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Original Research

Factors Related to the Evaluation of Essential Medicines Use in Health Facilities in Indonesia

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Abstract

Background: Indonesia has recently implemented a national policy to ensure equitable access to medicines, promote their rational use, and maintain a reliable and quality supply, specifically for essential medicines. Several organizations have conducted evaluations on essential medicines use but have yielded varying results and cannot reflect the actual situation. **Objectives:** This study aims to discover the current situation regarding essential medicines and identify the most important factors to be considered during future indicator-based evaluations in health facilities in Indonesia. **Methods:** This qualitative study was carried out using FGDs and interview from January to February 2022. The sample population consisted of ten experts selected based on predetermined criteria. The discussions were recorded and transcribed verbatim in the original language, thematically coded with Nvivo, and analyzed for common themes. **Results:** This study found 32 factors related to the use of essential medicines in Indonesia, divided into three categories of components, namely access, medicine handling quality, and rational use. Furthermore, a total of 10, 8, and 14 main factors were related to access, handling quality, and rational use, respectively. The discussion provided various perspectives on measuring drug use, specifically essential medicines. Based on expert opinions, evaluating the utilization of essential medicines by relying on existing guidelines was insufficient due to superficiality and irrelevance within the Indonesian health system. **Conclusion:** Based on the results, one of the crucial factors to consider during evaluation was the accessibility of medicines, which encompassed their availability in health facilities and affordability to patients. In the era of social health insurance, medication costs had become affordable in Indonesia. However, the country's geographical conditions presented a significant challenge that affected the accessibility of essential medicine. Another major factor was the quality handling and rational use of medicines, which was closely related to the presence of health professionals in health care facilities.

Keywords: medicines use; health policy; health care facilities; drug utilization

INTRODUCTION

Several studies showed that the use of medicines was often affected by various factors, including unequal access, low quality, poor handling in warehouses, drug abuse, and medication errors.[1-3] Furthermore, the Indonesian government through its national drug policy, aims to provide quality healthcare services by ensuring access, high quality, and rational use of medications to achieve the national goal of attaining a good health status.[4,5] In line with the objectives of the policy, the Indonesian government has compiled a list of essential medicines. This compilation is crucial as it ensures equitable access and guarantees the safety, efficacy, and quality of medicines in health services, thereby promoting rational usage.[6]

The evaluation of medication usage plays a role in monitoring the implementation of national drug policies at health facilities, thereby improving healthcare services.[7] However, studies found limited data on the evaluation of drug use in Indonesia, primarily due to resource constraints and insufficient monitoring.[8] Although access to medications has been provided, inadequate knowledge among communities about proper usage can lead to irrational use.[8,9] Another study stated that the national drug policy had not effectively supported the use of essential medicines because their availability tendsed to be lower than non-essential medicines in both government and private facilities.[10]

Furthermore, several countries have adopted indicators from the World Health Organization (WHO) to evaluate the implementation of policies.[11–18] Despite all existing guidelines, issues related to drug use still persist, ranging from limited access to irrational usage, particularly in developing countries.[19] The existing evaluation indicators do not accurately depict the actual utilization of essential medicines within health facilities in Indonesia. Studies in Brazil suggest several factors that need to be considered in making pharmaceutical policies in PHC are access to the profesionals, patient's access to pharmaceutical services, appropriate use of medicines, geographical and socioeconomic conditions, PHC infrastructure, and processes of the pharmaceutical service.[20,21]

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This study specifically focuses on essential medicines used for non-communicable disease (NCD), which account for approximately 70% of deaths, particularly in low- and middle-income countries, and are exhibiting an increasing trend. Several reports showed that the availability of drugs for NCD is lower compared to infectious diseases. This discrepancy indicates that the improvement in the availability of medicines in health facilities is not optimal.[22,23] Based on Indonesia's health profile data and basic health study in 2018, hypertension and diabetes mellitus were reported to be the most prevalent NCD.[24] These conditions are chronic diseases requiring long-term treatment, underscoring the importance of ensuring access to these medications to achieve favorable therapeutic outcomes.[25,26] Therefore, this study aims to discover the current situation regarding NCD's essential medicines and identify the most important factors to be considered during future indicator-based evaluations in health facilities in Indonesia. The results of this study can serve as a foundation for improving policies related to the use of essential medicine.

