

Does Financial Inclusion Affect Health among Older Adults? Evidence from Indonesia

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Abstract

While financial inclusion is widely acknowledged as a means to enhance the welfare of all ages, currently, there is no empirical research examining its effects on the health of older adults in Indonesia. This study, therefore, aims to fill the gap by investigating the impact of financial inclusion on the health of older adults in Indonesia using data from the March 2021 National Socio-Economic Survey (SUSENAS). The binary logistics regression was used to assess that effect. The findings reveal that financial inclusion positively benefits the health of older adults in Indonesia, highlighting the importance of policy-making that promotes financial inclusion programs to improve the health outcomes of older adults.

Keywords:

financial inclusion; health; older adults

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INTRODUCTION

Population aging is now a widespread issue. The elderly population has grown dramatically in terms of total numbers and share of the overall population worldwide. In 2020 there will be 727 million elders worldwide (UN, 2020). By 2050, it is estimated that there will be 1.5 billion people on this planet. Indonesia's demographic structure is also affected by the aging population phenomenon, as seen by the country's projected elderly population proportion in 2020, which will be more than 10% (BPS, 2021). Based on demographic data, it is predicted that in 2045, more than one-fifth of the population in Indonesia will be over 65 years old. According to the Sustainable Development Goals (SDGs), which aim to provide a healthy life and increase the welfare of all citizens of all ages, goal three specifically, this phenomenon is an essential factor to consider when developing development plans. Enhancing the welfare of aging people is one of them.

Although population aging can be considered an achievement for a country as it improves people's quality of life and health, it also has crucial socio-economic and health implications (United Nations, 2015). The most significant concern for older people is their health condition, which deteriorates with age. As many as 22-23 adults out of 100 are afflicted by illness, and almost half of older adults (43.22 percent) have physical and psychological issues (BPS, 2021). These health concerns are caused by functional, physiological, social, and biochemical changes, which diminish older adults' capacity to carry out normal activities (Aguiar & Macário, 2017; Ramos-Jimenez et al., 2009). Older adults will decrease their physical condition, increase health issues, and become more susceptible to illness as they age. As a result, older adults will have to pay more for healthcare (Mooventhana & Nivethitha, 2017).

Financial inclusion is essential as a primary social development method, specifically among the less privileged. This condition is understandable, as financial inclusion is considered an SDGs' enabling factor (World Bank, 2020). Due to retirement and social isolation, identified as crucial social determinants of health in older adults, older adults with unpredictable earnings have relatively easy access to financial services (Gyasi et al., 2019). Financial inclusion can facilitate individuals' ability to save for such unanticipated medical bills, curbing catastrophic healthcare costs and leading to better health outcomes.

Most studies on older adults' health are focused more on determinant factors, with relatively fewer empirical studies investigating the specific influence of the financial sector on their health outcomes. Using family assets as a financial instrument, Bialowolski et al. (2023) found that improved saving habits and effective financial management can protect against unfavorable well-being and health outcomes in middle-aged and older adults. Several studies on aging and older persons also report the health advantages of social and economic opportunities, such as financial inclusion. According to a study conducted by Li et al. (2022), engaging in high-risk or low-risk financial activities was found to impact the health of middle-aged and older individuals positively. Ettman et al. (2021) found that low-income adults in the United States who possess family savings and own a home demonstrate a correlation with improved mental health outcomes. Another study

by Gyasi et al. (2021) found a significant connection between financial inclusion and the functional status of physical health among older adults in Ghana.

Enhanced financial capacity empowers older individuals to have increased autonomy over their financial and external circumstances, effectively manage their economic resources, and attain better health outcomes (Gyasi et al., 2019). Research shows a negative association between financial literacy, inclusive financial practices, and poor overall health outcomes (Xiao & Tao, 2022). Having fundamental financial tools like bank accounts can significantly impact the health outcomes of elderly individuals in a positive manner (Aguila et al., 2016).

In other literature, Michael McWilliams (2009) found that adults with insurance need help accessing recommended healthcare, receiving lower-quality care, and encountering inferior health outcomes compared to their insured counterparts. Similarly, Ma & Oshio (2020) conducted research that demonstrated the favorable effects of social insurance on the health of middle-aged and older adults residing in rural China. Enhancing the financial management skills of older adults remains vital in promoting their financial capabilities, well-being, and overall health (Allmark & Machaczek, 2015).

