



Evaluation of the Standard Implementation of Pharmaceutical Services at the Klaten Regency, Indonesia

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Abstract. Pharmacy is a place to practice pharmaceutical services carried out by a pharmacist. Pharmaceutical service standards in pharmacies are a benchmark in providing pharmaceutical services for pharmacists. Based on previous research, the implementation of pharmaceutical service standards in several regions in Indonesia has not been fully implemented. This research has benefits as an evaluation material for related parties regarding the Implementation of Pharmaceutical Service Standards at Pharmacies in Klaten Regency. The purpose of this study was to describe the Implementation of Pharmaceutical Service Standards at Pharmacies in Klaten Regency according to the Minister of Health Regulation Number 73 of 2016. This research is a non-experimental and descriptive study. Data collection was done by using a questionnaire. The number of samples in this study were 65 samples consisting of pharmacies located in Klaten Regency. The results showed that the management activities of pharmaceutical preparations, medical devices, and medical consumables at pharmacies in Klaten Regency had an average of 93.15%. Meanwhile, for clinical pharmacy services, the average was 83.38% . The conclusion of this study is that the management of pharmaceutical preparations, medical devices, and medical consumables are in the good category as same as clinical pharmacy services.

Keywords: pharmacy · pharmaceutical services in pharmacies · Permenkes Number 73 of 2016

1 Introduction

Pharmacy is a place to practice pharmaceutical services carried out by a pharmacist who has taken an oath of office [1]. In carrying out pharmaceutical services, a pharmacist must do it out well and responsibly. Nowadays, there has been a shift in the perspective of pharmaceutical services from drug services to patient care that refers to pharmaceutical care, by providing information regarding the importance of correct and rational use of drugs and monitoring their use [2]. Pharmaceutical services have several benefits in quality assurance, safety, and efficacy of pharmaceutical preparations and medical

devices and can protect patients or the public from irrational use of drugs related to patient safety [3].

To guarantee pharmaceutical services in pharmacies, the Ministry of Health declared the Minister of Health Regulation Number 73 of 2016 concerning Pharmaceutical Service Standards in Pharmacies [3]. Prior to the enactment of this regulation, the Minister of Health Regulation Number 35 of 2014 concerning Standards of Pharmaceutical Services in Pharmacies was used. According to the Minister of Health Regulation Number 73 of 2016 it is stated that pharmaceutical service standards are a benchmark in providing pharmaceutical services for pharmacists. The purpose of holding pharmaceutical service standards is to be able to improve the quality of pharmaceutical services, ensure legal certainty for pharmacists, and provide patient safety by protecting patients and the public from irrational drug use. Standards for pharmaceutical services in pharmacies according to the Minister of Health Regulation Number 73 of 2016 consist of the management of pharmaceutical preparations, medical devices, and medical consumables which include planning, procurement, receipt, storage, destruction, recording and reporting control activities; as well as clinical pharmacy services which include reviewing and prescribing services, *dispensing*, Drug Information Services, counseling, pharmaceutical services at home, Monitoring Drug Therapy, and Monitoring Drug Side Effects.

In the research of Hairunnisa *et al.*, [4] it is stated that the evaluation of the application of pharmaceutical service standards in pharmacies in Kubu Raya Regency has not been fully implemented based on the Minister of Health Regulation Number 73 of 2016 this apparent from the result in the activities of managing pharmaceutical preparations, medical devices, materials medical consumables have an average of 85% and in clinical pharmacy services it is 61%.

Another study regarding to the evaluation of the implementation of pharmaceutical service standards which was also carried out in pharmacies in several cities in Indonesia showed that the results had not been fully implemented with an average of 98.4% of pharmaceutical preparations, medical devices, and medical consumables management activities which were superior to pharmaceutical service activities clinic with an average of 73.8% [5].

Based on this description, by looking at the importance of the benefits of pharmaceutical services in accordance with standards, it is necessary to conduct research on evaluating the implementation of pharmaceutical service standards in pharmacies in Klaten Regency according to Minister of Health Regulation Number 73 of 2016 so that it can provide an overview of the implementation of pharmaceutical standards in Klaten Regency pharmacies.

