Study of Waiting Time Efficiency in the Outpatient Pharmacy of the Haji General Hospital East Java in Supporting the Implementation of Lean Management

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Abstract

The efficient delivery of pharmacy services is crucial for ensuring patient satisfaction and optimal healthcare outcomes. In outpatient settings, long wait times for medication retrieval can significantly hinder service quality and patient experience. At Haji Surabaya Hospital, the average wait time for compounded medications reaches 75 minutes, exceeding the established standard of 60 minutes, while non-compounded medications take approximately 45 minutes, surpassing the 30-minute target. This discrepancy highlights a critical gap in the pharmacy's operational efficiency, necessitating a thorough investigation into the underlying causes of these delays. The aim of this research is to identify the key factors contributing to prolonged wait times and to propose actionable solutions to enhance pharmacy service delivery. A mixed-methods approach was employed, combining qualitative interviews with pharmacy staff and quantitative analysis of prescription processing times. The findings reveal several significant issues, including manual prescription input processes, inefficient administrative activities, complex compounding procedures, lack of integration with outpatient clinics, and suboptimal pharmacy layout. Based on these insights, the study proposes targeted solutions such as implementing automated systems, standardizing procedures, improving communication channels, and reorganizing the pharmacy layout to streamline operations and reduce wait times. These recommendations are essential for improving service quality and ensuring that patients receive timely and effective care.

Keywords: Pharmacy Services, Wait Times, Operational Efficiency, Patient Satisfaction, Medication Retrieval, Lean Management

1. Introduction

Pharmacy services are a key indicator in assessing the quality of hospital services, particularly in the outpatient sector. According to the Decree of the Minister of Health of the Republic of Indonesia Number 129/Menkes/SK/II/2008 regarding Minimum Service Standards for Hospitals [1], the waiting time for medication services is an important benchmark that reflects operational efficiency and patient satisfaction. Timeliness in medication service plays a significant role, as the pharmacy is often the last point visited by patients before they leave the hospital [2]. Therefore, long waiting times not only lead to patient dissatisfaction but can also negatively impact the hospital's overall reputation and image [3].

At Haji Surabaya Hospital, issues related to waiting times for medications in the outpatient pharmacy have become a serious concern. Initial observations indicated that the waiting time for compounded medications averaged 75 minutes, while for ready-to-use medications, it was around 45 minutes. Both of these waiting times exceed the standards set by the Ministry of Health, which are a maximum of 60 minutes for compounded medications and 30 minutes for ready-to-use medications. This situation adversely affects patient satisfaction levels, as reflected in satisfaction surveys that show low scores in the waiting time aspect. The inefficiencies observed are suspected to stem from several sources, including inefficiencies in supporting processes such as manual prescription input and core processes like medication mixing that do not meet the government-set time standards, as well as a lack of integration between outpatient clinics and the pharmacy [4].

In line with global efforts to enhance efficiency in the healthcare sector, the implementation of Lean Management methods has been widely proposed and applied in various healthcare service contexts [5]. Lean Management, originally developed in the manufacturing industry, focuses on eliminating waste and increasing value for customers [6]. In the healthcare sector, this approach is applied to reduce operational inefficiencies and expedite service times, as demonstrated in the study by Pelazza et al. [7], which successfully reduced the activation time for clinical trials from 218 days to 56 days. Additionally, research by Simons et al. [8] in radiation therapy and Trigueiro et al. [9] in microbiology laboratories shows that Lean Management is effective in speeding up processes while maintaining service quality.

However, despite various studies demonstrating the effectiveness of Lean Management in reducing waiting times and improving efficiency across different hospital departments, specific studies related to the application of this approach in the context of pharmacy services in Indonesia, particularly at Haji Surabaya Hospital, remain limited. Most previous research has focused more on the implementation of Lean Management in clinical units or laboratories, while in-depth studies on the application of lean principles in outpatient pharmacy services have not been extensively conducted. Furthermore, the approaches applied in these studies are often already in the implementation phase, whereas this research is designed as an initial

observational study aimed at identifying and mapping existing problems before Lean Management interventions are applied.

