiyantara & Dewi, 2016). UHC means that all citizens have access to quality healthcare services without any financial burden. Cuba has achieved 100% UHC coverage with a focus on primary health care and a good doctor-to-population ratio. Indonesia's JKN covers 82% of the population but faces challenges in infrastructure, medical equipment, human resources, data utilization, and budget. Despite being a low-income country, Cuba has a better healthcare system than many developed and developing countries (Sobeang, 2021).

2.2. Indonesia's health system during the era of the COVID-19 pandemic

The COVID-19 pandemic has put immense pressure on healthcare systems worldwide, and Indonesia is no exception. As the fourth most populous country in the world, Indonesia has faced numerous challenges in effectively managing the spread of the virus and providing adequate healthcare services to its citizens.

Even before the pandemic, Indonesia's health system grappled with various issues, including limited healthcare infrastructure, unequal distribution of resources, and disparities in access to quality healthcare between urban and rural areas. These pre-existing challenges have been exacerbated by the COVID-19 crisis, leading to a strain on the healthcare system and exposing its vulnerabilities.

Indonesia's policy in dealing with COVID-19 in the health sector has been multifaceted and dynamic. Since the pandemic's outbreak, the Indonesian government has implemented various measures to mitigate the spread of the virus, safeguard public health, and provide adequate healthcare services. Some key aspects of Indonesia's policy include:

1) *Testing and contact tracing.* The government has emphasized the importance of widespread testing and contact tracing to identify and isolate infected individuals. Efforts have been made to increase testing capacity, establish testing centres, and improve the efficiency of contact tracing mechanisms.

2) *Healthcare infrastructure.* Indonesia has focused on strengthening its healthcare infrastructure to ensure adequate facilities and resources for COVID-19 treatment. This includes the establishment of COVID-19 dedicated hospitals, the procurement of medical equipment and

supplies, and the deployment of healthcare workers to affected regions.

3) *Vaccination campaign.* Indonesia has launched an extensive vaccination campaign to inoculate its population against COVID-19. The government has prioritized high-risk groups and implemented a phased approach to vaccine distribution, starting with healthcare workers, elderly individuals, and individuals with comorbidities.

4) *Public health measures.* Various public health measures have been implemented to prevent the spread of the virus, including the promotion of mask-wearing, physical distancing, hand hygiene, and restrictions on public gatherings. These measures have been periodically adjusted based on the prevailing situation and the advice of health experts.

5) *Communication and public awareness.* The Indonesian government has placed significant emphasis on communication and public awareness campaigns to educate the population about COVID-19. Efforts have been made to disseminate accurate information, combat misinformation, and encourage adherence to health guidelines.

6) *Collaboration and international support.* Indonesia has actively sought collaboration and support from international organizations, such as the WHO and bilateral partners, to strengthen its response to the pandemic. This includes assistance in terms of funding, technical expertise, and the procurement of vaccines and medical supplies.

3. RESEARCH METHODOLOGY

This study used descriptive quantitative research methods, using primary data collected through the distribution questionnaires. These questionnaires were distributed to non-salaried workers who live in the mountains in Selo District, Boyolali Regency, Central Java Province. The questionnaires were used to gather primary data from the respondents.

The sample characteristics of this study consisted of 100 respondents who were selected from around 9,842 non-salaried workers in Boyolali in 2019. The respondents were representative of the non-salaried workers who live in the mountains in the Selo District.

The rationale behind selecting the method used in this study was to determine the variables that affect compliance with paying monthly premiums among PBPU members. Descriptive quantitative research methods were chosen to acquire numerical data that could be statistically analyzed. Logit regression was used to analyze the data, which could help identify the independent variables that influenced compliance with the monthly premiums.

Compliance was measured using a dichotomy variable indicating whether a respondent had ever been in arrears on premium payments or not. The independent variables used in this study were age, income, spouse income, number of children, income stability, payment point, decision maker, distance to health facilities, and marital status. The equation model for compliance to pay the monthly premiums is as follows:

$$\text{Compliance} = \alpha_0 + \alpha_1 \text{Age} + \alpha_2 \text{Income} + \alpha_3 \text{Income_spouse} + \alpha_4 \text{Children} + \alpha_5 \text{Stable} + \alpha_6 \text{Payment} + \alpha_7 \text{Decision_maker} + \alpha_8 \text{Distance_facilities} + \alpha_9 \text{Marital_status} \quad (1)$$

4. RESULTS

The association between compliance to pay the monthly premiums for the JKN Program and demographic variables can be seen in Table 1.

