Drug Management Cycle Before and After the Covid-19 Pandemic at the Samarinda Ulu Pharmacy

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Abstract: The purpose of this study is to determine the cycle of drug management before and after as well as the differences in the drug management cycle of the Covid-19 pandemic in pharmacies. A type of quantitative research with a descriptive method that describes problems that occur in the present and ongoing times in certain populations. Design research using the cross sectional or cross-sectional design method. Analyze the data use the Wilcoxon Signed Rank Test to find out whether or not there is a difference. The results stated that there were 2 differences in negative values after the pandemic. the difference is seen in the Pharmacy experiencing its limitations drug availability or stock from distributors. Other factors like planning tends to pay less attention to the amount of inventory medicine to be ordered. During the Covid19 pandemic, the drugs ordered did not arrive, especially vitamin medicines for Covid-19, and stocks that are often empty at distributors. Booking repeat often takes time so that drug blanks occur. The acceptance process becomes hampered due to sources human resources are lacking, because there are so many patients so it can't be accepted. Medicines that come can not be directly saved due to the large number of patients and lack of resources Pharmacy man, as well as the lack of storage because there is addition of drugs. Other causative factors as yet carry out controls every day so as to cause documents that less accurate due to limited human resources.

Keywords: Covid-19 Pandemic, Drug Management, Pharmacy

1. Introduction

Health efforts that aim to improve or maintain health, prevent and cure disease, to restore health are known as health services. Health services can be provided individually or in groups within an organization. Assessment of service user satisfaction, especially patients who visit medical institutions, is a key indicator used to measure the quality of medical services (Manurung *et al.,* 2018).

According to the Minister of Health of the Republic of Indonesia (2017), a pharmacy is a pharmaceutical service facility where pharmacists practice pharmacy. Control of pharmaceutical supplies, medical equipment, consumable medical materials, and clinical pharmacy services are included in the standard of pharmaceutical services provided by pharmacies. Drug planning is the process of making a list—both types and amounts—based on the needs and available funds.

If the drug planning has not been effective, it is less efficient and inaccurate regarding the consequences of not fulfilling the requirements or availability of drugs. In a poor design arrangement, the supply of drugs exceeds the supply (stagnant) or the shortage and vacancy of the drug supply (stockout) (Oktaviani, 2015; Permenkes RI, 2016).

In the interest of patient safety, the Regulation of the Minister of Health of the Republic of Indonesia Number 73 of 2016 concerning pharmaceutical service standards in pharmacies aims to improve service quality, provide legal provisions for pharmaceutical personnel, and protect patients and the general public against irrational drug use. According to the Minister of Health of the Republic of Indonesia (2016), pharmaceutical services include prescription assessment, dispensing, drug information services, therapy drug monitoring (TDM), drug side effect monitoring (MESO), counseling, and home care services. Management of pharmaceutical preparations, medical devices, and medical consumables includes planning, procurement, receipt, storage, destruction, control, and recording and reporting. Planning is the process of determining the types and or drugs, along with the appropriateness of funds when needed and available to increase the efficiency of drug use. Planning is the core of the management of pharmaceutical supplies, medical devices, and medical consumables (Chaira *et al.,* 2016). Planning, according to Heni (2013), is the process of selecting types, quantities, and prices based on needs and budget. The basis for planning has been determined and adjusted to the available budget to avoid drug shortages.

The World Health Organization (2020) said that since it first appeared in Wuhan, China, in December 2019, humans have discovered the latest type of corona virus called Serious Acute Respiratory Syndrome Coronavirus 2 (SARS-COV2). Then, also known as Covid-19, Coronavirus Disease-2019. Also known as Covid-19, Coronavirus Disease 2019, coronavirus is a member of a large group of viruses that can infect both animals and humans. The flu and more serious respiratory infections such as Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS) usually show symptoms in humans. Based on the results of previous studies, pharmaceutical services at the time has not been running with optimally, patient visits to the health center decreased, many found drugs that have piled up and have expired (Fitriani, et al., 2021). According to the first analysis, researchers are interested in conducting research on "Drug Management Cycles at Pharmacies in Samarinda Ulu Regency, Samarinda City before and during the Covid-19 Pandemic."