2 Methods

Type of research conducted is observational and descriptive research with data collection using a questionnaire. The tools in this study is a questionnaire containing questions regarding to the evaluation of the implementation of pharmaceutical service standards in pharmacies in Klaten Regency according to Minister of Health Regulation Number 73 of 2016 which is divided into 4 parts. Part 1 contains the characteristics of pharmacists at the Klaten Regency pharmacy which includes gender, age, last education, length of

experience as a pharmacist manager of pharmacies, *take home pay* per month, presence of assistant pharmacists, and frequency of attendance. Part 2 contains the characteristics of pharmacies in Klaten Regency which includes the number of prescriptions per day, the number of pharmaceutical technical personnel, the operating hours of the pharmacy, and the average turnover per day. Section 3 contains the management of pharmaceutical preparations, medical devices, and medical consumables at the Klaten Regency pharmacy which consists of planning, procurement, receiving, storage, destruction and withdrawal, control, and recording and reporting activities. Section 4 contains clinical pharmacy activities at the Klaten Regency pharmacy which consists of reviewing and prescribing services, *dispensing*, drug information services, counseling, pharmaceutical services at home, monitoring drug therapy, and drug side effects monitoring. The material in this research is a questionnaire that already contains answers by the respondents. The population in this study were all pharmacies in Klaten Regency with a total as of 2020 as many as 184 pharmacies. According to Masturoh and Anggita [6] Sample is calculated using the Taro Yamane formula as follows:

$$n = \frac{N}{1 + Nd^2} \quad (1)$$

Information:

n = Number of samples

N = Number of populations

d = Precision

So that the number of samples after being calculated by the Taro Yamane formula was obtained as many as 65 pharmacies. The inclusion criteria in this study were pharmacies in Klaten Regency who were willing to become research respondents. Data retrieval is done to the pharmacist manager of pharmacies. The sampling technique was carried out by *purposive sampling*. This research has obtained a research permit according to *ethical clearance* number 3734/B.1/KEPK-FKUMS/X/2021, issued by the Faculty of Medicine, Muhammadiyah University, Surakarta. Data collection was carried out from October to December 2021 by distributing questionnaires to respondents who matched the inclusion criteria. Demographic data analysis was carried out descriptively to describe the pharmacy and pharmacist performance. The data processing of the questionnaire results is carried out by calculating the score using the *Microsoft Excel 2019 software*. Calculation of pharmaceutical service standard evaluation questionnaire data based on the percentage of scoring obtained through the formula:

$$P = \frac{nA}{X} \times 100\% \quad (2)$$

Information:

P = Percentage of pharmaceutical service standards

nA = Number of answers made by respondents

x = The number of questions

By dividing the categories into good (80–100%), sufficient (61–80%), and less (20%–60%) categories [7].

Table 1. Characteristics of Pharmacists in Klaten Regency Pharmacy in 2021

Pharmacist Data	Total	Percentage (N = 65)
Gender		
Female	55	84,62
Male	10	15,38
Age		
24–35 years	33	50,77
36–50 years	30	46,15
> 50 years	2	3,08
Last education		
Bachelor + professional pharmacist	61	93,85
Graduate	4	6,15
Length of experience as pharmacist manager of pharmacies		
<=1 year	4	6,15
> 1–5 years	16	24,62
> 5–10 years	22	33,85
> 10 years	23	35,38
Take home pay per month		
≤ Rp.2000.000	2	3,08
>Rp.2.000.000 - Rp.4.000.000	44	67,69
>Rp.4.000.000	13	20,00
Not filling	5	7,69
Filling in enough	1	1,54
Having a pharmacist assistant		
Have	16	24,62
Don't have	49	75,38
Frequency of Attendance		
During pharmacy operating hours	17	26,15
Every day at certain hours	38	58,46
present on certain days	10	15,38

3 Results and Discussion

3.1 Characteristics of Pharmacists in Klaten Regency Pharmacy

Based on the results in Table 1, there are 55 women (84.62%) of the pharmacist manager of pharmacies at the Klaten Regency pharmacy. Previous research also showed that 75%

