



Original Research Paper

## Analysis of Determinants of Puskesmas Drug Availability in South Sorong District Year 2024

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### ABSTRACT

**Background:** Drug availability at Puskesmas (Community Health Centers) is essential for delivering quality public health services. Multiple factors such as the roles of doctors, pharmaceutical personnel, patients, and drug distributors are thought to influence this availability. **Objectives:** This study aimed to analyze the determinants affecting drug availability at Puskesmas in South Sorong Regency in 2024. **Methods:** A quantitative approach was used, with data analyzed through statistical tests including the T-test, F-test, and coefficient of determination to assess both partial and simultaneous effects of the independent variables. **Results:** The analysis revealed that there were no significant partial or simultaneous effects of the roles of doctors, pharmaceutical personnel, patients, and drug distributors on drug availability ( $p > 0.05$ ). The coefficient of determination ( $R^2$ ) was 0.153, indicating that only 15.3% of the variation in drug availability could be explained by these factors. **Conclusions:** The study concludes that the roles of doctors, pharmaceutical personnel, patients, and drug distributors have no significant influence on drug availability at Puskesmas in South Sorong Regency. The low coefficient of determination suggests that other unexamined factors may play a more dominant role in determining drug availability in these health facilities.

### Introduction

This study looks at broader determinant factors, namely the role of doctors (X1), pharmaceutical personnel (X2), the role of patients (X3), drug distributors (X4) on drug availability, with a wider sample, namely the entire working area of the existing health center in one district, namely South Sorong.

The instrument used was a questionnaire, containing demographic data including age, gender, education, work area health center, field of work placement. The research questionnaire contained questions related to the role of doctors, pharmaceutical workers, patients and distributors with a total of 20 types of answers in the questionnaire.

Drugs are part of the relationship between patients and health care facilities, because the availability or absence of drugs in health care facilities will have a positive or negative

impact on the quality of service. An important prerequisite for quality public health services is the availability of adequate drugs, both in type and quantity, at all times and when needed<sup>1</sup>.

Drug management is a series of the most important activities that involve aspects of planning, procurement, storage and distribution of drugs that are managed optimally to ensure the achievement of the right amount and type of pharmaceutical supplies and medical devices<sup>2</sup>. The purpose of drug management is the availability of drugs when needed both in terms of type, quantity and quality efficiently, thus drug management can be used as a process of mobilizing and empowering all resources that can be utilized to realize the availability of drugs when needed in order to achieve an effective and efficient operational process<sup>3,4</sup>.

Effective and efficient drug management determines the success of overall management, to avoid inaccurate and irrational calculation of drug needs so that appropriate drug management needs to be carried out<sup>5</sup>. Drug management aims to ensure the availability of quality drugs, both in the right type, right amount and right time and used rationally and so that available funds can be used as well as possible and continuously to meet the interests of the community who seek treatment at the basic health service unit<sup>6,7</sup>.

The Community Health Center, a basic health service unit, has an important role in drug management with the aim of ensuring the availability of drugs for patients<sup>8,9</sup>. The availability of drugs at the Community Health Center must be adjusted to the needs for treatment services in the community in its working area<sup>9,10</sup>. The level of drug availability of both the type and amount of drugs needed by treatment services within a certain period of time, measured by calculating the inventory and average usage per month<sup>11</sup>.

Good drug availability is optimal availability without shortages or large excess stocks<sup>12,13</sup>. The availability of drugs that are less than the needs of the community will cause drug vacancies resulting in disruption of health service activities at the Puskesmas and a decrease in the level of patient confidence in health service personnel and facilities, while the availability of excess drugs will have an impact on the number of drugs that will expire and result in financial losses<sup>14</sup>.

The issue of drug availability has become a very actual issue since the implementation of the National Health Insurance Program<sup>15</sup>. There are many public complaints related to the availability of drugs in health care facilities, especially Puskesmas<sup>11</sup>.

The biggest challenge of pharmaceutical roles and tasks in the National Health Insurance is to ensure the achievement of

accessibility, affordability and rational use of drugs in comprehensive health services<sup>16</sup>.

## **Materials and Methods**

### ***Research Design***

This study employed a quantitative research design using a cross-sectional approach. Data on the research variables were collected at a single point in time to analyze the determinants of drug availability at Puskesmas in South Sorong Regency in 2024. The research was conducted from May to June 2024 at Puskesmas located within the working area of South Sorong Regency.

### ***Sample***

The study population included all pharmaceutical personnel working at Puskesmas in South Sorong Regency. A total sampling technique was used, in which the entire population was included as the sample.

### ***Data Collection Techniques***

Data were collected using structured questionnaires. The questionnaire underwent a validation process, and its reliability was tested using the Cronbach's Alpha formula to ensure internal consistency.

