

Review Article

# Medication Adherence Among Older People With Hypertension in Southeast Asia: A Scoping Review

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## Abstract

**Background:** Medication adherence (MA) is a crucial factor in effectively managing hypertension (HTN). Southeast Asia (SEA) is one of the regions with a significant burden of HTN. Understanding MA among patients with HTN is vital to identifying gaps and potential strategies to enhance its use and effectiveness for this region. However, little is known about MA among this population. This review study aimed to identify MA strategies implemented in previous studies on older people with HTN in SEA.

**Methods:** This scoping review was conducted from 2013 to 2023 by searching the Global Medicus Index, PubMed, ScienceDirect, EBSCO, CINAHL, Wiley, Garuda, and Google Scholar and grey literature to identify the aims of this paper using keyword variations such as “elderly” OR “older people” AND “hypertension” OR “Hypertensive” OR high blood pressure” AND “medication adherence” OR “medication compliance” AND “southeast Asia”. Three reviewers independently examined the results, and the extracted data were then organized, categorized, and summarized.

**Results:** Out of 742 studies reviewed, 16 met the criteria and were included in this review. The evidence indicated that MA rates among older people with HTN in several countries in SEA were considered poor, with various reasons for non-adherence. Family support and level of knowledge were found to be the most common supportive factors for MA. Some studies demonstrated negative perceptions toward medication, with previous reviews reporting the use of herbal medicine as self-treatment due to fear of side effects of prescribed medications.

**Conclusion:** The level of adherence to prescribed medication among older people is considered low in the reviewed studies. The main reasons for non-adherence are negative perceptions toward prescribed medication, which were also expressed in some studies. Moreover, various efforts were made by individuals to improve their adherence to medication use.

**Keywords:** Medication adherence, Hypertension, Older people, Southeast Asia



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## Introduction

Hypertension (HTN) is a leading risk factor for non-communicable diseases such as heart disease, stroke, and other cardiovascular conditions, which are significant causes of mortality globally. Anti-hypertensive medications can effectively reduce blood pressure and the risk of these associated diseases (1). However, despite the efficacy, affordability, and availability of anti-hypertensive drugs, overall HTN control in the general population is still less than 60% (2).

The American Heart Association defines HTN as systolic blood pressure > 130 mm Hg and/or diastolic blood pressure > 80 mm Hg (3). The World Health Organization reports that HTN prevalence varies by region and income group. The African region has the highest prevalence

(27%), while the Americas have the lowest prevalence (18%). Based on specific regions, the World Health Organization data shows the prevalence of HTN in Africa, Southeast Asia (SEA), and the Americas to be 40%, 36%, and 35%, respectively, and about 60–80% are 65 years old (4). In Southeast Asian countries, the prevalence of HTN has significantly increased over the last two decades (5). Its prevalence remains quite high globally, and the incidence rate increases with age (6). A recent study has reported that there is a one-third increase in the population of HTN in SEA every year (7). The rising prevalence of HTN in Asian countries, driven by Western lifestyles, modernization, and urbanization, has made HTN control a significant public health challenge (8).

One way to control HTN is by taking medication regularly



and at the recommended dosage prescribed by a doctor. Medication adherence (MA) can be defined as the process in which patients take their medication as prescribed (9). Low adherence leads to resistance to HTN treatment (10). In older people, the use of antihypertensive drugs has led to a decrease in overall cardiovascular disease, morbidity rates, and mortality rates in individuals with HTN (11). The main cause of uncontrolled blood pressure in older people is non-adherence to treatment, either intentional or unintentional (12). Older people with chronic diseases tend to exhibit poor MA compared to young adults (13). This results in more serious complications and impacts the quality of life of older people, such as increased morbidity, mortality, and additional costs for the healthcare system (14–16).

Several reviews have reported that the use and effectiveness of herbal remedies for HTN, fear of side effects from prescribed medications, and easier access are reasons for choosing herbal remedies (17). However, they only focus on self-care management without emphasizing the overview of MA for HTN at present (17). Furthermore, Pinho et al (18) reported MA in patients with HTN, focusing only on the interventions applied rather than the older people with HTN. Then, a review conducted by Nawi et al (7) demonstrated the prevalence and risk factors of HTN in the SEA region but only focused on urban areas.