of pharmacists in Palu City pharmacies were female [8]. With the age range being in the productive age of 24–35 years with a total of 33 people (50.77%) and only 2 people aged >50. Most of the pharmacist manager of pharmacies who work in pharmacies in Klaten Regency are graduates of bachelor + pharmacist profession with a total of 61 people (93.85%). A total of 35,38% pharmacists have work experience as pharmacist manager of pharmacies >10 years. This is in contrast to research conducted in Palu City that only 7.14% have work experience >10 years [8]. However, this does not make a problem because the longer of the work experience, the more knowledge pharmacists will have in carrying out pharmaceutical services [9]. In the take home pay per month almost half of the respondents have salaries >Rp. 2,000,000 – Rp. 4,000,000, with a total of 44 people (67.69%). This is in accordance with the Decree of the Governor of Central Java Number 561/62 of 2020 that the UMR of Klaten Regency is Rp. 2,011,514.91. More than half of pharmacist manager of pharmacies do not have assistant pharmacists with a percentage of 74.38%. Comparable to the research conducted by Dewi that most pharmacies in the Salatiga City do not have assistant pharmacists [10]. Assistant pharmacists here are pharmacists who work in pharmacies in addition to pharmacist manager of pharmacies or replace pharmacist manager of pharmacies at certain times when pharmacist manager of pharmacies is not available at the pharmacy [11]. In terms of attendance frequency, almost half of pharmacist manager of pharmacies attend every day at certain hours with a percentage of 58.46% and only 17 people attend during pharmacy operating hours. According to Law Number 13 of 2003 concerning about employment, the provisions for working time are 7–8 h per day [12]. Similar with research conducted in Singkawang City showed that more than half of pharmacists were present every day at certain hours, because pharmacists in addition to being pharmacist manager of pharmacies at the pharmacy also have other jobs such as lecturers, civil servants, temporary workers, and other reasons that cause pharmacists not to work. at the pharmacy all the time [13].

3.2 Characteristics of Pharmacies in Klaten Regency

Based on Table 2, it is stated that 69.23% of pharmacies in Klaten Regency receive less than five prescription sheets per day. The same result was also obtained in a study conducted by Yulidarsih *et al.*, [13] that more than 50% of pharmacies in Singkawang received less than 5 prescriptions per day. The research also states that the number of prescriptions per day is influenced by several things, such as the presence of a doctor at the pharmacy, the completeness of the drugs in the pharmacy, the patient's trust in the pharmacy, the price according to the community's pockets, and the location of the pharmacy close to the health center. Then 27 pharmacies (41.54%) have 2 pharmaceutical technical personnel. Research conducted in Magelang also stated that 12 pharmacies have pharmaceutical technical personnel >1, with the presence of more than 1 pharmaceutical engineering staff, it will facilitate pharmaceutical service activities so that they can run according to the provisions [9]. It is stated in the Minister of Health Regulation Number 73 of 2016 that pharmaceutical services carried out by pharmacists can be assisted by pharmaceutical technical personnel. Pharmacy technical personnel here are staff who are tasked with providing assistance to pharmacists in carrying out pharmaceutical services consisting of Pharmacy Bachelors, Pharmacy Associate Experts, Pharmacy Analysts, and Pharmacy Intermediate Personnel/Pharmacist Assistant [14]. Pharmacist

Table 2. Characteristics of pharmacies in Klaten Regency in 2021

Pharmacy Data	Total	Percentage (N = 65)
Number of prescriptions per day		
< 5 sheets	45	69,23
5–10 sheets	8	12,31
10–20 sheets	6	9,23
20–30 sheets	1	1,54
> 30 sheets	5	7,69
Number of pharmaceutical technical personnel		
1 person	20	30,77
2 persons	27	41,54
> 2 persons	14	21,54
None	4	6,15
Pharmacy operating hours		
< 12 h	7	10,77
12–18 h	56	86,15
24 h	2	3,08
Average turnover per day		
< Rp.1.000.000	7	10,77
≤ Rp.1.000.000 - Rp.2.000.000	18	27,69
Rp.2.000.000 – Rp.3.000.000	12	18,47
Rp.3.000.000 – Rp.5.000.000	20	30,77
> Rp.10.000.0000	5	7,69

Assistants consist of health workers who have a diploma from the Pharmacist Assistant School or Pharmacy High School, Health Polytechnic Department of Pharmacy, Pharmacy Academy, Health Polytechnic Department of Pharmacy and Food Analysis who have been sworn in as pharmacist assistants and have a permit in accordance with applicable [15]. A total of 56 pharmacies (86,15%) operate for an average of 12–18 h and only 2 pharmacies (3.08%) are open 24 h. For pharmacies which open 24 h, there is a requirement that they have at least 2 pharmacists [16]. The 2 pharmacies which open 24 h already have assistant pharmacists. A total of 18 pharmacies (27.69%) have an average turnover of IDR 1,000,000 - IDR 2,000,000. Previous research conducted in Palu City also showed as many as 15 pharmacies (26.79%) had a turnover of IDR 1,000,000 - IDR 2,000,000 [8]. The turnover obtained by this pharmacy can be influenced by several factors such as the level of public health, community income, and also the social conditions of the local community [17] (Table 3).