METHODS

Study Setting

Indonesia's health system consisted of public and private providers and financing. The public system operated under a decentralized method, with responsibilities distributed among the central, provincial, and district governments. Furthermore, its implementation has been facilitated through the national health insurance program (Jaminan Kesehatan Nasional or JKN), which was initiated in 2014. The Ministry of Health managed certain tertiary and specialist hospitals, while the provincial government was in charge of provincial level-hospital and district healthcare services. The District/municipal governments were responsible for the management of district/city hospitals and the public health network, which consisted of primary health centers (PHC) and associated subdistrict facilities. In the private sector, several stakeholders were involved, including not-for-profit and charitable organizations that managed hospitals and clinics, for-profit providers, and individual doctors. This study focused on gathering information on the use of essential medicines in public health facilities organized through JKN.

Design

This study was designed qualitatively with Focus Group Discussions (FGDs) and in-depth semi-structured interviews. FGDs were dynamic discussions among groups of experts to obtain a deeper understanding of the expert's perspective.[24, 25] Furthermore, some individuals led dialogues that focused on the study theme and they were guided by a moderator.[26,27] Semi-structured interviews allowed participants to take the lead in discussing issues important to them.[28] FGDs and interviews were implemented to obtain in-depth information regarding the current condition of essential drug use in health facilities.

Participant Recruitment

Participants in this study were experts who have expertise in line with the study theme, and the inclusion criteria were: (i) must be pharmacists experienced in drug management and or pharmacy services for NCD at government and private health facilities; (ii) must have at least 5 years of experience; (iii) academics with scientific fields in pharmacy management, and or clinical pharmacy, and or social pharmacy; (iv) experienced practitioners in the field of essential medicines in Indonesia. Based on these criteria, the expert target purposively included key stakeholders from the Ministry of Health of Indonesia at the Directorate of Pharmaceuticals and Medical Devices, the Directorate of Health Services, the Board team for Research and Development of Health Services, and the Chairperson at an international organization with experience in pharmacy services.

The approval of the experts was sought verbally to become resource persons before scheduling the discussion. Subsequently, those who agreed filled out an online consent form to determine the discussion schedule. This study was carried out during the Covid-19 pandemic and another approval was obtained from the ethics committee through email just before the discussion began. This informed consent contained more detailed information on the FGD, the importance of the involvement of the experts' members, and the course of the study. This form was then digitally signed by each expert as proof of the willingness and approval to be involved in these discussions, and it was sent back through email.

Data Collection

Data were collected from January to February 2022 through FGDs and online interviews with several semi-structured questions. In this study, the face validity of the question guide was assessed through evaluation by 5 expert judges. Furthermore, the judges agreed that the instrument was valid and the question items in the discussion guide were suitable for measuring the concepts in this study. A total of five open-ended questions were created to focus on essential medicines for hypertension and diabetes in health facilities. The questions included are presented **Supplementary File 1**.

A total of two FGDs and one interview were held online due to the COVID-19 pandemic and lasted for approximately 90 minutes. All discussions were conducted in Bahasa Indonesia, the Indonesian national language. The first author is a lecturer and doctoral student moderator as a moderator, had a major focus on pharmaceutical management and possessed experience researching relevant objects that were pertinent to this study. Discussions were carried out with the help of two study assistants who served as note-takers and co-hosts. The online sessions were recorded and transcribed verbatim in Bahasa Indonesia. Furthermore, sentences, phrases, and words that could have different meanings were discussed. Some terms that were specific in Bahasa Indonesia were left without translation.

Data Analysis

Transcripts were analyzed with inductive qualitative content analysis using Nvivo software (Nvivo Pro edition version 12). The

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analysis was carried out in various stages: 1) the preparation stage, involving the selection of the unit of analysis and understanding the data, 2) the organizational stage, including coding, grouping, and categorizing data; and 3) the reporting stage.[27,28] Furthermore, the second, third, and fourth authors examined the categories' content to increase the reliability of the findings. All authors then had discussions to complete the coding process and generate the themes.