The table below shows that 58.97% of female respondents were compliant in paying the monthly premiums, while the remaining 41.03% were in arrears. As for male respondents, 62.3% were compliant in paying the monthly premiums, while the remaining 37.7% encountered difficulties with payment, resulting in payment arrears. The results indicate that 64.29% of unmarried respondents exhibited high compliance in paying monthly

premiums, while the remaining 35.71% showed low compliance. Among married participants, 60.47% of respondents displayed high compliance, while the remaining 39.53% demonstrated low compliance. Moreover, the majority (57.69%) of respondents with primary school education demonstrated high compliance in paying the monthly premiums; this percentage was 61.54% for those with the secondary school education and 58.97% for the high school education. Respondents with a higher education level showed a higher level of compliance, specifically 66.67% for the Diploma level and 83.33% for the Bachelor level.

Table 1. Crosstabulation statistics

Crosstabulation	Status	Non-compliant		Compliant		Total
<i>Gender * Compliance</i>	Female	16	41.03%	23	58.97%	39
	Male	23	37.70%	38	62.30%	61
	Total	39	39.00%	61	61.00%	100
<i>Marital * Compliance</i>	Unmarried	5	35.71%	9	64.29%	14
	Married	34	39.53%	52	60.47%	86
	Total	39	39.00%	61	61.00%	100
<i>Education * Compliance</i>	Primary school	11	42.31%	15	57.69%	26
	Secondary school	1	3.85%	16	61.54%	26
	High school	16	41.03%	23	58.97%	39
	Diploma*	1	33.33%	2	66.67%	3
	Bachelor	1	16.67%	5	83.33%	6
	Total	39	39.00%	61	61.00%	100
<i>Occupation * Compliance</i>	Employee	5	20.00%	20	80.00%	25
	Private business	24	44.44%	30	55.56%	54
	Farmers	3	33.33%	6	66.67%	9
	Housewives	7	58.33%	5	41.67%	12
	Total	39	39.00%	61	61.00%	100
<i>Class * Compliance</i>	Class I	3	50.00%	3	50.00%	6
	Class II	3	13.64%	19	86.36%	22
	Class III	33	45.83%	39	54.17%	72
	Total	39	39.00%	61	61.00%	100

Note: * Diploma level is 3 or 4 years education without degree. Its rank is below Bachelor degree. It is also common in Western countries. You can see here: <https://www.nda.ac.uk/blog/diplomas-and-degrees-whats-the-difference/>

Table 1 also shows that respondents working as employees exhibited the highest level of compliance with 80%, followed by farmer respondents with 66.67%, and private traders or entrepreneurs with 55.56%. Respondents with the lowest level of compliance were housewives at 41.67%. In terms of participants' Class, respondents with JKN participant Class II displayed the highest level of compliance with 86.46% followed by respondents from JKN participant Class III at 54.17%, while the lowest compliance was observed

among respondents with JKN participant Class I at 50%.

The results of data processing through logit regression regarding compliance with paying the monthly premiums are presented in Table 2. Utilizing a significance level of $\alpha = 5\%$, several variables were found to impact compliance, including age, income stability, payment point, decision maker, and distance to health facilities.

Table 2. Result of regression logit on compliance to pay monthly premiums

Variables	Coefficients	z-statistic	Prob.	Odds ratio
C	-3.6230	-2.3248	0.0201	-97.3298
Age	0.0547**	2.0356	0.0418	5.6267
Income	2.270E-07	1.0823	0.2791	0.00002
Income_spouse	2.28E-07	1.4265	0.1537	0.00002
Children	-0.2368	-0.7010	0.4833	-21.0889
Stable	2.0747**	1.7899	0.0735	696.1842
Payment	1.7679**	2.5253	0.0116	485.8625
Decision_maker	1.0194**	1.8343	0.0666	177.1551
Distance_facilities	0.2299**	1.7233	0.0848	25.8462
Marital_status	-0.6612	-0.8378	0.4021	-48.3745
McFadden R-squared			0.24944	
LR statistic			3.33630	
Prob (LR statistic)			0.00012	

Note: * Significant at 1%; ** Significant at 5%; *** Significant at 10%.