Table 3. Characteristics of the management of pharmaceutical preparations, medical devices, and medical consumables at the Klaten Regency Pharmacy in 2021

No	Question	Percentage (N = 65)	
		Yes	No
1	Planning		
	Does the pharmacist plan to procure pharmaceutical preparations, medical equipment, and medical consumables taking into account: [Patterns of disease]	92,31	7,69
	Does the pharmacist plan to procure pharmaceutical preparations, medical equipment, and medical consumables taking into account: [Consumption pattern]	100,00	0,00
	Does the pharmacist plan to procure pharmaceutical preparations, medical equipment, and medical consumables taking into account: [Cultural patterns]	69,23	30,77
	Does the pharmacist plan to procure pharmaceutical preparations, medical equipment, and medical consumables taking into account: [Community capacity]	95,38	4,62
2	Procurement		
	Does the pharmacist procure pharmaceutical preparations through official channels in accordance with statutory provisions?	100,00	0,00
3	Acceptance		
	Are the pharmaceutical preparations according to the type of specification, quantity, quality, delivery time and price stated in the letter of order with the physical condition received?	100,00	0,00
4	Storage		
	Does the pharmacist store drugs in the original manufacturer's container?	98,46	1,54
	Does the pharmacist store drugs under appropriate conditions so that their safety and stability are guaranteed?	100,00	0,00
	Is the drug storage area not used to store other items that can cause contamination?	90,77	9,23
	Is the storage system carried out by taking into account the dosage form and drug therapy class and arranged alphabetically?	93,85	6,15

(continued)

Table 3. *(continued)*

No	Question	Percentage (N = 65)	
		Yes	No
	Does the pharmacist dispense drugs according to the FEFO (First Expiry First Out) and FIFO (First In First Out) system?	100,00	0,00
5	Destruction and withdrawal		
	Does the pharmacist destroy expired or damaged drugs according to the type and dosage form?	92,31	7,69
	Do pharmacists destroy prescriptions that have been stored for 5 years?	81,54	18,46
	Is the destruction and withdrawal of pharmaceutical preparations and medical consumables that cannot be used carried out in a manner that is in accordance with the provisions of the legislation?	96,92	3,08
	Is the withdrawal of pharmaceutical preparations that do not meet the standards/stipulations of laws and regulations carried out by the distribution permit holder based on a withdrawal order by BPOM (mandatory recall) or based on voluntary initiation by the distribution permit holder (voluntary recall) while still reporting to the Head of BPOM?	92,31	7,69
	Is the recall of medical devices and medical consumables carried out on products whose distribution permit has been revoked by the Minister?	87,69	12,31
6	Controlling		
	Does the pharmacist control pharmaceutical preparations using stock cards to maintain the type and amount of inventory according to service needs, through setting up an order system or procurement, storage and dispensing?	93,85	6,15
7	Recording and reporting		
	Is it recorded that pharmaceutical preparations, medical equipment, medical consumables include: [Procurement (order letter, invoice)]	100,00	0,00

(continued)

Table 3. (continued)

No	Question	Percentage (N = 65)	
		Yes	No
	Is it recorded that pharmaceutical preparations, medical equipment, medical consumables include: [Storage (stock card)]	96,92	3,08
	Is it recorded that pharmaceutical preparations, medical equipment, consumable medical materials include: [Submission (receipt or sales receipt)]	84,62	15,38
	Is the recording of pharmaceutical preparations, medical equipment, medical consumables carried out including: [Other as needed]	87,69	12,31
	Is there internal and external reporting done?	95,38	4,62
	Overall average	93,15	6,85

