ORIGINAL ARTICLE

Assessing inequalities in the hypertension management under national health insurance: Evidence from Southern Central Java, Indonesia

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ABSTRACT

Equal access to disease management is crucial to control the impact of hypertension on the burden of disease in Indonesia. This study aimed to assess the extent of inequalities in the use, quality, and outcomes of hypertension management for beneficiaries of the National Health Insurance (NHI) program. This cross-sectional study consecutively recruited 797 beneficiaries of National Health Insurance who participated in the hypertension management program in the Banyumas District, Indonesia, between July and October 2021. The outcomes were regular visits, standard medication, and disease control. The inequalities were measured based on educational level, employment type, type of beneficiaries, and place of residence. The rate difference, rate ratio, and multiple logistic regression were used to estimate the extent of inequality. Compared to informal workers, formal workers had more regular visits to healthcare facilities (OR 1.78; 95%CI: 1.01-3.18) and had better disease control (OR 2.36; 95%CI: 1.28-4.38). Non-subsidized participants had fewer regular visits compared to subsidized participants (OR 0.51; 95%CI: 0.30-0.84). Urban residents tended to have more regular visits compared to rural residents (OR 2.14; 95%CI: 0.90-5.05). A substantial extent of inequalities in the use and outcomes of hypertension management still exists among beneficiaries of the NHI program. The future implementation of the hypertension management program of National Health Insurance in Indonesia should consider the geographical and socio-economic background of its participants.

Key words:
hypertension; inequalities; disease management; national health insurance; Indonesia

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INTRODUCTION

Hypertension stands as the primary risk factor for cardiovascular disease, the foremost cause of premature death worldwide. In 2015, hypertension accounted for 33% of global deaths, equivalent to 18.5 million fatalities, primarily attributed to ischemic heart disease, stroke, and chronic kidney disease.[1] The estimated prevalence of hypertension among adults in 2015 was 31%, totaling 1.34 billion individuals worldwide, marking a 5.2% rise from 2010.[2] Low-middle-income countries (LMICs) exhibited higher prevalence rates (31.5%) compared to high-income countries (28.5%).[3] Indonesia, one of the largest LMICs, recorded a 34% adult hypertension prevalence in 2018.[4] Correspondingly, hypertension remains the dominant factor behind the two primary causes of death in Indonesia: stroke and ischemic heart disease.[5] Economically, hypertension imposes substantial burdens globally, accounting for an estimated $370 billion in 2010, roughly 10% of total healthcare spending.[6] In Indonesia, the economic burden of hypertension was projected to be $1.36 billion annually in 2010, with an anticipated increase to $2 billion by 2020.[7]

Disease management programs offer a promising means of preventing the health impact of hypertension.[8] A systematic review has demonstrated their effectiveness in reducing hypertension-related morbidity and mortality, especially in low-middle-income countries (LMICs).[9] However, the success of hypertension management program relies on equitable accessibility across all population groups. Studies in both high-income countries and LMICs reveal that vulnerable individuals, such as those with low socioeconomic status, consistently face barriers in accessing chronic disease management (CDM), including hypertension management programs.[10] Financial constraints, particularly the costs of services, largely contribute to the limited access of these vulnerable groups to hypertension management programs.[11]

Many LMICs are implementing National Health Insurance (NHI) to eliminate financial barriers to healthcare, including access to CDM. However, merely being a beneficiary of NHI does not automatically guarantee improved healthcare access for vulnerable groups. Previous studies revealed that although medical costs are covered by health insurance, vulnerable individuals seeking health services are hindered by indirect costs such as transportation expenses.[12] Additionally, factors like knowledge and culture can act as barriers to accessing health services.[13] In the case of Indonesia, a previous study indicates that poorer individuals utilize health services less frequently than wealthier groups, despite all groups being covered by the NHI program.[14] This disparity potentially results in unequal use, quality, and outcome of the CDM programs among NHI beneficiaries with diverse backgrounds.

Since 2014, Indonesia has implemented the NHI program, which includes hypertension management programs as part of the benefit package. Approximately 83% of Indonesia's population, equivalent to 224 million people, is covered by the Indonesian NHI, providing a crucial foundation for hypertension prevention programs in the country.[15] Ensuring equal access to the program among NHI beneficiaries holds the potential to effectively reduce the prevalence of hypertension and its associated complications, alleviating the disease burden in Indonesia. However, currently, conclusive evidence on the inequality in access to hypertension management programs among NHI

beneficiaries in LMICs like Indonesia is still lacking. Previous studies mostly focus on analyzing determinants of hypertension management program utilization and evaluating clinical outcomes without considering whether these outcomes are equitably distributed among NHI beneficiaries.[16,17] Moreover, prior studies often have limited sample sizes, restricting the scope and generalizability of their findings.