Based on this, the present study focuses on analyzing the efficiency of waiting times at the outpatient pharmacy of Haji Surabaya Hospital as a preliminary step in supporting the planned implementation of Lean Management. By mapping the sources of inefficiency and evaluating the supporting and core processes related to medication waiting times, it is hoped that the results of this study can serve as a foundation for implementing more structured and systematic improvement strategies. The aim of this research is to provide an estimate of the potential impact of applying lean principles, identify critical areas needing improvement, and offer initial recommendations that can serve as a reference in the future implementation phase of lean management.

2. Problem Description

The pharmacy service at Haji Surabaya Hospital is currently facing significant challenges related to prolonged wait times for medication retrieval. Initial observations indicate that the average wait time for compounded medications reaches 75 minutes, while non-compounded medications take approximately 45 minutes. Both durations exceed the established service standards of 60 minutes for compounded medications and 30 minutes for non-compounded medications. This issue adversely affects patient satisfaction and operational efficiency within the pharmacy. An initial analysis has identified several key problems contributing to these delays:

a. **Manual Prescription Input Process**: The reliance on a manual prescription input system leads to delays, particularly during peak hours. Additionally, unclear handwriting on prescriptions often results in confusion, further slowing down the verification and dispensing processes.
b. **Inefficient Support Activities**: Non-standardized administrative processes and duplicated tasks contribute to time wastage. Steps that do not add value to the service extend the overall duration of patient care.
c. **Complex Core Process Steps**: The procedures for compounding medications are not standardized and can be time-consuming, especially during surges in prescription volume. The reliance on individual expertise for compounding leads to significant variability in processing times.
d. **Lack of Integration with Outpatient Clinics**: The communication and information flow between outpatient clinics and the pharmacy is suboptimal, resulting in delays in prescription receipt and medication preparation. The absence of an integrated system further prolongs patient wait times.
e. **Suboptimal Capacity and Layout of the Pharmacy**: The storage space and layout of the pharmacy are inadequate for handling high patient volumes, leading to long queues and slow movement within the pharmacy.

3. Research Method

3.1. Study Design

This study employs a descriptive observational design with both quantitative and qualitative approaches. The aim of this research is to analyze the efficiency of patient waiting times at the outpatient pharmacy of Haji Surabaya Hospital in the context of Lean Management implementation, which is an approach focused on reducing waste in healthcare service processes [10]. Observations were conducted directly to measure patient waiting times, and in-depth interviews were carried out with healthcare professionals working in the pharmacy. The quantitative approach was used to systematically collect waiting time data, while the qualitative approach was applied through interviews to gain insights into the challenges and potential improvements in the medication service process.

3.2. Data Collection

Data collection was conducted using two main methods: observation of patient waiting times and in-depth interviews with healthcare professionals. Observational data were obtained from direct observations of 100 outpatient patients picking up medications at the pharmacy over three working days, specifically on October 21, 22, and 24, 2024, from 8:00 AM to 3:00 PM. The observations involved recording the waiting times of patients from registration until they received their medications, using manual recording tools such as a stopwatch. The selection of these working days considered the variation in patient volume during busy times, ensuring that the data collected could represent the actual service situation [11]. In addition to observations, data were also gathered through in-depth interviews with healthcare professionals in the pharmacy, including pharmacists and pharmacy assistants. These interviews aimed to identify the challenges faced in the service process, the workflow implemented, and suggestions for improvements that could support the application of Lean Management in the pharmacy service unit.