Understanding the overview of MA among older people with HTN is crucial for identifying gaps and potential strategies to strengthen its effectiveness and use in the SEA region. However, little is known about the MA overview in this population. Therefore, this review was conducted to present an overview of MA among older people with HTN in SEA by exploring factors influencing adherence, differences in HTN management approaches, and initiatives implemented to improve adherence. The findings can contribute to a better understanding of this health challenge in the region and support efforts to improve HTN management in the older population.

### Objectives

The aim of this paper is to identify MA strategies that have been implemented in several previous studies on older people suffering from HTN in SEA.

### Materials and Methods

This scoping review systematically synthesizes research evidence on MA strategies for older people with HTN in SEA, even though it has different objectives and methods (19). The method or framework used in this scoping review is the Arksey and O'Malley framework (20), which consists of five steps to explain and facilitate each stage of the framework.

#### Stage 1: Identifying the Research Question

The research question of this scoping review is as follows: What is the overview of MA among older people with

HTN in SEA? The countries in SEA include Brunei, Malaysia, Indonesia, Thailand, Singapore, the Philippines, Vietnam, Laos, Cambodia, Myanmar, and East Timor.

#### Stage 2: Identifying Relevant Studies and Search Terms

After identifying the scoping review question, this review followed a search strategy guided by Joanna Briggs Institute (21) to describe MA among older people with HTN in SEA. The next step was to identify relevant articles by determining keywords and phrases used in the search. Overall, 8 databases were utilized for this scoping review, including Global Medicus Index, PubMed, ScienceDirect, EBSCO, CINAHL, Wiley, Garuda, and Google Scholar. An initial search was conducted by extracting titles, abstracts, and content to identify keyword terms. Keywords used for each database are presented in [Table 1](#).

Additionally, we searched for other references that, in the authors' assessment, were related to this review on Google Scholar, as these references may have been missed in the search process in previous databases. The initial search was conducted by extracting titles, abstracts, and content to identify other terms and keywords, including alternative options that were relevant to other contexts and cultures.

The inclusion and exclusion criteria for this paper were based on the Population Concept Context (21). The population in this review included older people diagnosed with HTN according to the age limit specified in the country where the study was conducted. This review has focused on qualitative and quantitative primary data studies, including those collecting original data via interviews, surveys, or experiments. Review articles, study protocols, intervention studies, and populations with pregnancy-induced HTN were excluded from the investigation. The search was limited to full-text articles published in English and Indonesian from 2013 to 2023, as the incidence of HTN has increased in the last ten years. Ten years was determined as the time limit of the search, as that marks the recent increase in the prevalence of HTN in SEA countries (22). English is the principal language in global scientific communication. The majority of international scientific publications are written in English. Furthermore, articles in both English and Indonesian are more accessible to researchers through international and national databases.

[Table 1](#) provides keywords and phrases used in the search. In addition, references were searched in Google Scholar for additional articles that may have been missed in previous database searches by using BOOLEAN phrases and medical subject heading (MeSH) terms with keyword variations such as “elderly” OR “older people” AND “hypertension” OR “Hypertensive” OR “high blood pressure” AND “medication adherence” OR “medication compliance” AND “Southeast Asia”.