Table 2 shows that at the significance level of $\alpha = 5\%$, the probability value of the

likelihood-ratio (LR) statistic was lower than the alpha value, where $0.0001 < 0.05$. Therefore, it

can be concluded that all the independent variables used in this study collectively show a significant effect on compliance with paying the monthly premiums. The coefficient of determination in the logit regression equation was calculated using McFadden's R-squared value, which will show how much the independent variables can explain the dependent variable. The value of McFadden's R-squared in this study was 0.24944. The result was in the range of 0.2-0.4. This suggests that this value is among the best values. The age in Table 2 means the results of regression logit, no actual age of respondents.

5. DISCUSSION

The *Age* variable had a coefficient of 0.0547 with an odds ratio of 5.6267 and a probability level of 0.0418. With a z-count value of 2.0356 and a z-table value of 1.645 at $\alpha = 5\%$, it can be concluded that age affects compliance with paying the monthly premiums. If the respondent's age increases by one year, the probability of compliance will increase by 5.6 times. This finding is supported by Dartanto et al. (2020) and Mladovsky (2014), who found that age has a positive effect on monthly premium payment compliance. As individuals become older, their level of health and productivity tend to decline. The awareness that diseases become more complex with age makes them more compliant with paying the monthly premium (Abu Bakar et al., 2012; Sunjaya et al., 2022). Adverse selection is usually seen in young individuals with low literacy levels and limited knowledge about insurance often associating insurance with illness (Atinga et al., 2015).

The monthly income stability variable (*Stable*) had a coefficient value of 2.0747 and an odds ratio of 696.1842 at a probability level of 0.0735. This suggests that respondents with a stable monthly income have a 696 times higher probability of complying with premium payments compared to those with unstable income levels. Income stability holds more influence than the actual income amount. This situation is also seen in Thailand and Senegal, where the majority of PBPUs work in the informal sector with fluctuating incomes, and, therefore, a flexible premium payment scheme is needed (Dartanto et al., 2020).

The *Payment* point variable affects compliance with paying the monthly premiums. An odds ratio value of 485.8625 indicates that respondents who make payments through bank auto debit or direct debit will increase 485 times higher likelihood of compliance compared to those who pay at modern mini markets or through e-commerce.

The *Decision_maker* variable affects compliance with paying the monthly premiums. An odds ratio value of 177.1551 suggests that if the decision is jointly made, the probability of compliance will increase 177 times higher than if the decision is made by only the husband or wife. Joint decision-making by husband and wife exhibits the highest level of compliance, as they can remind each other to make premium payments and manage household finances together, reducing the risk of payment arrears.

Understanding the importance of maintaining good health, susceptibility to diseases, the severity of illnesses, and recognizing the advantages offered by JKN are among the elements that influence

an individual's choice when selecting a JKN membership category (Harapan et al., 2020). If someone is more willing to allocate a larger amount of money, their chances of opting for a higher contribution class will be higher, allowing them to access healthcare benefits that cater to their specific requirements.

The distance from residence to health facilities (*Distance_facilities*) variable also affects the compliance with paying the monthly premiums. If the distance increases by 1 km, the probability of compliance will increase by 25.8 times. This finding is consistent with the results of a study by Dong et al. (2009) which found that the farther the distance from home to a health facility, the higher the level of compliance as individuals need to put more effort into reaching or accessing the facility compared to those who live closer. Moreover, *Income*, spouse's income (*Income_spouse*), number of children (*Children*), and marital status (*Marital_status*) did not show any effect on compliance with paying the monthly premiums. The amount of income does not affect compliance, but the stability of income does, as those with stable monthly income can plan monthly expenditure allocations so that the risk of payment arrears is lower than those with unstable monthly income. The number of children also has no effect on premium payment compliance due to shifting perspective of today's society. In the past, children were seen as an investment and a support system for parents in old age. However, the situation has changed, with parents aiming to lessen the burden on their children by becoming members of the JKN program and paying a monthly premium to access the necessary health services.

6. CONCLUSION

Non-salaried workers' compliance with the JKN program is significantly influenced by age, income stability, payment point, decision maker, and distance to health facilities. Meanwhile, the variables that have no influence are income, spouse's income, and marital status. This study recommends increasing the socialization about the importance of the JKN program as one of the health protection initiatives for the community to access health facilities. The tendency of young people to feel healthy and, therefore, not need health insurance is one of the obstacles to achieving UHC in Indonesia. Cooperation with financial institutions as one of the payment points will reduce the risk of arrears in premium payments so a creative program is needed to attract participants to make premium payments via auto debit.

