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Analysis of the Implementation of Clinical Pharmacy Services Based on Minister of Health Regulation No. 73 of 2016 at the Kapanewon Minggir Pharmacy, Sleman, Yogyakarta

Veronika Livia Gavrilayanti, Titien Siwi Hartayu
Universitas Sanata Dharma Yogyakarta, Indonesia
Email: veronikalivia292@gmail.com, titien_hartayu@yahoo.com

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Abstract
Clinical pharmacy services are a mandatory component of pharmaceutical service standards in community pharmacies, as stipulated in the Regulation of the Minister of Health of the Republic of Indonesia Number 73 of 2016. This study aimed to analyze the implementation of clinical pharmacy services based on PMK RI Number 73/2016 and to identify supporting and inhibiting factors affecting their implementation in pharmacies. The study employed a descriptive analytic design with a mixed-method approach. The study subjects consisted of four pharmacists in charge of pharmacies, selected based on inclusion and exclusion criteria. Data were collected through document observation and observation of clinical pharmacy service implementation using a checklist based on PMK 73/2016, as well as in-depth interviews to further explore the findings. Data were analyzed descriptively and validated using triangulation methods. Document observation results revealed differences in the completeness of standard operating procedures for clinical pharmacy services among pharmacies, with Pharmacy B categorized as good (≥80%), Pharmacy A as moderate (≥61%), while Pharmacies C and D were categorized as poor (≤60%). Observation of service implementation showed that prescription review and dispensing activities had been well implemented in all pharmacies. In contrast, drug information services remained limited, and counseling services varied among pharmacies. Other clinical pharmacy services, including home pharmacy care, drug therapy monitoring, and adverse drug reaction monitoring, had not been implemented in all pharmacies. Based on interview findings, the gap between document completeness and service implementation was influenced by limited knowledge, the absence of supporting systems and documentation, limited human resources, and low managerial support. Therefore, strengthening support systems, enhancing pharmacists' capacity, and implementing more focused supervision and guidance on clinical pharmacy services are required.

INTRODUCTION

Pharmaceutical service standards in pharmacies serve as guidelines for pharmacists in providing quality services to the public (Ministry of Health R, 2016; Tuwogena et al., 2021). Along with the development of science and the demands of health needs, the paradigm of pharmaceutical services has shifted from being drug-oriented to patient-oriented (Lovilia et al., 2024; Patty & Parwati, 2024). This shift emphasizes that pharmaceutical services not only focus on the provision and management of drugs, but also on ensuring patient safety and successful therapy through the active role of pharmacists (Aryati & Reganata, 2021). To support this, the Indonesian Government established regulations through Regulation of the Minister of Health of the Republic of Indonesia (PMK) Number 73 of 2016 concerning Pharmaceutical Service Standards in Pharmacies as a legal basis for carrying out professional pharmaceutical practice (Ministry of Health R, 2016; Ministry of Health RI, 2019).

Pharmaceutical services in pharmacies encompass two main aspects: the management of pharmaceutical preparations, medical devices, and disposable medical materials (BMHP), and clinical pharmacy services (Febiana et al., 2023; Sagitasa & Iskandar, 2024). Clinical pharmacy services emphasize the direct role of pharmacists in providing patient-focused pharmaceutical services (Supriadi, 2025). Clinical pharmacy services performed by pharmacists include prescription assessment and service, dispensing, drug information services, counseling, *home pharmacy care* , drug therapy monitoring, and monitoring of drug side effects. These activities not only ensure the safety and effectiveness of therapy but also improve patients' quality of life through rational drug use. The success of pharmaceutical services in pharmacies is greatly influenced by the consistent implementation of clinical pharmacy services (Rosita & Tetuko, 2023; Ningrum & Yuliana, 2021; Amalia, 2019).

The consistency of clinical pharmacy service implementation in pharmacies varies significantly across regions. Although regulations are in effect nationally, pharmacists' understanding, implementation, and compliance with pharmaceutical service standards in pharmacies still vary (Heroweti et al., 2023) . This is demonstrated by the results of monitoring of pharmacy facilities by the Food and Drug Monitoring Agency (BPOM) in Yogyakarta City, which found persistent violations in pharmaceutical practices by pharmacists (BPOM, 2023). Furthermore, a report from the Sleman Regency Health Office showed that in the first quarter of 2025, only 41.69% of 323 pharmacies submitted pharmaceutical service reports. This condition reflects that the implementation of clinical pharmacy services is not yet optimal (Sleman Health Office, 2020).

Several previous studies have shown that the implementation of clinical pharmacy services in pharmacies still faces several obstacles. A 2023 study in Magelang Regency showed that although prescription review and medication dispensing were well-implemented (>90%), only 66% of pharmacies routinely provided counseling, while monitoring for drug side effects was not yet implemented (Rahmawati et al., 2023). In Kupang City, counseling services were only provided under certain conditions, while *home pharmacy care* and drug therapy monitoring were also not implemented due to the lack of SOPs and adequate documentation system support (Patty & Parwati, 2024). Documentation of clinical pharmacy services has not become a routine practice due to pharmacists' lack of understanding of the importance of documentation and a lack of oversight from relevant agencies. This situation highlights the existence of structural and operational barriers that need to be evaluated for effective policy implementation at the healthcare facility level (Adani et al., 2025).

To date, no research has been found that specifically analyzes the implementation of clinical pharmacy services in pharmacies in the Kapanewon Minggir area. Most previous studies have primarily used surveys or questionnaires as their primary method, but have never combined them with document observation, implementation observation, or in-depth interviews to more comprehensively explore structural and operational barriers. Therefore, this study aims to analyze the implementation of PMK 73/2016 in pharmacies in Kapanewon Minggir using a more comprehensive triangulation method, thereby providing an empirical basis for strengthening clinical pharmacy services .

RESEARCH METHOD

This research is a descriptive analytical study with a *mixed methods approach* that combines quantitative and qualitative data to obtain a comprehensive picture of the implementation of clinical pharmacy services based on PMK 73/2016 in pharmacies. In-depth interviews with pharmacists in charge of pharmacies were conducted to explore factors influencing the implementation of clinical pharmacy services. The study was conducted after obtaining ethical approval from Respati University Yogyakarta under number 027.3/FIKES/PL/IV/2025.