3.3. Input Data and Statistical Analysis

The data obtained from observations and interviews were analyzed using both statistical and qualitative approaches. The patient waiting time data were entered into statistical software for descriptive analysis. This analysis included calculations of the mean, median, and standard deviation of patient waiting times [12]. Additionally, the interview data were analyzed using content analysis, where the interview transcripts were categorized based on relevant themes such as workflow barriers, process inefficiencies, and suggestions for operational improvements [13]. The results from both analyses will be integrated to provide a comprehensive overview of waiting time efficiency and the factors influencing it. The interpretation of this data is expected to provide a solid foundation for recommendations to enhance service processes in accordance with Lean Management principles, which focus on waste elimination and increasing value for patients [14].

4. Results and Discussions

4.1. Results of Observation of Pharmacy Depot Services

Table 1. Pharmacy Depot Service Observation Data

Patient	Clinic	Check-in	Dispensed Medication	Medication Category
R001	9:00	9:48	10:53	Compounded
R002	7:30	11:19	12:15	Non-Compounded
R003	6:00	9:55	11:15	Compounded
R004	8:00	9:23	10:30	Compounded
R005	8:30	9:50	11:09	Compounded
R006	9:00	10:20	11:49	Compounded
R007	9:00	10:21	11:59	Compounded
R008	10:00	10:07	12:08	Non-Compounded
R009	9:30	11:13	12:15	Compounded
R010	10:00	13:00	13:20	Non-Compounded
R011	10:00	13:00	13:20	Non-Compounded
R012	11:00	13:00	13:51	Compounded
R013	8:30	9:45	11:01	Non-Compounded
R014	8:00	9:41	10:44	Compounded
R015	9:00	11:13	13:06	Non-Compounded
R016	9:00	9:48	10:53	Compounded
R017	7:00	10:11	11:23	Compounded
R018	10:00	10:33	11:51	Compounded
R019	7:15	9:28	10:30	Compounded
R020	8:00	9:36	10:10	Non-Compounded
R021	8:00	9:36	10:11	Compounded
R022	7:00	9:30	10:29	Compounded
R023	7:00	9:34	11:01	Compounded
R024	8:00	10:23	11:51	Compounded
R025	7:30	11:23	12:26	Compounded
R026	8:38	11:01	12:27	Compounded
R027	8:30	11:00	12:00	Compounded
R028	11:00	12:37	13:47	Non-Compounded
R029	9:00	12:30	13:42	Non-Compounded
R061	11:15	12:07	13:39	Compounded
R062	7:00	8:38	9:50	Compounded
R063	7:30	8:27	10:37	Compounded
R064	7:30	8:42	11:05	Compounded
R065	7:30	9:36	12:00	Non-Compounded
R066	8:00	9:30	11:20	Compounded
R067	8:00	9:00	11:00	Compounded
R068	8:15	9:36	12:00	Non-Compounded
R069	8:00	10:01	11:00	Compounded
R070	8:00	11:58	13:00	Non-Compounded
R071	8:00	9:38	11:00	Compounded
R072	7:00	8:08	9:45	Compounded
R073	7:15	8:15	10:15	Compounded
R074	6:00	8:25	10:15	Compounded
R075	8:15	9:12	11:12	Compounded
R076	8:30	9:30	11:25	Compounded
R077	7:00	9:55	11:50	Compounded
R078	9:30	10:10	12:15	Non-Compounded
R079	8:00	10:20	12:30	Compounded
R080	8:15	10:25	12:45	Compounded
R081	7:15	8:10	9:50	Compounded
R082	8:15	9:00	10:05	Compounded
R083	7:45	9:25	11:40	Compounded
R084	7:30	9:33	11:20	Compounded
R085	8:00	9:36	11:10	Compounded
R086	9:00	10:26	12:29	Compounded
R087	8:00	9:22	11:20	Non-Compounded
R088	8:00	10:25	12:30	Compounded
R089	8:00	10:17	12:15	Compounded

