

Article Review

Pharmacist Involvement to Prevent and Manage HIV/AIDS in Indonesia: A Systematic Review

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Abstract—Pharmacists' involvement in the human immunodeficiency virus/acquired-immunodeficiency syndrome (HIV/AIDS) prevention and management program has been globally advocated. However, there is currently a lack of information on whether pharmacists' roles in the program have been clearly articulated in the national policy records in countries with high scores on power distance and collectivism, such as Indonesia. This study aimed to explore the roles of pharmacists in the prevention and management of HIV/AIDS in Indonesia using a systematic review method. We systematically searched for relevant studies in three large medical databases (CINAHL, EMBASE, and PubMed) and for gray literature in both the Indonesian Pharmacist Association and the Ministry of Health websites, and the national regulation database. Only two studies gave a glimpse of pharmacists' role in the prevention and management of patients with HIV/AIDS in Indonesia. However, activities conducted by pharmacists in each of these roles were not explicitly described. We found no official national policies mentioned the role of pharmacists in HIV/AIDS prevention and management. Since the practice of pharmacists is closely related to medications, including antiretroviral drugs, more research is needed to explore the role of pharmacists in the prevention and management of HIV/AIDS in a real-world context in Indonesia.

Keywords: AIDS, HIV, pharmacist, indonesia

Abstrak—Keterlibatan apoteker dalam program pencegahan dan tata laksana *human immunodeficiency virus/acquired-immunodeficiency syndrome* (HIV/AIDS) di dunia telah direkomendasikan. Akan tetapi, saat ini terdapat keterbatasan informasi mengenai apakah keberadaan peran apoteker dalam program tersebut telah dinyatakan dengan jelas dalam dokumen kebijakan nasional di negara-negara yang memiliki skor tinggi pada *power distance* dan kolektivitas, seperti Indonesia. Penelitian ini bertujuan untuk menggali peran apoteker dalam pencegahan dan tata laksana HIV/AIDS di Indonesia menggunakan metode kajian sistematis. Secara sistematis, peneliti melakukan pencarian artikel penelitian terkait di tiga basis data medis yang besar (CINAHL, EMBASE, dan PubMed) dan pencarian *gray literature* di laman Ikatan Apoteker Indonesia dan Kementerian Kesehatan Republik Indonesia, serta di basis data peraturan nasional. Hanya dua penelitian yang memberikan secercah informasi mengenai peran apoteker dalam pencegahan dan tata laksana pasien dengan HIV/AIDS di Indonesia. Namun demikian, aktivitas spesifik yang dilakukan oleh apoteker tidak secara eksplisit digambarkan lebih lanjut. Peneliti tidak menemukan dokumen kebijakan nasional yang menyebutkan peran apoteker dalam pencegahan dan tata laksana HIV/AIDS. Oleh karena praktik kefarmasian berhubungan erat dengan obat, termasuk obat-obat antiretrovirus, maka dibutuhkan lebih banyak penelitian untuk menggali peran apoteker dalam pencegahan dan tata laksana HIV/AIDS pada konteks dunia-nyata di Indonesia.

Kata kunci: AIDS, HIV, apoteker, indonesia

INTRODUCTION

Despite significant advancements that have been discovered in the era of highly active anti-retroviral therapy (HAART), human immunodeficiency virus (HIV) infection remains one of the significant problems for the healthcare system globally [1,2]. In 2021, 38.4 million people are living with HIV, and 1.5 million people are acquiring HIV globally. Asia-Pacific is the second region with the highest number of newly HIV-infected people after Eastern and Southern Africa. Nevertheless, only around 76%, 62%, and 59% of adults living with HIV in the Asia-Pacific region are aware of their HIV status, are on antiretroviral therapy (ART), and are virally suppressed, respectively. These proportions are far lower than the target of 95% [3]. It is worth emphasizing that being adherent to ART is one of the critical elements to suppressing the viral load and enhancing the immune system of HIV patients [4,5]. However, it is uniquely challenging to maintain ART intake for a whole lifetime and to manage the complexity of HIV management, particularly if AIDS is developed.