The study population included five pharmacies in the Minggir Subdistrict of Sleman. The sample was determined using *a purposive sampling technique* based on the following inclusion criteria: pharmacies that had been operating for ≥1 year, had an active Pharmacy License (SIA), had clinical

pharmacy service documents from 2024, and were managed by a Pharmacy Manager (APA) or Assistant Pharmacist (APING) with ≥1 year of work experience and were willing to be interviewed. Exclusion criteria included pharmacies under hospitals, state-owned enterprises, or franchises; pharmacies operating for less than one year; APAs/APINGs on leave; and pharmacies that lacked relevant administrative documents. Based on these criteria, four APAs from eligible pharmacies were selected as study subjects.

The research instruments consisted of document observation sheets, implementation observation sheets, and in-depth interviews. The document observation and implementation observation sheets were compiled and validated based on the provisions of PMK 73/2016, ensuring that the assessment items reflect nationally applicable clinical pharmacy service standards. Interview guides with responsible pharmacists were developed based on data obtained from document observation and SPKA implementation observations. The data collection method was as follows:

1. Document Observation

Researchers conducted document observations of all clinical pharmacy service documents in each pharmacy, including Standard Operating Procedures (SOPs) and supporting forms in accordance with PMK 73/2016. The documents reviewed included SOPs for prescription services (general, compounded, and narcotics), SOPs for prescription screening, SOPs for prescription dispensing, SOPs for counseling, SOPs for drug information services (PIO), SOPs for home pharmacy care, SOPs for drug side effect monitoring (MESO), SOPs for drug therapy monitoring (PTO), and SOPs for SIMONA and SIPNAP reporting. Document observations were conducted to map potential gaps between SOPs and practice. The results of document observations were used as a basis for comparison in implementation observations to assess consistency between document provisions and actual implementation in pharmacies.

2. Implementation Observation

Implementation observations were conducted using a checklist containing indicators for the implementation of clinical pharmacy services. The checklist was compiled based on the service components in PMK 73/2016, which consist of: 22 points on the aspects of prescription assessment and services, 14 points on the dispensing process, 7 points on drug information services (PIO), 8 points on counseling, 6 points on *home pharmacy care* , 7 points on drug therapy monitoring (PTO), and 3 points on drug side effect monitoring (MESO). In the checklist, a "Yes" answer indicates that the pharmacist implemented the clinical pharmacy service indicators, while a "No" answer indicates that the indicators have not been implemented, thus reflecting actual implementation in the field.

3. In-depth Interview

In-depth interviews were conducted *face-to-face* by the researcher with the pharmacist in charge of the pharmacy. Interview guidelines were developed based on initial findings from document observations and observations of the implementation of pharmaceutical services, then grouped into several key indicators of pharmaceutical services as regulated in PMK 73/2016. The interview process used *a semi-structured interview guide* , allowing the researcher to conduct probing to explore the informant's answers in more depth according to the context of the findings. All interviews were recorded with the informant's consent, transcribed verbatim, and analyzed systematically. If the information obtained was deemed insufficient, the researcher returned to the field to conduct additional interviews until data saturation was achieved. The following is a list of questions used in the in-depth interviews:

Table 1. In-depth Interview Questions

No	Clinical Pharmacy Service Indicators	In-depth Interview Questions
1.	Prescription Review and Service	a. Are there any specific circumstances that prevent you from having your doctor's signature checked? If so, what are the reasons for not having your doctor's signature checked? b. When screening prescriptions, do you check the stability and compatibility of the drug preparations? If yes, how is the process? c. How do you check for potential drug duplication during prescription screening? Under what circumstances is this test typically performed? d. When screening a prescription, what aspects do you check to ensure the medication is safe for the patient to use?
2.	Dispensing	a. In prescription services, what procedures do you follow when dispensing medicines such as dry syrup? b. How do you ensure the accuracy of the medication before giving it to the patient? c. When providing prescription services, does the pharmacy provide copies of prescriptions to patients? If so, under what circumstances are copies usually provided?
3.	PIO	a. In Drug Information Services (PIO), how do pharmacies typically record or document these activities? Is there a specific form used, such as Form 5, or is there another method commonly used? b. What pharmacists do to ensure that the drugs they provide are of high quality and that their services are also of high quality. High quality means they comply with applicable regulations and meet established standards. c. What are the implementations of drug use research in pharmacies? Especially for drugs that are easily abused (dextromethorphan HBr and pseudoephedrine HCl).
4.	Counseling	a. How do you conduct counseling with patients, including how do you assess the patient's understanding of the medication given, for example by using *the Three Prime Questions* ? b. How is counseling documented at this pharmacy? Is there a form or written evidence, such as a patient's signature, to prove they have received and understood the counseling information?
5.	Home Pharmacy Care	Has this pharmacy ever been involved in home care services? If so, what was the planning and implementation process like, and what challenges were encountered?
6.	PTO	How does your pharmacy contribute to monitoring patient drug therapy, particularly in detecting side effects or drug interactions?
7.	MESO	How is the process of monitoring and evaluating medication status at your pharmacy, particularly in

No	Clinical Pharmacy Service Indicators	In-depth Interview Questions
		ensuring the availability and use of medications according to patient needs?

After the entire data collection process was completed, the researcher proceeded to the verification stage to ensure the accuracy and reliability of the information obtained. Data analysis in this study utilized triangulation as the primary approach to validate the findings. Triangulation was conducted by comparing three data sources: document observation, implementation observation, and in-depth interviews.

The first stage of triangulation began with researchers reviewing clinical pharmacy service documents (SOPs and forms) to identify compliance with PMK 73/2016 and to map potential administrative gaps. The results of the document analysis were then confirmed through implementation observations to determine whether the listed procedures were actually implemented in daily pharmacy practice. Furthermore, the findings from both stages were verified through in-depth interviews with pharmacists to obtain explanations regarding the reasons for non-compliance, implementation constraints, and factors influencing clinical pharmacy service practices.

If inconsistencies were found between documents, practices, and informant statements, researchers re-verified the data through additional interviews until no new information was obtained (data saturation). Through this triangulation process, all data was systematically analyzed, resulting in more valid, credible, and objectively representative conclusions about the state of clinical pharmacy services in the field.