The recommendations and implications are specified for social work. Non-salaried workers' awareness of making monthly premium payments for the JKN program will determine the sustainability of the program in order to achieve UHC in Indonesia. Payment compliance will also facilitate access to health services. Easily accessible health facilities would improve the quality of human resources in Indonesia, especially among people who work in the informal sector, which is dominated by non-salaried workers.

As limitation, the study may not capture all relevant variables that could influence compliance. Other factors, such as cultural beliefs, trust in the healthcare system, or regional disparities, may

also play a role but were not considered in this study. The study's findings may be specific to the Indonesian context and may not be directly applicable to other countries or regions with different healthcare systems and socio-economic conditions. For future studies, it is advisable for conducting longitudinal studies to track compliance over time can provide insights into how compliance patterns evolve and whether interventions like increased socialization or payment mechanisms

have a lasting impact. Moreover, future research is suggested to assess the impact of health literacy programs aimed at educating non-salaried workers about the benefits of the JKN program and evaluate the effectiveness of different communication strategies in promoting awareness. It is also advisable to explore partnerships with financial institutions in more detail, including how to make auto-debit payments more attractive and accessible to non-salaried workers.

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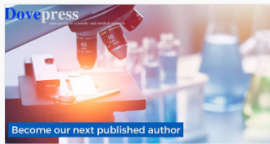
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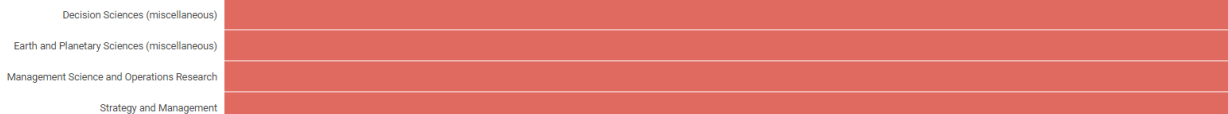
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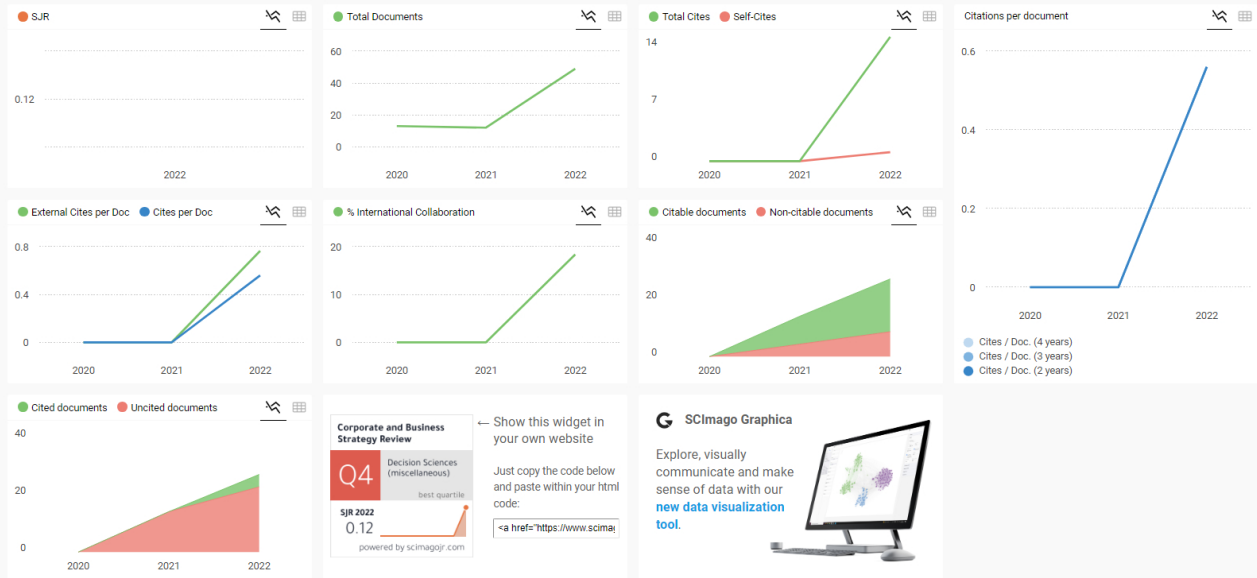
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