### ***Data Analysis Techniques***

Data analysis included both univariate and bivariate approaches. The Kruskal-Wallis test was used to examine differences in average scores between determinants<sup>17</sup>. In addition, multiple linear regression analysis was conducted to assess the influence of two or more independent variables on the availability of Puskesmas drugs.

### ***Ethical Consideration***

Although this study did not involve direct medical interventions or sensitive personal data, ethical considerations were still maintained. Prior to data collection, informed consent was obtained from all participants. Confidentiality and anonymity of responses

were ensured throughout the research process. The study was conducted in accordance with ethical standards for non-clinical public health research.

## Result

South Sorong District is located in Southwest Papua Province which has 16 health centers spread among two urban health centers ten health centers in remote areas and two health centers in very remote areas.

### Respondent Characteristics

**Table 1.** Characteristics of Respondents by Gender, Age, and Education

Category	Subcategory	n	Percentage (%)
Gender	Male	3	18.75
	Female	13	81.25
Age (Years)	26 – 35 (Young Adult)	12	75.00
	36 – 45 (Mature Adult)	4	25.00
Last Education	Pharmacist Profession	7	43.75
	Bachelor of Pharmacy (S1)	3	18.75
	Diploma of Pharmacy (D3)	6	37.50

Most respondents were female (81.25%) and within the 26–35 age group (75%), indicating a relatively young workforce. Regarding educational background, 43.75% held a professional pharmacist degree, indicating a qualified personnel composition in health centers (Table 1).

### Determinants of Medicine Availability

A majority of respondents rated doctors (68.75%) and pharmaceutical workers (62.5%) as having a limited role in ensuring medicine availability. Conversely, 75% perceived patients' role as "sufficient." For drug distributors, opinions were equally split between "less" and "sufficient" roles. Availability of medicine was equally perceived as good or insufficient across health centers (Table 2).

**Table 2.** Frequency Distribution of Respondents' Perceptions of Determinants

Determinant	Role Category	n	Percentage (%)
Doctor's Role	Less	11	68.75
	Sufficient	2	12.50
	Good	3	18.75
Pharmaceutical Workers' Role	Less	10	62.50
	Sufficient	2	12.50
Patient Role	Good	4	25.00
	Less	4	25.00
	Sufficient	12	75.00
Drug Distributors' Role	Good	0	0.00
	Less	8	50.00
	Sufficient	8	50.00
Drug Availability	Good	0	0.00
	Insufficient	8	50.00
	Good	8	50.00

**Table 3.** Reliability of Determinant and Drug Availability Questionnaires

Instrument	Cronbach's Alpha	r table	Description
Determinant Questionnaire	0.873	0.497	Very Reliable
Drug Availability Questionnaire	0.961	0.497	Very Reliable

**Table 4.** Kruskal-Wallis Test on the Determinants vs. Drug Availability

Determinant	n	Asymp Sig.	Description
Doctor's Role	16	0.000	Significant difference in mean drug availability by role
Pharmaceutical Workers' Role			
Patient Role			
Drug Distributors' Role			
Drug Availability			

Both questionnaires used in this study demonstrated high internal consistency, indicating that the instruments are reliable and can be used confidently for analysis (Table 3).

There was a statistically significant difference in perceived medicine availability based on the roles of the various actors ( $p = 0.000$ ). This indicates variability in how each determinant affects drug availability at different health centers (Table 4).

None of the individual determinant variables had a statistically significant effect on medicine availability when tested separately. All  $p$ -values were greater than 0.05 (Table 5).

Simultaneously, the four determinants did not have a significant effect on drug availability. The significance value (0.739)

was greater than 0.05 and the F-value was lower than the F-table threshold (Tabel 6).

**Table 5.** Partial Effect of Determinants on Drug Availability (t-test)

Variable	Sig.	t-count	t-table	Description
Doctor's Role (X1)	0.817	0.237	2.201	Not significant
Pharmaceutical Workers' Role (X2)	0.785	-0.280		Not significant
Patient Role (X3)	0.325	-1.030		Not significant
Drug Distributors' Role (X4)	0.419	0.840		Not significant

**Table 6.** Simultaneous Effect of Determinants on Medicine Availability (F-test)

Variables (X1 - X4)	Variable Y (Drug Availability)	Sig.	F-count	F-table	Description
Doctor's Role, Pharmaceutical Workers' Role, Patient Role, Drug Distributors' Role	Drug Availability	0.739	0.496	3.26	Not significant

**Table 7.** Coefficient of Determination

Variables (X1 - X4)	R Square	Influence Percentage
Doctor's Role, Pharmaceutical Workers' Role, Patient Role, Drug Distributors' Role	0.153	15.3%

The four independent variables (determinants) only explained 15.3% of the variance in drug availability, suggesting that other unmeasured factors contribute more significantly to medicine availability at health centers (Table 7).