3.3 Management of Pharmaceutical Preparations, Medical Devices, and Medical Consumables at the Klaten Regency Pharmacy

Activities of managing pharmaceutical preparations, medical devices, and medical consumables include planning, procurement, receipt, storage, destruction and withdrawal, control, recording and reporting. In the planning section, pharmacies in Klaten Regency have paid close attention to patterns of disease, consumption, and people's abilities, only cultural patterns are included in the sufficient category. *In line* with the research conducted by Hairunnisa *et al.*, [4] that planning activities carried out in pharmacies in Kubu Raya Regency have planned by paying attention to these 4 patterns. The function of planning activities here is to determine pharmaceutical preparations and also medical devices that will be used according to needs and budgets by taking into account disease patterns, consumption, culture, and the capabilities of the local community. Furthermore, procurement activities have been carried out by all pharmacies in Klaten Regency with an average of 100%. Procurement itself is an activity to realize needs planning activities [18]. Procurement must go through official channels that have been determined by legislation, for example, Pharmaceutical Wholesalers (PBF). For acceptance activities have been carried out by all pharmacies in Klaten Regency with an average of 100%. This activity is carried out to ensure the suitability of the physical condition received with the type of specification, quantity, quality, price, and also the time of delivery with the order letter. This is similar with previous research conducted in Pontianak District that procurement activities have been carried out through official channels and acceptance activities with each having an average of 100% [19]. The next activity is storage activity. According to the Minister of Health Regulation Number 73 of 2016 it is stated that in carrying out drug storage, it must be carried out in the original factory container, stored

in appropriate conditions so that its safety and stability will be guaranteed, not storing other items in drug storage areas, drug storage systems pay attention to dosage forms and therapeutic classes, and dispensing drugs using the FEFO (*First Expiry First Out*) and FIFO (*First In First Out*) system. Almost all pharmacies in Klaten Regency have stored drugs in the original factory containers and in appropriate conditions and dispensed drugs according to the FEFO and FIFO systems. However, there are some pharmacies whose storage does not pay attention to dosage forms and drug classes and are not arranged alphabetically. Some pharmacies also still keep other items in the drug storage area. This is similar with the research conducted by Hairunnisa *et al.*, [4] that storage activities in pharmacies in Kubu Raya Regency have been carried out in accordance with standards. The destruction and withdrawal activities at pharmacies in Klaten Regency have been carried out in accordance with statutory regulations. However, some pharmacies still do not carry out destruction and withdrawals because there are pharmacies that have been established for < 5 years. In a previous study conducted by Sahadi *et al.*, [19] stated that the destruction and withdrawal activities at pharmacies in Pontianak District had also been carried out according to standards. The next activity is controlling that has been carried out properly using stock cards by pharmacies in Klaten Regency. In line with research conducted at pharmacies in Kubu Raya Regency that controlling activities have been carried out by all pharmacies [4]. Controlling is carried out to avoid excess, shortage, vacancy, damage, expiration, loss of inventory [20]. The recording and reporting activities at pharmacies in Klaten Regency, records have been made on pharmaceutical preparations, medical devices, medical consumables when procuring with orders, invoices. In storage and delivery activities are also recorded. This is in accordance with previous research conducted by Nasyrah *et al.*, [21] that recording and reporting activities in Pontianak District have been carried out by all pharmacies. The purpose of recording and reporting is as evidence that an activity has been carried out and as a source of data in regulating and controlling [22]. Overall, it was concluded that the activities of managing pharmaceutical preparations, medical devices, and medical consumables in pharmacies in Klaten Regency had an average of 93.15% and entered the good category. Previous studies have shown that the average management of pharmaceutical preparations, medical devices, and medical consumables in Singkawang City is also in the good category (82%) [13]. Another study in Pontianak District also showed that this activity was in the good category with an average of 88% [21] (Table 4).

Table 4. Characteristics of clinical pharmacy services at the Klaten Regency Pharmacy in 2021

No	Question	Percentage (N = 65)	
		Yes	No
1	Review and prescription services		
	Do pharmacists review prescriptions before dispensing drugs to patients?	100,00	0,00

(continued)

Table 4. (continued)