Patient	Clinic	Check-in	Dispensed Medication	Medication Category
R030	10:00	11:57	13:56	Compounded
R031	7:00	8:57	10:03	Compounded
R032	7:00	9:05	11:42	Compounded
R033	7:00	9:06	10:14	Compounded
R034	7:30	9:06	10:15	Compounded
R035	7:00	9:10	10:16	Non-Compounded
R036	7:00	8:25	8:59	Compounded
R037	7:00	8:42	9:39	Compounded
R038	7:00	8:36	9:38	Compounded
R039	7:00	10:46	12:06	Compounded
R040	8:00	8:47	9:33	Compounded
R041	7:00	8:40	12:15	Compounded
R042	7:00	8:51	9:37	Compounded
R043	7:30	8:32	9:09	Non-Compounded
R044	9:00	9:46	11:01	Compounded
R045	11:00	11:26	12:42	Compounded
R046	8:00	9:29	10:51	Non-Compounded
R047	7:00	9:39	10:51	Compounded
R048	9:00	10:23	11:49	Non-Compounded
R049	9:00	10:53	12:08	Non-Compounded
R050	6:30	8:26	9:16	Compounded
R051	7:00	8:14	9:50	Compounded
R052	7:11	8:45	10:37	Compounded
R053	8:00	8:58	11:05	Compounded
R054	8:15	9:05	11:05	Compounded
R055	8:00	9:10	11:21	Compounded
R056	8:00	9:20	11:38	Compounded
R057	8:00	9:26	12:00	Compounded
R058	8:15	9:34	12:00	Compounded
R059	8:00	9:38	12:38	Compounded
R060	8:15	9:54	13:07	Compounded

Patient	Clinic	Check-in	Dispensed Medication	Medication Category
R090	8:00	10:07	12:01	Compounded
R091	8:00	10:02	12:02	Compounded
R092	7:00	9:42	11:45	Compounded
R093	7:00	12:50	14:03	Non-Compounded
R094	8:30	10:05	11:38	Compounded
R095	7:00	9:15	11:12	Compounded
R096	6:30	8:08	9:45	Non-Compounded
R097	6:00	8:09	9:45	Non-Compounded
R098	7:00	10:17	12:08	Compounded
R099	7:30	9:18	10:37	Compounded
R100	7:00	9:15	10:35	Compounded
R101	8:00	8:37	10:29	Compounded
R102	7:00	8:33	11:05	Compounded
R103	8:00	8:48	9:48	Compounded
R104	7:00	8:13	9:50	Compounded
R105	7:00	8:29	9:50	Non-Compounded
R106	7:30	8:47	10:37	Compounded
R107	5:00	8:22	10:15	Compounded
R108	7:30	9:11	11:12	Compounded
R109	8:00	9:22	11:17	Compounded
R110	7:00	8:17	9:35	Compounded
R111	7:30	9:03	11:05	Compounded
R112	8:00	9:08	11:21	Compounded
R113	8:00	9:17	11:30	Compounded
R114	8:00	9:23	11:38	Compounded
R115	8:00	9:27	12:00	Compounded
R116	8:00	9:37	12:38	Compounded
R117	9:00	12:04	13:39	Compounded
R118	7:00	8:23	9:50	Compounded
R119	7:30	8:17	10:37	Compounded
R120	7:30	9:45	12:54	Compounded

The results of the pharmacy service observation at the outpatient pharmacy of Haji Surabaya Hospital conducted on October 21, 22, and 24, 2024, revealed significant variations in waiting times for compounded and non-compounded medications. According to the data presented in Table 1, the waiting time for non-compounded medications ranged from 20 to 154 minutes, with an average waiting time of 88 minutes. In contrast, the waiting time for compounded medications tended

to be longer, with durations between 34 and 215 minutes and an average of 101 minutes (see Table 2). These findings indicate a significant difference between the two categories of medications, particularly regarding the complexity of the processes and service stages involved.

Recent studies support these observations, highlighting that longer waiting times for compounded medications are often due to the intricate preparation processes involved. For instance, a study by Leemanza and Kristin [15] found that implementing wait time targets and providing feedback on patient satisfaction significantly reduced waiting times for both compounded and non-compounded prescriptions by 17% and 37%, respectively. This suggests that structured interventions can effectively address inefficiencies in pharmacy services, leading to improved patient satisfaction.