Existing empirical studies on elderly health in Indonesia have predominantly focused on examining socio-demographic determinants, as evidenced by studies conducted by Astutik et al. (2021), Juanita et al. (2022), Pengpid & Peltzer (2018), and Sutinah & Maulani (2022). However, research that analyzes the relationship between financial inclusion and health outcomes among older adults has never been carried out in Indonesia. This gap presents an intriguing opportunity to explore the potential impact of evidence-based strategies, such as financial inclusion, in addressing the health challenges associated with aging, as emphasized by the World Health Organization (WHO, 2015). By investigating this underexplored area, this study brings forth a fresh perspective. It contributes to the current understanding of the intersection between financial inclusion and the health of older adults in Indonesia.

This study has several contributions. Firstly, this is the initial study to investigate the effects of financial inclusion on the health of older adults in Indonesia. Second, in this study, three dimensions of inclusive finance, encompassing access to bank services, insurance, and e-banking, are utilized to create an index for assessing financial inclusion's impact on older adults' health status. Third, research in this area typically focuses on city or provincial levels, whereas the author utilizes secondary data from the national level.

This study aimed to examine the effects of financial inclusion on health status among older adults in Indonesia. This research addresses a significant research gap by investigating the effects of financial inclusion on the health of older adults in Indonesia. To our knowledge, this study represents the first-ever examination of this relationship in the Indonesian context. By exploring the impact of financial inclusion on the health outcomes of older adults, this research contributes to the existing literature on financial inclusion and aging population health. The distinctiveness of this study lies in its utilization of a multi-dimensional index that incorporates three dimensions of inclusive finance.

Additionally, the study's focus on the specific context of Indonesia offers valuable insights insight into the government in formulating policies related to the potential benefits of financial inclusion programs for enhancing the health and well-being of older adults in Indonesia.

METHODS

This study uses cross-sectional data from the Susenas (Survei Sosial Ekonomi Nasional) survey held by Badan Pusat Statistik (BPS) that contains information regarding households' social and economic characteristics and elderly individuals. The secondary data were explicitly utilized in March 2021. The sample from Susenas in March 2021 covers all provinces and districts/cities in all regions of Indonesia. This research examines how financial inclusion affects older adults' health status. The unit of analysis used is individuals aged 60 years and over, following the WHO definition of elderly, so the number of samples that will be used in this study is 122,694 individuals.

In assessing the health of the elderly, this study uses health complaints as the dependent variable. The health complaint of older adults is indicated by the presence or absence of health complaints felt by older adults in the last month obtained from the March 2021 Susenas KOR module. Health complaints are the condition of a person experiencing health or psychiatric problems, both due to frequent disorders/illnesses, such as fever, cough, runny nose, diarrhea, headaches, or due to acute illness, chronic disease (although he has not had any complaints for the past month), due to an accident, crime or other health complaints. The complaints in question are physical and psychological. In this study, health complaint is a binary variable, where 0 will be given to older adults who do not experience health complaints, while one will be given to older adults who have health complaints.

The primary independent variable was financial inclusion, which is defined according to the World Bank (2020) as an individual having affordable access to financial products and services, including transactions, payments, savings, credit, and insurance. Hence, numerous studies utilize indicators such as credit accessibility, savings accessibility, bank accessibility, and insurance accessibility as crucial components of inclusive finance (Mialou et al., 2017).

This research uses a multi-dimensional index that considers three dimensions of inclusive finance, including access to bank services and access to insurance, as applied to the study of Churchill & Marisetty (2020) and Abor et al. (2018) as well as access to e-banking (Zins & Weill, 2016).

The financial inclusion status was assessed using a deprivation score for financial access, following the approach used in previous studies by Murendo et al. (2021) and Churchill & Marisetty (2020). We attribute an equal weight of 1/3 to each dimension, and the financial access deprivation score for *i*-th older adults is calculated using the following formula:

$$d_i = w_1 I_{1i} + \dots + w_k I_{ki} \quad (1)$$

Where I_k is the k-th indicator of multi-dimensional financial inclusion measurement, which will have a value of 1 if the older adult experiences a deprivation on the k-th indicator and 0 if it does not experience a deprivation on the k-th indicator. As a result, the total score for financial access deprivation will vary from 0 to 1.

A cut-off of 0.5 is used to determine the financial inclusion status of an older adult, as was done by Churchill & Marisetty (2020) and Zhang & Posso (2019). If the financial access deprivation score is less than 0.5, our measure of financial inclusion is equal to 1; otherwise, it is equal to 0.

