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ANALYSIS OF THE IMPLEMENTATION OF LEAN MANAGEMENT METHOD TO IMPROVE PATIENT SATISFACTION (CASE STUDY OF HEART AND BLOOD VESSEL OUTPATIENT PATIENTS PARTICIPANTS OF BPJS KESEHATAN AT SYARIFAH AMBAMI RATO EBU BANGKALAN REGIONAL HOSPITAL)

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Abstract

Outpatient cardiovascular services are among the healthcare services with high patient volumes, which may lead to process inefficiencies and decreased patient satisfaction, particularly among BPJS Health Insurance participants. Lean Management is considered a strategic approach to improving service efficiency and patient satisfaction through Waste elimination and continuous improvement. This study aimed to analyze the implementation of Lean Management, identify types of Waste, examine its impact on patient satisfaction, and explore the role of strategic management in supporting the sustainability of Lean Management in the outpatient cardiovascular clinic of RSUD Syarifah Ambami Rato Ebu Bangkalan. This study employed a qualitative design with a case study approach. Informants were selected using purposive sampling and included hospital management, healthcare staff, and patients. Data were collected through in-depth interviews, observations, and document review, and analyzed using thematic analysis. The results showed that Lean Management had been implemented through the application of Just-In-Time principles, 5S culture, Kaizen, and service digitalization. The main types of Waste identified were waiting time, administrative duplication, and service flow Bottlenecks. The implementation of Lean Management had a positive impact on patient satisfaction, particularly in terms of service flow clarity, procedural simplicity, and staff attitudes. However, waiting time and physical facility comfort remained key challenges.

Keywords: Lean Management, patient satisfaction, outpatient services

INTRODUCTION

The implementation of Lean management in the healthcare sector has been proven to significantly enhance patient satisfaction and service efficiency. Lean focuses on waste reduction, patient flow optimization, and process improvement, which helps reduce waiting times a common source of patient dissatisfaction (Hammoudeh et al., 2020). In this context, Lean not only benefits patients but also increases healthcare staff satisfaction by creating a more structured and efficient work process (Balharith et al., 2024). The National Health Insurance Program (JKN) covers nearly the entire Indonesian population, reaching 274.14 million people or approximately 97.66% of the total population as of July 2024. Cardiovascular diseases represent one of the largest burdens on the healthcare system. In 2023, heart disease accounted for the highest healthcare expenditures, with 20.04 million cases and total claims amounting to IDR 23.52 trillion. Consequently, outpatient visits for cardiac patients have increased significantly, with 13 million visits in 2019, a decrease to 11.5 million in 2020, and a rebound to 12.9 million in 2021 (Kemenkes, 2024). At advanced referral healthcare facilities, especially cardiology outpatient clinics, patient queues are often long, particularly after the resumption of in-person services post-pandemic. Even before the pandemic, national referral hospitals such as RS Jantung Harapan Kita Jakarta served 400–600 patients per day. The high service demand poses significant operational challenges, including outpatient waiting times frequently exceeding the maximum standard of 60 minutes, potentially lowering patient satisfaction (Sholihah & Khodijah, 2021).

In modern healthcare, hospitals are expected not only to provide accurate and professional medical services but also to deliver patient-centered experiences. Patient satisfaction has become a key indicator of service quality,

with waiting time often being the first aspect evaluated by patients. Long waiting times negatively affect patients' perceptions of overall service quality, even if clinical outcomes are satisfactory. Therefore, optimizing queue management and improving process flows are strategic solutions essential for enhancing service efficiency (Prijaryanti et al., 2025). Long outpatient waiting times reflect operational challenges within the healthcare system. Excessive delays contribute to patient frustration and dissatisfaction (Arnovita et al., 2024). For instance, in a 2019 study at a cardiology clinic in Bogor, 94.9% of patients waited more than 60 minutes, with only 44.1% reporting satisfaction. Similarly, a 2021 study in Jember found an average waiting time of 131 minutes, far above the Ministry of Health's standard of 60 minutes, with patient satisfaction at 89%, below the Minimum Service Standard target of 95% (Muna, 2024).