Table 2. Descriptive Statistics

Waiting Time Duration	N	Minimum	Maximum	Sum	Mean	Std. Deviation
Compounded	32	20	154	2828	88.38	36.136
Non-Compounded	88	34	215	8923	101.4	37.11
Valid N (listwise)	32					

Table 3. Number of Processed Prescriptions

Medication Category	Number of Prescriptions (08.00-09.00)	Number of Prescriptions (09.00-12.00)	Number of Prescriptions (12.00-15.00)	Total Prescriptions	Total Time (minutes)
Non-Compounded	7 (585 minutes)	20 (1928 minutes)	5 (255 minutes)	32	2768
Compounded	24 (2358 minutes)	61 (6207 minutes)	3 (238 minutes)	88	8803

Data analysis indicates that between 8:00 AM and 9:00 AM, the number of prescriptions received for compounded medications reached 24, significantly higher than the 7 prescriptions for non-compounded medications. This disparity suggests an unbalanced workload for the pharmacy staff (18 individuals), contributing to increased waiting times. This finding is corroborated by a study conducted by Alodan et al. [16], which found that a high volume of compounded prescriptions negatively impacts service efficiency. During the observation period, there was a backlog of prescriptions, particularly for compounded medications, between 9:00 AM and 12:00 PM, with a total processing time of 6,207 minutes for 61 prescriptions (Table 2).

This analysis aligns with the findings of Sallam et al. [17], who identified that increased prescription volume during peak hours often exacerbates waiting times if not accompanied by workflow optimization. Furthermore, compounded medications require longer processing times due to the more complex stages of mixing and verification involved. This is consistent with the research by Fahrurazi et al. [18], which demonstrated that manual processes and inefficiencies in workflow are primary factors extending patient waiting times in hospital pharmacies.

Table 3 also notes that the number of available pharmacy staff (18 individuals) is insufficient to handle the surge in prescription volume during peak hours, particularly for compounded medications. The number of prescriptions served per hour reflects a capacity imbalance, where pharmacy staff are overwhelmed by high workloads without efficient task distribution. This observation is supported by Alodan et al. [16], who emphasize the importance of resource redistribution and the use of automated queuing systems to reduce congestion during busy periods.

4.2. Results of In-Depth Interviews

In-depth interviews with pharmacy staff at the outpatient pharmacy of Haji Surabaya Hospital revealed several complex issues occurring in daily operations. The interview results highlighted several critical issues involving technical aspects, prescription management, communication with patients, and interdepartmental coordination, all of which significantly affect efficiency and waiting times in the pharmacy.

From a technical perspective, the main problems identified were hardware malfunctions and limited integration of IT systems between the pharmacy and the hospital information system. Technical disruptions, such as prescription input device failures and network instability, often lead to delays in prescription processing. Many staff members reported that the systems frequently become unsynchronized, especially during high patient volumes, forcing them to revert to manual methods. This situation prolongs service times and increases the risk of input errors. This aligns with findings by Carini et al. [19], which indicate that limitations in IT infrastructure can hinder pharmacy workflows and reduce service efficiency, particularly during peak hours. Additionally, Allinson et al. [20] emphasize that inadequate IT support can exacerbate workload issues, leading to increased stress and potential errors in medication dispensing.

Prescription management also emerged as a dominant issue. According to pharmacy staff, there is often a discrepancy between the medication stock recorded in the system and the actual stock in the warehouse, necessitating manual checks. This inaccuracy not only extends prescription processing times but also increases the potential for errors in medication delivery. Several respondents noted that processing delays are more frequent for compounded prescriptions, which require more careful stock checks and longer mixing processes. This echoes the research by Alkhayyal et al. [16], which documented that inefficient stock management and lack of system integration are major challenges in hospital pharmacies, especially concerning compounded medications. Furthermore, a study by Gutgesell [21] supports this by highlighting that discrepancies in inventory management can lead to significant delays and errors in patient care.