2. Materials and Methods

This research is an observational study descriptive with cross-sectional design and approach quantitatively, which describes the problems that occur in the present and in progress certain population. Data analysis using analysis method descriptive with percentage calculation technique, then presented in tabular form. The sample in this study is the pharmacist who work at the Samarinda Ulu District Pharmacy, and fulfil exclusion and inclusion criteria. This study uses an instrument research in the form of collecting questionnaires. This research was conducted to

describe the drug management cycle before and after the Covid-19 pandemic at the Samarinda Ulu District Pharmacy, City of Samarinda.

This research will be carried out at the pharmacy located in Samarinda area, Samarinda Ulu District, East Kalimantan in February-April 2022. Based on a population of 40 pharmacies, the minimum sample used is 24 pharmacies. The sample calculation uses the Slovin Formula with an error rate of 5%. The inclusion criteria for this research are pharmacists with current pharmacist license (SIPA) and at least one year of experience (pharmacies have worked before the Covid-19 pandemic), pharmacists who work and are responsible for drug management at pharmacies in Samarinda Ulu District, East Kalimantan, pharmacies located in the district of Samarinda Ulu, East Kalimantan, are willing to become research respondents. Meanwhile, the exclusion criteria in this study were pharmacists who did not answer questions according to the parameters of the questionnaire and were not willing to become research respondents.

Data processing on This research was conducted by using univariate analysis SPSS 23 statistical program. Next, the test is used to find out whether or not there is differences in drug management cycles before and after the pandemic Covid-19 at the Samarinda Ulu District Pharmacy is the Wilcoxon Signed Rank Test. The Wilcoxon test results show a difference between the value of drug management before and after the Covid-19 pandemic. Where these differences have decreased, increased as well as similarities between drug management before and after the pandemic. If the Asymp.sig value is less than 0.05, the Wilcoxon test will accept the hypothesis; if it is greater than 0.05, the hypothesis will be rejectedBased on the Health Research Ethics Commission of the Abdoel Wahab Sjahranie Hospital stated that this research has complied with ethical requirements and has agreed to comply with the principles that refer to the 2016 guidelines with the certificate number of passing the ethical review 057/KEPK-AWS/IV/2022.

3. Results and Discussion

In this study, data collection was carried out by distributing questionnaires at the Samarinda Ulu District Pharmacy which had been made as many as 30 questions, not only by distributing questionnaires but researchers also conducting interviews, to extract information directly in describing a situation or condition and to complete this research. This study used a questionnaire instrument as a data collection tool.

Before using the questionnaire, it was tested for validity. The test is degrees accuracy between the actual data that occurs in the object with the data that has been collected by the intended researcher to find the validity of an item. Validity test which is done with professional judgment techniques, namely techniques validity is carried out by experts in the field for assess and validate the instrument. Question items in the questionnaire are said to be valid if the r table value is smaller than the e count. Of the 30 question items, there were 3 invalid questions, which were then not used in the study.

<div align="center">Table 1. Characteristics Respondents</div>

Characteristics	Number of Respondents (n)	Percentage (%)
Gender		
Male	5	20,8
Female	19	79,2
Total	24	100
Age (Years)		
21-30	13	54.2
31-40	11	45.8
Total	24	100
Length of Employment (Years)		
1-5	21	87.5
6-10	3	12.5
Total	24	100

Based on the characteristics of the respondents in the gender table from a total of 24 samples, there were 5 men with a percentage of 20.8%, and the female sample was obtained much more than men, which amounted to 19 people with a percentage of 79.2%. It can be seen by gender, respondents with female gender are more, which means that according to research (Sumanty, 2018) it is stated that women pay more attention to their health in terms of including sources of information, women are more active than men and pay more attention to health in terms of medicines and health. Characteristics of respondents based on the age of the respondent is known that the lowest age of the respondent is 21 years, and the highest age of the respondent is 40 years. Respondents aged between 21 to 30 years had the highest number of 13 people with a percentage of 54.2% of the total number of respondents. Respondents aged 31 to 40 years have a total of 11 respondents with a percentage of 45.8%.