RESULTS

Characteristics of Participants

A total of ten experts were willing to participate in this study, as shown in Table 1, and two different FGDs were held. Furthermore, four of them attended the first FGD, including two academic experts in pharmacy management/social pharmacy, one hospital practitioner with experience in clinical pharmacy, and the Vice President of FIP Hospital Pharmacy for Southeast Asia Region and Association of Indonesian Hospital Pharmacy (Himpunan Seminat Farmasi Rumah Sakit Indonesia or HISFARSI). The second FGDs involved five participants, namely one expert stakeholder from the Indonesian Ministry of Health who had expertise in pharmaceutical policy, three academics with expertise in the field of pharmacy management/social pharmacy, and one academician who was an expert in clinical pharmacy. An in-depth interview was conducted with an academician who was an expert in pharmaceutical policy and had experience working as a provincial-level health officer.

Table 1. Demographic characteristics of experts involved in the discussions

Socio-demographic characteristics	**Categories**	**Number of experts (n=10)**
Age	31 - 40	2
	41 - 50	5
	>50	3
Gender	Male	3
	Female	7
Educational Background	Master Degree	3
	Doctoral Degree	7
Occupation	Pharmacist Academics	8
	Pharmacist Practitioners	2
Areas of expertise	Pharmacy management/ Social Pharmacy	5
	Pharmacy Policy	2
	Clinical Pharmacy	3

Table 1 showed that the majority of the experts were females, aged 41-50, and had doctorate degrees. Furthermore, all participating experts were pharmacists, and most of them were lecturers. Academicians who took part in the FGDs were from Universitas Airlangga, Universitas Pancasila, and Universitas Gadjah Mada.

The involvement of the participants provided valuable input about conditions related to the use of essential drugs and important factors in evaluating their usage. The major theme generated from this study was the use of essential medicines, the current situation in health facilities, and indicators for assessing the use of essential medicines.

The Use of Essential Medicines: The Current Situation in Indonesia

The Indonesian government was obliged to ensure that every citizen could easily access essential medicines, specifically in primary health facilities. In implementing JKN, the government determined essential medicines compiled into the national formulary (Formularium Nasional or FORNAS). Furthermore, FORNAS was provided for primary, secondary, and tertiary health facilities. The Ministry of Health annually assessed the achievement of national drug policies, specifically essential medicines. Based on previous reports, the availability of 40 key medicines should be ensured, but some health facilities often faced problems in managing the available drugs.

> There is a FORNAS for PHC, it means that health facilities must provide the medicines. The government will provide it with an e-catalog specifically for diabetes and hypertension medicines, (I think) the FORNAS is complete because (I think) this is already able to accommodate service needs. (DT, FGD 2)

The Ministry of Health also paid attention to access to essential medicine. In the beginning, it was ups and downs due to planning problems that were not balanced between the plan and its use. Furthermore, distributors also had difficulties in being able to prepare [essential medicine]. Sometimes, chronic drugs even run out of stock. (EB, FGD 1)

After the covid pandemic, all planning in 2020 was chaotic because at PHC, it was planned at the beginning of the year [proposing to the government], hence, the medicines that had been planned were inaccessible [for patients], specifically chronic disease medicines. (Why cannot it be accessed?) because non-essential medicines [for covid therapy] at that time were booming for use, this caused chronic disease medicines not to be widely accessed [not prepared by health facilities], plus physical distancing rules, patients did not visit PHC, and there was excess stock. (AH, FGD 1)

The cost of essential medicines for NCD in Indonesia was included in the JKN program. The JKN system regulated the cost of medicines for every primary health care level up to referrals. It also provided efficiency benefits for patients in terms of the cost of medicines. The experts in this study stated that the financing mechanism in Indonesia's current JKN era could reduce the out-of-pocket incidence, as the cost of medicines had reduced. However, one of the major challenges was the inability of patients to access health facilities due to the influence of Indonesia's geographical conditions. Some of the causal factors included the distance to the nearest health facility, difficult road conditions, and the pandemic conditions. In Indonesia, the concept of affordability was associated with the accessibility of medication, which was hindered by the distance between patients and health facilities.