RESULTS AND DISCUSSION

Document Observation

Observations on the completeness of SOPs revealed differences in the completeness of SOP documents for clinical pharmacy services between pharmacies. Pharmacy B had the highest SOP availability (90%), which is categorized as good, while Pharmacy A achieved 65% (sufficient), and Pharmacies C and D were categorized as poor, achieving only 60% and 20%, respectively. This difference reflects the heterogeneity in SOP compliance across pharmacies. The results are summarized in Figure 1, as follows:

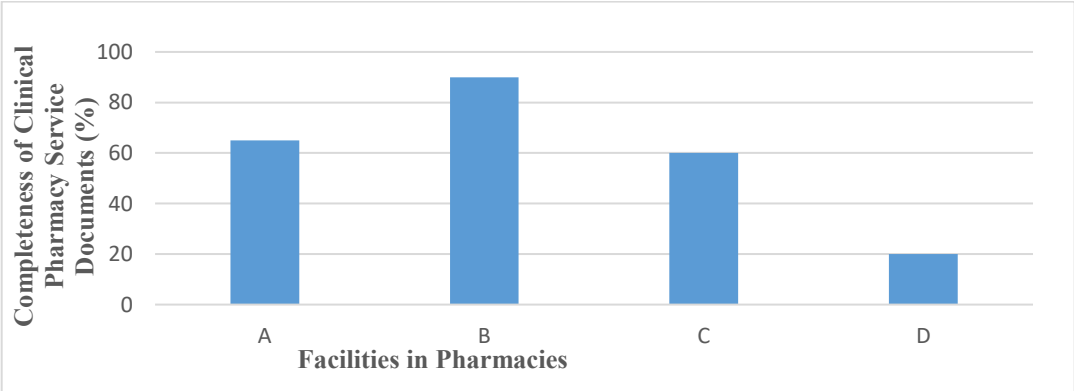

Figure 1. Completeness of Clinical Pharmacy Service SOP Documents

This shows the lack of uniformity in preparing SPOs in pharmacies that the implementation of SOPs in the field has not been fully in line with the provisions of PMK No. 73 of 2016 and PP No. 28 of 2024 which emphasize that every health service facility is required to prepare and implement SOPs

comprehensively as part of fulfilling service quality standards (Ministry of Health R, 2016; Government Regulation R, 2024).

In-depth interviews corroborated these findings, with four pharmacists stating they were unaware of the obligation to develop comprehensive SOPs for clinical pharmacy services, and that guidance from the health department focused more on administrative aspects such as document management, licensing, record-keeping, and meeting official requirements to support the delivery of pharmaceutical services . This is reflected in the following statements:

"...I thought SOPs were only for prescription services. I didn't know there was an SOP requirement for counseling and monitoring of drug side effects..." [Pharmacy A]

"...Inspections from the department usually focus on drug stock and procurement documents, clinical pharmacy SOPs are rarely asked about..." [Pharmacy B]

"...I just learned that there should be other SOPs such as drug information services, home pharmacy care, monitoring of drug side effects and monitoring of drug therapy..." [Pharmacy C]

"...During inspections, the focus is more on drug availability and routine reporting, clinical SOPs are never asked..." [Pharmacy D]

Research shows that the main obstacles to fulfilling SOPs for clinical pharmacy services are not only related to administrative aspects, but also limited knowledge, which has prevented the preparation of supporting documents for clinical services from being a priority (Kiflu *et al.,* 2024). This limited knowledge is inseparable from the lack of training or continuing education that should strengthen clinical service competencies. In reality, the training provided so far has focused more on procurement, drug stock management, and routine reporting, resulting in less attention being paid to strengthening pharmacists' clinical services. This situation contributes to the widening gap between regulatory standards and field practice (Santos *et al.,* 2018; Kilonzi *et al.,* 2023). Furthermore, the absence of sanctions or rewards for pharmacists in implementing pharmaceutical service standards also reduces motivation to implement these standards optimally (Prabasiwi & Satibi, 2012).

Implementation Observation and In-depth Interviews

Based on observations, differences were found in the implementation of clinical pharmacy service standards between pharmacies. To gain a deeper understanding, these observations are discussed further based on each aspect of clinical pharmacy service.

a. Prescription Assessment and Service

Observations on the implementation of this indicator indicate that the prescription assessment and service aspects have a high implementation percentage, namely 86% in Pharmacies A and B and 91% in Pharmacies C and D. This achievement is in line with previous studies that stated that prescription assessment and service in the Sleman area (100%) and Magelang (93.28%) are in accordance with PMK 73/2016 (Rosita & Tetuko, 2023; Rahmawati *et al.,* 2023). Despite the high implementation percentage, observations indicate that the prescription review process has not been implemented properly. Several aspects, especially administrative examination of prescriptions, have not been carried out consistently in service practices.

Based on document observations, all pharmacies have complete SOPs for prescription assessment and service, but the absence of prescription screening forms at Pharmacy D results in suboptimal assessment processes. This lack of supporting instruments often leads to several crucial steps, such as checking the doctor's initials during administrative checks, being overlooked, even though the procedure is clearly written in the SOP. This was conveyed by an informant from Pharmacy D who said:

"...Yes, if it's a doctor I know who practices around here, I don't check their initials. What matters is the patient's name and medication are clear..."

This practice indicates that administrative checks are not yet understood as a crucial step in preventing *medication errors,* but rather are considered merely a formality. In fact, checking the doctor's initials is part of verifying the legality of the prescription, as well as ensuring its authenticity and responsibility for writing the prescription. Ignoring this step can potentially lead to risks such as counterfeit prescriptions, drug duplication, and medication errors, especially when pharmacists change shifts or when the prescriber is unknown. These results align with research by Silvi *et al.* (2024) and Raptania & Eka Pitaloka (2025), which shows that administrative aspects are often overlooked because pharmacists focus more on drug information than on completeness of verification.

In addition to administrative issues, implementation observations revealed weaknesses in the pharmaceutical aspect, particularly regarding suboptimal drug stability and compatibility checks. In practice, stability and compatibility checks are not yet a routine part of the prescription review process across all pharmacies. Several pharmacists acknowledged that these checks are rarely performed because they are considered time-consuming and not always relevant to the type of prescription received. An informant from Pharmacy A stated:

"...We rarely check stability and compatibility, because there is no formula..."

"...If you often find that here, most of the recipes are single..."

The informant from Pharmacy B added:

"...There is no specific time to check stability and usually only pharmacological interaction checks are carried out..."

Limited understanding of stability and compatibility checking procedures was expressed by informant Pharmacy C who said:

"...Ha iku iku sek confused, screening recipe until stability?..."