## Discussion

Drug availability must also be followed by good drug quality. The available drugs must meet established quality standards to ensure the safety and effectiveness of treatment. In addition to drug stocks, drug accessibility is also important. Patients must be able to easily access the necessary drugs without obstacles, for example, with the availability of adequate health service facilities and an efficient drug procurement process<sup>18</sup>.

As the frontline of health care, doctors are responsible for diagnosing illnesses and prescribing appropriate medication for patients. In this process, doctors must have in-depth knowledge of the stock of drugs available at the health center, so that they can provide realistic and appropriate prescriptions<sup>19</sup>.

Based on the results obtained, there is no effect of the doctor's role on drug availability. The results of this study are inversely related to the factors that affect drug availability at the Pharmacy Installation of Dr. Pirngadi Hospital, Medan City in 2020, which concluded that the doctor factor has an effect on drug availability at Pirngadi Medan Hospital<sup>20</sup>.

Pharmaceutical workers, such as pharmacists, have a vital role in ensuring the availability of drugs at the Puskesmas. They are responsible for managing all aspects of the drug supply chain, from procurement to distribution. the results obtained, there is no effect of the role of pharmaceutical personnel on drug availability. This is inversely

proportional to the results of research conducted by related to the analysis of factors affecting the availability of drugs in the Jkn era at RSUD dr. Soedono Madiun which concluded that the pharmaceutical personnel factor affects the availability of drugs at RSUD dr. Soedono Madiun<sup>21</sup>.

Patients have an indirect but significant role in the availability of drugs at Puskesmas. The pattern and volume of patient visits affect the demand for drugs at the Puskesmas, as these data form the basis for medical and pharmaceutical personnel in planning drug needs. Complaints and symptoms reported by patients assist doctors in prescribing appropriate medication, while the number of prescriptions issued gives pharmacists an idea of the stock of medication that needs to be maintained. Based on the research results obtained, it is inversely related to the evaluation of drug availability at the Pekaum Health Center in Banjarmasin City in 2021 which concluded that patients affect drug availability, the increasing number of patient visits and the large working area make one of the factors for drug availability at the Pekauman Health Center which causes drug vacancies<sup>2</sup>.

Drug distributors have an important role in ensuring the availability of drugs at the health center. They are responsible for ensuring that the drugs ordered by the Puskesmas are available and can be delivered on time. Based on the results of the research obtained, there is no effect of the role of drug distributors on drug availability.

However, there are many other factors that also play a role in determining the availability of drugs at Puskesmas, such as government policies related to drug procurement, logistics infrastructure, and drug stock management. Therefore, the determinants of the role of doctors, the role of pharmaceutical personnel, the role of patients, and the role of drug distributors in Puskesmas

in South Sorong Regency are not the main factors influencing drug availability.

## Conclusion

The conclusions of this study indicate that there is no significant influence from the role of doctors (X1), pharmaceutical personnel (X2), patient involvement (X3), or drug distributors (X4) on the availability of drugs at Puskesmas in South Sorong Regency in 2024 (Y). The combined or simultaneous effect of these four variables on drug availability was only 15.3%, suggesting other factors may play a more dominant role.

Based on these findings, it is recommended that Puskesmas in South Sorong Regency enhance their attention to all factors influencing drug availability to ensure more effective and continuous health services. Future researchers are encouraged to explore additional variables not included in this study that may contribute more significantly to drug supply adequacy and availability, potentially involving supply chain systems, policy implementation, or budget allocations.

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## References

1. Pristiyantoro P, Retno F, Lestari DP. Faktor-Faktor Yang Mempengaruhi Ketersediaan Obat Pasien BPJS Rawat Jalan di RS TK II Moch Ridwan Meureksa Jakarta Timur. *Farmasi-QU Jurnal Pelayanan Kefarmasian*. 2023;10(1):52-58. doi:10.56319/bhj.v10i1.72
2. Maulidie M, Saputera A, Hayati N, et al. Evaluasi Ketersediaan Obat di Puskesmas Pekauman Kota Banjarmasin Tahun 2021.