Another area of concern is the patient check-in system. Although an initial check-in system was introduced to expedite service workflows, interviews revealed that many patients fail to complete the check-in process at the clinic before heading to the pharmacy. As a result, pharmacy staff often struggle to track incomplete prescriptions. Additionally, communication regarding prescription status to patients is not functioning optimally. Despite the implementation of notifications via WhatsApp and monitors in the pharmacy area, many patients reported confusion regarding the status updates provided. This situation leads to a backlog of patients waiting for information at the pharmacy, exacerbating service congestion. Research by Hareem et al. [22] indicates that poorly implemented notification systems can increase patient confusion and slow down overall service flow, underscoring the importance of effective communication in pharmacy services. Moreover, a recent survey by Antrim [23] highlights the need for improved communication strategies within pharmacy settings to enhance patient understanding and satisfaction.

The medication delivery service provided by the hospital cooperative has also been a frequent source of complaints. Many patients reported incomplete deliveries and delays in medication arrival. Based on the interviews, these issues stem from a lack of coordination between the delivery team and pharmacy staff, particularly during surges in prescription volume. Baryakova et al. [24] also noted that the absence of standard procedures in medication delivery services can lead to a decline in service quality, directly impacting patient satisfaction and perceptions of pharmacy service quality.

Furthermore, the interviews identified challenges in monitoring service times through the Response Time system. Pharmacy staff reported that although this system is designed to monitor prescription waiting times, manual oversight is still necessary because the system lacks automatic notifications for prescriptions exceeding processing time limits. This results in additional delays, especially when staff are overwhelmed by high prescription volumes during peak hours. Studies by Hussain et al. [25] and Gutgesell [21] demonstrate that using automated monitoring tools with real-time notifications can help identify delays more quickly and optimize staff responses to workload surges.

Overall, these in-depth interviews revealed a range of complex challenges, from technical constraints to communication and operational management issues. The findings suggest that before Lean Management-based solutions can be implemented, improvements are needed in infrastructure, system integration, and interdepartmental communication. These insights provide a clearer picture of critical points that require enhancement, serving as a foundation for more systematic efficiency improvement strategies in the subsequent implementation phase.

4.3. Solutions for Optimization

The findings from the observation of pharmacy depot services and the in-depth interviews with pharmacy staff at Haji Surabaya Hospital reveal several critical areas for improvement that can enhance operational efficiency and reduce patient waiting times. Addressing these issues through targeted optimization strategies is essential for improving the overall quality of pharmacy services.

a. Enhancing IT Infrastructure and Integration

A reliable and integrated IT system is fundamental to supporting the operational efficiency of the pharmacy depot. Findings from the interviews revealed significant limitations within the current IT infrastructure, including frequent hardware malfunctions and network instability, which often disrupt prescription processing. These technical challenges not only prolong waiting times but also increase the risk of errors in medication dispensing, ultimately affecting patient care. To address these issues, the proposed solutions include upgrading the existing IT infrastructure to ensure robust hardware and software capabilities. Implementing a comprehensive electronic health record (EHR) system that integrates seamlessly with pharmacy operations is essential. This system should facilitate real-time data sharing between departments, allowing for more efficient prescription processing and improved communication among healthcare providers. Research supports the importance of enhancing IT infrastructure in pharmacy settings. A study by Martini et al. [26] emphasizes that improved IT integration can lead to significant gains in operational efficiency, particularly during peak hours. Additionally, Alsoweih et al. [27] highlights that effective IT systems enhance communication between pharmacy staff and other healthcare providers, which is crucial for timely and accurate medication delivery. Furthermore, a systematic review by Almeman et al. [28] indicates that investing in reliable IT solutions is vital for managing high prescription volumes and minimizing disruptions in service.

