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# Determinants of Payment Compliance of the Indonesia National Health Insurance Among Nonsalaried Participants

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**Abstract**

This study analyzed the compliance of non-salaried workers, or non-wage recipient worker or private participants, in paying the monthly premium of the National Health Insurance, or National Health Insurance (*Jaminan Kesehatan Nasional*/JKN), program. The sustainability of this program is essential to realize the universal health coverage (UHC) in Indonesia, which is highly dependent on the compliance of its participants in paying the premiums. Non-salaried worker is one type of membership with a lower level of compliance to pay compared to salaried workers and premium contribution beneficiaries. This study used the logit regression method. This study found that age, income stability, payment point, decision maker, and distance to health facilities showed an association with private participant compliance in paying the monthly premium of the JKN program. Older age indicates higher compliance and stable monthly income increases probability to pay. Respondents who make payments using bank auto debit services show a higher level of compliance than participants who pay at modern mini markets or e-commerce platforms. The decision to becoming a participant or member in the JKN Program taken jointly between husband and wife has a higher level of compliance than the decision made by only one of the spouses. The farther the distance to the health facility, the greater the probability of being compliant in paying the monthly premium.

**Keywords:** premium, compliance, non-salaried workers, national health insurance, logit regression

## 1. Introduction

One of the programs implemented by the national government so that all people in Indonesia can access health care 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 attempt to realize universal health coverage (UHC), which is a program that ensures access for the community to obtain health services without having to go through financial difficulties (Agustina et al., 2019; Mathauer et al., 2008). The JKN program increases the number of people covered by health insurance. The data showed that in 2014 when the JKN program started, the number of participants reached 121.6 million or 49% of the Indonesian population and increased to 187.98 million in 2017 and 224.1 million in 2019 or approximately 83% of the population (https://www.bpjs-kesehatan.go.id/).

The coverage of JKN participation to achieve UHC in Indonesia has grown significantly because in almost a decade since it started, the number has reached 83%. This is vastly different from some other countries that have already implemented UHC. For example, Japan needs 36 years while South Korea 26 years to achieve such figure (Carrin & James, 2005). However, the JKN program also faces several challenges, such as inaccuracies in the PBI targeting and an increase in the number of PBPU members who usually have high health risks but low payment compliance (BPJS Kesehatan, 2016). Other problems include benefits that are greater than the premium paid, weak primary level health care facilities, and fraud indications (Central Java Provincial Health Office, 2019).

The government is still subsidizing to cover health costs because the Social Security Agency for Health, or the *Badan Penyelenggara Jaminan Sosial Kesehatan* (BPJSK) as the institution that administers JKN, has recorded deficit ever since the JKN program was launched in 2014. Based on the 2014-2017 BPJSK Financial Evaluation report, the deficit decreased when the premium charged to participants was increased (Putri, 2018). According to the Minister of Finance, there are several causes of the deficit experienced by BPJSK such as underpriced premium, where

the premium is substantially lower than actuarial calculations (Asyrofi & Ariutama, 2019). This poses a deficit risk because the premium calculation is smaller than the coverage of the benefits obtained. Adverse selection is also one of the causes of 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 that the burden borne 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 is more likely to threaten the sustainability of the JKN program in the long term.

Adverse selection behavior is usually displayed by Non-Wage Recipients (*Pekerja Bukan Penerima Upah*/PBPU) as indicated by their low compliance to pay the premiums (54%) and their high level of utility. Based on 2015 data, the number of PBPUs reached 5.5 million but around 37% did not pay monthly premiums regularly and became passive participants. 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 National Health Insurance Program or the National Health Insurance (JKN) in Indonesia to pay the monthly premiums, especially among the non-salaried workers (PBPU). Participants of this type are also referred to as private participants, where the premium payment is different from Premium Contribution Beneficiaries participants or *Penerima Bantuan Iuran* (PBI) who receive subsidies from the central or local governments and Salaried Workers or *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 national health insurance (Nurhasana et al., 2022; Widjanarko et al., 2018; 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; 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 the Universal Health Coverage (UHC).

## 2. Literature Review

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 so that the poor will continue 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.

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. 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.

Human resources turn 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 if these elements improve (Maria et al., 2021). 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 & Smith (2013) competence, knowledge, expertise, skills, and health are essential because all of these factors are outputs of education and health care to form human capital. Human capital is a normal goods where people will buy more of these capital goods if their income increases.