Meanwhile, the informant from Pharmacy D stated that:

"...Stability and compatibility checks rely more on personal experience without any specific steps or standard references..."

The minimal implementation of pharmaceutical aspect inspections aligns with research by Silvi *et al.* (2024) in Demak Regency, which found that administrative evaluations were conducted more frequently than pharmaceutical ones. Pharmacists' limited technical knowledge is one of the causes, resulting in suboptimal stability and compatibility evaluations. This underscores the importance of improving pharmacist capacity through ongoing training. This aligns with the findings of Charles *et al.* (2023), which demonstrated that clinical pharmacy education can improve pharmacists' skills in assessing drug stability and compatibility.

Furthermore, pharmaceutical limitations are accompanied by clinical inconsistencies. Checking for duplicate therapies and contraindications is still frequently overlooked in prescription practice. At Pharmacies A and B, checks for duplicate therapies have not been consistently implemented. An informant from Pharmacy A stated:

"... If the prescription is one and the medicine is small, I don't think there is any duplication ..."

The quote suggests an assumption that accepted prescriptions are free from duplication without a systematic verification process. An informant from Pharmacy B added:

"...Duplication is only checked if the patient brings old medication..."

This statement emphasizes that duplication checking is passive and relies heavily on patient initiative to provide or share a complete medication history. This reflects that the process of identifying drug duplication has not been systematically implemented as part of pharmacists' clinical evaluations. Communication barriers also contribute, as some patients are reluctant or unaccustomed to providing detailed medication histories, limiting the information pharmacists receive (Iva Rinia Dewi *et al.,* 2024; Dhafin *et al.,* 2025; Yimer *et al.,* 2020). However, drug duplication detection should be performed on every prescription because potential duplication can occur even when the medication appears small or

when the patient did not bring the previous medication. This inconsistent practice risks *medication errors,* especially in patients with chronic illnesses or polypharmacy (Lisni *et al.,* 2021).

Discrepancies were also found in the examination of contraindications, especially at Pharmacy D. The informant explained that this examination was not carried out comprehensively,

"...Usually only the easy ones… if there is a prescription for methylprednisolone, I ask if the patient has a history of diabetes…"

The interview excerpts above indicate that contraindication identification is not yet based on systematic clinical guidelines, but rather relies on personal experience or general knowledge. Incomprehensive contraindication assessments increase the risk of *adverse drug reactions* and reduce the quality of clinical pharmacy services (Lisni *et al.,* 2021). Therefore, increasing pharmacist capacity through clinical training and providing standardized screening instruments is crucial to ensure that the prescription review process not only meets administrative requirements but also includes comprehensive, evidence-based pharmaceutical and clinical evaluations.

b. Dispensing

The results of the implementation observation show that the dispensing aspect in Pharmacy A has the highest implementation rate of 93%, while Pharmacies B, C, and D have 86%. These percentages indicate that dispensing practices in pharmacies are in the good category as regulated in PMK 73/2016, however, in its implementation, several important components were still found that have not been implemented so that the quality of service still needs to be improved.

One key finding was the lack of specific SOPs regarding the administration of *dry syrup antibiotics* , particularly regarding reconstitution procedures, solvent volume, shaking techniques, stability, and important information that must be communicated to patients. This lack of written guidance leaves practice dependent on individual staff habits. Several informants stated that they give patients the option to dilute the tablets at home or have them reconstituted by a pharmacist. This practice is reflected in the following statement from a pharmacist:

"...We offer to dilute it here or at home..." [Pharmacy A]

"...Oh yes, we ask about the dry syrup, whether we want to dilute it ourselves or dilute it at the pharmacy, we ask that, miss, because we don't know, sometimes the patients are also medical personnel, nurses or midwives, they can do it themselves..." [Pharmacy D]

"... There is no specific SOP for dry syrup, so we usually explain to patients whether they want to dilute it themselves or we will dilute it..." [Pharmacy B]

"...When mixing dry syrup, I always ask the patient first whether they want me to dilute it at the pharmacy or if they want to take it home..." [Pharmacy C]

These quotes indicate procedural inconsistencies that could potentially impact the quality and safety of the preparation. This is crucial because *dry syrup reconstitution* requires precise volume and shaking techniques to maintain antibiotic stability and effectiveness. This issue aligns with research findings in Nablus, Palestine, and Sri Lanka, which showed that *dry syrup reconstitution* performed by patients or caregivers often results in errors in measurement, mixing, and dosing. Therefore, the *dry syrup reconstitution process* should be performed directly by pharmacists to ensure the accuracy, safety, and effectiveness of antibiotic therapy (Al-Ramahi *et al.,* 2015; Kumarasinghe & Weerasinghe, 2024).

Meanwhile, other findings on the dispensing service flow indicate that *double-checking* has not been consistently implemented across all pharmacies. This inadequacy is evident in the practice of double-checking, which should be a *safety check* , but in practice is often replaced by individual staff assessments without the involvement of a second pharmacist or a structured verification mechanism. Several informants explained that *double-checking* is rarely performed due to limited human resources and high workloads. This is reflected in the following statement:

"...I only check once when preparing the medication, for example, the number of tablets and the label. After that, it's given straight away. There's no double-checking because it's just me..." [Pharmacy A]

"...Usually, after I prepare and label the medication, I immediately hand it over to the patient. There's no special double-checking, just a quick check of the quantity and name of the medication..." [Pharmacy D]

"...The double check is sometimes overlooked, especially when I'm working alone. I usually check the medication when preparing and before dispensing, but it's actually just one process, not a separate double check. So, it's more of a one-step check, not a two-step double check, as the double check concept suggests..." [Pharmacy C]

" ...I still do the check, but I do it myself because I'm on duty alone. So I prepare the medication, then I take another quick look before handing it over ..." [Pharmacy B]

In pharmaceutical practice standards, *double-checking* is a critical verification mechanism that serves as *an error interception point* to prevent dosage errors, medication selection errors, and patient identity discrepancies, especially in pharmacies with high service loads and high patient visits (Douglass *et al.,* 2018). This is crucial because research in various developed and developing countries shows that pharmacy facilities with limited staff tend to skip the *double-checking step* , increasing the potential for *medication errors* (Aldhwaihi *et al.,* 2016; Ibrahim *et al.,* 2020; Soubra & Karout, 2021). Research by Anggreini and Hidayah (2022) also confirms that high workloads and low awareness of pharmaceutical service standards contribute to increased medication errors in pharmacies.