#### Stage 3: Study Selection and Extraction

[Figure 1](#) shows the process and results of screening

**Table 1.** The Keywords Used in This Search

No.	Database	Keywords	Article Obtained	Date of Access
1	Global Medicus Index	Elderly OR older people AND high blood pressure OR hypertension OR hypertensive AND medication adherence	9	October 17, 2023
2	PubMed	((((Elderly[MeSH Terms]) OR (older people[Title/Abstract]))) AND (((high blood pressure[MeSH Terms]) OR (hypertension[Title/Abstract])) OR (hypertensive[Title/Abstract]))) AND ((medication adherence[MeSH Terms]) OR (medication compliance[MeSH Terms])) AND ((southeast Asia[MeSH Terms]))	11	October 17, 2023
3	ScienceDirect	((((Elderly[MeSH Terms]) OR (older people[Title/Abstract]))) AND (((high blood pressure[MeSH Terms]) OR (hypertension[Title/Abstract])) OR (hypertensive[Title/Abstract]))) AND ((medication adherence[MeSH Terms]) OR (medication compliance[MeSH Terms])) AND ((southeast Asia[MeSH Terms]))	69	October 17, 2023
4	EBSCO	TX (elderly or older people) AND TX (hypertension or high blood pressure or hypertensive) AND TX (medication adherence or medication compliance) AND TX southeast Asia	60	October 18, 2023
5	CINAHL	(Elderly):ti,ab,kw OR (older people):ti,ab,kw AND ("hypertension"):ti,ab,kw OR ("hypertensive"):ti,ab,kw OR ("high blood pressure"):ti,ab,kw AND ("medication therapy management"):ti,ab,kw OR (medication adherence):ti,ab,kw OR ("compliance"):ti,ab,kw AND ("Southeast Asian"):ti,ab,kw	389	October 18, 2023
6	Wiley	"Elderly OR older people" and "hypertension OR hypertensive OR high blood pressure" and "medication adherence OR medication compliance" and "southeast Asia, anywhere"	92	October 18, 2023
7	Garuda	Lansia AND hipertensi OR tekanan darah tinggi OR tekanan darah AND Kepatuhan OR Kepatuhan minum obat, by abstract	7	October 19, 2023
8	Google Scholar	"Lansia" DAN "Hipertensi" ATAU "tekanan darah tinggi" DAN "kepatuhan minum obat" ATAU "kepatuhan" DAN "Asia tenggara"	163	October 19, 2023

articles using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses flowchart and manuscript extraction criteria after the initial search based on the inclusion and exclusion criteria of the study. In summary, 807 relevant articles were collected from 8 databases. After removing duplicates, 742 articles remained. The next step was to screen articles based on titles/abstracts, resulting in 84 articles for full-text screening. After full-text screening, 37 articles were eligible, and based on the inclusion criteria, 16 articles were relevant to the research question and included for analysis. Three reviewers (AFR, AMI, and AS) independently examined the results, and the extracted data were then organized, classified, and summarized.

### Evaluation of Quality of Articles

All articles identified from the article search were imported into the Mendeley reference manager software and exported after de-duplication to the Rayyan Software Program (23). To ensure reliability among reviewers, two reviewers (AMI and AFR) were assigned to screen 25 English-language articles for titles, abstracts, and full texts using the Joanna Briggs Institute Manual method. There was disagreement in 8% of the articles, which was resolved through reviewer discussion to achieve 100% agreement at each screening stage.

### Stage 4: Data Mapping

The data were independently extracted using the Rayyan Software Program and Mendeley and then compiled into tables based on the included items. Next, the studies were filtered to report the overview of MA among people with HTN in SEA. The characteristics of each study and the research methods were described and presented in table

form. Factors influencing MA were presented as reported by the authors. The measured variables are listed in Table S1 (Supplementary file 1).

### Stage 5: Organizing, Summarizing, and Reporting Results

The results of this review are reported through descriptive analysis and a narrative summary of the findings using text and tabulation, based on the stages of the method or framework of the Arksey and O'Malley scoping review method (20).

## Results

### Characteristics of Studies

Out of 37 articles checked for full-text eligibility, 21 were excluded for different reasons. Six articles were not specific to SEA, 15 did not focus on older people, 2 were review studies, and 12 were not specific to MA. Therefore, 16 articles were included for analysis; more than half (10) were conducted in Indonesia (24-33), 3 in Thailand (34-36), 2 in Myanmar (37,38), and 1 in Malaysia (39). However, for other SEA countries such as Vietnam, Singapore, the Philippines, Laos, Brunei, Cambodia, and East Timor, the authors found no articles that matched the keywords. Tables S1 and S2 present quantitative and qualitative studies of MA, respectively. The largest sample from the included studies was found in a study conducted in Thailand, with a total of 600 participants (34). In other studies, the sample sizes ranged from 5 to 410. Regarding the study settings, among quantitative studies, six were conducted in rural areas (24,25,27,30,37,38) and six were performed in urban areas (26,28,31,34,35,40). For qualitative studies, two were conducted in rural areas (32,36), and two were performed in urban areas (33,39). Overall, the ages of the participants in these studies ranged