No	Question	Percentage (N = 65)	
		Yes	No
	If yes, what assessments were carried out? (There can be more than one answer) [Administrative study]	100,00	0,00
	If yes, what assessments were carried out? (There can be more than one answer) [Pharmaceutical suitability study]	98,46	1,54
	If yes, what assessments were carried out? (There can be more than one answer) [Clinical considerations]	98,46	1,54
	If an administrative review is conducted, what are the assessments? (There can be more than one answer) [Patient's name]	100,00	0,00
	If an administrative review is conducted, what are the assessments? (There can be more than one answer) [Patient's age]	100,00	0,00
	If an administrative review is conducted, what are the assessments? (There can be more than one answer) [Patient's gender]	89,23	10,77
	If an administrative review is conducted, what are the assessments? (There can be more than one answer) [Patient's weight]	86,15	13,85
	If an administrative review is conducted, what are the assessments? (There can be more than one answer) [Doctor's name]	98,46	1,54
	If an administrative review is conducted, what are the assessments? (There can be more than one answer) [Practice License Number]	95,38	4,62
	If an administrative review is conducted, what are the assessments? (There can be more than one answer) [Doctor's address]	98,46	1,54
	If an administrative review is conducted, what are the assessments? (There can be more than one answer) [Doctor's phone number]	78,46	21,54
	If an administrative review is conducted, what are the assessments? (There can be more than one answer) [Doctor's]	98,46	1,54
	If an administrative review is conducted, what are the assessments? (There can be more than one answer) [Prescription date]	98,46	1,54

(continued)

Table 4. *(continued)*

No	Question	Percentage (N = 65)	
		Yes	No
	If a pharmaceutical suitability study is conducted, what are the assessments? (There can be more than one answer) [Form and strength of preparation]	98,46	1,54
	If a pharmaceutical suitability study is conducted, what are the assessments? (There can be more than one answer) [Stability]	86,15	13,85
	If a pharmaceutical suitability study is conducted, what are the assessments? (There can be more than one answer) [Compatibility (drug miscibility)]	80,00	20,00
	If a clinical judgment study was conducted, what would it be? (There can be more than one answer) [Accuracy of indication and drug dosage]	100,00	0,00
	If a clinical judgment study was conducted, what would it be? (There can be more than one answer) [Rules, method and duration of drug use]	100,00	0,00
	If a clinical judgment study was conducted, what would it be? (There can be more than one answer) [Duplication and/or polypharmacy]	90,77	9,23
	If a clinical judgment study was conducted, what would it be? (There can be more than one answer) [Unwanted drug reactions (allergies, drug side effects, other clinical manifestations)]	92,31	7,69
	If a clinical judgment study was conducted, what would it be? (There can be more than one answer) [Contraindications]	92,31	7,69
	If a clinical judgment study was conducted, what would it be? (There can be more than one answer) [Interaction]	89,23	10,77
	Is there a prescription service starting from [Receipt]	100,00	0,00
	Is there a prescription service starting from [Check availability]	100,00	0,00

(continued)

Table 4. (continued)

No	Question	Percentage (N = 65)	
		Yes	No
	Are prescription services carried out starting from [Preparation of pharmaceutical preparations, medical devices, and medical consumables]	98,46	1,54
	Is there a prescription service starting from [Drug compounding]	98,46	1,54
	Is there a prescription service starting from [Check]	98,46	1,54
	Is there a prescription service starting from [Submission]	100,00	0,00
	Is there a prescription service starting from [Providing information]	100,00	0,00
2	Dispensing		
	After conducting a prescription review, does the pharmacist do the following? (There can be more than one answer) [Prepare medicine according to prescription]	100,00	0,00
	After conducting a prescription review, does the pharmacist do the following? (There can be more than one answer) [Compounding drugs if needed]	95,38	4,62
	After conducting a prescription review, does the pharmacist do the following? (There can be more than one answer) [Give the appropriate label on the packaging]	100,00	0,00
	After conducting a prescription review, does the pharmacist do the following? (There can be more than one answer) [Put medicine into the right container]	98,46	1,54
	After drug preparation, does the pharmacist do the following? (There can be more than one answer) [Re-checking the writing of the patient's name on the label, how to use it and the type and amount of medicine (conformity between the writing of the label and the prescription)]	100,00	0,00
	After drug preparation, does the pharmacist do the following? (There can be more than one answer) [Call the patient's name, waiting number]	93,85	6,15

(continued)