double-checking practice reflects a similar pattern to the finding that prescription copies *for* documentation purposes have not been properly prepared. Regulation of Minister of Health Regulation 73/2016 clearly requires pharmacies to produce copies of prescriptions that are faithful to the original when needed as part of service documentation (Ministry of Health R, 2016). This situation was further clarified through interviews with pharmacists, who outlined various operational reasons why this procedure has not been optimally implemented. Interview findings indicate that prescription copies in pharmacies are not understood as part of documentation obligations and patient safety systems, but rather are viewed as a service provided only upon patient request. Several pharmacists stated that prescription copies are not a routine procedure and are not considered necessary unless requested by the patient. This is illustrated by the informant's statement:

"...We usually only give copies of prescriptions if the patient asks for them... it is rare for a patient to ask for a copy of a prescription..." (Pharmacy A).

In addition to low patient demand, some pharmacists also stated that not providing copies of prescriptions was done intentionally to prevent patients from purchasing medications without consulting their doctor. This view is evident in the following statements:

"...Usually we don't give a copy of the prescription... so that the patient can continue to check with the doctor... to prevent the patient from continuing treatment without the doctor's knowledge..." (Pharmacy D).

Other pharmacists also associated prescription copying with special circumstances, such as repeated prescriptions, drug unavailability, or patient request. However, for certain medications, such as antibiotics, prescription copies are still not provided due to the perceived potential for misuse. This is reflected in the statement:

"...I never offer a copy of a prescription... if a patient asks for a copy of the prescription, I can make one. However, for antibiotics, I cannot make a copy of the prescription to be purchased again..." (Pharmacy C).

On the other hand, there are also pharmacists who keep the original prescription completely without making a copy, even when the patient requests a refill. The informant stated:

"...I keep the prescription... when it comes to a copy of the prescription, I don't make one... even if the patient asks for a new prescription to be written, I still don't give them a copy of the prescription..." (Pharmacy B).

This practice suggests that some pharmacies place greater emphasis on retaining prescriptions than providing patients with access to copies. Overall, these interview excerpts indicate that non-compliance with the requirement to make copies of prescriptions is not only due to a lack of understanding of the regulations, but also influenced by perceptual factors, clinical concerns, and a practice culture that prioritizes restricting drug use. Prescription copies serve a crucial role in documenting services, tracking therapy, and evaluating drug use, as stipulated in PMK 73/2016. Failure to implement this procedure has the potential to reduce the accuracy of service records and limit efforts to ensure the quality of pharmaceutical services in pharmacies.

c. Drug Information Services

Based on observations, the level of implementation of Drug Information Services (PIO) in AD pharmacies reached 28.5% of the standard set in PMK 73/2016. This achievement is lower than other aspects of clinical pharmacy services, such as prescription review and prescription and dispensing services. This low achievement is due to the failure to implement several important PIO components, including drug use research, PIO documentation using Form 5, and the implementation of quality assurance programs. To strengthen the analysis, researchers conducted in-depth interviews with pharmacists.

Observations showed that none of the pharmacies (A–D) conducted drug utilization research, either for drugs frequently used by the public or drugs at risk of abuse. This lack of drug utilization research is reinforced by a statement from a pharmacist at Pharmacy A who stated that this activity had never been conducted due to limited knowledge and time:

"...Research into drug use has never been done. We don't have the time and don't know how to do it..." [Pharmacy A]

This statement indicates a competency gap and a lack of support from pharmacy management, reflected in the absence of SOPs for conducting drug utilization studies. Pharmacies B and D also stated similarly, stating that drug utilization studies had never been conducted. Oversight was limited to the dispensing of high-risk medications:

"...Research on drug use has never been conducted here. For drugs with a risk of abuse, we only monitor their dispensing without any documentation..." [Pharmacy B]

"...Drug use research has never been conducted. For psychotropic drugs and drugs prone to abuse, we only record dispensing according to regulations..." [Pharmacy D]

This indicates that the implementation of PIO is still limited to meeting administrative needs and has not been used to assess or evaluate clinical pharmacy services. PMK 73 of 2016 emphasizes that PIO must be implemented systematically through drug utilization research, documentation, and periodic evaluation as part of clinical pharmacy services. Therefore, the lack of drug utilization research indicates a clear gap between pharmacy practices and the service standards set out in regulations (Ministry of Health of the Republic of Indonesia, 2016).

Meanwhile, Pharmacy C stated that although certain drugs and precursors were monitored, this monitoring was not developed into a form of drug use analysis:

"...There has been no research into drug use. We are still monitoring certain medications and precursors, such as Dextromethorphan HBr and Pseudoephedrine HCl, which are often purchased over-the-counter..." [Pharmacy C]

This practice demonstrates that pharmacists are aware of certain drug purchasing patterns, but there is no mechanism in place to process this data into information that can be used for decision-making or to prevent drug abuse. PIO is part of service-based pharmacy practice *(pharmaceutical care),* which positions pharmacists as the source of accurate, up-to-date, and documented drug information to support

rational drug use. The literature indicates that effective PIO must be supported by a recording and evaluation system so that the information provided can be traced and used as a basis for improving service quality (WHO & FIP, 2011; Ministry of Health of the Republic of Indonesia, 2016).

The lack of drug use research in pharmacies reflects a weak recording and information management system. This finding was evident in Pharmacy B, which does not record PIOs using a special form, yet documentation is a crucial basis for monitoring and evaluating drug information services. As an informant stated:

"...We don't use a special form for PIOs yet. Usually, when patients ask questions, they just answer them without writing them down..." [Pharmacy B]

Weaknesses in the recording aspect indicate that the Drug Information Service (PIO) has not been implemented within a documented and traceable service system. This condition makes it impossible for pharmacists to ensure that services comply with established standards, including the fulfillment of quality assurance for both the quality of the drugs provided and the quality of the service as required by law. Interview results indicate that the four pharmacies (A–D) do not yet have a mechanism to ensure the quality of Drug Information Services. Pharmacy A stated that there is no SOP or evaluation procedure that systematically regulates the implementation of PIO:

"...There's no quality assurance for PIO. We also don't have a specific SOP, so we've only been answering patient questions without further evaluation..." [Pharmacy A]

Pharmacy B revealed that PIO was provided as a direct response to patient inquiries, without recording, which resulted in the failure to systematically evaluate and guarantee service quality.