Collaboration between multiple healthcare professionals could be positively impactful on patient-related outcomes [6,7]. It should be acknowledged, however, that working in a multi-professional team whose members have different ideologies could come with new challenges, especially for a relatively new member from professions that just expanding to more patient-centered care, such as pharmacist. The challenges increase when pharmacists work in settings with high scores on power distance and collectivism, a typical working culture in Southeast Asia such as Indonesia. In a country with a high power distance culture, there is a strong influence from the leader or people with a higher level of authority or status to manage or develop organizational work [8,9]. Therefore, despite the provision of international guidelines on the role of pharmacists in HIV/AIDS prevention and management [10,11], without a clear national policy to back up this role, it will be more difficult for pharmacists to take up the recommendations provided in the guidelines.

Two recent systematic reviews have investigated the effect of pharmacist interventions, either delivered alone or in a multidisciplinary team of healthcare professionals, on clinical and economic outcomes of people living with HIV/AIDS [12,13]. Pharmacist interventions have significantly improved patients' adherence, viral load suppression, and CD-4 T lymphocyte count [13] and have been cost-saving in terms of US\$ [12]. Both reviews assess studies from Western countries such as Brazil, Mexico, Spain, and the United States. The types of pharmacist interventions are mostly patient-focused care services. Some examples of intervention provided individually by pharmacists are 1) pharmaceutical care, 2) adherence counseling and behavioral therapy, 3) a combination of education, dosage adjustment and interpretation of viral resistance, education on medication and adherence, and 4) medical-record review, ART prescription modification in patients with drug toxicities and education to maintain patients' adherence. Another systematic review reports evidence on the role of pharmacists in the United States which includes pharmacy-based HIV testing, safe syringe access and harm reduction, pharmacy-based pre-exposure prophylaxis (PrEP) screening and dispensing in collaboration with physicians, post-exposure prophylaxis (PEP), and promotion of adherence to ART through counseling HIV patients [14]. Currently, there is a lack of information regarding whether a national policy in a country with a high hierarchy and strong communal culture, such as Indonesia, could clearly articulate the role of pharmacists in HIV/AIDS prevention and management programs in their records.

This systematic review aims to first address the role of pharmacists in HIV/AIDS prevention and management in Indonesia, especially in the setting of primary health care (Pusat Kesehatan Masyarakat, Puskesmas) where many patients living with HIV are being managed. Secondly, the review also aims to locate any national policies that explicitly describe the role of pharmacists in the prevention program of HIV or the management of patients living with HIV/AIDS in Indonesia.

METHODS

This systematic review was reported according to a guideline provided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) [15].

Searching for Relevant Literature

We used three large medical databases (PubMed, CINAHL, and EMBASE) to search for the relevant literature. The keywords were first developed for PubMed and later were adapted for the other two databases. Here, we presented the keywords used for searching in each database:

- Pubmed
("pharmacists"[MeSH Terms] OR "pharmac*" [All Fields] OR "apoteker" [All Fields]) AND ("hiv"[MeSH Terms] OR "acquired immunodeficiency syndrome" [MeSH Terms] OR "hiv" [MeSH Terms] OR "hiv" [All Fields] OR "acquired immunodeficiency syndrome" [MeSH Terms] OR ("acquired" [All Fields] AND "immunodeficiency" [All Fields] AND "syndrome" [All Fields]) OR "acquired immunodeficiency syndrome" [All Fields] OR

- "aids"[All Fields]) OR "acquired immunodeficiency syndrome"[All Fields]) AND ("indonesia"[MeSH Terms] OR "indonesia*"[All Fields])
- CINAHL
(pharmacists or pharmacist or pharmacy or pharmacies or apoteker) OR (community pharmacist OR community pharmacy services OR hospital pharmacist OR hospital pharmacy service) AND (hiv or aids or acquired human immunodeficiency syndrome or human immunodeficiency virus) AND (indonesia or indonesian)
 - EMBASE
(pharmacist.mp. or exp community pharmacist/ or exp pharmacist attitude/ or exp clinical pharmacist/ or exp hospital pharmacist/ or exp pharmacist/ or exp pharmacist patient relationship/) AND ((hiv.mp. or exp Human immunodeficiency virus/) OR (aids.mp. or exp acquired immune deficiency syndrome/)) AND (indonesia.mp. or exp Indonesia/).