To analyze this context, life cycle theory of consumption is useful as one of the theories developed by Ando & 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 an individual will plan their consumption and savings behavior 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: not yet productive, productive, and no longer productive. These stages will affect the pattern of their consumption, which depends on the income allocation. They will take steps to save in order 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 at a young age, increases and peaks in middle age, and begins to decline in old age. Age also affects their health condition, which usually declines so that it affects their productivity (Nasirin & Lionardo, 2021). 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 for development.

Specifically, in Indonesia, According to Law Number 36 of 2009 on Health, health is defined as a healthy state physically, mentally, spiritually, and socially that allows everyone to live socially and economically productive. According to the World Health Organization (WHO), health is a state of complete physical, mental and social well-being, not merely the absence of disease or disability. 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.
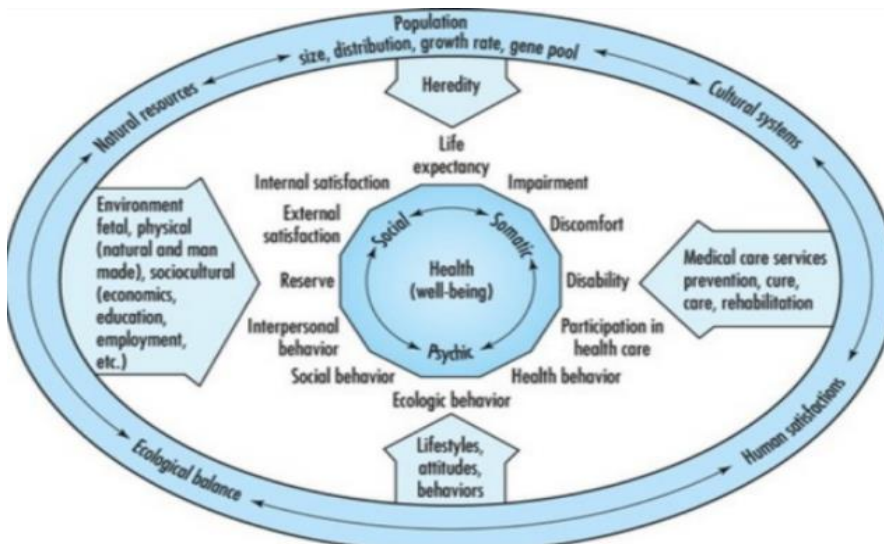
Source: Retnaningsih (2013)
Figure 1. The Force Field and Well Being Paradigms of Health

Figure 1 showed the Blum Diagram with the center of the object is a healthy condition. As can be seen, the most influential factor is the environment and followed by lifestyle, which is a manifestation of a person's behavioral choices. The behavior of a person or society regarding health is highly dependent on knowledge, attitudes, beliefs, and traditions. Human behavior involves various dimensions and can be categorized into *internal and subjective* dimension - only known by themselves - and *external and open* - known by others.

## 3. Methodology

This study used descriptive quantitative research methods, using primary data obtained from in-depth interviews and questionnaires and supported with secondary data. Sampling was carried out in Selo District, Boyolali Regency, Central Java Province, representing non-salaried workers who live in the mountains. This study used 100 samples from around 98,442 non-salaried workers in Boyolali in 2019.

This study used logit regression to determine the variables that affect compliance to pay the monthly premiums, especially among PBPU members. The compliance variable was proxied by the dichotomy variable, namely: if a respondent has ever been in arrears on premium payments, the notation is 0; if the premium payment is never in arrears, the notation is 1. The independent variables used 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:

$$Compliance = \alpha_0 + \alpha_1\,age + \alpha_2 income + \alpha_3\,incomen_{spose} + \alpha_4\,children + \alpha_5\,stable + \alpha_6\,payment + \alpha_7 decisiont_{maker} + \alpha_8\,distancek_{facilities} + \alpha_9\,status$$

## 4. Results

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

Table 1. Crosstabulation Statistics

| Crosstabulation | Status | Non-compliant | Compliant | Total |
|---|---|---|---|---|
| **Gender     \*** **Compliance** | Female | 16 | 23 | 39 |
| | Male | 23 | 38 | 61 |
| | Total | 39 | 61 | 100 |
| **Marital     \*** **Compliance** | Not married | 5 | 9 | 14 |
| | Married | 34 | 52 | 86 |
| | Total | 39 | 61 | 100 |
| **Education     \*** **Compliance** | Primary | 11 | 15 | 26 |
| | Secondary | 1 | 16 | 26 |
| | High | 16 | 23 | 39 |
| | Diploma | 1 | 2 | 3 |
| | Bachelor | 1 | 5 | 6 |
| | Total | 39 | 61 | 100 |
| | Employee | 5 | 20 | 25 |
| **Occupation     \*** **Compliance** | Private business | 24 | 30 | 54 |
| | Farmers | 3 | 6 | 9 |
| | Housewives | 7 | 5 | 12 |
| | Total | 39 | 61 | 100 |
| | First class | 3 | 3 | 6 |
| **Class     \*** **Compliance** | Second class | 3 | 19 | 22 |
| | third class | 33 | 39 | 72 |
| | Total | 39 | 61 | 100 |
| | | | | |