b. Reengineering Prescription Management Workflows with Standardized Procedures

Inefficient prescription management, particularly concerning compounded medications, often leads to significant time wastage in pharmacy operations. Findings from the interviews indicated that the lack of standardized procedures contributes to inconsistencies in the preparation and dispensing of prescriptions, resulting in delays and increased potential for errors. To address these challenges, the implementation of structured standard operating procedures (SOPs) is essential. By establishing clear and consistent protocols for prescription management, pharmacies can streamline workflows, reduce variability, and enhance overall efficiency. These SOPs should encompass all aspects of the prescription process, from receiving and verifying prescriptions to preparing and dispensing medications. Research supports the need for standardized procedures in pharmacy settings. A study by Dash et al. [29] found that the implementation of SOPs significantly reduced processing times and improved accuracy in medication dispensing. Additionally, Alkhayyal et al. (2024) highlights that standardized workflows are crucial for minimizing errors and enhancing patient safety, particularly in the context of compounded medications, which require meticulous handling. Furthermore, Tran et al. (2023) emphasize that well-defined procedures not only improve operational efficiency but also foster a culture of accountability among pharmacy staff.

c. Improving Communication Systems and Patient Notifications

Effective patient communication is crucial for reducing confusion and ensuring a clear flow of information regarding prescription status. Findings from the interviews revealed that the current notification system is inadequate, leading to

misunderstandings and increased anxiety among patients waiting for their medications. Many patients reported difficulty in tracking the status of their prescriptions, which contributes to dissatisfaction with pharmacy services. To address these issues, the proposed solution is the implementation of an application-based notification system that provides real-time updates through platforms such as WhatsApp and dedicated monitors in the pharmacy area. This system should include detailed descriptions in notifications, such as estimated wait times and specific information about the status of prescriptions. By enhancing the clarity and accessibility of information, patients will be better informed and less anxious about their medication status. Research supports the importance of effective communication in pharmacy settings. A study by Hareem et al. [22] found that clear and timely notifications significantly improve patient satisfaction and reduce confusion regarding prescription status. Additionally, Hussain et al. [30] emphasizes that utilizing technology for patient communication can enhance engagement and adherence to treatment plans. Furthermore, Faisal et al. [31] highlight that real-time updates not only improve patient experiences but also streamline pharmacy operations by reducing the number of inquiries made by patients regarding their prescriptions.

d. Redistributing Resources with Dynamic Scheduling

Interviews with pharmacy staff revealed a significant imbalance in workload, particularly during peak hours. This imbalance often leads to staff burnout and decreased efficiency, as employees struggle to manage high volumes of prescriptions alongside administrative tasks. The findings indicate that without a flexible approach to staffing, the quality of service may suffer, ultimately impacting patient care. To address this issue, the proposed solution is to implement a dynamic scheduling system that allows for the flexible redistribution of labor based on patient volume and prescription demand. By analyzing historical data on prescription patterns, pharmacies can anticipate busy periods and adjust staffing levels accordingly. Additionally, incorporating part-time staff or interns during high-volume times can alleviate pressure on full-time employees, enabling them to focus on their primary responsibilities without being overwhelmed by administrative duties. Research supports the effectiveness of dynamic scheduling in pharmacy settings. A study by Yinusa et al. [32] found that flexible staffing models significantly improve service delivery and reduce wait times during peak hours. Furthermore, a systematic review by Dabidian et al. [33] emphasizes that effective resource management through dynamic scheduling not only enhances operational efficiency but also improves employee satisfaction and retention. Additionally, a study by Martini et al. [26] highlights that optimizing staff allocation during busy periods can lead to better patient outcomes and increased overall productivity.