To maximize the effort to find relevant literature, filters were not applied. Aside from the databases, we also searched for grey literature in the form of national policy documents from the official website of the Ministry of Health of the Republic of Indonesia, the Indonesian Pharmacists Association, and the national regulation database. The keywords used for this purpose were “*Pusat Kesehatan Masyarakat OR Puskesmas OR Apotek OR Apotik OR klinik*” AND “*Peraturan OR Permenkes OR Kebijakan OR Pedoman OR Standar*” AND “*Apoteker*” AND “*HIV OR AIDS OR HIV/AIDS*”. When the combination of keywords did not offer any results, a single keyword was used according to the nature of the websites and the database. Additionally, an effort to obtain the national policy records was also conducted by asking the key informants in the Provincial Health Office, City Health Office, and staff in the Puskesmas. This approach was considered appropriate to get an updated document owing to the fact that most current policies might not always be available digitally.

Literature Selection

Published articles written in English or Indonesian were selected to address the aim of the review when they described the activities of Indonesian pharmacists in the prevention program or the management of patients with HIV. Both qualitative and quantitative studies were deemed appropriate to be included in the final descriptive summaries. There was no restriction on the year of publication of the articles.

Two reviewers independently screened titles and abstracts of published articles in the three journal databases. A third reviewer was involved in resolving any disagreements on the findings. For the national policy records, the document screening and selection were also done by two reviewers, and any disagreements between the reviewers were discussed in a consensus.

Data extraction

Two reviewers independently extracted the data from the selected full-text articles or documents. The following data were extracted for each published study:

- type of primary setting (clinics, private physicians’ practice, *Puskesmas*, or pharmacy (*apotek*);
- Study approach (qualitative or quantitative study);
- Data collection method;
- Respondents; and
- Scope of pharmacists’ role.

One reviewer assessed the quality of the study using a critical appraisal tool for qualitative studies. The elements being assessed using this guidance were the study’s credibility, transferability, dependability, and confirmability. For each element, there are question(s) to confirm the overall trustworthiness of the study. The complete tool for assessing the study is presented in the Appendix [16].

RESULTS

We found 212 potential studies and 4224 national policy records from the three databases and the government-related official websites, respectively. After removing duplicates and excluding unrelated findings, we ended up with only two studies that depicted the role of pharmacists in the HIV/AIDS prevention and management program in Indonesia. The study and document selection process are presented in Figure 1.

The two studies were recently published, case-based, and qualitative by design. The studies were conducted in large capital cities in Indonesia [17,18]. The data collection method was only clear in the study conducted by Darmawansyah et al. [17]. This study mentioned that pharmacists were involved in the HIV/AIDS prevention program and in the logistics for the program which consisted of planning, procurement, storage, distribution, use and control of drugs and medical equipment for prevention, diagnostics and therapy. However, the detailed role of pharmacists related to the logistics was not further specified. Similarly, the types of activities performed by pharmacists in the HIV/AIDS prevention program were not described. In the second study, Hoke et al. [18] did not actually mention ‘pharmacist’, however, the preparation of antiretroviral (ARV) therapy for the program seemed to involve pharmacists. Table 1 presents the characteristics of the included studies. We did not find any national policy documents specifically mentioning pharmacists' role in the HIV/AIDS prevention and management program in Indonesia.