In this study, samples were collected from Banyumas District, which is one of the largest districts in Central Java Province, Indonesia, with a total population of 1.8 million. The National Health Survey 2018 indicated that the prevalence of hypertension in the Banyumas District was 39.8%. Data from the District Office of NHI in Banyumas revealed that the NHI coverage was approximately 79% of the district's population, and the CDM program had around 19,000 participants with around 60% of them being hypertensive patients. Leveraging these relatively large samples, the objective of this study was to comprehensively assess the presence of socioeconomic and geographical inequalities in the use, quality, and outcome of hypertension management programs among beneficiaries of the Indonesian NHI as indicated by regular visits, standard medication, and disease control among participants of the program.

METHODS

Study designs, population, and samples

This cross-sectional study involved 797 hypertensive patients who were participants in the hypertension management program under the Indonesian NHI in Banyumas District, Central Java Province, Indonesia. The sample size was calculated using the formula for calculation of proportion sample size from OpenEpi.com.[18] The sample size was determined based on the following parameters: (i) the number of participants in the hypertension management program under NHI was 12,000 participants, (ii) the proportion of participants with controlled blood pressure was 60%, (iii) the absolute precision was set at 5%, and (iv) the design effect was set at 2, considering the two-stage cluster sampling used in this study. With a 95% confidence interval, the minimum sample size required was 716 individuals.

Eligible subjects were recruited based on the following criteria: (i) being enrolled for a minimum of 3 months in the program and (ii) having complete data for the study. Participants were selected from 16 primary care facilities, which acted as gatekeepers for NHI beneficiaries and provided the first-line hypertension management program for participants between July and October 2021. Initially, 18 primary care facilities were proportionally selected based on facility type (public primary healthcare centre, private clinic, and private physician practice) from among 116 similar facilities in Banyumas District. Two private physician practices declined to participate, leaving 16 facilities as the final survey participants. Utilizing data from the district office of NHI, six facilities with the largest registered participants in hypertension management were chosen for each facility type, representing the six main sub-districts in Banyumas District. Individual participants were consecutively selected based on eligibility criteria until each facility reached its calculated sample size, determined using probability proportionate to size (PPS). All study participants have agreed to participate and provided written informed consent.

Measures

The primary outcome assessed in this study was the use, quality, and outcome of the hypertension management program which was measured using three indicators: regular visits to primary care facilities, standard medication, and disease control.

Regular visits were defined as three consecutive monthly visits made by the participants from March to May 2021. Standard medication was defined as the suitability of pharmacological treatment provided by doctors in the primary care facilities, aligned with clinical guidelines (The Eight Joint National Committee/JNC 8 guideline),[19] for three consecutive months. Disease control was defined as the achievement and maintenance of favorable blood pressure by the participants for three consecutive months. The threshold was set as systolic blood pressure less than 140 mmHg and diastolic blood pressure less than 90 mmHg.

Educational level, employment type, and type of NHI beneficiaries were utilized as proxies for socioeconomic status. Educational level was defined as the highest level of formal education attended by the subjects and categorized into two groups. The low educational level included those who never attended school, elementary school, and junior high school, while the high educational level consisted of individuals who attended senior high school and higher education. Employment type was defined as the current employment status of the subjects and was also divided into two groups. Formal workers included formal employees, self-employed individuals (entrepreneurs and professionals), and pensioners receiving pension benefits from previous employment. Informal workers encompassed subjects without a regular income, such as daily wage workers and the unemployed.

The type of NHI beneficiaries was categorized into subsidized and non-subsidized groups. Subsidized beneficiaries are NHI beneficiaries categorized as poor or near-poor populations, with the government fully sponsoring their insurance premiums. Non-subsidized beneficiaries are NHI beneficiaries whose insurance premiums are either sponsored by employers, self-funded, or pension-based. Regarding the place of residence, the subjects were divided into urban or rural areas, following the criteria set by the Central Bureau of Statistics (CBS) based on the villages of residence for the subjects.[20] All the data for this study were extracted from the monitoring handbook of the hypertension management program which was recorded during the participants' monthly visits to the selected primary care facilities.