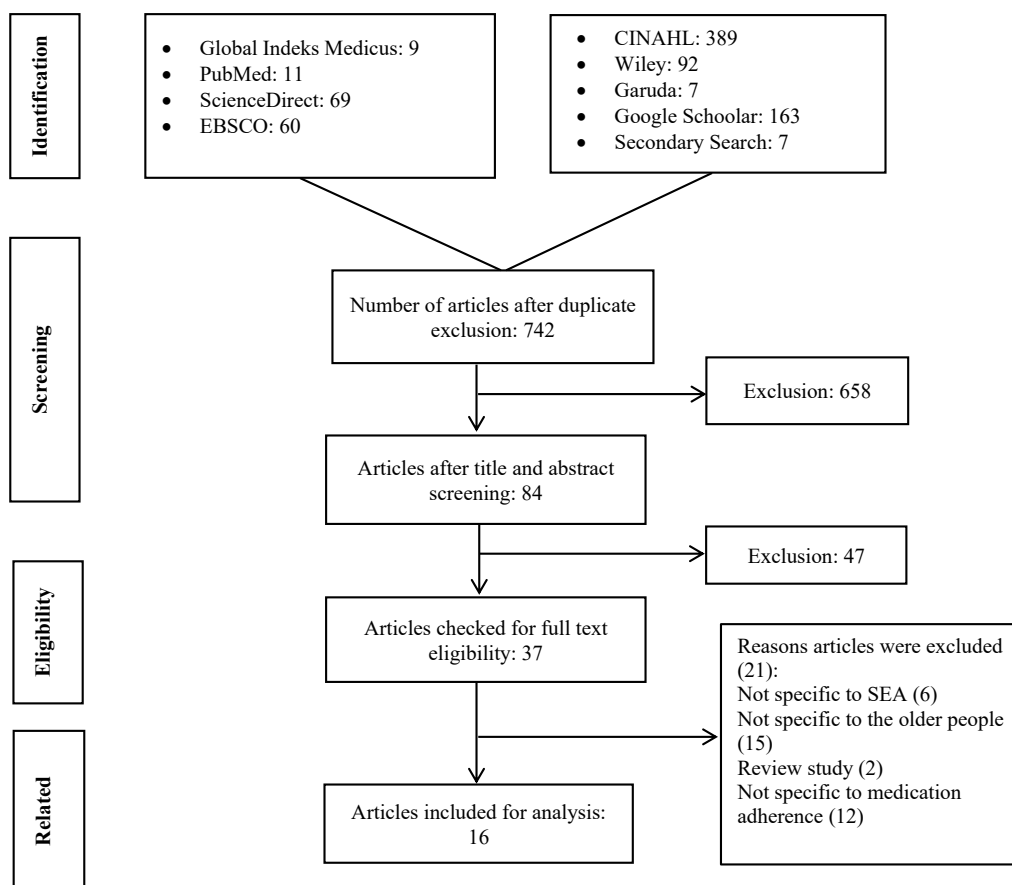


Figure 1. Flow Diagram of the Study Selection Process

from 45 to 90 years old.

### Medication Adherence Among Older People With Hypertension

In the included studies, both quantitative (24-28,30,31,34,35,37-40) and qualitative (32,33,36,39) studies indicated that older people with HTN still have poor adherence levels, with the most common reasons cited in quantitative studies being a lack of family support (24-26,30), knowledge levels (24-27,30,31,40), and age (24,37,38).

As for qualitative studies, the majority of the participants explored reasons for non-adherence to medication and factors that support and motivate them to improve their MA. Overall, two studies reported the use of herbal remedies as substitutes for antihypertensive drugs (32,39), and several studies showed negative perceptions toward the antihypertensive drugs consumed (31,35,36,38,39).