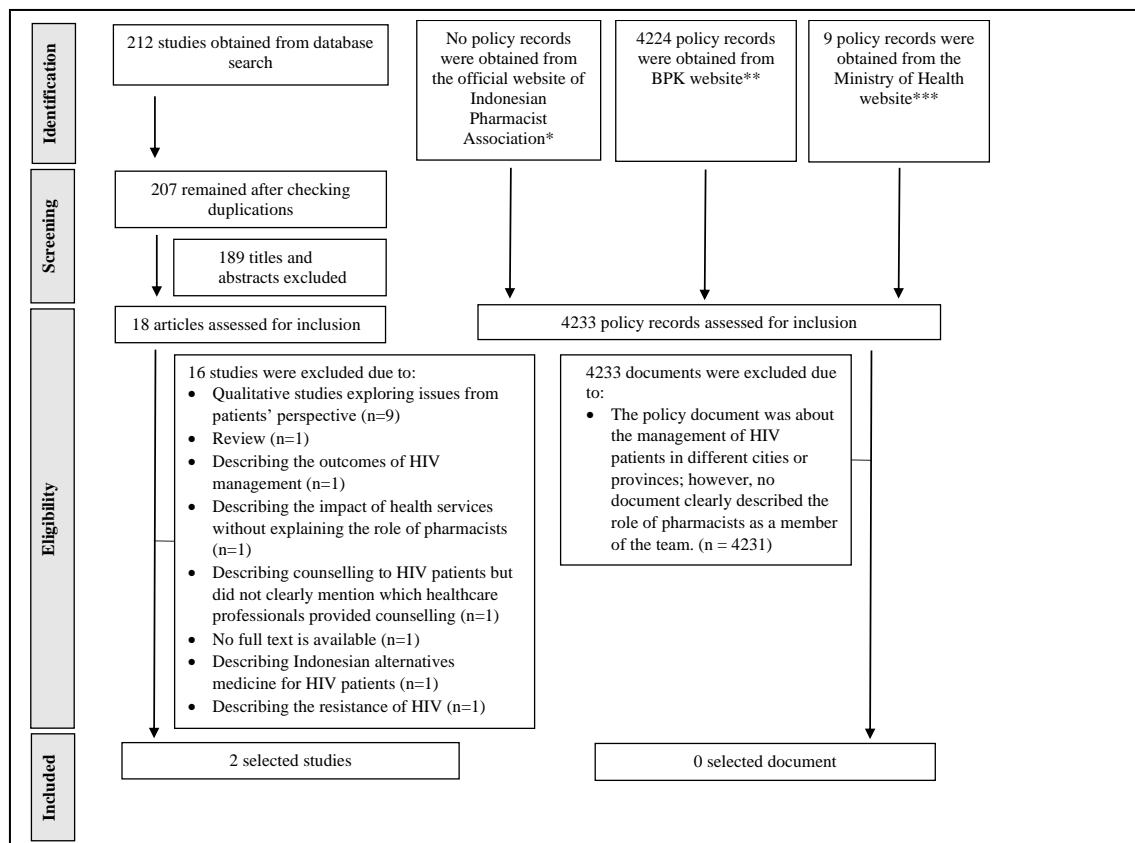


Figure 1. Study selection for the systematic review.

*Using single and combination keywords

**The Audit Board of the Republic of Indonesia (BPK, Badan Pemeriksa Keuangan Republik Indonesia); Available from:

<https://peraturan.bpk.go.id/Home/Search?filter=0&search=HIV&page=12>.

*** A combination of keywords was not applicable; using a single keyword of “HIV” resulted in 7 records, while using “AIDS” resulted in 6 records (with 4 out of 6 records were duplicates with some records identified using “HIV” as the keyword).

le 1

Characteristics of Included Studies

Author (year)	Settings	Study's approach	Data collection	Respondent	Scope of pharmacists' role
Darmawansyah et al. (2020)[17]	The core location in South Sulawesi Province where HIV/AIDS prevention and control was focused upon	Qualitative with a case study design	Interview	<ul style="list-style-type: none"> Chairperson of the Provincial AIDS Commission Chairperson of the Regional AIDS Commission Holder of the HIV-AIDS program at Puskesmas Chair of the NGO concerned with HIV/AIDS 	<p>Along with other healthcare professionals, such as doctors and nurses, pharmacists were involved in the HIV/AIDS prevention program.</p> <p>No further detailed pharmacists' activities in the prevention program were described.</p> <p>In addition, pharmacists were also involved in the logistical procurement for the HIV/AIDS prevention program.</p> <p>No further detailed description of the types of logistic-related activities performed by pharmacists.</p>
Hoke et al. (2021)[18]	Community, Jakarta	Case report	Field notes, using an intervention documentation tool	Staffs supporting a home-based antiretroviral delivery service	Supporting a home-based antiretroviral delivery service during COVID-19 pandemic

Note:

AIDS: acquired-immunodeficiency syndrome; COVID-19: coronavirus disease-19; HIV: human immunodeficiency virus; NGO: non-government organization.