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Maybe JKN does not affect patient spending for medicine [in health facilities] because it is all covered in the program [JKN]. (DA, Interview)

Affordability, in this case, is not solely about cost but how patients can obtain it [medicines] because there may be obstacles, such as distance [home to the nearest health facility] and isolation [the Covid-19 pandemic]. (SAK, FGD 1)

...affordability, yes, it is more about distance access. That is an important point. In the era of the pandemic, distance is a problem, we cannot meet face-to-face. (YS, FGD 2)

The Main Component of the Evaluation of Essential Medicine Use

The aim of implementing the national drug policy (Kebijakan Obat Nasional or KONAS) was to ensure access to affordable essential medicines, prevent wrong use and drug abuse, as well as support rational usage[4]. The implementation of KONAS nationally had an impact on medicines use by health facilities.

An evaluation was carried out independently and also by the government to determine the actual condition of the use of essential medicines. Based on discussions with experts, three categories of components that could be used to evaluate the use of these drugs were generated. These components included access to medicines for patients, the quality of handling, and the rational use by health facilities. The development of the component categorization is presented in Figure 1.

This study collected a total of 32 main factors related to the main components, which were then categorized based on these components.

Factors Related to the Evaluation Components of Essential Medicines Use

The results obtained a total of 32 main factors from the expert discussion, which were classified into three main components. Furthermore, a total of 10, 8, and 14 factors were related to medicines access, quality of handling in health facilities, and rationality, respectively. The details of the categorization results are presented in Figure 2.

Access to Essential Medicines

Accessible medicines referred to the availability of medications in a health facility when they were needed at affordable costs. Result discussion showed that the cost of medicines had become more affordable in the JKN Era. Experts in this study agreed that the problem associated with affordability was not only due to the cost of medicines but also distance. Indonesia's geographical conditions had caused limited access to medicines for patients living at distant locations from health facilities. The issue of distance also made it difficult for drug distributors to supply medications. Considering these geographical conditions, health facilities must ensure that medicines are available by guaranteeing an adequate drug procurement process.

Well, the problem with access is maybe not being able to come to a health facility, hence, you do not comply with the use of the medicine. (NNG, FGD 1)

Drug supply must be maintained to ensure patients get the drug as needed. (I think) it is more suitable with conditions in Indonesia, to ensure buffer stocks and safe stocks of medicines in health facilities. (SAK, FGD 1)

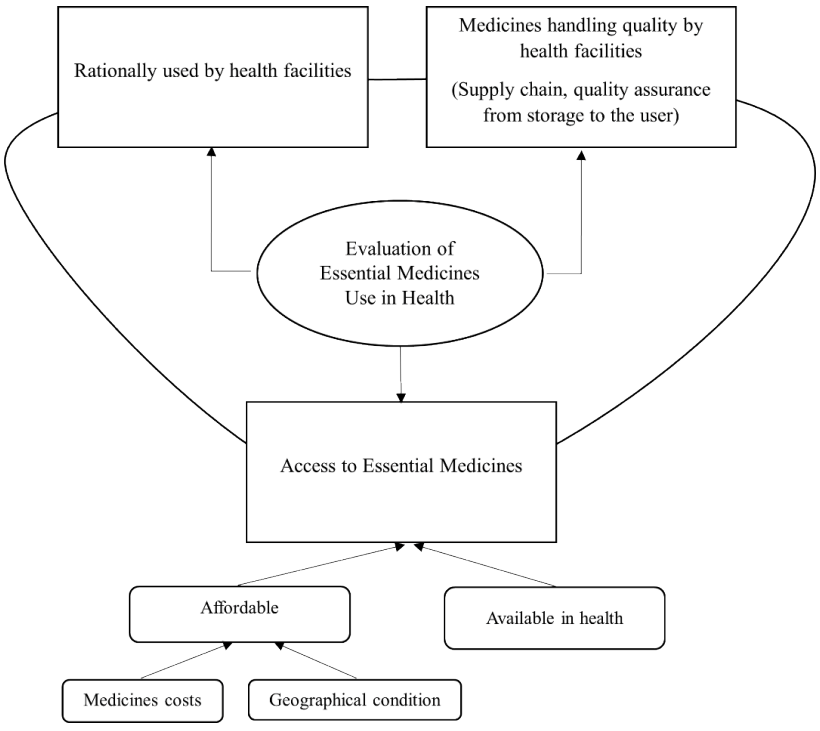

Figure 1. Development of components related to essential medicine use evaluation

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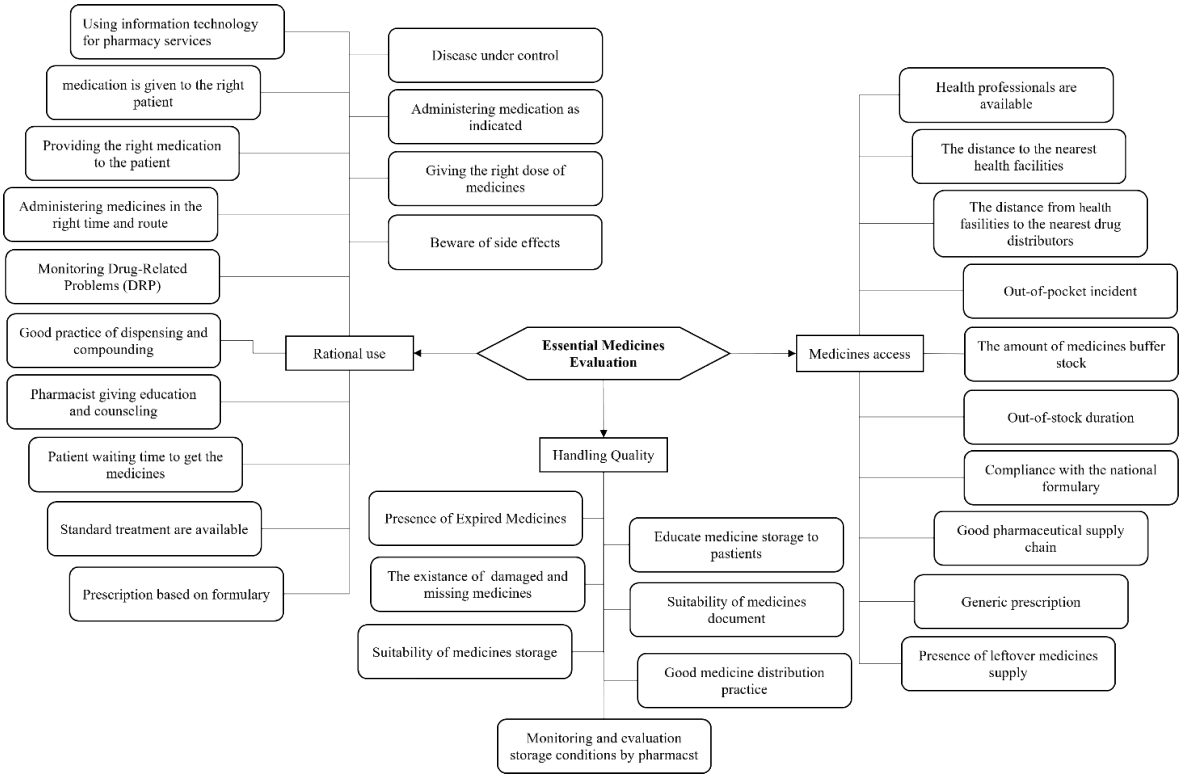

Figure 2. Domain Categories and Related Factors to Evaluate Essential Medicine Use

From the health facility perspective, this means the ability of the health facility to provide logistics [medicines]. (DA, interviews)

Quality of Handling the Essential Medicines

Evaluation of essential medicines was a complex process because it involved upstream and downstream drug management activities. Therefore, evaluation should be carried out thoroughly for all processes. The quality of handling by health facilities could affect the quality of medication received by patients. Medicine management also influenced the quality of drugs handled by health facilities.

The quality handling was often carried out in three stages, including input, process, and output. Each stage should be monitored and evaluated regularly to ensure that the quality of medicines in health facilities was guaranteed. In the health facility, the quality assurance process included planning and receiving drugs (input), storage process (process), and until the medications were ready to be given to the patient (output). The role of pharmacists in assuring the high standard of medicines in the management process was crucial in Indonesian health facilities, specifically in PHC.

Quality is the condition of the medicine from the process of receiving it until it is stored and until it is given [to the patient], hence, it is a supply chain... whether there is a quality assurance system in pharmacy (EB, FGD 1)

It is possible to have quality assurance right in drug handling to maintain the quality of the medicine, right, before it is given to patients, right? Quality assurance that starts with recording and matching [list of purchases with incoming drugs]. Therefore, what was done at the beginning when the item arrived was to match it, look at the physical appearance, and check the expiration date. Sometimes, it is not good [the condition of the medicines] when they arrive. (DA, interview)

Rational Use of Medicines

In addition to adequate access and quality drug handling, rationality was the endpoint for quality assurance of medicines in health facilities before the drugs were received and consumed by patients. The expert stated that rationality had not been included in the national policy in Indonesia. This indicated that it could be considered in conducting evaluations in health facilities. According to the participants, evaluating medicines in terms of rational use could provide information on the appropriate management and delivery of drugs in line with quality assurance. Furthermore, the absence of a pharmacist could lead to failure of patient therapy because they often helped in ensuring the quality of the medicines being administered, prepared, and given to patients. The therapeutic outcome achieved was demonstrated by indicators of the patients' disease being controlled, such as blood pressure or blood sugar. Controlled diseases were outcome indicators that could comprehensively describe rationality.

...hence, the medicine is not only in terms of the dosage form, which is safe, effective, and of good quality, but how it (medicines) can be served and used correctly. Rationally, safely, and effectively, it can also be served. Therefore, if we talk about

our national drug policy, it is true that [rationality] is not in it yet. It has not yet included the quality use of medicine. (AH, FGD 1)

The experts stated that the majority of evaluations adopted WHO guidelines, but measurement indicators were difficult to apply in remote areas. The evaluation results showed that the use of drugs was still below the standard, with no significant outcome. Therefore, rationality measurements must be adjusted to represent all conditions.

If we talk about rationality, it is used precisely according to indications, according to the dosage, according to other needs, hence, that is it. Just selecte which one would provide the most leverage. (DT, FGD 2)

I was once in the hospital. I was on a survey by WHO to see how many drugs were in the prescription, I only took thirty prescriptions. Statistically, it is not representative of big hospitals (tertiary health facilities). My hospital has thousands of prescriptions a day, hence, [the survey] is straightforward, right? It still does not reflect true rationality. It depends on the case too. If we talk about the simplest rationale, it is right on the patient, the medicine, etc. (YT, FGD 1)

DISCUSSIONS

This study highlighted the problems related to essential medicines in Indonesian health facilities. These problems had the potential to serve as a foundation for developing standards to assess essential medicines based on the specific conditions within the health facilities. Figure 1 illustrates the multiple factors contributing to the difficulties surrounding these drugs in Indonesia. Furthermore, establishing a list of Indonesian essential medicines was a strategy to achieve the goals of the national drug policy in ensuring access in terms of availability, equity, and affordability along with aspects of safety, efficacy, and quality. The implementation of KONAS was influenced by several factors, indicating that an evaluation was needed to ascertain optimal health services.

Indonesia's geographical conditions affected the process of health services, specifically pharmaceutical services in rural areas with difficult access. Several reports also showed that the medicine management system in the JKN era had limitations. The capitation system and e-catalog turned out to be a problem when there was an increase in the price of drugs or other service costs without a corresponding increase in the capitation fee for health facilities. Consequently, the additional expenses were passed down to patients, who were often unable to afford them. Based on these findings, additional spending on pharmaceutical services could serve as an indicator in evaluation. The geographical conditions in remote areas contributed to extended procurement processes, further complicating the timely availability of medicine.

Pharmacists had an important role in ensuring that the medicines received were still in good condition. They must also guarantee safe, effective, and quality medication for patients. Despite the significant roles of pharmacists, the experts in this study stated they were absent in pharmaceutical services at PHC, specifically in rural areas. Access to pharmacists in PHC is a fundamental component of health services, and is a key goal in universal health coverage in equitable access and appropriate medicines use.[29–33]

In line with the findings of this study, other studies considered three main factors as the policy goals for essential medicines in pharmaceutical services, namely access, quality, and rational use. Furthermore, the procurement and distribution of these drugs was a consideration in realizing the appropriate supply of high quality of medicines.[34,35] Studies in China found that drug access was influenced by prices, where low-priced medications for chronic diseases tended to have high availability.[11]

Based on previous reports, geographical factors also caused unequal access, specifically to essential medicines for patients with chronic diseases in rural areas.[36–38] Other studies showed that the availability of medicines in health facilities directly impacted the ability of households to access medicine, where out-of-stock drugs could lead to higher costs.[39–44] During the implementation of pharmaceutical policies, attention must be paid to the supply chain of medicines involving drug selection, supply, procurement, distribution, use of medicines, supporting regulations, and the system of finance. This process was the basis for ensuring the constant supply of essential medications.[34,39,45–49]

The findings of this study was consistent with previous reports that health facilities' access to pharmaceutical distributors was also an important indicator of accessibility. Several distributors had difficulty providing medicines due to the low-profit margins, causing a shortage of drugs supplied.[50] Other studies used indicators of availability and affordability, physical availability of essential medicines, and prices to evaluate the use of these drugs.[38,51–53] Another study measured the catastrophic expenditure to assess the affordability of drugs.[52,54,55] Medicine access could be seen from the aspects of quality, geographical availability, and rational use.[56,57] High-quality drug utilization was associated with the use of essential medicines. Despite the potential health impact, irrational use of drugs and poor quality were imperative factors that must be considered.[44,57,58]

Based on the results of this study, rational drug use by health facilities was an outcome indicator in the evaluation of essential medicines. Similar findings were also obtained by a previous study, stating that one of the critical factors to consider in determining the use of drugs was the qualifications of health professionals and pharmacists.[59–62] The presence of pharmacists was crucial because it could affect patient adherence and generate positive health result.[62–64]

According to several studies, others factors related to evaluating essential medicines was the poor performance in the rational usage. Irrational use of medication in health facilities had a relationship with the welfare of health professionals.[45,62] Based on a study in Brazil, physical availability, geographic access, promotion of rational usage, controlled disease[65], and supply chain[66,67] were essential factors that must be considered by the government to provide pharmaceutical services in line with

health policy goals.

Some of the limitations of this study included the low number of participants, specifically in the practitioner group, as well as the brevity of FGDs due to the time constraints of the experts. Furthermore, the results were not readily adaptable to other countries due to significant differences in healthcare systems and regulations.

CONCLUSIONS

Evaluation of essential medicines often involved examining access, including the availability and affordability of drugs in health facilities, quality handling, and rational use, which had posed a significant challenge. The results of the study found various factors that could be used as comprehensive evaluation materials for improving services at health facilities. In the era of universal health coverage, the majority of drugs were affordable, but the critical aspect was the possibility of geographical constraints limiting accessibility. Furthermore, this study revealed that the most significant determining factor in the quality of drug handling and rational use was the presence of pharmacists or professionals in health facilities. A total of 32 main factors that must be considered for evaluating essential medicines were obtained from the results. The results of this study could be considered for developing an evaluation instrument for medicines use. This result also provide a key message that the policymakers need to update indicator-based evaluation guidelines by considering Indonesia's current conditions, specifically geographical factors, affecting the use of medicines in health facilities.

ETHICAL APPROVAL

Ethical approval was obtained from the Medical and Health Research Ethics Committee (MHREC), Faculty of Medicine, Public Health and Nursing Universitas Gadjah Mada-DR. Sardjito General Hospital with approval number KE/FK/1063/EC/2022.

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AUTHORS' CONTRIBUTIONS:

Atika Dalili Akhmad- Conceptualization, data curation, investigation, formal analysis, visualization, writing-original draft, writing- review & editing draft; Satibi- Conceptualization, methodology, Funding acquisition, validation, writing- review & editing draft; Dwi Endarti- Project administration, supervision, validation, writing- review & editing draft; Susi Ari Kristina- Data curation, formal analysis, supervision, validation, writing- review & editing draft.

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Factors Related to the Evaluation of Essential Medicines Use in Health Facilities in Indonesia

Supplementary file 1: **Focus Group Discussion and Interview Guide in English**

Table S1. Focus Group Discussion and Interview Guide in English

No.	Questions
1	What are your views about essential medicines, especially for hypertensive and diabetes medicine?
2	What do you think about measuring access to essential medicines for hypertensive and diabetes medicines in health facilities?
3	What do you think about the management of essential medicines for hypertensive and diabetes medicines in health facilities?
4	What do you think about the use of hypertensive and diabetes medicines by health facilities?
5	What factors must be considered in evaluating essential medicines in health facilities, especially for hypertensive and diabetes medicine?

Supplementary file 2: **COREQ Checklist for Reporting the Study**

No. Item	**Guide questions/description**	**Reported on Page #**
Domain 1: Research team and reflexivity		
Personal Characteristics		
1. Interviewer/facilitator	Which author/s conducted the interview or focus group?	Page 8 / paragraph 2
2. Credentials	What were the researcher's credentials? E.g. PhD, MD	Acknowledgements/Title page
3. Occupation	What was their occupation at the time of the study?	Page 8/ paragraph 2
4. Gender	Was the researcher male or female?	Not reported on page
5. Experience and training	What experience or training did the researcher have?	Page 8 / paragraph 2
Relationship with participants		
6. Relationship established	Was a relationship established prior to study commencement?	Not reported on page **Yes**
7. Participant knowledge of the interviewer	What did the participants know about the researcher? e.g. personal goals, reasons for doing the research	Page 8 / paragraph 2 **Participants were briefed on the purpose of the study and understood it. Ethical had granted, participants reviewed the participant information documentation prior to giving their written informed consent to be involved.**
8. Interviewer characteristics	What characteristics were reported about the inter viewer/ facilitator? e.g. Bias, assumptions, reasons and interests in the research topic	Page 8 / paragraph 2
Domain 2: study design		
Theoretical framework		
9. Methodological orientation and Theory	What methodological orientation was stated to underpin the study? e.g. grounded theory, discourse analysis, ethnography, phenomenology, content analysis	Page 8 / paragraph 3

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Participant selection		
10. Sampling	How were participants selected? e.g. purposive, convenience, consecutive, snowball	Page 7 / paragraph 2
11. Method of approach	How were participants approached? e.g. face-to-face, telephone, mail, email	Page 7 / paragraph 3
12. Sample size	How many participants were in the study?	Page 8 / paragraph 4
13. Non-participation	How many people refused to participate or dropped out? Reasons?	**None**
Setting		
14. Setting of data collection	Where was the data collected? e.g. home, clinic, workplace	**Online meeting via Zoom app**
15. Presence of non-participants	Was anyone else present besides the participants and researchers?	**No**
16. Description of sample	What are the important characteristics of the sample? e.g. demographic data, date	Table 1
Data collection		
17. Interview guide	Were questions, prompts, guides provided by the authors? Was it pilot tested?	Page 8 / paragraph1 (supplementary file)
18. Repeat interviews	Were repeat inter views carried out? If yes, how many?	**No**
19. Audio/visual recording	Did the research use audio or visual recording to collect the data?	Page 8 / paragraph 2
20. Field notes	Were field notes made during and/or after the interview or focus group?	Page 8 / paragraph 2
21. Duration	What was the duration of the inter views or focus group?	Page 8 / paragraph 2
22. Data saturation	Was data saturation discussed?	Page 8 / paragraph 3
23. Transcripts returned	Were transcripts returned to participants for comment and/or correction?	**No**
Domain 3: analysis and findings		
Data analysis		
24. Number of data coders	How many data coders coded the data?	**One (The author)**
25. Description of the coding tree	Did authors provide a description of the coding tree?	**None**
26. Derivation of themes	Were themes identified in advance or derived from the data?	Page 8 / paragraph 3 **Themes were derived from the data**
27. Software	What software, if applicable, was used to manage the data?	**Nvivo pro edition version 12**
28. Participant checking	Did participants provide feedback on the findings?	**Yes**
Reporting		
29. Quotations presented	Were participant quotations presented to illustrate the themes/findings? Was each quotation identified? e.g. participant number	**Yes**
30. Data and findings consistent	Was there consistency between the data presented and the findings?	**Yes**
31. Clarity of major themes	Were major themes clearly presented in the findings?	Figure 2
32. Clarity of minor themes	Is there a description of diverse cases or discussion of minor themes?	No