Table 1 shows that 58.97% of female respondents were compliant to pay the monthly premiums, while the remaining 41.03% were in arrears. For male respondents, 62.3% were compliant to pay the monthly premiums, while the remaining 37.7% had problems in payment, resulting in payment arrears. The results showed that 64.29% of not-married respondents had high compliance to pay monthly premiums, while the remaining 35.71% had low compliance. For married participants, 60.47% of respondents had high compliance, while the remaining 39.53% had low compliance. Moreover, the majority (57.69%) of respondents had high compliance to pay the monthly premiums at primary school education level; 61.54% at secondary school education level; and 58.97% at high school education level. Respondents with a higher education level showed a higher level of compliance, namely 66.67% for the Diploma level and 83.33% for the Bachelor level.

Table 1 also shows that respondents who work as employees had 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 with 41.67%. In terms of class, it shows that respondents with treatment ward class II had the highest level of compliance with 86.46% followed by respondents from class III with 54.17%, and the lowest compliance was shown by respondents with treatment ward class I with 50%.

The results of data processing using logit regression regarding compliance to pay the monthly premiums can be seen in Table 2. By using the limit of $\alpha = 5\%$, there were several variables that affected compliance, namely 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 | Odd 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 | | | |

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

Table 2 shows that at the significance level of α = 5%, the probability value of the LR-statistic was lower than the alpha value, where 0.0001 < 0.05. Therefore, it can be concluded that together all the independent variables used in this study show a significant effect on compliance to pay the monthly premiums. The coefficient of determination in the logit regression equation was calculated using the 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, and because this figure is in the range of 0.2 - 0.4, this suggests that this value is in the best values.

## 5. Discussion

Age variable had a coefficient of 0.0547 with an odd 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 α = 5%, it can be said that age affects compliance to pay the monthly premiums. If the respondent's age increases by 1 year, the probability of compliance to pay will increase by 5.6 times. This finding is supported by Dartanto et al. (2020) and Mladovsky (2014) which found that age shows a positive effect on monthly premium payment compliance. As a person grows older, their level of health and productivity will decline. Knowing that diseases become more complex as they get older makes them more compliant to pay the monthly premium (Abu Bakar et al., 2012; Sunjaya et al., 2022). Adverse selection is usually seen in young people with low literacy levels and limited knowledge about insurance so that they often associate insurance tendencies with sickness (Atinga et al., 2015).

Monthly income stability had a coefficient value of 2.0747 and an odd ratio of 696.1842 at a probability level of 0.0735. This suggests that if respondents have a stable income each month, they have a 696 times higher probability of complying with premium payment compared to those with unstable income level. Stability of income is more influential than the amount of income. 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). Payment point variable affects compliance to pay the monthly premiums. The odd ratio value of 485.8625 indicates that respondents who make payments through bank auto debit or direct debit will increase 485 times higher than if the respondents make payments in modern mini markets or e-commerce. Decision-maker variable affects compliance to pay the monthly premiums. The odd 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 has the highest level of compliance because they can remind each other to make premium payments and perform household financial management so that the risk of payment arrears is lower than if the decision is made by only one of them.

Distance from residence to health facilities variable also affects the compliance to pay 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 because someone needs to work harder to reach or access the facility compared to those who live closer to the facility. Moreover, income, spouse's income, number of children, and marital status

did not show any effect on compliance to pay the monthly premiums. The amount of income does not affect compliance, but the stability of income does because 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 because of the changing perspective of today's society. In the past, people thought that children were an investment and a sandwich generation, a view that when they were old and sick, their children would bear all health expenses. Now, the situation has shifted, with parents trying to reduce the burden on their children by becoming members of the JKN program and paying a monthly premium to get access to the health services they need.