"...There's never been a quality assurance program. If a patient asks a question, they just answer it. There's no checking to see if the information is correct or needs updating..." [Pharmacy B]

Meanwhile, Pharmacy C stated that there was no audit or review of the drug information provided to patients:

"...There are no quality checks for PIOs. The information provided is based on each pharmacist's knowledge; there are no routine reviews or audits..." [Pharmacy C]

Pharmacy D also said something similar, stating that PIO had never been evaluated or documented:

"...There's no quality assurance yet. PIOs are only performed when a patient asks, but they're never recorded and there's no evaluation..." [Pharmacy D]

This series of statements emphasizes that the lack of PIO documentation directly impacts the failure to implement quality assurance, thus ensuring that drug information services meet standards and statutory provisions. This finding aligns with research by Agung Sriwijaya *et al.* (2023) at TAKA Pharmacy, which reported that PIO implementation was suboptimal, with an implementation rate of 28.57%. Another study by Rahmawati *et al.* (2023) in Magelang City also showed that several PIO components, such as drug utilization research and quality assurance, were not optimally implemented due to the high workload of pharmacists and limited time in the pharmacy. This situation indicates that PIO in pharmacies is not yet integrated into the clinical pharmacy service system that is oriented towards quality and patient safety.

d. Counseling

Observations showed that only one of the four pharmacies implemented counseling effectively. The other three pharmacies did not meet the standards of PMK 73/2016 regulations, as indicated by the absence of the use of *three prime questions* (3PQ) and the failure to record written counseling. This discrepancy is reflected in the percentage of implementation, where Pharmacies A and D are in the moderate category with a score of 62.5%, while Pharmacy B is in the low category with a score of 50%. Conversely, Pharmacy C is the only facility that has met the standards of PMK 73/2016 with an implementation rate of 100%.

The ineffectiveness of counseling services was demonstrated by pharmacists who stated that they were unfamiliar with the 3PQ method and had previously only assessed patient understanding based on verbal responses and body language. This was evident in statements from several informants, who explained that counseling was limited to providing basic information about medications, such as how to take them, how often they took them, when they administered them, and other important details listed on the prescription. One informant from pharmacy A stated that

"...explain how to take it, how many times a day, before or after meals, and see if the patient understands. If the patient seems confused, the explanation will be repeated..."

A similar statement was made by informant D of pharmacy who revealed that:

"...I've never used the Three Prime Questions method before and only heard about it during interviews. So far, understanding has been assessed solely based on the patient's short answers or when the patient says they understand."

Pharmacist informant B also emphasized that the counseling approach used was still very simple, namely providing a general explanation regarding the use and instructions for use, then assessing the patient's understanding through casual conversation. The informant conveyed this as follows:

"...formal methods such as the Three Prime Questions have never been used, and understanding is assessed solely by whether the patient can repeat how to use the medication..."

These quotes indicate that counseling practices in pharmacies still rely on pharmacist intuition and spontaneous patient responses, rather than on the use of standardized instruments as stipulated in PMK 73/2016. The habit of informants making subjective assessments, such as body language or short patient answers, creates an inconsistent counseling process and is less able to ensure that patients fully understand the drug therapy they are receiving. Structured open-ended questioning methods such as the 3PQ have been proposed as an effective approach to exploring patients' understanding of the purpose, method of use, and goals of therapy, thus replacing subjective assessments based on body language or short answers (Nguyen *et al.,* 2012). Other research also supports that the 3PQ verification technique can improve patient knowledge and *self-care skills* and is a key component of pharmacist interventions that impact clinical outcomes (Talesvki *et al.,* 2020). Therefore, failure to implement the 3PQ method has the potential to reduce the quality of counseling and the safety of medication use in pharmacies.

The limitations in the implementation of counseling have an impact on the documentation aspect, which should be an important part of clinical pharmacy services. This inconsistent recording practice is clearly visible from Pharmacy B's statement:

"...We don't usually document counseling, Miss. So after I explain it to the patient, it's straight to the point. There are no forms or signatures. Because I work alone here, and it's often busy, with other patients waiting. So I don't have time to ask for signatures or fill out forms like that..."

This quote suggests that the lack of counseling documentation is not solely due to a lack of understanding of its importance, but rather to limited human resources and a high workload. Pharmacists, working alone with a large patient population, prioritize service delivery over administration of medication records. This aligns with research by Mongi *et al.* (2020), which reported that the Telemedicine 14 Manado pharmacy had not yet implemented documented counseling, as it was conducted only verbally. In practice, counseling documentation serves as valid written evidence and a traceability tool to ensure the safety of medication use and provides legal protection for pharmacists and patients in the event of future issues related to drug therapy (Ministry of Health of the Republic of Indonesia, 2016; Republic of Indonesia, 2023).

e. *Home Pharmacy Care*

Observations and interviews showed that all pharmacies (A–D) did not provide home pharmacy care. This failure to provide services resulted in pharmacists failing to assess medication-related issues, identify patient compliance, provide assistance with home medication management, provide consultations, monitor therapy, and document services. Assessments of medication-related issues were

conducted only upon patient arrival at the pharmacy, without further monitoring in the patient's treatment environment. This was conveyed by a pharmacist at the pharmacy:

"...Home care has never been done, so assessment of medication-related problems is only done when the patient comes to the pharmacy..." [Pharmacy A]

"...We have never had medication monitoring carried out at the patient's home. Usually, we only know about it from the patient's story when they come back to the pharmacy..." [Pharmacy B]

"...There is no home service yet. Medication assessments are conducted when patients fill prescriptions or purchase medications only..." [Pharmacy C]

"...Home pharmacy care has not been implemented due to time and manpower constraints, so therapy monitoring is not carried out directly at the patient's home..." [Pharmacy D]

Assessing medication-related issues at home helps pharmacists identify medication issues often missed in pharmacy settings, such as how patients store medications, the timing and pattern of their consumption, the use of leftover medications, and the presence of medications from various healthcare facilities that could potentially lead to polypharmacy. These factors are often not revealed through brief interviews at the pharmacy due to time constraints, patient recall bias, and patients' tendency to say things that they want to "look good/right" to healthcare professionals rather than always telling the truth (Fernandez et al., 2021; Rifandi and Kustimah, 2023; Harahap et al., 2025).