### Factors Supporting and Inhibition

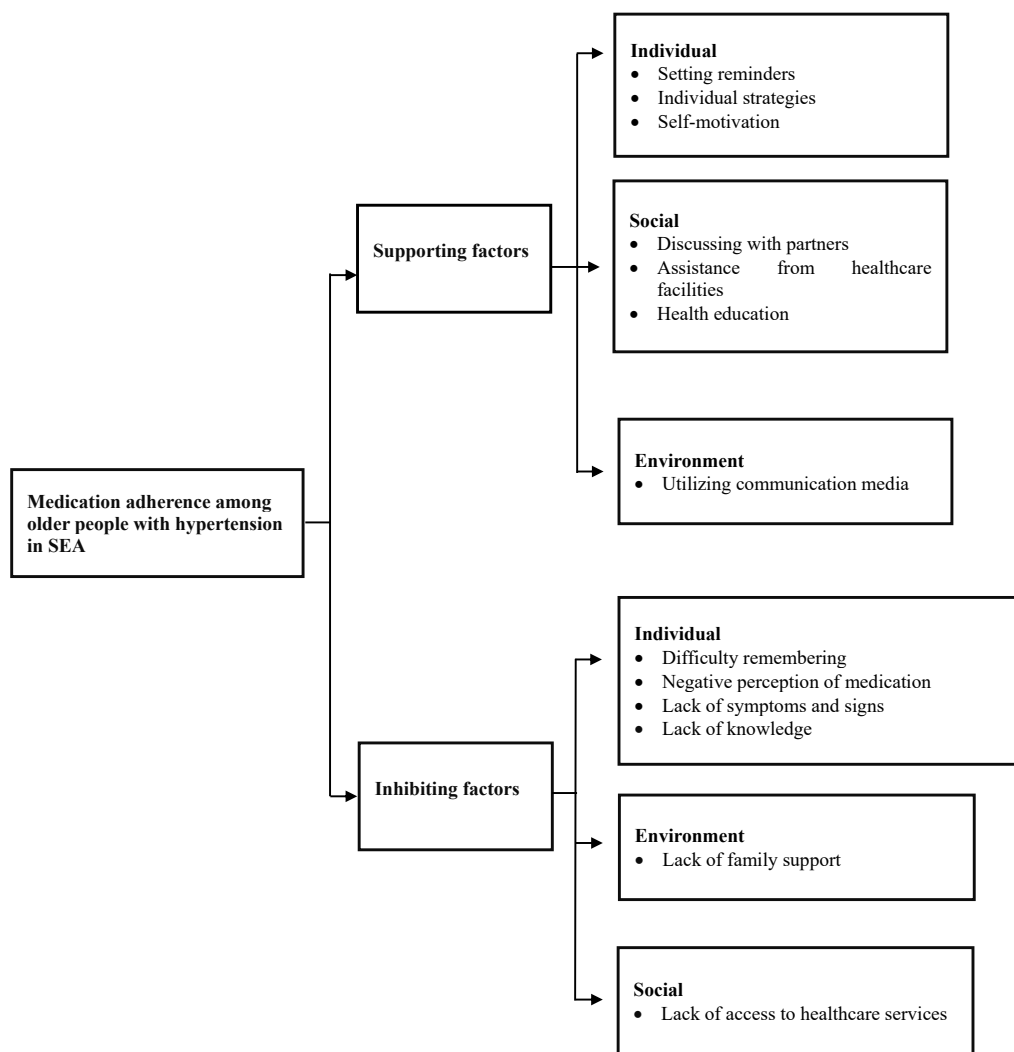
In the reviewed studies, several factors were identified as supporting or hindering MA among older people with HTN. These factors are described in the article text as examples of statements from participants found in the studies (Table S2). These factors were further categorized into individual, environmental, and social groups (Figure 2). Individual factors are those under the control or influence of the individual, while environmental and social

factors are those influenced by the individuals' household environment or the community where they reside.

Among statements described in the studies, "setting reminders" (33,39), "personal strategies" (39), and "self-motivation" (33) are considered individual supporting factors. In addition, "discussing with a partner" (39), "healthcare facility assistance" (39), and "health education" (36,39) are regarded as social supporting factors, and "utilizing communication media" (33,39) is considered an environmental supporting factor. On the other hand, "difficulty remembering" (33,36,39), "negative perceptions of medication" (36,39), "lack of symptoms and signs" (32,36), and "lack of knowledge" (32,39) are grouped as individual hindering factors. Further, "lack of family support" (33) and "lack of access to healthcare services" (32,39) are considered environmental hindering and social hindering factors, respectively.

### Discussion

This review mainly aimed to present an overview of MA among older people with HTN in the SEA region by exploring factors influencing adherence, differences in HTN management approaches, and initiatives implemented to improve adherence. The presented evidence revealed that MA among older people with HTN in several SEA countries is considered quite poor, with various reasons for non-adherence. Other parts of Asia showed similar trends, with South Asia (48%) followed by



**Figure 2.** Framework of Medication Adherence Among Older People With Hypertension: Supporting and Inhibiting Factors in Southeast Asia

East Asia (45%) and the Middle East (41%) (41). Family support and knowledge levels were the most common supporting factors for MA identified in this review. In Latvia, 61.4% of respondents felt confident about their medications, while others were unsure about the necessity, safety, and effectiveness of the medications or the severity of their illness (42). In China, 31.1% of patients adhered to their antihypertensive medication, and MA among people with HTN improved with an increase in social support (43). Various initiatives and approaches have been implemented to improve MA among older people, including the use of application devices that help older people prevent missed doses and treatment support (44). Multi-dimensional support is essential for people with HTN, with the strongest support coming from partners or children, followed by support from healthcare professionals, friends, and the community (43). Non-adherence to medication has been a major reason behind uncontrolled HTN. The global increase in HTN remains poorly addressed in several populations, including in SEA. Therefore, the emphasis on reducing the risk of HTN is a clear implication of our findings.