Study Quality

The objectives of both studies were to examine the implementation of a program related to HIV/AIDS prevention and management. The theoretical frameworks and paradigms to conduct these studies were not explained. In Darmawansyah et al. [17], the key informants were selected using a snowball technique, which was a rational approach to investigating sensitive issue as HIV/AIDS, while in Hoke et al. [18], the participants were the technical advisors and supporters of the implemented program. The method of data analysis was not reported in both studies. From the credibility point of view, both studies seemed to give true accounts of the program implementation. However, both studies did not provide a clear method to reach their description; thus this may reduce the credibility and confirmability of the studies. Both studies did not provide demographics of the participants involved; thus, it was difficult to assess the transferability of the studies. While the dependability of the study conducted by Darmawansyah et al. [17] could not be assessed due to a lack of reporting of the research steps, Hoke et al. provide a more detailed instrument to obtain the data that will increase the probability of consistency of a repeated study. Overall, the level of trustworthiness of both studies seems to be moderate due to the lack of details in reporting the method of the studies.

DISCUSSION

To the best of our knowledge, this systematic review is the first to investigate pharmacists' role in HIV/AIDS prevention and management in Indonesia. The findings of this study have confirmed that there is a lack of published studies on the matter. The published

studies on the role of Indonesian pharmacists in the prevention and management of HIV/AIDS are lacking details regarding the types of activities involved. Additionally, we found no national policy records mentioning the role of pharmacists in the prevention and management of HIV/AIDS.

Although we found no national policy records specifically mentioned pharmacists in controlling HIV/AIDS in Indonesia, there is a guideline on pharmaceutical care for people living with HIV/AIDS (*orang dengan HIV/AIDS*, ODHA) issued by the Directorate General of Pharmaceutical and Medical Devices, the Ministry of Health of the Republik of Indonesia, in 2006 [19]. The guideline states that the roles of pharmacists are managing ARV therapy, drug information service for patients and other health care professionals, education and counseling, and monitoring for adverse drug reactions of ARV therapy, opportunistic infections, *et cetera* [19]. In a country with high power distance like Indonesia, with no national policies found to enforce the implementation of the guideline, there is a need for further research on how the role of pharmacists is implemented in a real setting in Indonesia in order to prevent HIV infections/transmission and to manage ARV therapy in patients with HIV/AIDS. We need to explore the types of activities that work and what factors hinder the role of pharmacists in this case. So far, only two studies found, which also did not specify what kind of activities pharmacists did in the HIV prevention program, supported the notion that this field is still open for exploration. Moreover, the International Pharmaceutical Federation (FIP) has recently issued a new guideline on how pharmacists can contribute to HIV prevention, screening, and management. Due to their expertise in medicines and their relatively high accessibility in a community, pharmacists can play essential roles in the prevention of and screening for HIV infections along with managing medications for people living with HIV. To prevent HIV infection, pharmacists can dispense and provide support with PrEP or PEP use, do HIV testing, provide strategies to reduce harm in intravenous (IV) drug users, and educate patients and their surroundings on HIV basic information, transmission, and prevention) [11].

As HIV/AIDS becomes more national and global epidemic, while the roles of pharmacists are evidently impactful for people living with HIV/AIDS in high-income countries with lower scores on power distance and collectivism compared to Indonesia [12-14], there is a window of opportunity to implement and expand the traditional roles of pharmacists in countries with high scores on power distance like Indonesia. However, the lack of national policy records to support this role is concerning. This is because the workflow in countries with high scores on power distance strongly relies on a higher level of authority or status [8,9]. This notion gives more urgency on identifying how Indonesian pharmacists currently work or deliver a service to prevent and control the HIV/AIDS burden and whether the lack of national policy records detailing the role of pharmacists in this setting contributes to the work/service delivered by the pharmacists.