The study also considers additional independent variables, including characteristics of older adults like age, gender, marital status, education, employment status, and residential area. This research uses the binary logistic regression analysis method. The binary logistic regression model is used to analyze data when the response variable is a binary scale variable with one or more explanatory variables that can be either quantitative or qualitative using dummy variables (Hosmer et al., 2013). In the binary logistic model, the dependent variable has two possible values (binary), "1" if it satisfies specific given criteria and "0" otherwise (Dawood et al., 2019). The absence of relationship continuity between the dependent and independent variables is one of the benefits of the logit model. Furthermore, the dependent variable is not required to have a normal distribution. Additionally, it does not require protection against heteroskedasticity (Yah, 2020). The research model is as follows:

$$HC_i = \beta_0 + \beta_1 FI_i + \beta_2 AGE_i + \beta_3 GEN_i + \beta_4 MAR_i + \beta_5 EDU_i + \beta_6 EMPL_i + \beta_7 AREA_i + \varepsilon \quad (2)$$

Where the health complaint (**HC**) is a dependent variable that is influenced by the financial inclusion status (**FI**) and socio-economic characteristics of older adults such as age (**AGE**), gender (**GEN**), marital status (**MAR**), level of education (**EDU**), employment status (**EMPL**), and residential area (**AREA**).

The estimation results of the logistic regression model coefficients necessitate interpretation in the form of odds ratios (OR) and marginal effects, as direct interpretation is not applicable. According to Greene (2003), the coefficients in the logistic regression model are difficult to interpret or cannot be interpreted directly as the effect of changes in the independent variables on the response variable as in linear regression. Therefore, the value of the odds ratio and marginal effect can be used to provide a better understanding of the logistic regression model. Odds ratios are used to find out how much the tendency of an observation with certain characteristics ($X=1$) to experience a successful event ($Y=1$) is how many times it is compared to observations that have other characteristics ($X=0$). Meanwhile, Cameron & Trivedi (2005) also state that the value of the marginal effect is able to measure the effect of changing one unit of the independent variable on the probability of the i-th category.

RESULT AND DISCUSSION

Based on the health status of the older adults, Table 1 shows that 59.98 percent of older adults had no health complaints in the past month. The remaining 40.02 percent are elderly who experience health complaints. Although most older adults have not experienced health complaints in the last month, it should be noted that 30.97 percent of older adults have health complaints. The elderly require intervention to improve their health conditions.

Based on the classification of financial inclusion, 54.03% of the elderly aged 60 years and over reported being financially included, while 45.97% reported not being financially included. Table 1 describes the samples by their characteristics. Based on the socio-demographic characteristics, it can be seen that 52.24% of the sample were women, and more than half of them (59.14%) lived in rural areas. Regarding education, 85% of the sample have a junior high school or below education attainment, while the other 15% have a high school or above education attainment. In addition, 62.05% of the sample are married, while the other 37.95% are unmarried (including single, divorced, or widowed). The sample distribution based on the employment status showed that 47.20% of the sample are unemployed, 34.70% are employed in the agriculture sector, and 18% are employed in the non-agriculture sector.

Table 1. Sample Characteristics

Variable	Percentage
Health Complaints	
Not experiencing health complaints	59.98
Experiencing health complaints	40.02
Financial Inclusion	
Not Inclusive	45.97
Inclusive	54.03
Gender	
Female	52.24
Male	47.76
Marital Status	
Not Married	37.95
Married	62.05
Education	
High school or above	15.00
Junior high school or below	85.00
Employment	
Unemployed	47.20
Employed in Agriculture Sector	34.70
Employed in Non-agriculture Sector	18.10
Area	
Urban	40.86
Rural	59.14

Source: Author's Calculation Results (2023).

In developing countries, where a significant portion of the population lacks access to essential financial services, ensuring access to and utilization of such services has emerged as a critical policy concern (Demirgüç-Kunt et al., 2020). This research explores the correlation between financial inclusion, socio-economic characteristics, and the health issues faced by the elderly population.

The empirical results of logistic regression are presented in Table 2. The F test's significance value is 0.000, which is less than the significance level of 0.05. This result implies that all the independent variables collectively exhibit a statistically significant relationship with the dependent variable. The Pseudo R²-value of 0.0066 means that all independent variables can explain the dependent variable of 66%. Table 2 shows the effect of financial inclusion and characteristics on the health complaints of older adults in Indonesia. The result is that financial inclusion is negative and significant on health complaints. In addition, characteristics, namely age, education, and region, positively and significantly affect health complaints. While marital status and employment have a negative and statistically significant influence on health complaints, gender in this study has no significant effect.