Furthermore, the lack of home pharmacy care services also resulted in the failure to comprehensively identify patient compliance. Interviews showed that all pharmacies did not conduct home visits or monitor medication use at patients' homes. This situation aligns with interviews, which showed that compliance assessments were conducted solely through brief questions during patient visits, without direct observation of medication use behavior at home. This practice is reflected in the following informant's statement:

"...We usually just ask about compliance when the patient comes back to see if they're taking their medication regularly. We haven't even seen how the patient is using their medication at home..." [Pharmacy A]

This quote demonstrates that adherence assessments still rely heavily on patient *self-reported adherence.* Several studies have shown that adherence measurements based solely on questionnaires or interviews tend to overestimate adherence compared to actual medication use, due to recall bias and the tendency for patients to provide answers deemed correct by healthcare professionals (Indriana & Pertiwi, 2022; Widyastuti *et al.,* 2023). These limitations are even more pronounced in elderly patients and those on long-term therapy, who generally have complex medication regimens and are at risk of medication errors (Sari *et al.,* 2021). Without HPC services, pharmacists cannot ensure that medications are being used according to the recommended dosage, time, and duration, as acknowledged by another informant:

"...We don't know for sure whether the medication was taken according to the instructions or not, because it's only based on the patient's answers..." [Pharmacy B]

Furthermore, the failure to implement HPC also hampers pharmacists' support in managing medications and medical devices in patients' homes. Interviews revealed no evaluation of medical device use or assessment of medication storage conditions in patients' homes. This aligns with an informant's statement that education on medical device use is only provided upon medication dispensing at the pharmacy, without further evaluation:

"...We usually only explain inhalers or syringes at the pharmacy. After that, we don't know whether they've been used correctly at home..." [Pharmacy C]

Previous research has shown that technical errors in the use of medical devices and improper medication storage are contributing factors to decreased therapeutic effectiveness, particularly in patients with chronic diseases (Rahmawati *et al.,* 2024; Nugroho & Lestari, 2022). Without HPC services, potential medication and medical device errors become more difficult to detect and prevent

early. These findings indicate that pharmaceutical services remain focused on the medication dispensing stage at the pharmacy and do not yet encompass ongoing therapy management at the patient's home.

The lack of home pharmacy care services also results in a lack of documentation of home pharmacy services. Without documentation, pharmacies lack data that can be used for quality evaluation, service tracking, or continuous improvement. Documentation is a crucial element in the quality assurance system for clinical pharmacy services, and its absence indicates that home pharmacy care is not yet integrated into the pharmacy service system (Sagitasa & Iskandar, 2024).

Overall, these findings confirm that the failure to implement home pharmacy care reflects limited management support and organizational preparedness, including the absence of internal policies, SOPs, and workflow arrangements that support the implementation of home pharmacy services. This situation indicates a gap between pharmacy practice and clinical pharmacy service standards as stipulated in PMK 73/2016.

f. Drug Therapy Monitoring (DMT)

Observations and interviews indicate that drug therapy monitoring has not been implemented in all pharmacies (A–D). The PTO implementation is still limited and unsustainable, based on complaints reported by patients during visits to the pharmacy. This situation is reinforced by interviews with pharmacists, who stated that PTO is not yet part of the routine service process and is not supported by specific procedures or instruments. A pharmacist at Pharmacy A stated:

"...Drug therapy monitoring hasn't been done specifically. Usually, when a patient comes back and complains, we ask..." [Pharmacy A]

A similar statement was made by the pharmacist at Pharmacy B:

"...There's no schedule or procedure for drug therapy monitoring. We only know about it from patient reports..." [Pharmacy B]

Meanwhile, Pharmacy C stated that drug therapy monitoring is only carried out if certain complaints arise:

"...There is no specific monitoring of drug therapy. Usually, patients report side effects or the medication is deemed unsuitable..." [Pharmacy C]

The pharmacist at Pharmacy D added that limited time and resources were the main obstacles:

"...Monitoring of drug therapy has not been carried out due to limited time and manpower, so we cannot monitor it routinely..." [Pharmacy D]

The agreement between the observation results and the informant's statement indicates that drug therapy monitoring has not been integrated into the clinical pharmacy service system at each pharmacy. In theory, drug therapy monitoring aims to assess the effectiveness, safety, and patient compliance with drug therapy through the process of recording, monitoring, and following up if drug-related problems are found. This activity includes assessing the appropriateness of drug choice, dosage, route of administration, therapeutic response, as well as identifying adverse drug reactions (ADRs) and the need for recommendations for changes or alternative therapies (Ministry of Health of the Republic of Indonesia, 2019). The findings of this study indicate that this goal has not been achieved because drug therapy monitoring is not actively implemented and documented.

Previous research has shown that passive, complaint-based PTOs risk early detection of drug-related problems, which can impact therapeutic ineffectiveness and patient safety (Harahap et al., 2022; Rahmawati et al., 2023). This is in line with research by Rahmawati et al. (2023) and Harahap et al. (2022), which reported that PTO implementation in community pharmacies is still limited and generally not supported by a continuous recording and evaluation system. Conversely, research by Mongi et al. (2020) reported that some pharmacies have implemented PTO, primarily due to organizational readiness and management support. Overall, the results of triangulation between observations, interviews, and regulatory reviews confirm that drug therapy monitoring in the pharmacies studied has not been implemented according to clinical pharmacy service standards. The absence of SOPs,

recording instruments, and follow-up mechanisms are key factors hindering the optimization of pharmacists' role in ensuring the safety and effectiveness of drug therapy.

g. Monitoring Drug Side Effects

Observations indicate that monitoring of adverse drug reactions has not been systematically implemented across all pharmacies (A–D). No standard operating procedures, recording instruments, or reporting mechanisms for adverse drug reactions, as required by clinical pharmacy service standards, were found. These observational findings were reinforced by interviews with pharmacists, who stated that monitoring of adverse drug reactions is not yet part of routine pharmacy services. A pharmacist at Pharmacy A stated:

"...There's no specific monitoring for drug side effects. Usually, when a patient complains, we respond by recommending them see a doctor..." [Pharmacy A]

A similar statement was also made by the pharmacist at Pharmacy B:

"...There have never been any recorded or reported side effects from the drug. If you have any complaints, we recommend consulting a doctor..." [Pharmacy B]

Pharmacy C said that the side effects of the drug are only known if the patient actively reports complaints:

"...Side effects are usually only discovered when the patient comes and complains, we have never recorded or reported them..." [Pharmacy C]

Meanwhile, the pharmacist at Pharmacy D stated that monitoring of drug side effects could not be carried out due to time and resource constraints:

"...There has been no monitoring of drug side effects due to limited manpower and no SOP regulating it..." [Pharmacy D]

The agreement between observation results and informant statements indicates that pharmacists' practices are more of a passive response to patient complaints, rather than a planned and documented monitoring of drug side effects. This condition clearly differentiates field practice from the concept of drug side effect monitoring as regulated in PMK 73/2016. In practice, MESO is part of a pharmacovigilance system implemented through voluntary reporting using the MESO Yellow Form available at healthcare facilities. This form helps healthcare workers, including pharmacists, report any suspected drug-related incidents, whether proven or suspected (Supriadi, 2025).