CONCLUSION

Studies on the role of pharmacists in the HIV/AIDS prevention and management program in Indonesia are lacking in numbers, depth, and quality. No official national policies specified the role of pharmacists in HIV/AIDS prevention and management in Indonesia. Since pharmacists are experts on medicines and medication, including antiretroviral drugs, more research is needed to explore the role of Indonesian pharmacists in a real setting that actions can be made to optimize the reduction of the HIV/AIDS burden in Indonesia.

Authors' contribution:

MF contributed to title-abstract and full-text screening of the articles and national policy records/regulations, study selection, and drafting of the first manuscript.

ES contributed to study development, search strategy and keyword formulation, resolving disagreements in study selection, data extraction and interpretation, and the writing of the manuscript.

BP contributed to study development, search strategy and keyword formulation, title-abstract and full-text screening of the articles, consensus to resolve disagreements in study selection, data extraction and interpretation.

JVC contributed to study development and data interpretation.

SI contributed to title-abstract and full-text screening of the articles and national policy records/regulations, data extraction and interpretation, and drafting of the manuscript.

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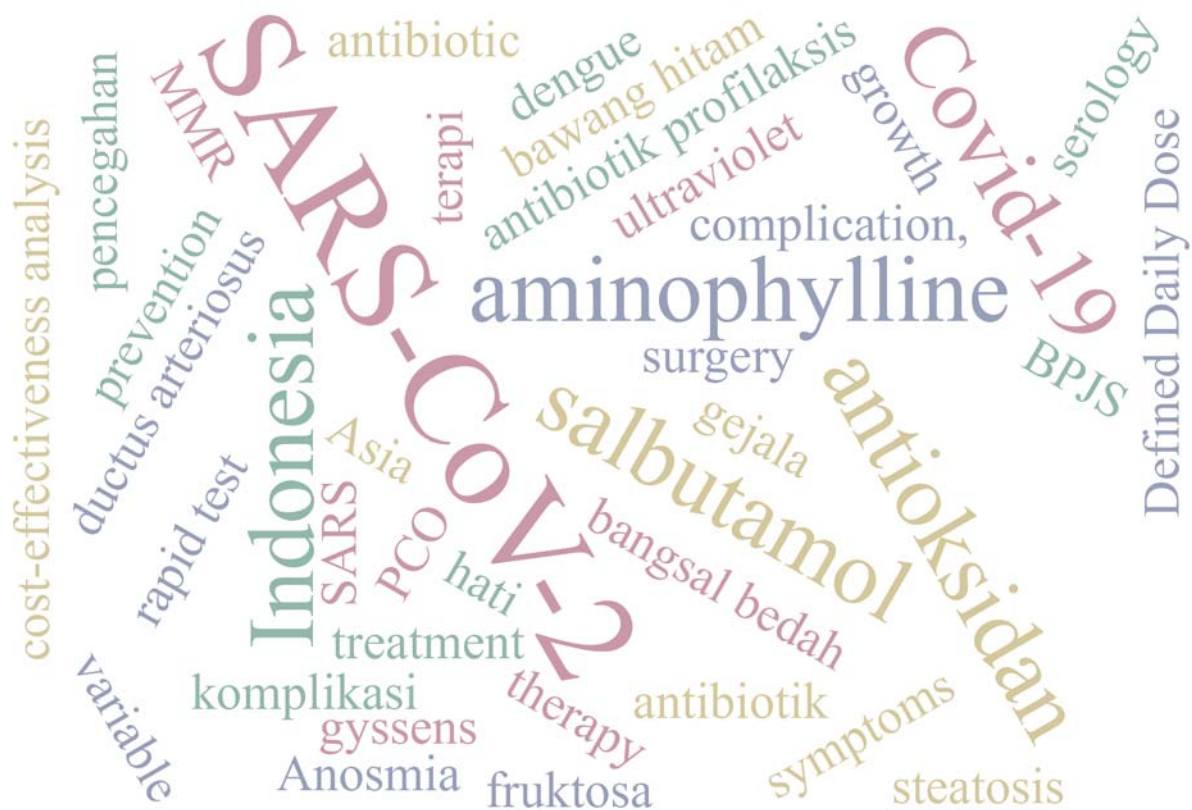
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