Table 2. Estimation Result of Financial Inclusion Effect on Health Complaints among Older Adults

Variable	Coefficient	Odds Ratio	Marginal Effects
Financial Inclusion	-0.0562*** (-0.0122)	0.9453	-0.0135***
Age	0.0128*** (-0.000878)	1.0129	0.00307***
Gender	0.0183 (-0.0136)	1.0185	0.00439
Marital Status	-0.0417*** (-0.0137)	0.9591	-0.0100***
Education	0.213*** (-0.0179)	1.2372	0.0511***
Employment			
Agriculture Sector	-0.246*** (-0.0151)	0.7815	-0.0591***
Non-Agriculture Sector	-0.219*** (-0.0172)	0.8036	-0.0526***
Area	0.0378*** (-0.013)	1.0385	0.00907***
Constant	-1.308*** (-0.0652)		
Observations	122,694	122,694	122,694
R ² /Pseudo R ²	0.0066		
Prob (F-test/Chi2)	0.0000		

The figures in parentheses indicate the standard error. *, **, *** represent significance at the level of 10%, 5% and 1%, respectively.

Source: Author's Calculation Results (2023).

Our findings indicate that financial inclusion exerts a notable and statistically significant influence on reducing health complaints among older adults. This result is evident from the coefficient of -0.0562 , highlighting that higher levels of financial inclusion are associated with decreased health complaints in older adults. The odds ratio value for financial inclusion is 0.9453 , which means that older adults with financial inclusion have a 0.9 times smaller chance of having health complaints than older adults who do not have financial inclusion. Based on the magnitude of the marginal effect of -0.0135 , it means that an increase in financial inclusion in the elderly will reduce health complaints in the elderly by 1.35 percent.

This result is consistent with the study by Gyasi et al. (2019, 2021), which suggested that financial service inclusion and engagement can lead to improved health-related outcomes, protecting older adults from the negative consequences of health shocks and that financial inclusion programs may be vital for older individuals who are likely to experience functional limitations, ultimately leading to better physical health functioning among older adults.

A previous study by Immurana et al. (2021) found that financial inclusion enhances health in Africa. In Asia, Xiao & Tao (2022) found that financial inclusion increases life expectancy and helps individuals afford better quality health inputs, leading to better health outcomes. This finding suggests that financial inclusion plays a significant role in enabling individuals to access health-related goods and services, thus positively impacting human health. This observation aligns with the research conducted by Ofosu-Mensah Ababio et al. (2021), who found that financial inclusion effectively promotes health development by reducing poverty and income inequality. Furthermore, these findings support the study by Churchill et al. (2020), which demonstrates the poverty-reducing solid effect of financial inclusion, ultimately leading to improved population health.

There are several ways financial inclusion can improve the health of older adults. Firstly, research studies have consistently identified low physical activity as a significant modifiable risk factor for functional impairments among older adults (Babych et al., 2018; Paterson & Warburton, 2010; Tomás et al., 2017). The ability to actively participate in financial market activities and manage day-to-day financial tasks can directly contribute to older individuals' functional strength and capacities (Gyasi et al., 2019). This condition can help counteract or delay the onset of activity limitations associated with advancing age (McCracken & Phillips, 2017). Furthermore, financial capability underscores the importance of individuals acquiring knowledge, skills, and necessary financial services to manage their finances effectively, thereby building financial security (Morrow-Howell & Sherraden, 2014). Research findings highlight the direct association between access to financial services, such as owning a bank account and having health insurance, and improved financial stability.

Moreover, Guan et al. (2022) and Huang et al. (2020) stated that engaging in financial markets can reduce stress, thus enhancing older individuals' psychological health and well-being. It is well-established that improved mental and psychological well-being correlate with better physical health and overall functioning (Han et al., 2021; Stoeckel & Litwin, 2016). Therefore, the availability and utilization of financial services can facilitate individuals' access to health-enhancing goods and services, ultimately strengthening their immune system and improving overall health (Chireshe & Ocran, 2020).

The results demonstrate that financial inclusion programs can provide wider opportunities beyond traditional income measures and are particularly important for older individuals who may face functional limitations. Financial inclusion can assist individuals in managing healthcare expenses through savings, resulting in improved health outcomes. Additionally, financial inclusion enables individuals to afford higher-quality healthcare inputs, leading to better health outcomes. Therefore, these findings substantiate the notion that financial inclusion is a suitable means of empowering older individuals to enhance their quality of life and overall well-being concerning health.