Table 4. *(continued)*

No	Question	Percentage (N = 65)	
		Yes	No
	After drug preparation, does the pharmacist do the following? (There can be more than one answer) [Re-check the patient's identity and address]	93,85	6,15
	After drug preparation, does the pharmacist do the following? (There can be more than one answer) [Submit medicine accompanied by drug information]	100,00	0,00
	After drug preparation, does the pharmacist do the following? (There can be more than one answer) [Provide information on how to use the drug]	100,00	0,00
	After drug preparation, does the pharmacist do the following? (There can be more than one answer) [Drug delivery to patients is done in a good way]	100,00	0,00
	After drug preparation, does the pharmacist do the following? (There can be more than one answer) [Ensure that the patient or family receiving the drug]	98,46	1,54
	After drug preparation, does the pharmacist do the following? (There can be more than one answer) [Making a copy of the recipe according to the original recipe]	80,00	20,00
	After drug preparation, does the pharmacist do the following? (There can be more than one answer) [Keep the recipe in its place]	98,46	1,54
	After drug preparation, does the pharmacist do the following? (There can be more than one answer) [The pharmacist keeps a patient medication record]	72,31	27,69
3	Drug Information Services		
	Does the pharmacist answer questions both verbally and in writing and provide information and education to patients	100,00	0,00
	Does the pharmacist answer questions both verbally and in writing and provide information and education to patients	33,85	66,15

(continued)

Table 4. (continued)

No	Question	Percentage (N = 65)	
		Yes	No
	Does the pharmacist make and distribute bulletins / brochures / leaflets, community empowerment (counseling)?	55,38	44,62
	Does the pharmacist provide knowledge and skills to students in professional practice?	7,69	92,31
	Does the pharmacist conduct research on drug use and create or submit papers in scientific forums?	61,54	38,46
	Does the pharmacist have a quality assurance program?	61,54	38,46
4	Counseling		
	Does the pharmacist open communication with the patient and assess the patient's understanding of drug use through the Three Prime Questions?	73,85	26,15
	Does the pharmacist seek further information by giving patients the opportunity to explore drug use problems and provide explanations for solving drug use problems?	89,23	10,77
	Does the pharmacist perform final verification to ensure patient understanding and document counseling by requesting the patient's signature as evidence?	49,23	50,77
5	Pharmacy Services at Home		
	Do pharmacists provide pharmacy services that are home visits, especially for the elderly group and patients with treatment for other chronic diseases?	20,00	80,00
6	Drug Therapy Monitoring		
	Does the pharmacist select patients who meet the criteria for Drug Therapy Monitoring (PTO)?	47,69	52,31
	Does the pharmacist take the required data in the form of a patient's medical history and identify drug-related problems?	64,62	35,38
	Does the pharmacist prioritize problems according to the patient's condition and provide recommendations or follow-up plans containing a monitoring plan?	56,92	43,08

(continued)

Table 4. (continued)

No	Question	Percentage (N = 65)	
		Yes	No
	Have the results of the identification of drug-related problems and the recommendations made by the pharmacist been communicated to the relevant health professionals to optimize therapy goals?	50,77	49,23
	Does the pharmacist document the implementation of drug therapy monitoring?	35,38	64,62
7	Monitoring of Drug Side Effects		
	Does the pharmacist identify drugs and patients with a high potential for drug side effects?	63,08	36,92
	Does the pharmacist fill out MESO forms and report them to the National Drug Side Effects Monitoring Center?	20,00	80,00
	Overall average	83,38	16,62

3.4 Clinical Pharmacy Service Activities at the Klaten Regency Pharmacy

Clinical pharmacy service activities include assessment and prescription services, *dispensing*, drug information services, counseling, pharmaceutical services at home, monitoring drug therapy, and monitoring drug side effects (MESO). In Table 2, the results of the assessment and prescription have been done by all pharmacies in Klaten Regency. Prescription review is an activity to check the completeness of the prescription which consists of administrative studies, pharmaceutical suitability, and clinical considerations [23]. This activity is in the good category and according to standards. This is similar with research conducted at the Singkawang City Pharmacy in 2019 that assessment activities and prescription services performed by almost all pharmacies with an average of 92% [13]. Administrative studies here include the patient's name, age, gender, weight, doctor's name, practice license number (SIP), address, telephone number, initials, and date of prescription writing. The pharmaceutical suitability study here to see whether or not there are errors in dosage form and strength, stability, and compatibility of drugs [24]. Then the clinical considerations include appropriate drug indications and doses, contraindications, unwanted drug reactions, and interactions. The purpose of conducting a prescription review is to prevent and assess if there are drug-related problems such as providing information and writing inappropriate prescriptions [21]. In addition, prescription assessment can reduce the occurrence of errors in prescribing in pharmacies [8]. The next activity is dispensing which consists of preparing, delivering, and providing drug information to patients. In the drug preparation activities have been carried out properly according to prescription requests, labeling the packaging, and putting the drug