## 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 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 do not need health insurance is one of the obstacles to achieving universal health coverage in Indonesia. Cooperation with financial institutions as one of the payment points will reduce the risk of arrears in premium payments so that 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 to make monthly premium payments for the national health insurance program will determine the sustainability of the program in order to achieve universal health coverage in Indonesia. Payment compliance will also facilitate access to health services. If health facilities are easily accessible, the quality of human resources in Indonesia will increase, especially among people who work in the informal sector, the sector dominated by non-salaried workers.

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If you have any questions, please let me know.

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

## Nurul Istiqomah *, Izza Mafruhah **

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## Abstract

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

**Authors' individual contribution:** Conceptualization — N.I.; Methodology — I.Z.; Validation — I.Z.; Formal Analysis — N.I.; Investigation — N.I. and I.Z.; Data Curation — N.I.; Writing — N.I. and I.Z.; Supervision —I.Z.

**Declaration of conflicting interests:** The Authors declare that there is no conflict of interest.

## 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. 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 data[1] shows that in 2014, when the JKN program started, the number of participants

The JKN program is designed as an effort to achieve _____

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 premiumsis 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 contiuning 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
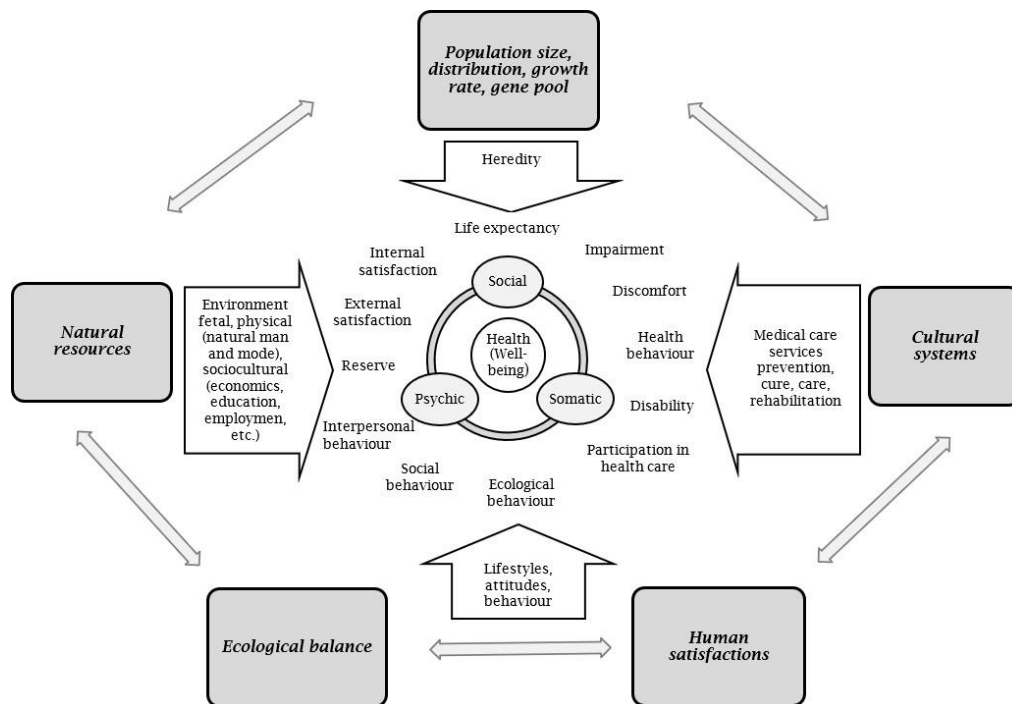
will also increase life expectancy and the return on investment in education and, therefore, have a long- term effect on the human development of a country (Malm et al., 2019). Moreover, human resources transform into human capital through effective inputs such as educational values, health values, and 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

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:

$$Compliance = \alpha_0 + \alpha_1\,Age + \alpha_2 Income + \alpha_3\,Income\_spouse + \alpha_4\,Children + \alpha_5\,Stable + \\ \alpha_6\,Payment + \alpha_7 Decision\_maker + \alpha_8\,Distance\_facilities + \alpha_9\,Marital\_status \tag{1}$$

## 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 |
|---|---|---|---|---|---|---|
| Gender * Compliance | Female | 16 | 41.03% | 23 | 58.97% | 39 |
| | Male | 23 | 37.70% | 38 | 62.30% | 61 |
| | Total | 39 | 39.00% | 61 | 61.00% | 100 |
| Marital * Compliance | Unmarried | 5 | 35.71% | 9 | 64.29% | 14 |
| | Married | 34 | 39.53% | 52 | 60.47% | 86 |
| | Total | 39 | 39.00% | 61 | 61.00% | 100 |
| Education * Compliance | 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 |
| Occupation * Compliance | 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 |
| Class * Compliance | 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 householdfinances 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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# DETERMINANTS OF PAYMENT COMPLIANCE OF THE NATIONAL HEALTH INSURANCE AMONG NON-SALARIED PARTICIPANTS

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## Abstract

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

**Authors' individual contribution:** Conceptualization — N.I.; Methodology — I.Z.; Validation — I.Z.; Formal Analysis — N.I.; Investigation — N.I. and I.Z.; Data Curation — N.I.; Writing — N.I. and I.Z.; Supervision —I.Z.