e. Implementing Monitoring Systems with Real-Time Alerts

To optimize the oversight of waiting times in pharmacy operations, findings from the interviews indicate a need for a more effective monitoring system. Currently, delays in prescription processing often go unnoticed until they significantly impact patient satisfaction. The implementation of a monitoring system based on control charts and color-coded alerts can provide a proactive approach to

managing these delays. This system would automatically notify staff when processing times exceed predetermined thresholds, allowing for timely interventions. The proposed solution involves integrating this monitoring system with statistical software such as Minitab, enabling pharmacy staff to track operational performance in real-time. By visualizing data through control charts, staff can quickly identify critical points that require immediate attention, thereby enhancing workflow efficiency and reducing patient wait times. Research supports the effectiveness of real-time monitoring systems in improving pharmacy operations. A study by Slyngstad [34] found that implementing control charts significantly reduced processing times and improved overall service quality. Additionally, Zhang et al. [35] emphasizes that real-time alerts can enhance staff responsiveness and operational efficiency, ultimately leading to better patient outcomes. Furthermore, Sallam [36] highlight that integrating statistical tools into pharmacy workflows allows for more informed decision-making and resource allocation.

f. Reorganizing Medication Storage Based on Prescription Types

Efficient medication storage layout is crucial for expediting the retrieval process, particularly during periods of high prescription volume. Findings from the interviews indicated that the current arrangement of medication shelves often leads to delays in locating and dispensing medications, which can negatively impact patient satisfaction and service efficiency. To address this issue, the proposed solution is to reorganize the medication storage system by categorizing drugs based on prescription types and clinic specialties. For instance, separating compounded medications from non-compounded ones can streamline the retrieval process. This reorganization will enable pharmacy staff to locate medications more quickly, thereby reducing wait times for patients and improving overall workflow efficiency. Research supports the effectiveness of optimized storage layouts in pharmacy settings. A study by Yuan et al. [37] found that reorganizing medication storage based on usage patterns significantly decreased retrieval times and enhanced service delivery. Additionally, a systematic review by Lexow et al. [38] emphasizes that an organized storage system not only improves operational efficiency but also minimizes the risk of medication errors. Furthermore, Basile et al. [39] highlight that a well-structured layout fosters a more efficient working environment, allowing pharmacy staff to focus on patient care rather than searching for medications.

g. Patient Education and Socializing Service Processes

Educating patients about pharmacy service processes is essential for reducing confusion and enhancing compliance with check-in procedures. Findings from the interviews revealed that many patients are unaware of the necessary steps to complete their prescriptions, leading to delays and frustration during the check-in process. This lack of understanding can negatively impact patient satisfaction and overall service efficiency. To address this issue, the proposed solution is to implement a comprehensive patient education program that utilizes various communication methods, including posters, banners, and digital information displays in both the clinic and pharmacy areas. These materials should clearly outline the check-in process and emphasize the importance of completing this step before collecting prescriptions. By providing accessible and informative resources, patients will be better equipped to navigate the pharmacy services, ultimately improving their

experience. Research supports the effectiveness of patient education in enhancing service delivery. A study by Kerr et al. [40] found that clear communication regarding service processes significantly improves patient understanding and adherence to procedures. Additionally, Cerbin-Koczorowska et al. [41] emphasizes that effective patient education strategies can lead to increased patient satisfaction and reduced wait times. Furthermore, So et al. [42] highlight that well-informed patients are more likely to engage positively with healthcare providers, fostering a collaborative environment that benefits both parties.

5. Conclusions

In conclusion, the pharmacy service at Haji Surabaya Hospital is confronted with significant challenges that contribute to excessive wait times for medication retrieval, ultimately impacting patient satisfaction and operational efficiency. The identified issues, including manual prescription input processes, inefficient administrative activities, complex compounding procedures, lack of integration with outpatient clinics, and suboptimal pharmacy layout, highlight the need for comprehensive improvements. By addressing these challenges through targeted solutions such as implementing automated systems, standardizing procedures, enhancing communication, and reorganizing the pharmacy layout, the hospital can significantly reduce wait times, improve service quality, and enhance the overall patient experience. These changes are essential for aligning the pharmacy's performance with established service standards and ensuring that patients receive timely and effective care.

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