Data analysis

In this study, both simple and sophisticated inequality measurements were applied to assess the inequalities in the use, quality, and outcome of hypertension management programs. Simple inequality measurement involves two steps. Firstly, the age-sex standardized prevalence rate (SPR) for each access dimension (e.g., regular visits) was calculated separately for groups with different socioeconomic statuses (e.g., low vs. high educational level) using the direct method. Secondly, the rate difference and rate ratio with a 95% confidence interval (95% CI) which represent simple absolute and relative inequalities, were calculated based on the age-sex SPR. Sophisticated relative inequality was measured using single-level multiple binary logistic regression considering that the initial assessment of the nested data showed small variation which excluded the use of multi-level logistic regression. In the model, outcomes e.g., regular vs. non-regular visits) were measured on a dichotomous scale, while socioeconomic status and place of residence were used as predictors with higher socioeconomic groups being used as reference groups. The model was adjusted for demographic characteristics (age and gender), type of primary care facilities, and the location of the primary care facility. The

odds ratios (ORs) and their 95% confidence intervals (95% CI) of the predictors in the model indicated the extent of inequality. Data analysis was conducted using STATA MP 16.0 as the statistical package.

RESULTS

Table 1. Basic characteristics of study participants

Characteristics	n	%
Individual		
Gender		
Men	149	23.7
Women	479	76.3
Age		
≤ 50 years	44	7.0
51–60 years	159	25.3
61–70 years	344	54.8
> 70 years	81	12.9
Place of residence		
Rural	493	78.5
Urban	135	21.5
Level of education		
Unschooled	16	2.5
Elementary school	143	22.8
Junior high school	193	30.7
Senior high School	214	34.1
College/university	62	9.9
Employment		
Formal workers	43	6.8
Entrepreneurs/professionals	41	6.6
Informal workers	78	12.4
Pensioners	248	39.5
Unemployed	218	34.7
Type of NHI beneficiaries		
Employer-based	62	9.9
Self-funded	62	9.9
Pension-based	371	59.1
Government subsidized	133	21.1
Primary care facility		
Location		
Rural	411	65.4
Urban	217	34.6
Type		
Independent practitioner	142	22.6
Public primary care	382	60.8
Private clinic	104	16.6
Outcomes		
Regular visits		
Yes	552	69.3
No	245	30.7
Standard medication		
Yes	610	76.5
No	187	23.5
Disease control		
Good	487	61.1
Poor	310	39.9

The basic characteristics of the study subjects are shown in Table 1. Most of the participants of the hypertension management programs were female (77.8%), aged 61-70 years (40.7%), and lived in rural areas (70.1%). In terms of socio-economic status, the participants of the hypertension management program mostly had elementary school education (52.4%), were unemployed (49.9%), and were categorized as pension-based beneficiaries (41.8%). Most of the participants used primary care facilities located in rural areas (62.7%), and they used public primary care facilities to access the program (63.1%). Most of the participants used the hypertension management program regularly, as indicated by 69.3% of the participants reporting regular monthly visits. Most participants received standard medication (76.5%) and the majority of them also had their blood pressure under control (61.1%).

Table 2. The extent of simple inequalities in the use, quality, and outcome of the hypertension management program

Inequality dimension	Output dimension	SPR (95% CI)[a]		Rate difference (95% CI)	Rate ratio (95% CI)
		High group[b]	Low group[c]		
Level of education	Regular visit	67.9 (62.9-72.9)	70.5 (65.9-74.9)	-2.6 (-2.6- -2.4)	0.96 (0.38-2.58)
	Standard medication	78.9 (74.5-83.3)	73.7 (69.4-78.1)	5.2 (5.1-5.3)	1.07 (0.35-3.00)
	Disease control	72.3 (67.5-77.1)	52.6 (47.7-57.4)	19.7 (19.6-19.8)	1.37 (0.29-4.54)
Employment	Regular visit	68.8 (65.2-72.3)	70.9 (63.6-78.1)	-2.1 (-2.2- -2.20)	0.97 (0.37-2.60)
	Standard medication	75.7 (72.3-78.9)	79.0 (72.4-85.5)	-3.3 (-3.4- -3.2)	0.96 (0.38-2.56)
	Disease control	62.8 (59.1-66.5)	53.5 (45.5-61.3)	9.3 (9.2-9.4)	1.17 (0.33-3.47)
Beneficiary type	Regular visit	65.8 (61.8-69.8	76.9 (71.8-82.1)	-11.1 (-11.2- -11.0)	0.85 (0.40-2.20)
	Standard medication	76.9 (73.4-80.5)	74.1 (68.6-79.5)	2.8 (2.7-2.9)	1.04 (0.36-2.87)
	Disease control	64.9 (60.9-68.9)	54.7 (48.9-60.6)	10.2 (10.1-10.3)	1.19 (0.33-3.53)
Place of residence	Regular visit	70.7 (64.9-76.4)	68.4 (64.5-72.3)	2.3 (2.2-2.4)	1.03 (0.36-2.85)
	Standard medication	82.7 (77.8-87.4)	73.8 (70.2-77.4)	8.9 (8.8-9.0)	1.12 (0.34-3.22)
	Disease control	71.8 (66.0-77.5)	57.1 (0.53-0.61)	14.7 (14.6-14.8)	1.26 (0.31-3.88)