In table 2, it can be seen that there is a difference between before and after the covid 19 pandemic. The drug planning process problems that often occur such as pharmacies experiencing problems such as drug availability or stock from distributors. Other factors such as planning tend to pay less attention to the amount of drug inventory that will be ordered. During the Covid-19 pandemic, drug procurement the ordered drugs did not come, especially vitamin drugs for Covid-19, and the stock was often empty at distributors. Reordering is often time-consuming so medication blanks occur. Problem of drug receipts is the admission process is hampered due to lack of human resources, because there are so many patients that they cannot be accepted immediately. The medicines that come in cannot be stored immediately due to the large number of patients and the lack of pharmacy human resources, as well as the lack of storage due to the addition of medicines. Other contributing factors such as not having control every day, causing inaccurate documents due to limited human resources. Drug control with write stock cards that are not immediately completed at the time of sales, prescriptions and others due to lack of human resources with very many patients. Drug returns after the pandemic occur every 1 month, especially transactions and expiration dates. Factors that affect drug vacancies such as being late in making an order letter, empty stock and drug ordering errors. Culling and withdrawal of drugs

are in accordance with applicable laws and regulations, but in practice many pharmacies have not destroyed only drugs, no elimination of drugs can increase the storage burden and increase the risk of sub-standard use, drug elimination should be carried out in accordance with existing regulations (Ika, 2020). During the pandemic there were additional records for Covid-19 drugs such as Azithromycin, Oseltamivir, Favirapir, as well as vitamin C and vitamin D. Factors that caused obstacles such as still not paying attention to several periods of previous drug use so that they could not record the amount of drug inventory that was needed. should be available to meet the demand for the next period (Nesi, 2018). Usually there is a lack of accuracy in adding up as a result there is a difference in drugs but it is immediately justified (Ika, 2020).

Table 2. Drug Management Cycle Before and After the Covid-19 Pandemic

No	Indicator	Differences	Answer (%)	
			Yes	No
1.	Drug planning cycle	Before	79	21
		After	62.5	37.5
2.	Procurement	Before	100	0
		After	87.5	12.5
3.	Acceptance	Before	100	0
		After	66.7	33.3
4.	Storage	Before	100	0
		After	66.7	33.3
5.	Control	Before	91.7	8.3
		After	66.7	33.3
6.	Extermination	Before	79.2	20.8
		After	70.8	29.2
7.	Culling and withdrawal	Before	79.2	20.8
		After	70.8	29.2
8.	Recording and Reporting	Before	100	0
		After	95.8	4.2

Table 3. Wilcoxon Test Before and After the Covid-19 Pandemic

		N	Mean Rank	Sum of Rank
After the Pandemic – Before the Pandemic	Negative Ranks	2[a]	7,00	14,00
	Positive Rank	15[b]	9,27	139,00
	Ties	7[c]		
	Total	24		

In table 3 the results of the Wilcoxon signed rank test provide information that there are 2 respondents who obtained a negative difference in values after the pandemic, with the mean rank or average of the results of 7.00, while the sum of ranks or the number of negative rankings of the results was 14.00. Positive ranks or difference (positive) there are 15 respondents who

experienced an increase in value having positive data with a mean rank or average of 9.27 results, while the sum of ranks or the number of negative rankings from the results of 139.00, and Ties are similarities the value obtained, here are 7 respondents whose score after the pandemic is the same as the value before the pandemic or there is no increase. The presence of 2 respondents with a negative value difference after the pandemic indicates that there is an increase in value, the difference in value is higher than the value before the pandemic, which indicates that there is a difference between before and after the Covid-19 pandemic. The Wilcoxon test results show a difference between the value of drug management before and after the Covid-19 pandemic. Where these differences have decreased, increased as well as similarities between drug management before and after the pandemic. If the Asymp.sig value is less than 0.05, the Wilcoxon test will accept the hypothesis; if it is greater than 0.05, the hypothesis will be rejected. Based on the table above, the Z value in drug management is 2.970, and the Asymp.sig (2-tailed) value is 0.003. The hypothesis is accepted because the result of 0.003 is smaller than 0.05.

4. Conclusion

Based on the drug management cycle before and after the Covid-19 pandemic, the difference is seen in the Pharmacy experiencing its limitations drug availability or stock from distributors. Other factors like planning tends to pay less attention to the amount of inventory medicine to be ordered. During the Covid19 pandemic, the drugs ordered did not arrive, especially vitamin medicines for Covid-19, and stocks that are often empty at distributors. Booking repeat often takes time so that drug blanks occur. The acceptance process becomes hampered due to sources human resources are lacking, because there are so many patients so it can't be accepted. Medicines that come can not be directly saved due to the large number of patients and lack of resources Pharmacy man, as well as the lack of storage because there is addition of drugs. Other causative factors as yet carry out controls every day so as to cause documents that less accurate due to limited human resources.

Conflict of Interest
The author declares there is no conflict of interest and agrees with the contents of the manuscript.

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