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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 data[1] shows that in 2014, when the JKN program started, the number of participants

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[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 premiumsis 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 contiuning 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
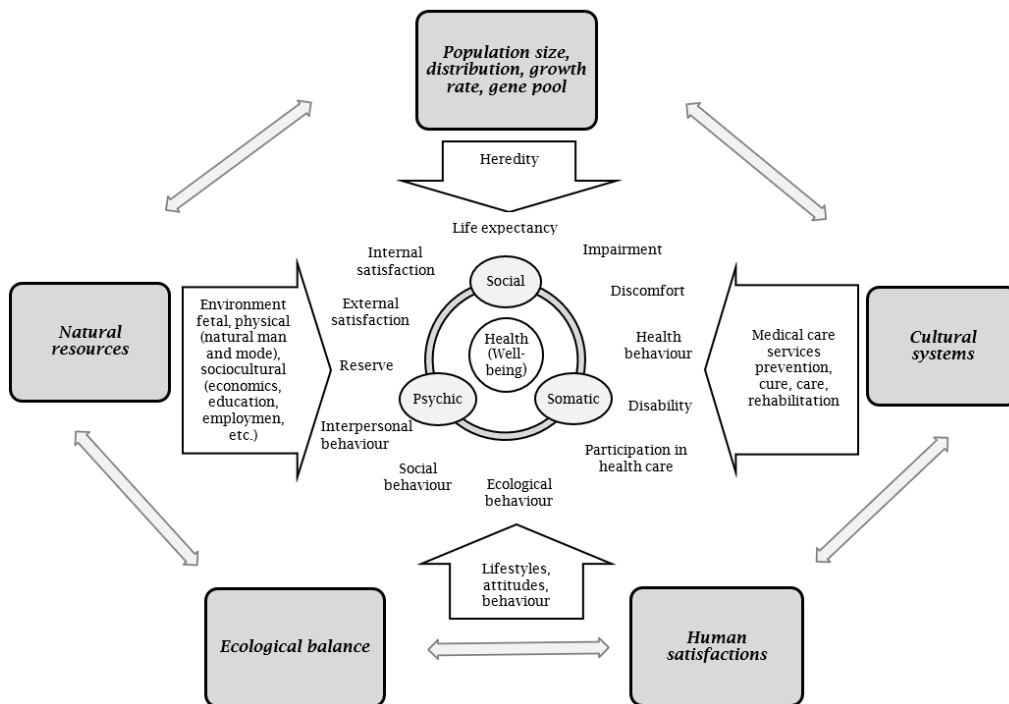
will also increase life expectancy and the return on investment in education and, therefore, have a long-term effect on the human development of a country (Malm et al., 2019). Moreover, human resources transform into human capital through effective inputs such as educational values, health values, and 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:

$$Compliance = \alpha_0 + \alpha_1\, Age + \alpha_2 Income + \alpha_3\, Income\_spouse + \alpha_4\, Children + \alpha_5\, Stable + \alpha_6\, Payment + \alpha_7 Decision\_maker + \alpha_8\, Distance\_facilities + \alpha_9\, Marital\_status \tag{1}$$

## 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 |
|---|---|---|---|---|---|---|
| Gender * Compliance | Female | 16 | 41.03% | 23 | 58.97% | 39 |
| | Male | 23 | 37.70% | 38 | 62.30% | 61 |
| | Total | 39 | 39.00% | 61 | 61.00% | 100 |
| Marital * Compliance | Unmarried | 5 | 35.71% | 9 | 64.29% | 14 |
| | Married | 34 | 39.53% | 52 | 60.47% | 86 |
| | Total | 39 | 39.00% | 61 | 61.00% | 100 |
| Education * Compliance | 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 |
| Occupation * Compliance | 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 |
| Class * Compliance | 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 | 0.0002 |
| 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 householdfinances 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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