The results of this study align with several studies in Indonesia that report that the implementation of drug side effect monitoring in community pharmacies is still not optimal, as found in the cities of Mataram, Bandung, Manado, and Kupang (Febiana et al., 2023; Patty & Parwati, 2024; Mongi et al., 2020; Amalia, 2019). In contrast, research by Rosita and Tetuko (2023) shows that two pharmacies in Sleman Regency have implemented drug side effect monitoring activities optimally. These differences in findings indicate that MESO implementation is strongly influenced by internal pharmacy factors, particularly the availability of pharmacists, the existence of a recording system, and management commitment to providing standard procedures, training of healthcare workers, and structured monitoring and reporting mechanisms (Rosita & Tetuko, 2023; Kusumaningrum et al., 2021). A summary of the results is presented in Table 1.

Table 2. Summary of Implementation Observation Results at Kapanewon Minggir Pharmacy

No	Aspects of Clinical Pharmacy Services	Percentage of Implementation of Pharmacy A	Percentage of Implementation of Pharmacy B	Percentage of Implementation of Pharmacy C	Percentage of Pharmacy D Implementation
1.	Prescription Assessment and Service	86	86	91	91

2.	Dispensing	93	86	86	86
3.	Drug Information Services	28.5	28.5	28.5	28.5
4.	Counseling	62.5	50	100	62.5
5.	*Home Pharmacy Care*	0	0	0	0
6.	Drug Therapy Monitoring	0	0	0	0
7.	Monitoring Drug Side Effects	0	0	0	0

Supporting and Inhibiting Factors in the Implementation of Clinical Pharmacy Services

The determination of supporting and inhibiting factors in this study was conducted through data triangulation by integrating the results of document observations, implementation observations, and in-depth interviews with pharmacists. Inhibiting factors were identified from the discrepancy between standards and practices, reinforced by incomplete documentation, low levels of implementation, and informant statements regarding limited resources and management support. Conversely, supporting factors were determined based on the appropriateness of documents, service implementation, and pharmacist commitment. With this approach, supporting and inhibiting factors were systematically derived from the results of data triangulation.

a. Supporting Factors

The results of the study indicate that several factors support the implementation of clinical pharmacy services in the pharmacies studied. The main supporting factors stem from pharmacists' basic competency and professional awareness of the importance of clinical pharmacy services. Pharmacists are accustomed to conducting prescription reviews, dispensing, and providing basic drug information and counseling to patients, although this has not been done in a structured and documented manner. These findings indicate that pharmacists individually have an understanding and readiness to provide clinical pharmacy services in accordance with the provisions of PMK 73/2016. Furthermore, the availability of pharmacists in pharmacies is a supporting factor in the implementation of pharmaceutical services. The presence of pharmacists ensures that clinical pharmacy services are maintained, particularly in aspects that are direct and responsive to patient needs, such as explaining medication use and handling initial complaints related to drug therapy. This factor provides important initial capital for the development of more comprehensive clinical pharmacy services.

Another supporting factor is pharmacists' awareness of patient needs, particularly those on long-term therapy. This is evident in pharmacists' willingness to follow up on patient complaints, provide medication advice, and refer patients to other healthcare professionals when necessary. Although this practice does not meet the criteria for structured clinical care, this finding demonstrates a patient - *centered care orientation.*

b. Inhibiting Factors

On the other hand, this study also identified several inhibiting factors that significantly impact the implementation of clinical pharmacy services. The primary inhibiting factor is the lack of a service support system, characterized by the lack of standard operating procedures (SOPs), recording forms, and monitoring instruments for clinical pharmacy services such as PIO, PTO, MESO, and home pharmacy care. The absence of this system results in services being performed incidentally and undocumented, making them impossible to track or evaluate.

Limited time and human resources are also major obstacles. High pharmacy workloads cause pharmacists to prioritize administrative and dispensing services, while clinical pharmacy services, which require time, follow-up, and documentation, are not prioritized. This situation results in the failure to provide ongoing services, such as drug therapy monitoring and side effect monitoring.

Another inhibiting factor is the lack of management support and internal pharmacy policies. The absence of written policies, dedicated time allocations, and evaluation mechanisms for clinical pharmacy services indicates that clinical services have not been positioned as an integral part of the

pharmacy service system. As a result, the implementation of clinical pharmacy services relies heavily on individual pharmacist initiative and is not supported by organizational systems.

Furthermore, the lack of training and outreach related to clinical pharmacy services, particularly on documentation, drug therapy monitoring, and adverse drug reaction monitoring, also hampers the implementation of service standards. These findings indicate that despite the availability of regulations, their implementation in the field still requires strengthening pharmacist capacity and ongoing system support .

CONCLUSION

The results of the study indicate that the implementation of clinical pharmacy services at Kapanewon Minggir pharmacies is not fully in accordance with the provisions of PMK RI Number 73/2016. The completeness of standard operating procedures for clinical pharmacy services varies between pharmacies, while the implementation of clinical pharmacy services is still dominated by aspects of prescription review and dispensing. In contrast, drug information services, counseling, *home pharmacy care* , drug therapy monitoring, and drug side effect monitoring have not been implemented. Factors inhibiting the non-implementation of these services are the absence of a support system and documentation, limited time and human resources, low management support, and a lack of training and guidance for pharmacists. Therefore, strengthening the support system, increasing the capacity of pharmacists, and more targeted guidance and supervision are needed to improve the quality of clinical pharmacy services in pharmacies according to applicable standards .

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