Hence, our research findings align with existing evidence, indicating that enhancing participation in the financial sector is a significant pathway toward enhancing physical health and independence among older individuals. However, our findings differ from a previous study that found no association between having a bank account and physical health among older adults (Aguila et al., 2016). This inconsistency can be attributed to socio-cultural differences between older populations in the United States and Indonesia.

In addition to the influence of financial inclusion, specific social, economic, and demographic characteristics can also affect the health of the elderly. The age variable has a positive coefficient value, meaning the older we get, the more health complaints we will have in older adults. These findings are consistent with Santoni et al. (2015), who revealed that the prevalence of poor health status increased with age among older adults. Older age is associated with health and disability shocks, which can lead to wealth declines at older ages (Takechi et al., 2022; Tang et al., 2022; Van Blijswijk et al., 2015). Furthermore, the marital status divided into married and unmarried (divorced/divorced/not married) in this study demonstrates a negative and statistically significant influence on health complaints. Older adults with married status are less likely to experience health complaints than single ones. In line with previous research, Ford & Robitaille (2023) have found that married individuals report better physical health and have lower rates of chronic diseases than unmarried individuals. The elderly health benefits of marriage may be due to various factors, such as social support, financial stability, and healthier lifestyle behaviors (Liu et al., 2020; Robards et al., 2012).

The health status of older adults is closely linked to the level of education they have attained. Those with a greater level of education were much less likely to experience health issues. The results show that older adults with junior high school education and below have a 1.2372 times higher chance of experiencing health complaints than those with senior high school education and above. In line with the results of previous studies, it was revealed that higher levels of education in adults are associated with improved health outcomes, as evidenced in higher self-reported health and lower illness, death, and disability rates. (Raghupathi & Raghupathi, 2020; Zajacova & Lawrence, 2018). It is considered that education empowers individuals to adopt better lifestyle decisions and increases career prospects, which can lead to better health outcomes (Tan et al., 2022). Therefore, improving access to education will help reduce health disparities and improve overall health outcomes, which can have positive economic impacts by increasing human capital.

Employment status demonstrates a negative and statistically significant influence effect on health complaints. Based on the magnitude of the marginal effect, older adults

who work in agriculture and non-agriculture have a smaller chance of experiencing health complaints than older adults who do not work. In line with previous studies, according to a study by Prazeres & Santiago (2015), elderly retirees are significantly more likely to suffer from multimorbidity by 4.4 times compared to older adults still working. Already retired from work, the absence of work reduces the economic condition of older adults, and this can indirectly affect the health condition of older adults. This condition is because working can provide physical and mental stimulation, which can benefit overall health (Malik et al., 2022; Staudinger et al., 2016).

Health status among older adults can also differ based on the classification of the area of residence. Older adults residing in rural areas are more likely to report health complaints than those in urban areas. This study is similar to Zhang et al. (2022), which stated that rural older adults face health-related quality of life disadvantages compared to urban areas. Elderly individuals residing in rural areas may encounter distinct challenges and are at an increased risk of experiencing health complaints compared to older adults living in urban areas, including shortages of healthcare professionals, a lack of transportation options, and lower incomes and education levels.

CONCLUSION

The study's findings present compelling evidence in support of the notion that financial inclusion plays a significant and positive role in improving the health of older adults. By prioritizing financial inclusion initiatives tailored to the needs of this demographic, there is a greater likelihood of experiencing improved health outcomes. Furthermore, the study highlights the contribution of specific socio-economic factors, including marital status, education, employment, and residential area, to the health of older adults. Overall, the findings shed light on how financial inclusion positively impacts the health of senior citizens.

The government can formulate policies to enhance the health of older adults by promoting their financial inclusion. To enhance the well-being and quality of life for older adults in Indonesia, targeted social policies and micro-level initiatives to maintain and restore good health should include extending financial inclusion choices and encouraging specific financial inclusion policies and programs for the elderly. The government can develop and implement policies that support financial inclusion for the elderly, such as providing easy banking access, strengthening financial literacy, and developing financial products that suit the needs of the elderly. On the other hand, the government needs to strengthen cooperation between the financial and health sectors. For example, the government could encourage collaboration between financial institutions and health service providers to develop affordable and affordable health programs for the elderly. In addition, it is also necessary to increase the financial literacy of the elderly. The government can launch a financial literacy campaign explicitly aimed at the elderly by providing precise and easy-to-understand information about the benefits of financial inclusion for their health. This campaign can help the elderly understand the importance of sound financial management and utilize financial products that suit their needs.

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