[a]Standardized prevalence rate with 95% confidence interval, direct standardization with age and sex per 100 participants. [b]High group: education > junior high school; employment type: formal workers, entrepreneurs/professionals, pensioners; employer-based, self-funded, pension-based beneficiaries; urban residence. [c]Low group: education ≤ junior high school; employment type: informal workers, unemployed; government-subsidized beneficiaries; rural residence.

Table 3. The extent of sophisticated inequalities in the use, quality, and outcome of the hypertension management program

Inequality dimension	Output dimension					
	Regular visit OR (95% CI)[a]	p-value	Standard medication OR (95% CI)[a]	p-value	Disease control OR (95% CI)[a]	p-value
Level of education						
Low	Ref	0.154	Ref	0.315	Ref	0.629
High	0.78 (0.46-1.35)		1.01 (0.56-1.82)		0.81 (0.46-1.42)	
Employment						
Informal workers	Ref	0.031	Ref	0.427	Ref	0.022
Formal workers	1.78 (1.01-3.18)		1.34 (0.65-2.76)		2.36 (1.28-4.38)	
Beneficiary type						
Subsidized	Ref	0.024	Ref	0.378	Ref	0.534
Non-subsidized	0.51 (0.30-0.84)		0.87 (0.50-1.51)		0.85 (0.55-1.31)	
Place of residence						
Rural	Ref	0.179	Ref	0.541	Ref	0.486
Urban	2.14 (0.90-5.05)		1.05 (0.38-2.91)		0.98 (0.34-2.87)	

[a]Multiple logistic regression, adjusted for age, gender, location of health facility, type of health facility.

Tables 2 and 3 present the primary findings of this study. In Table 2, the simple inequality measurement consistently shows socioeconomic and geographical inequalities in the outcomes of hypertension management. The most significant inequalities in the outcomes of hypertension management were found among participants with different educational levels and places of residence. The difference in the prevalence of good hypertension control between the highly-educated and low-educated groups was 19.7 per 100 participants (95% CI: 19.6-19.8), and the highly-educated group had a ratio of 1.37 (95% CI: 0.29-4.54) for achieving good hypertension control compared to the low-educated group. Geographically, participants who live in urban areas, 14.7 per 100 participants (95% CI: 14.6-14.8) were more likely to have good hypertension control compared to those who live in rural areas. The ratio of achieving good hypertension control was 1.26 times (95% CI: 0.31-3.88) higher for urban participants compared to rural participants.

To a lesser extent, inequalities in the outcome of hypertension management were also found when measured by employment type and type of NHI beneficiaries. The formal workers had a higher prevalence of good hypertension control compared to the informal workers with a rate difference of 9.3 per 100 participants (95% CI: 9.2-9.4) and a rate ratio of 1.17 (95% CI: 0.33-3.47). Similarly, the non-subsidized NHI beneficiaries had a higher prevalence of good hypertension control compared to the subsidized NHI beneficiaries with a rate difference of 10.2 per 100 participants (95% CI; 10.1-10.3) and a rate ratio of 1.19 (95% CI: 0.33-3.53). Noticeable geographical inequalities were also found in the quality of hypertension management. NHI beneficiaries who live in urban areas had a higher prevalence of receiving standard medication (8.9 per 100 participants) compared to NHI beneficiaries who live in rural areas with a rate difference of 8.9 per 100 participants (95% CI: 8.8-9.0). The ratio of urban participants receiving standard medication was 1.12 (95% CI; 0.34-3.22) higher compared to the rural participants.

The results of sophisticated inequality measurement are presented in Table 3. This study shows variability in the findings among inequality dimensions. No inequalities in the utilization, quality, and

outcome of hypertension management were found when the inequalities were measured based on educational level. Highly-educated participants had no higher odds of having regular visits (OR 0.78; 95% CI: 0.46-1.35), receiving standard medication (OR 1.01; 95% CI: 0.56-1.82), and achieving good hypertension control (OR 0.98; 95% CI: 0.34-2.87) compared to the low-educated participants. A mixed result was found when inequalities were measured based on the type of NHI beneficiaries. Surprisingly, compared to the subsidized beneficiaries, the non-subsidized beneficiaries had significantly lower odds of having regular visits (OR 0.51; 95% CI: 0.30-0.84). Similar but insignificant findings were found in terms of receiving standard medication (OR 0.87, 95% CI: 0.50-1.51), as well as achieving good hypertension control (OR 0.85; 95% CI: 0.55-1.31).

Based on the type of employment, substantial inequalities were found particularly in the utilization and outcome of hypertension management. Participants who were formal workers had higher odds of having regular visits (OR 1.78; 95% CI: 1.01-3.18) and achieving good hypertension control (OR 2.36; 95% CI: 1.28-4.38) compared to participants who were informal workers. In terms of the quality of hypertension management, employment-based inequalities were found although statistically insignificant. Formal workers tend to have higher odds of receiving standard medication compared to informal workers (OR 1.34; 95% CI:0.65-2.76). Geographically, the tendency of inequalities was found in the utilization but not in the quality and the outcomes of hypertension management. Participants who live in urban areas had higher odds of having regular visits compared to participants who live in rural areas (OR 2.14; 95% CI: 0.90-5.05). No inequalities in terms of receiving standard medication (OR 1.05; 95% CI:0.38-2.91) and good hypertension control (OR 0.98; 95% CI: 0.34-2.87) when urban participants were compared to the rural participants.

DISCUSSION

This study aimed to investigate the existence of socioeconomic and geographical inequalities in the use, quality, and outcomes of hypertension management programs among beneficiaries of the Indonesian NHI, which were measured by the disparities of having regular visits, receiving standard medication, and achieving good hypertension control among the participants with various background. This study found no educational inequalities in the use, quality, and outcomes of hypertension management among beneficiaries of Indonesian NHI. Reverse inequalities based on the type of NHI beneficiaries were found in the utilization of hypertension management. Employment-based inequalities were found in the use and outcomes of hypertension management among the NHI beneficiaries. The tendency of geographical inequalities was found regarding the utilization of hypertension management among the beneficiaries of Indonesian NHI.

To our knowledge, this study constitutes the first assessment of inequalities in utilization, quality, and outcomes within a hypertension management program operating under a National Health Insurance (NHI) model in a low-to-middle-income country (LMIC) setting. Leveraging primary data obtained from a representative sample of a relatively large-scale NHI-based Indonesian hypertension management program, this study provides critical insights into NHI impacts on hypertension management program access, quality, and outcomes across heterogeneous populations. Nevertheless, certain limitations must be acknowledged. Specifically, data collection occurred in the

wake of Indonesia's second major COVID-19 pandemic wave, likely suppressing participant primary care facility visitation rates, and introducing the possibility of selection bias arising from the reliance solely on data from consistent visitors. Ideally, this study would have capitalized on the comprehensive Indonesian NHI database; however, permissions to access individual-level records were not granted by the NHI office. Consequently, primary data gathered directly from program participants was utilized. To minimize selection bias, we utilized secondary data, such as addresses and phone numbers, obtained from the registration system at each primary care site. These data were employed to conduct follow-up interviews via home visits and telephone calls with non-visiting participants, thereby validating the primary findings.

Findings from this study show that no educational inequalities were found in the use, quality, and outcomes of hypertension management among NHI beneficiaries in Indonesia. Previous studies on the association between educational level and chronic disease management such as hypertension showed mixed results. One study showed that better education increased the probability of using hypertension-related healthcare.[21] However, other studies show that educational level did not directly affect the use of hypertension management as well as the outcomes of the program.[22] The effect of education on healthcare utilization has been strongly mediated by other factors such as health literacy.[23,24] In LMICs, health literacy is influenced by contextual factors such as culture and social values and not merely determined by educational level.[25,26] This may also explain the insignificant effect of educational level on the outcome of hypertension management since hypertension control is determined by multiple factors, particularly individuals' behavior which is likely shaped by contextual factors.