into an appropriate container. Then the label checks and the drug information are given. This is also in line with research conducted by Prabandari and Putri [25] that activities of dispensing have been carried out in Tegal City pharmacies well, only one pharmacy that does not carry it out. Research conducted at pharmacies in Pontianak District also showed activities dispensing consisting of the delivery, preparation, and delivery of information has done well [19]. The next is a drug information service activities. This activity is the provision of information and education to patients which has been carried out by all pharmacies in the Klaten Regency. In addition there are activities making brochures, provide knowledge and skills in students who are professional practice, quality assurance programs, and conduct research and submitting a paper in a scientific forum that is still lacking and have not done well, only a few pharmacies are doing it. In line with research conducted at pharmacies in Kubu Raya Regency in 2018 that the provision of information and education activities have been carried out by all pharmacies in the district, but other activities such as drug information service documentation such as brochures have not been implemented properly [4]. Next is the counseling activity that serves to educate patients and provide information related to the drugs given [26]. On the results of research on counseling activities at pharmacies in Klaten Regency, pharmacists have to communicate with patients and provide an explanation regarding drug use. However, half of the pharmacies in Klaten Regency did not do a final verification and documentation at the time of counseling. This is similar with the research of *Nasyrah et al.*, [21] that counseling activities at pharmacies in West Pontianak District only gave explanations regarding drug use and not done routinely because the pharmacist does not have enough time to provide counseling to the patient and sometimes not at the pharmacy. At home pharmaceutical service activities have an average of 20%, which means that pharmaceutical service activities at home are still low. Only 13 pharmacies do it. Previous research in pharmacies in Kubu Raya Regency in 2018 showed that activity in the pharmaceutical service activities is still low and not fully implemented [4]. In accordance with Permenkes Nomor 73 of 2016 pharmaceutical services at home are usually reserved for the elderly group and patients with treatment for other chronic diseases. The aim is to monitor drug therapy given and overcome patient non-adherence in drug treatment in the long term [17, 22]. Furthermore, drug therapy monitoring activities in pharmacies in Klaten Regency, not all pharmacists select patients for monitoring drug therapy, the documentation process is also more than half of the pharmacies do not do it. This result is the same with previous research conducted by Sahadi *et al.*, [19] showed that drug therapy monitoring activities in Pontianak District has not been carried out to the maximum. Monitoring drug therapy according to Permenkes Number 73 of 2016 is to ensure whether the patient has received effective therapy with minimal side effects and maximum and affordable efficacy. The last is the monitoring of drug side effects, which includes identification of patients with high potential for drug side effects and filling out the MESO form and reporting it to the National Drug Side Effects Monitoring Center. A total of 41 pharmacies (63.08%) identified patients regarding the potential side effects that would be caused. However, only 13 pharmacies (20%) filled out the MESO form and reported it to the National Drug Side Effect Monitoring Center. Previous research in pharmacies in West Pontianak District also stated that MESO relatively less activity [21]. So that it can be concluded that clinical pharmacy service activities

at pharmacies in Klaten Regency are in the good category with an overall average of 83.38%. This is consistent with previous studies conducted in West Pontianak that the activities of pharmaceutical care clinics in the city also fit into good category [21]. The lack of clinical pharmacy service activities are carried out due to several factors, such as there are still many pharmacies that do not make home visits, drug information service activities such as distributing brochures and submitting papers in scientific forums are lacking, pharmacists do not do documentation when monitoring drug therapy, and do not fill out MESO and did not report it to the National Drug Side Effect Monitoring Center.

4 Conclusion

Based on the results of the study according to the Minister of Health Regulation Number 73 of 2016, the management of pharmaceutical preparations, medical devices, and medical consumables in pharmacies in Klaten Regency are in the good category with a percentage of 93.15%. Activities that have not been carried out much are planning procurement by taking into account cultural patterns. While clinical pharmacy services at pharmacies in Klaten Regency also included in the good category with a percentage of 83.38%, with several aspects that have not been carried out such as distributing brochures and submitting papers in scientific forums, pharmaceutical services at home, and filling out MESO and did not report it to the National Drug Side Effect Monitoring Center.

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