- Jurnal Ilmu Kefarmasian*. 2023;4(2):252-257.
3. Yusiana MA, Rossa G, Aprilia O, et al. Literatur Review: Analysis of Drug Management in Public and Private Hospitals. Published online 2004:81-88.
  4. Muslim Z, Laksono H. Evaluasi Sistem Pengadaan Terkait Ketersediaan Obat di Puskesmas Wilayah Kota Bengkulu. *Jurnal Farmasi Higea*. 2021;13(1):8. doi:10.52689/higea.v13i1.325
  5. Aisah N, Satibi, Suryawati S. Evaluasi Pengelolaan Obat pada Tahap Perencanaan dan Pengadaan di Dinas Kesehatan Kabupaten Pati. *Majalah Farmaseutik*. 2020;16(1):34-42. doi:10.22146/farmaseutik.v16i1.47972
  6. Kristiani N, Melviani M, Yaundari E. Hubungan Pengetahuan dengan Pengelolaan Obat yang Tepat di Kelurahan Sabaru Kota Palangka Raya Kalimantan Tengah. *Journal Pharmaceutical Care and Sciences*. 2021;2(1):58-64. doi:10.33859/jpcs.v2i1.127
  7. Pratiwi E. Gambaran Perencanaan dan pengadaan Obat Dipuskesmasrawat Jalankabupatenrokanhulu Tahun 2018. *Jurnal Penelitian Farmasi Indonesia*. 2019;8(2):85-90.
  8. Un Tualeka, Satibi AF. Analisis Ketersediaan Obat di Puskesmas Kabupaten Maluku Tengah. *Majalah Farmaseutik*. 2021;17(3):303-311. doi:10.22146/farmaseutik.v1i1.54084
  9. Arifuddin A, Rochmiyati S, Nur AF, Dyastuti NE. Peranan Clinical Governance Terhadap Penjaminan Mutu Rumah Sakit : Sistematis Review. *Healthy Tadulako Journal (Jurnal Kesehatan Tadulako)*.
  10. Suryagama D, Satibi S, Sumarni S. Analisis Perencanaan dan Ketersediaan Obat di Kabupaten dan Kota Provinsi Jawa Timur. *Jurnal Manajemen dan Pelayanan Farmasi (Journal of Management and Pharmacy Practice)*. 2019;9(4):243. doi:10.22146/jmpf.44444
  11. Amiruddin EE, Septarani A WI. Studi tentang Ketersediaan Obat di Puskesmas Meo-Meo Kota Baubau. *Jurnal Ilmiah Kesehatan (JIKA)*. 2019;1(2):60-76.
  12. Mahmudi M, Nurhidayat S, Najamuddin Y. Optimalisasi Manajemen Persediaan Obat dan Bahan Medis Habis Pakai di RSUD Sleman. *Jurnal Abdimas Madani dan Lestari (JAMALI)*. 2022;05(September):138-150. doi:10.20885/jamali.vol5.iss2.art6
  13. Suarayasa K, Pakaya D, Felandina Y. Jurnal Kemenkes. *Jurnal Kesehatan Tadulako*. 2019;5(23):6-12.
  14. Mustika M, Yuliasuti F, Septianingrum NMAN. Gambaran kesesuaian ketersediaan obat dengan formularium nasional di puskesmas Muntinan II. *Borobudur Pharmacy Review*. 2022;2(1):1-7. doi:10.31603/bphr.v2i1.5688
  15. Fanda RB, Probandari A, Yuniar Y, et al. The availability of essential medicines in primary health centres in Indonesia: achievements and challenges across the archipelago. *The Lancet Regional Health - Southeast Asia*. 2024;22:100345. doi:10.1016/j.lansea.2023.100345
  16. Agussalim, Hermiyanti, Rahman Abd. Analisis Implementasi Kebijakan Jaminan Kesehatan Nasional (JKN) di Rumah Sakit Umum Daerah (RSUD) Undata Palu. *Healthy Tadulako Journal (Jurnal Kesehatan Tadulako)*. 2017;3(1):62-70.
  17. Rs TS, Amir A, Elliyanti A, et al. Perbedaan Karakteristik Janin pada Tikus

- Putih (*Rattus norvegicus*) Bunting yang Diberi Dosis Bertingkat Timbal Asetat. *Healthy Tadulako Journal (Jurnal Kesehatan Tadulako)*. 2020;6(3):1-95.
18. Carolien I, Fudholi A, Endarti D. Evaluation Medicine Availability Before and After NHI Implementation at Health Centers in Keerom District, Papua Province. *Jurnal Manajemen dan Pelayanan Farmasi (Journal of Management and Pharmacy Practice)*. 2017;7(1):31. doi:10.22146/jmpf.30294
19. Jobira T, Abuye H, Jemal A, Gudeta T. Assessment of Knowledge, Practices, and Challenges of Pharmaceuticals Inventory Control Among Pharmacy Professionals Working in Selected Public Health Facilities of West Arsi Zone, Oromia, Ethiopia. *Health Services Insights*. 2022;15. doi:10.1177/11786329211066403
20. Hanjaya, Fitriani AD, Syamsul D. 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*. 2021;7(1):14-24.
21. Prabowo P. Analisis Faktor-Faktor yang Mempengaruhi Ketersediaan Obat di Era JKN pada RSUD dr. Soedono Madiun. *Widya Warta: Jurnal Ilmiah Universitas Katolik Widya Mandala Madiun*. 2018;42(1):1-11.