Unexpectedly, the study findings indicate that individuals benefiting from subsidized National Health Insurance (NHI) are more likely to participate in hypertension management compared to their non-subsidized counterparts. This unexpected result can be attributed to various factors. One plausible explanation is linked to the distinct social-cultural context of NHI beneficiaries. Subsidized NHI beneficiaries predominantly reside in rural areas characterized by more communal cultures, in contrast to non-subsidized counterparts who tend to exhibit greater individual independence.[27] This cultural distinction appears to positively influence the participation of subsidized NHI beneficiaries in public programs, including hypertension management. Another explanation revolves around the interpersonal dynamics between participants and service providers. Subsidized NHI beneficiaries tend to foster closer relationships with service providers compared to their non-subsidized counterparts.[28] This interpersonal closeness is further shaped by socio-cultural factors that encourage intimate and informal connections between participants and service providers.[28] Consequently, this close relationship contributes to the sustained and effective participation of subsidized NHI beneficiaries in the hypertension management program.

This study reveals inequalities in the utilization and outcomes of hypertension management among National Health Insurance (NHI) beneficiaries based on their employment status. Formal workers appear to enjoy advantages stemming from the financial stability associated with their employment. Formal workers benefit from more stable income, enhancing their ability to prioritize regular visits to healthcare providers for hypertension management.[29] In contrast, informal workers, with their less predictable income, face a trade-off, particularly when confronted with inflexible schedules for monthly visits. This financial instability among informal

workers potentially hinders their consistent engagement with hypertension management services.[30] Moreover, the financial resources available to formal workers play a crucial role in contributing to hypertension control. Effective hypertension control involves a combination of multiple factors, with individual behaviors and lifestyle choices, such as physical activity and dietary patterns, standing out as key determinants.[31] Formal workers, possessing greater financial resources, are presented with more significant opportunities to implement and sustain a healthy lifestyle compared to their informal counterparts.[32] This financial advantage may contribute to the observed inequalities in hypertension outcomes between formal and informal workers among NHI beneficiaries.

This study identifies a tendency of geographical inequalities in the utilization of hypertension management, with urban participants exhibiting higher usage compared to their rural counterparts. Urban participants benefit from closer proximity to healthcare facilities, resulting in lower travel costs and reduced travel time.[12] This enhanced accessibility contributes to the higher utilization of hypertension management services among urban participants. Additionally, urban areas boast superior public infrastructure, including well-maintained roads and efficient public transportation systems.[33] These factors further facilitate the ease of travel for urban participants to reach healthcare facilities, reinforcing the observed pattern of higher utilization in urban areas compared to rural areas.

The study underlines the existence of inequalities in both the utilization and outcomes of hypertension management among National Health Insurance (NHI) beneficiaries in Indonesia across various dimensions. Despite the integration of hypertension management into the NHI coverage, intended to eliminate financial barriers, equal utilization among participants has not been achieved. The implementation of the hypertension management program needs to consider the socio-economic and geographical characteristics of the participants. To address these inequalities, strategies such as introducing a more flexible schedule for monthly visits and bringing services closer to participants, such as through mobile services, should be promptly adopted. These measures are likely to have a direct and positive impact, fostering more equitable use of hypertension management and facilitating better hypertension control among NHI participants with diverse backgrounds.

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AUTHOR CONTRIBUTIONS

JM conceptualized and designed the study, collected data, conducted formal analysis, managed research funding, wrote the first draft of the manuscript, and contributed to the revision of the manuscript. YW conceptualized and designed the study, conducted the formal analysis, visualized the data, reviewed the first draft of the manuscript, and contributed to the revision of the manuscript. DAE collected the data, conducted formal analysis, and contributed to the revision of the manuscript. DWDL collected the data, conducted formal analysis, and contributed to the revision of the manuscript. All authors reviewed and agreed to the final version of the manuscript.

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COMPETING INTEREST

The authors declare no competing financial and non-financial interests.

ETHICAL APPROVAL

The study has been reviewed and received ethical approval from the Health Research Ethics Committee, Faculty of Medicine, Universitas Jenderal Soedirman, Indonesia (ref. number 136/KEPK/VI/ 2021).

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