Another finding from our review is the negative

perception toward medication. Similarly, previous reviews in the SEA region reported the use of herbal medicine as self-treatment due to fear of side effects from prescribed medications (17). Thus, it is important to assess the knowledge of patients and healthcare providers in conveying the side effects of the treatment to be taken.

Various individual, social, and environmental factors influencing MA were identified in all the reviewed studies. As these findings are secondary outcomes of our research, further studies are needed to explore the scope and complexity of factors affecting MA.

Participants in studies on HTN described various unique challenges across all the included studies. Nevertheless, some patterns can be identified; it was found that setting reminders, making individual strategy efforts, increasing self-motivation, discussing with partners, providing healthcare facility support, and utilizing communication media are supportive strategies for improving MA. One study reported improved MA with reminders through phone calls from healthcare providers (45). Awareness of the disease and treatment is likely to make patients more adherent (46).

Another consideration for MA among older people with

HTN in the SEA region is difficulty in remembering the medication schedule and lack of family support. Living with family triggers adherence to medication due to support (33), which is in line with our findings. A study reported that strong perceived family support would increase self-esteem and motivation, and motivated patients with HTN would adhere to therapy plans (47). Therefore, the development and evaluation of interventions designed specifically to enhance family support for patient adherence, including training for family members on the importance of medication and how they can assist patients in adhering to treatment, are important.

Another inhibiting factor was the lack of access to healthcare services. People with unemployment face challenges in accessing medication due to the cost of public transportation, as 60% of them cannot afford transportation costs to hospitals (48,49).

Understanding the challenges and patterns that affect MA in older people with HTN allows for planning more effective strategies to improve adherence so patients can manage their condition better and minimize the risk of complications.

### Limitations of the Study

One limitation of this review was the inclusion of only studies that were published in English and Indonesian languages. Additionally, there may have been differences in the terms used in each country, which could have led to overlooks by the researchers.

### Conclusion

To the best of our knowledge, our review is the first to investigate adherence to medication among older people with HTN in the SEA region. Based on our findings, there was a low rate of adherence to prescribed medication among older people in the reviewed studies. The main reason for non-adherence was a negative perception of the prescribed medication, which was also expressed in several studies. Various strategies were used by individuals to improve their MA. To better understand the individual and situational factors that influence this adherence, further research is necessary. More careful research will support a more personalized approach to addressing these challenges.

### Authors' Contribution

**Conceptualization:** Andi Fitrah Ramadhanty, Andi Masyitha Irwan

**Data curation:** Andi Fitrah Ramadhanty, Andi Masyitha Irwan.

**Formal analysis:** Andi Fitrah Ramadhanty, Andi Masyitha Irwan, Andina Setyawati.

**Investigation:** Andi Fitrah Ramadhanty, Andi Masyitha Irwan, Andina Setyawati.

**Methodology:** Andi Fitrah Ramadhanty, Andi Masyitha Irwan.

**Project administration:** Andi Fitrah Ramadhanty, Andi Masyitha Irwan.

**Resources:** Andi Fitrah Ramadhanty.

**Software:** Andi Fitrah Ramadhanty, Andi Masyitha Irwan.

**Supervision:** Andi Masyitha Irwan, Andina Setyawati.

**Validation:** Andi Masyitha Irwan, Andina Setyawati.

**Visualization:** Andi Fitrah Ramadhanty.

**Writing—original draft:** Andi Fitrah Ramadhanty.

**Writing—review & editing:** Andi Fitrah Ramadhanty, Andi Masyitha Irwan, Andina Setyawati.

### Competing Interests

No author of this paper has any conflict of interests, including specific financial interests, relationships, or affiliations related to the subject matter or materials included in this manuscript.

### Ethical Approval

Not applicable.

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### Supplementary Files

Supplementary files contain Tables S1 and S2.

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