Excessive waiting times are a primary concern for hospital management as they impact patient experience and treatment effectiveness. Research shows that longer waiting times increase patient frustration and reduce satisfaction with services provided (Jeong et al., 2022). Improving efficiency through strategic process adjustments can reduce waiting times and enhance patient satisfaction (Saeed et al., 2024), making waiting time a key performance indicator for healthcare providers (Alatawi et al., 2022). Applying Lean principles in healthcare can directly address these issues by reducing waste and optimizing processes, thereby improving patient flow and staff satisfaction (Chivardi & Sosa, 2023); Alwi et al., 2023). Evidence shows that hospitals implementing Lean experience significant reductions in waiting times, improved patient satisfaction, and enhanced safety due to more efficient emergency care (Alwi et al., 2023). Case studies, such as an outpatient clinic in Brazil, reported a reduction in patient waiting times by an average of four hours while simultaneously increasing satisfaction among patients and staff (Muharam & Firman, 2022).

Lean implementation also involves data-driven monitoring and continuous evaluation, allowing management to make strategic adjustments for further process improvement (Acero et al., 2023). Additionally, staff training on Lean principles facilitates smoother transitions and empowers healthcare workers to actively participate in continuous improvement, enhancing service responsiveness to patient needs (Tlapa et al., 2022), (Medjedović et al., 2023). RSUD Syarifah Ambami Rato Ebu (Syamrabu) Bangkalan, a class B regional teaching hospital, aims to be the "Preferred Hospital for the Community in Madura and Surrounding Areas" with a focus on service, education, and research. Despite recent innovations and expansions, including a new five-story building and community-oriented programs, outpatient cardiology and vascular clinics face challenges due to high patient volume, particularly BPJS patients, with average waiting times previously reaching 180 minutes and patient satisfaction below 50%.

A SWOT analysis positions RSUD Syamrabu in the WO (Weakness–Opportunity) quadrant. While the hospital's referral status and high patient volume offer strategic potential, structural weaknesses in operational processes limit the ability to convert patient volume into competitive advantage. Lean management presents a relevant opportunity to streamline registration, verification, consultation, pharmacy, and doctor scheduling processes. Quick interventions such as pre-verification of BPJS, triage or appointment systems, fast-track pharmacy service for chronic patients, and doctor schedule adjustments can serve as turnaround strategies, provided that potential threats like staff resistance, budget constraints, and supply chain issues are addressed through leadership communication, ongoing training, and supply management coordination.

Thus, RSUD Syamrabu's strategic focus is not only on accelerating service delivery but ensuring sustainable, data-driven improvements that go beyond superficial administrative solutions. Based on this background, the author is interested in conducting a thesis entitled: "Analysis of Lean Management Implementation to Improve Patient Satisfaction (A Case Study of Outpatient Cardiology and Vascular Patients under the National Health Insurance at RSUD Syarifah Ambami Rato Ebu Bangkalan)".

LITERATURE REVIEW

Lean Management

Lean Management is an operational philosophy focused on maximizing value while minimizing waste across organizational processes. It integrates techniques to simplify operations and improve efficiency by eliminating non-value-added activities. Core principles include continuous improvement, respect for people, and systematic waste reduction, collectively fostering a culture oriented toward quality and efficiency (Silva & Ferreira, 2021).

Although originally developed for manufacturing, Lean has been successfully adapted to service sectors, including healthcare, to enhance service quality and patient satisfaction. It emphasizes understanding what customers value and aligning organizational processes to deliver that value effectively (Zanezi & Carvalho, 2023). Lean Management offers multiple benefits that improve organizational performance and competitiveness. By eliminating waste, it reduces operational costs, optimizes resource use, and allows focus on value-added activities (Agyabeng-

Mensah et al., 2020). Organizations implementing Lean report faster processes, higher productivity, and a culture of continuous improvement, where employees actively participate in problem-solving (Uwa, 2024). In healthcare, Lean enhances patient satisfaction by streamlining services, reducing waiting times, and improving service quality (Santos et al., 2022). Moreover, it promotes sustainability by emphasizing resource efficiency and waste reduction, aligning with corporate social responsibility and environmental goals (Berger et al., 2021). Leadership commitment is critical to integrate Lean into organizational culture, ensuring long-term improvement (Sahoo, 2020).

Lean Management in healthcare is structured around five key dimensions (Duarte & Mc Dermott, 2025):

1. Value – Focus on what patients consider important, such as accurate diagnosis, timely service, and comfort, while eliminating non-value-added activities.
2. Value Stream – Mapping all service steps, from registration to pharmacy, to identify and remove waste.
3. Flow – Ensuring smooth patient movement without delays by redesigning service pathways and removing bottlenecks.
4. