Medical Sains : Jurnal Ilmiah Kefarmasian
Vol. 9 No. 4, October - December 2024
https:/ojs.ummada.ac.id/index.php/iojs

NARRATIVE REVIEW: DRUG AVAILABILITY IN HEALTHCARE SERVICES IN INDONESIA

Yanna Sagitasari[1*], Anna Wahyuni Widayanti[2], Endang Yuniarti[3,4]
[1]*Master of Pharmacy Management, Gadjah Mada University, Indonesia,*
[2]*Department of Pharmaceutics, Faculty of Pharmacy, Gadjah Mada University, Indonesia,*
[3]*Department of Pharmacy PKU Muhammadiyah Hospital Yogyakarta, Indonesia*
[4]*Pharmacy Program, Muhammadiyah Gombong University, Indonesia*
**Email Corresponding: yannasagitasari@mail.ugm.ac.id*

Submitted: May 6, 2024 ***Revised: October 24, 2024*** ***Accepted: October 27, 2024***

ABSTRACT

This narrative review delves into the availability of drugs within Indonesia's healthcare services, analyzing 11 articles to uncover prevalent issues such as drug shortages, inadequate planning, and various factors influencing drug availability. This review underscores the critical need to ensure sufficient drug availability to enhance patient safety across healthcare settings. By examining journal articles, this review sheds light on the multifaceted aspects of drug availability, including planning management and the methods employed to evaluate their ability. The findings provide valuable insights into improving strategies for drug availability in hospitals and primary health care centers in Indonesia. This study found that out of the 11 articles reviewed, six reported insufficient drug availability, highlighting significant challenges in ensuring consistent access to necessary medications across different healthcare settings, including both primary healthcare centers and hospitals. Furthermore, the study identified geographical disparities in drug availability, with studies conducted outside Java Island reporting more severe drug shortages than those within Java Island. In summary, this study highlights the complex interplay between factors affecting drug availability in Indonesia, including geographical location, supply chain management, and procurement practices. This underscores the need for targeted interventions to address these challenges and improve drug availability across the healthcare system.

Keywords: drug availability in Indonesia, patient safety, drug procurement in Indonesia, drug shortage.

INTRODUCTION

Access to essential medicines is a fundamental component of healthcare systems worldwide and directly influences patient safety and treatment outcomes. According to (Perehudoff *et al.*, 2020), essential medicines must be available, affordable, and of adequate quality, forming a key pillar for achieving Universal Health Coverage (UHC) in Indonesia (Wasir *et al.*, 2023). Universal access to medicines is an integral part of the Sustainable Development Goal (SDG) 3 for health, particularly SDG Target 3.8 for UHC (Milani and Scholten, 2011). Paying out of pocket for medicines places a significant burden on people in low- and middle-income countries (LMICs), where medicines account for up to 67% of public and private health expenditures. In this context, 50–90% of medication costs are borne by patients due to inadequate financial coverage or incomplete UHC. The World Health Organization (WHO) define UHC as "ensuring that all people have access to needed health services (including prevention, promotion, treatment, rehabilitation, and palliation) of sufficient quality to be effective while also ensuring that the use of these services does not expose the user to financial hardship" (Bigdeli *et al.*, 2015). Indonesia, a country with

diverse geography and a complex healthcare system that ensures drug availability across healthcare facilities, poses significant challenges. These challenges include drug shortage, poor planning, and other factors that influence drug availability. Addressing these issues is critical, as they directly affect the quality of patient care and overall effectiveness of healthcare services. The increasing demand for improved pharmaceutical services for patients and communities has driven a significant shift. From the traditional product-focused (drug-oriented) paradigm to a new one that prioritizes the interests and needs of patients (patient-oriented). This transformation emphasizes the importance of clinical pharmacy management in hospitals, focusing on enhancing the service quality provided to patients (Musdalipah *et al*., 2017).

Previous studies have explored different aspects of drug availability, including planning, management, influencing factors, and evaluation methods. However, a comprehensive review that consolidates these findings, particularly within the Indonesian context, is lacking. This narrative review aimed to fill this gap by examining drug availability in Indonesia's healthcare services. By analyzing 11 articles, this study identified critical issues and potential strategies to improve drug availability across healthcare facilities. These findings contribute to improving healthcare outcomes in Indonesia by ensuring that patients have access to essential medications.

The primary objective of this review was to systematically review and synthesize the existing literature on drug availability in Indonesia's healthcare services, focusing on key issues and influencing factors. In addition, we provide a comprehensive overview of drug availability in hospitals and primary healthcare centers while proposing potential strategies for improvement. This review consolidates and enhances individual studies that have explored aspects of drug availability to provide a holistic understanding of the Indonesian context. Unlike previous studies that focused on specific drugs or healthcare settings, this review encompasses a broader spectrum, including various types of medications and healthcare facilities across different contexts, offering new insights into the factors influencing drug availability and potential strategies to address these challenges. The theoretical framework underlying this study includes concept related drug to management supply chains within healthcare systems, as well as the impact of drug availability on patient safety and treatment outcomes. Previous studies have indicated that drug availability can be influenced by both drug management practices and doctor-related factors, highlighting the importance of an effective drug management system. This study builds on this foundation by exploring these issues within the specific context of Indonesia's healthcare system, thereby contributing to the body of knowledge on healthcare management and drug supply chain issues in developing countries. This study contributes to the existing literature by providing a comprehensive analysis of drug availability in Indonesia's healthcare services, identifying key challenges and factors influencing drug availability, and suggesting potential strategies for improvement.

RESEARCH METHOD

The research methods employed in this study were meticulously designed to ensure a comprehensive and systematic review of the literature on drug availability in healthcare facilities in Indonesia. The methodological framework was divided into distinct sections, each tailored to address a specific aspect ofthe research progress, ensuring clarity and rigor throughout the study.

Tools and Materials

The literature search was conducted using two journal databases: PubMed and the Garuda portal. The key words used for the search were (Drug availability) and (Indonesia) and "ketersediaan obat di Indonesia."

Article Selection Criteria

The retrieved journal articles were filtered using the predetermined inclusion and

exclusion criteria.
The inclusion criteria were as follows.
1. Articles published in the last five years (2019–2023)
2. Full text articles that are openly accessible (free)
3. Articles based on original research

The exclusion criteria were as follows.
1. Articles with titles, abstracts, and contents were irrelevant to the research objectives.
2. Research conducted outside healthcare facilities (e.g., hospitals and health centers)
3. Articles written in languages other than English and Indonesian
4. Duplicate articles.

The selection process is presented in the PRISMA flowchart shown in Figure 1. Based on the inclusion and exclusion criteria, 11 articles were selected for review.

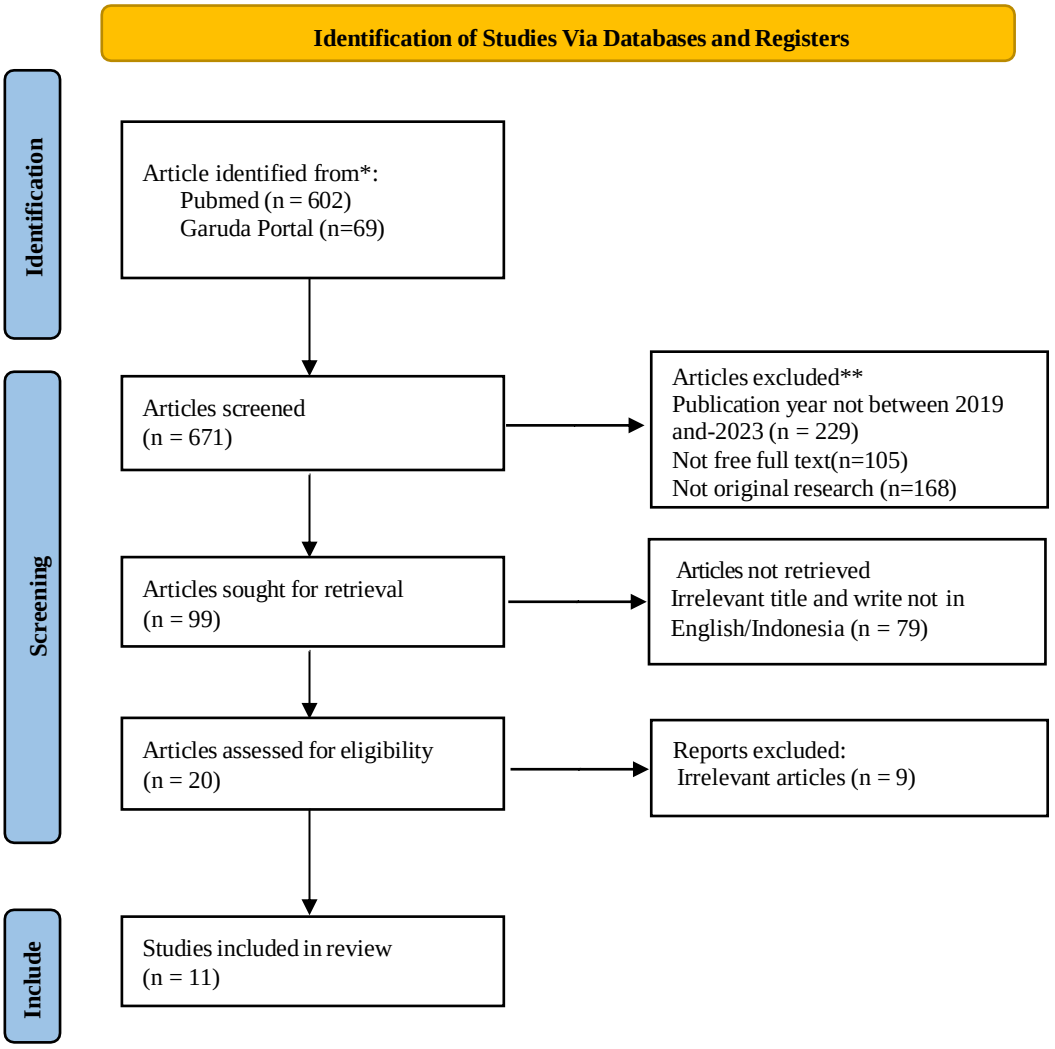

Figure 1. PRISMA flowchart

Research Procedure

Validity is the degree to which data accurately reflect true information (Drost, 2011). In literature review, validity can be achieved by selecting reliable and high-quality literature sources. In this study, inclusion criteria were established to filter the articles, thereby ensuring data validity.

The data analysis was conducted in the following stages (Goertel, 2023):

1. Data reduction involved reading all the selected articles.
2. Notes: Notes were taken for each article based on the conceptual framework of this study. Additional findings that could contribute to the synthesis of new insights into predetermined topics were also recorded (Younas and Ali, 2021).
3. Thematic grouping: Notes were categorized into themes, which were then developed into thematic concepts based on the selected articles
4. Data presentation and conclusion drawing: Data were presented using graphs, tables, and narrative summaries, as is commonly used in systematic reviews (Cumpston *et al*., 2022).

RESULT AND DISCUSSION

(1) Description

Article 1 selected the articles, as shown in Table I. The selected articles will be published between 2019 and 2022. In term of study design, five articles used analytical designs (Hanjaya *et al*., 2021; Huda *et al*., 2020; Irnawati *et al*., 2020; Puspitawati *et al*., 2021; Satibi *et al*., 2021), with two articles being experimental analytical (Irnawati *et al*., 2020; Puspitawati *et al*., 2021). Meanwhile, the remining six articles used descriptive analysis designs with three articles adopting a qualitative approach, (Amiruddin and Septarani, 2019; Capritasari and Kurniawati, 2021; Rezeki *et al*., 2021), and other three adopting a quantitative approach, (Dyahariesti and Yuswantina, 2019; Timpua *et al*., 2021; Yunarti, 2022). Five studies were conducted in primary healthcare centers (Amiruddin and Septarani, 2019; Huda *et al*., 2020; Rezeki *et al*., 2021; Satibi *et al*., 2021), whereas the other six were conducted in hospital settings (Capritasari and Kurniawati, 2021; Dyahariesti and Yuswantina, 2019; Hanjaya *et al*., 2021; Puspitawati *et al*., 2021; Timpua *et al*., 2021; Yunarti, 2022). Several articles investigated multiple locations (Rezeki *et al*., 2021), examined four primary healthcare centers (Huda *et al*., 2020), investigated 30 primary healthcare centers, and (Satibi *et al*., 2021) explored 28 primary healthcare centers. In terms of drug specifications, the majority of the articles investigated various types of medications. However, some studies have focused on specific categories such as antibiotics (Timpua *et al*., 2021), antihypertensive drugs (Huda *et al*., 2020), and chemotherapy drugs (Puspitawati *et al*., 2021). In previous studies, antibiotics, antihypertensives, and chemotherapy drugs were classified based on their therapeutic use.

Table I. Result of Article Search

No	Author, Year	Study Design	Location	Drug Specification	Methods	Drug Availability	Related Factor
1.	(Amiruddin and Septarani, 2019)	Qualitative descriptive	"Meo-meo Community health center Bau-Bau City"	All drugs	Consumption, morbidity projection	Drug availability falls under the procurement stage at the community health center. However the procurement process of drugs in the community health center does not align with the practices of Health Department and the Pharmaceutical Installation. The lack of drug availability results in drug shortages that can be detrimental to the health center. Many prescriptions cannot fulfilled, leaving patients without the necessary medications.	
2.	(Capritasari and Kurniawati, 2021)	Qualitative descriptive	Adelia Surgical Hospital Yogyakarta		"ABC" Analysis	A gap in drug availability based on the ABC analysis, can lead to potential losses for the hospital. Inadequate drug planning recording system hinders effective monitoring and evaluation processes.	
3.	(Timpua *et al*., 2021)	Qualitative descriptive	Talaud Island Regional General Hospital	Antibiotic drugs	Customization with hospital formulary	The research conducted between June 2019 and May 2020 found that, 99.46% of antibiotic prescriptions were fulfilled, with a vacancy rate of 0.54%. Out of the 35 antibiotic drug items, 37.14% 13 items had expired, while 62.86% 22 items did not reach their expiration date. 14.28% 5 were not prescribed, while 85.72% 30 were prescribed. Based on these variables (62.86%–99.46%), antibiotic availability at Talaud Island Regional General Hospital between June 2019 and May 2020 was considered good.	
4.	(Dyahariesti and Yuswantina,	Qualitative descriptive	"X" Hospital in Semarang	All drugs	Calculating the amount of drug stock (x) plus	At the distribution stage, the drug availability rate was 27.4 months.	

No	Author, Year	Study Design	Location	Drug Specification	Methods	Drug Availability	Related Factor
	2019)				drug usage for one year (y) divided by the average drug usage per month.		
5.	(Rezeki *et al*., 2021)	Qualitative Descriptive	Four health center in "X" district	All drugs	Comparison between availability and formulary	The conformity of available drug items with the Formulary of the Health Department of District X range from 93.46% to 98.57%; the accuracy of drug requests was 114% to 416%; the accuracy of drug acceptance was 76% to 128%; drugs not prescribed for six months ranged from 1.3% to 31.57%; generic drug prescription range from 94.72% to 100%; and the percentage of damaged drugs was 0% to 17.37%. These finding indicates that drug management at the four health centers has not meet the established standards.	
6.	(Irnawati *et al*., 2020)	Experimental analytic	Health center "X" in North Buton Regency	All drugs	Calculating drug requirement with consumption pattern	Pre intervention data showed that the majority of drug availability was categorized as insufficient (87%).	Drug availability with the assistance from drug management officers at the community health center ($p<0.05$).
7.	(Huda *et al*., 2020)	Observational analytic	30 health centers in Bandar Lampung City	Anti hypertensive drugs	Comparison between availability with demands	The majority of anti-hypertensive drugs showed an insufficient supply compared to demand (60.9%)	Simultaneously, doctor's prescriptions, antihypertensive drug availability, patient visits, and the number of antihypertensive drugs received by patients significantly influenced the type and quantity of antihypertensive drugs needed ($p < 0.05$ calculated F value

No	Author, Year	Study Design	Location	Drug Specification	Methods	Drug Availability	Related Factor
							(17.882) > tabled F value (4.53)).
8.	(Hanjaya *et al*., 2021)	Observational analytic	Dr Pirngadi Regional General Hospital Medan	All drugs	Combination Method	Some drugs out of were out of stock for more than a month, and frequent shortages were often caused by delayed deliveries. The drug availability rate was 92.7%, with a yearly drug utilization rate of 75%, and a stock of 25% for the next three months. Meanwhile, the drug distributor adhered to the established plan and could be replaced by another distributor if the required stock was not available through the e-catalog process. The waiting time for the ordered drugs to arrive at the hospital from the distributor range from one day to one month.	The findings that drug availability influenced by both drug management and doctor-related factors.
9.	(Puspitawati *et al*., 2021)	Experimental Analytic	Dr. Ramelan General Hospital Surabaya	Chemotherapy drugs	Morbidity projection	The 2018 planning for chemotherapy drugs at Dr. Ramelan revealed that 14.8% drugs were categorized as safe, 11% as excessive, 63% as insufficient, 3.7% as out of stock, and 7.4% as unused. The high percentage of drugs in the insufficient category indicates that the existing drug planning method was not effective.	Planning drug needs using the morbidity method can better ensure the availability of chemotherapy drugs and minimize drug shortages compared to the existing methods at Dr. Ramelan Hospital.
10.	(Yunarti, 2022)	Qualitative descriptive	"X" Karanganyar Hospital	All drugs	Customization with hospital formulary	Out of total of 892 available drug types, 62 were not listed in the hospital formulary, resulting in a prescription conformity percentage of 93.04%. This conformity percentage not yet meet the standard as regulated by the Ministry of Health.	
11.	(Satibi *et al*., 2021)	Observational analytic	28 primary Health centers in Central Java Province,	All drugs	Average availability = total stock in one month dividedby	The availability of essential obstetric care drugs was 75.56% for antibiotics, 73.56% for live-saving drugs, and 96.95% for supplements. Overall, the stockout percentage 22.35%.	The factors influencing drug availability included inadequate staffing, inconsistent electronic procurement systems, and a lack

No	Author, Year	Study Design	Location	Drug Specification	Methods	Drug Availability	Related Factor
			Indonesia		30	Approximately 46.87% of the total items were out of stock for more than 30 days. 15 expired drug items had an estimated value of USD 970 annually.	of training.

(2) Interpretation

The findings revealed that various methods were used to measure drug availability in healthcare facilities, including consumption, morbidity, formulary-based methods, and several others. A detailed explanation of each method is provided below.

1. Consumption Method: This method evaluates drug availability based on the actual consumption of drugs over a certain period. It relies on records of drug distribution and consumption to estimate availability.
2. Morbidity Method: This method estimates drug availability by comparing the need for drugs (based on disease incidence) with the actual stock available in the facility.
3. Formulary-Based Approach: This approach assesses whether the drugs listed in a healthcare facility's formulary are available on-site. It assesses the alignment of the formulary with the facility's stock and demand for patients.
4. Other Methods: These include patient surveys, physical stock audits, or a combination of methods to provide a more comprehensive picture of drug availability.

Of the 11 articles, nine articles employed the consumption method to assess drug availability (Amiruddin and Septarani, 2019; Dyahariesti and Yuswantina, 2019; Hanjaya *et al*., 2021; Huda *et al*., 2020; Irnawati *et al*., 2020; Puspitawati *et al*., 2021; Rezeki *et al*., 2021; Timpua *et al*., 2021; Yunarti, 2022). This method followed the guidelines established by the Directorate General of Pharmacy and Medical Devices of the Ministry of Health of the Republic of Indonesia in collaboration with the Japan International Cooperation Agency (JICA) in 2010. Three of the 11 articles employed the morbidity method to assess drug availability in healthcare facilities (Amiruddin and Septarani, 2019; Puspitawati *et al*., 2021). In this case, the morbidity method was combined with the consumption method to enhance the accuracy of the drug availability assessments by providing a more comprehensive view. The morbidity method estimates drug needs based on disease incidence and identifies the potential gaps between demand and supply. The consumption method tracks actual drug use and reveals the trends and patterns in drug utilization. By integrating both approaches, healthcare facilities can more accurately predict drug requirements, optimize inventory management, and ensure that both current and future needs are met, including the risk of stockouts or overstocking. Other methods used include ABC analysis (Capritasari and Kurniawati, 2021) and descriptive calculations of the averagedaily drug stock (Satibi *et al*., 2021).

Table II. Tabulation of Measurement Methods in Articles

No	Author, Year	Consumption Method (Formulary Needs)	Morbidity	Others
1	(Amiruddin and Septarani, 2019)	Yes	Yes	
2	(Capritasari and Kurniawati, 2021)			"ABC" analysis
3	(Timpua *et al*., 2021)	Yes		
4	(Dyahariesti and Yuswantina, 2019)	Yes		
5	(Rezeki *et al*., 2021)	Yes		
6	(Irnawati *et al*., 2020)	Yes		
7	(Huda *et al*., 2020)	Yes		
8	(Hanjaya *et al*., 2021)	Yes	Yes	
9	(Puspitawati *et al*., 2021)	Yes	Yes	
10	(Yunarti, 2022)	Yes		
11	(Satibi *et al*., 2021)			Average daily stock

Identification Drug Availability

Based on Table I, it is evident that drug availability in healthcare facilities varies significantly. Six out of 11 articles reported drug availability 'less' category drug availability for example drug availability at Meo-Meo Community Health Center in Bau-Bau City and Health Center "X" in North Buton District was classified as insufficient, resulting in drug shortages and a significant number of unfulfilled prescriptions (Amiruddin and Septarani, 2019; Irnawati *et al*., 2020). Similarly, the availability of Category A drugs (based on ABC analysis) at Adelia Surgical Hospital in Yogyakarta was the lowest among all categories, and the risk of drug shortages in the hospital (Capritasari and Kurniawati, 2021). Furthermore, the availability of antihypertensive drugs in 30 health centers in Bandar Lampung, far below the demand, was only 60.9% of the required drug available (Huda *et al*., 2020).

The chemotherapy drug availability at Dr. Ramelan Hospital based on 2018 planning revealed that 14.8% were in the safe category, 11% in the excess category, 63% in the insufficient category, 3.7% were out of stock, and 7.4% were unused (Puspitawati *et al*., 2021). Another study conducted in 28 health centers in Central Java Province, which examined the availability of essential obstetric care drugs, reported rates of 75.56%, 73.56%, and 96.95% for antibiotics, life-saving drugs, and supplements, respectively. Overall, the stockout percentage was 22.35%, with 46.87% of the total items remaining out of stock for more than 30 days (Satibi *et al*., 2021). Meanwhile, five out of 11 articles reported drug availability (> 92%). The Talaud Islands Regional General Hospital has a good antibiotic availability rate, with a vacancy rate of 0.54% and 14.28% of antibiotics not prescribed (Timpua *et al*., 2021). The drug availability at Hospital "X" in Semarang was also considered good with a stock availability of 27.4 months (Dyahariesti and Yuswantina, 2019). The drug availability in four health centers in District X ranges from 93.46% to 98.57% (Rezeki *et al*., 2021), while the drug availability at Dr. Pirngadi Regional General Hospital inMedan is 92.7%, with a yearly drug utilization rate of 75%, and a stock for the next three months at 25% (Hanjaya *et al*., 2021). Another article indicates that the prescription conformity rate at Hospital "X" in Karanganyar, as per the formulary was 93.04% (Yunarti, 2022).

Factors Related to Drug Availability

A review of 11 articles identified five articles that employed an analytical design to explore factors related to drug availability. In these five articles, drug availability served as either an independent or dependent variable. As an independent variable, drug availability is associated with assistance from drug management staff (Irnawati *et al*., 2020) and the need for specific drug types and quantities for patients (Irnawati *et al*., 2020). As a dependent variable, drug availability is influenced by drug management factors such as ineffective drug demand planning methods (Hanjaya *et al*., 2021; Puspitawati *et al*., 2021), inconsistent procurement systems (Satibi *et al*., 2021), incompetent staff (Satibi *et al*., 2021), and lack of training for staff (Satibi *et al*., 2021). Additionally, doctor-related factors contribute to variations in prescription drugs for patients (Hanjaya *et al*., 2021).

Table III. Drug Availability Variables

No	Author, Year	Variable		Related Variable
		Independent	Dependent	
1	(Amiruddin and Septarani, 2019)	-	-	-
2	(Capritasari and Kurniawati, 2021)	-	-	-
3	(Timpua *et al*., 2021)	-	-	-

4	(Dyahariesti and Yuswantina, 2019)	-	-	-
5	(Rezeki *et al*., 2021)	-	-	-
6	(Irnawati *et al*., 2020)	Yes	-	Assistance to drug management officers
7	(Huda *et al*., 2020)	Yes	-	Type and quantity of drugs for patient needs
8	(Hanjaya *et al*., 2021)	-	Yes	Drug management factors and doctor factors
9	(Puspitawati *et al*., 2021)	-	Yes	Drug requirement Planning method
10	(Yunarti, 2022)	-	-	-
11	(Satibi *et al*., 2021)	-	Yes	Incompetent staff, lack of training, and inconsistent procurement systems

(3) Discussion

This review revealed that five out of the 11 articles examining healthcare facilities outside Java Island reported insufficient availability. This is consistent with previous studies suggesting that drug availability is heavily influenced by medicine supply chain management, particularly in the procurement and distribution of drugs and logistics. Distribution on Java Island tends to be faster than distribution outside Java Island, with completion within three–seven days. Delayed arrivals often become a factor in drug shortages in Prof. Dr. R. D Kandou Central General Hospital Manado. Effective drug procurement must consider various aspects, including the accuracy of drug demand and drug distribution patterns based on geographical location. This combination is based on longstanding practices from the time the drug request is made until the drug supply is fulfilled. The effectiveness of this process depends on the quality of human resources responsible for drug procurement activities, ensuring that healthcare facilities do not experience drug shortages or empty stock. This review also highlights that drug procurement processes across all healthcare services are regulated by an online procurement system via e-purchasing within an e-catalog, in accordance with Regulation of the Minister of Health of the Republic of Indonesia Number 5 of 2019 concerning Planning and Procurement of Drugs Based on the Electronic Catalog. All primary healthcare facilities and advanced referral healthcare service facilities follow the same basic procurement mechanism. In the private sector, the use of e-purchasing and e-catalogs is only implemented for Health Service Facilities in collaboration with BPJS Kesehatan. Previous articles have identified challenges in the procurement and availability of antihypertensive and chemotherapy drugs. For example (Huda *et al*., 2020) found that the availability of antihypertensive drugs was limited owing to inadequate supply and the presence of pharmaceutical wholesalers.

Based on this review, several recommendations can be made to improve the drug availability. First, medicine supply chain management should be strengthened across Indonesia, particularly focusing on areas outside Java. The secondary infrastructure in remote areas should be well maintained to ensure the equitable distribution of medicines across the country. Finally, the procurement system in healthcare services should be reinforced by ensuring timely orders through an online procurement mechanism via e-purchasing within an e-catalogue.

CONCLUSION

This systematic review examined drug availability in Indonesia's healthcare services, revealing issues such as shortages, inadequate planning, and various factors influencing drug availability. These findings emphasize the need for adequate drug availability to

improve patient safety in healthcare settings. Of the 11 articles reviewed, six reported inadequate drug availability, highlighting challenges in maintaining consistent access across primary healthcare centers and hospitals. Geographical disparities in drug availability were also identified, with studies conducted outside Java Island reporting more severe issues related to drug shortage. This review also highlights the complex interplay between factors affecting drug availability in Indonesia, including geographical location, supply chain management, and procurement practices. Targeted interventions are required to address these challenges and to improve drug availability throughout the health system.

REFERENCES

Amiruddin, E. E. and Septarani A, W. I, 2019, Study Drug Availability at the Meo-Meo Health Center in the City of Baubau, *Jurnal Ilmiah Kesehatan (JIKA)*. *1*(2) : 60–76. https://doi.org/10.36590/jika.v1i2.11

Bigdeli, M., Laing, R., Tomson, G., and Babar, Z. U. D, 2015, Medicines and Universal Health Coverage: Challenges and Opportunities, *Journal of Pharmaceutical Policy and Practice*. *8*(1) : 1–3. https://doi.org/10.1186/s40545-015-0028-4

Capritasari, R. and Kurniawati, D. R, 2021, Analisis Perencanaan dan Pengadaan Guna Menjamin Ketersediaan Obat di Rumah Sakit, *Sasambo Journal of Pharmacy*. *2*(1) : 32–36. https://doi.org/10.29303/sjp.v2i1.71

Cumpston, M. S., McKenzie, J. E., Welch, V. A., and Brennan, S. E, 2022, Strengthening Systematic Reviews in Public Health: Guidance in The Cochrane Handbook for Systematic Reviews of Interventions, 2nd Edition, *Journal of Public Health*. *44*(4) : e588–e592. https://doi.org/10.1093/pubmed/fdac036

Drost, E. A, 2011, Validity and Reliability in Social Science Research, *Education Research and Perspectives*. *38*(1) : 105–123.

Dyahariesti, N. and Yuswantina, R, 2019, Evaluasi Keefektifan Pengelolaan Obat di Rumah Sakit, *Media Farmasi Indonesia*. *14*(1) : 1485–1492.

Goertel, R. A. 2023. Literature Review. In A. L. Nichols and J. Edlund (Eds.), *The Cambridge Handbook of Research Methods and Statistics for the Social and Behavioral Sciences: Volume 1: Building a Program of Research* (pp. 65–84). Cambridge University Press. https://doi.org/DOI: 10.1017/9781009010054.005

Hanjaya, Fitriani, A. D., and Syamsul, D, 2021, Faktor-Faktor yang Mempengaruhi Ketersediaan Obat di Instalasi Farmasi Rumah Sakit Umum Daerah Dr. Pirngadi Kota Medan Tahun 2020, *Journal of Healthcare Technology and Medicine*. *7*(1) : 14–24.

Huda, B., Kumala, S., and Hasan, D, 2020, Analisis Ketersediaan Obat Antihipertensi dan Pengaruhnya Terhadap Pengobatan Pasien Hipertensi di Puskesmas Kota Bandar Lampung Badrul, *Jurnal Ilmiah Indonesia*. *5*(6) : 2548–1398.

Irnawati, Sunarsih, and Tosepu, R, 2020, Pengaruh Pendampingan Petugas Pengelola Obat Puskesmas Terhadap Perencanaan Obat dan Ketersediaan Obat di Kabupaten Buton Utara, *Jurnal Keperawatan dan Kesehatan Masyarakat STIKES Cendekia Utama Kudus*. *9*(1) : 2598–4217.

Milani, B, and Scholten, W. 2011. *The World Medicines Situation 2011*. 1–22. https://www.who.int/publications/i/item/WHO-EMP-MIE-2011-2.4

Musdalipah, M., Saehu, M. S., and Asmiati, 2017, Analisis Pelayanan Kefarmasian di Puskesmas Tosiba Kabupaten Kolaka, *Warta Farmasi*. *6*(2) : 23–31. https://doi.org/10.31227/osf.io/dr5an

Perehudoff, K., Demchenko, I., Alexandrov, N. V., Brutsaert, D., Ackon, A., Durán, C. E., El-Dahiyat, F., Hafidz, F., Haque, R., Hussain, R., Salenga, R., Suleman, F., and Babar, Z. U. D, 2020, Essential Medicines in Universal Health Coverage: A Scoping Review of Public Health Law Interventions and How They are Measured in Five Middle-Income Countries, *International Journal of Environmental Research and Public Health*. *17*(24) : 1–26. https://doi.org/10.3390/ijerph17249524

Puspitawati, N., Pristianty, L., Rahem, A., and Hartono, W, 2021, Efektivitas Perencanaan Kebutuhan Obat dengan Metode Morbiditas Terhadap Ketersediaan Obat Kemoterapi,

Jurnal Ilmiah Ibnu Sina (JIIS): Ilmu Farmasi dan Kesehatan. *6*(1) : 133–142. https://doi.org/10.36387/jiis.v6i1.650

Rezeki, A., Fhory, B. N., Yasa, M. S. R., Syahriah, S., and Wathan, N, 2021, Evaluasi Ketersediaan Obat di Beberapa Puskesmas Wilayah Kabupaten X Tahun 2019, *Sasambo Journal of Pharmacy*. *2*(2) : 65–72. https://doi.org/10.29303/sjp.v2i2.120

Satibi, S., Endarti, D., Hendri, D., Rachmawati, E., and Ari Kristina, S, 2021, Availability of Essential Medicines for Obstetric Care at Selected Primary Health Facilities in Central Java Province, Indonesia, *Pharmaceutical Sciences Asia*. *48*(1) : 67–72. https://doi.org/10.29090/PSA.2021.01.19.028

Timpua, O., Tampa'i, R., Tombuku, J. L., and Untu, S. D, 2021, Evaluasi Ketersediaan Obat Antibiotik di Instalasi Farmasi RSUD Kabupaten Kepulauan Talaud, *The Tropical Journal of Biopharmaceutical*. *4*(1) : 73–79.

Wasir, R., Rosmayani, P. A., Prasetyo, N. N., Dawina, A., and Istanti, N. D, 2023, Obat Esensial untuk Cakupan Kesehatan Universal Indonesia: Tinjauan Literatur Ketersediaan, Keterjangkauan, Kualitas, *Jurnal Kesehatan Tambusai*. *4*(2) : 1150–1157.

Younas, A. and Ali, P, 2021, Five Tips for Developing Useful Literature Summary Tables for Writing Review Articles, *Evidence-Based Nursing*. *24*(2) : 32–34. https://doi.org/10.1136/ebnurs-2021-103417

Yunarti, K. S, 2022, Analisis Ketersediaan dan Peresepan Obat dengan Formularium di Rumah Sakit X Kabupaten Karanganyar, *Jurnal Bina Cipta Husada*. *XVIII*(2) : 152–161.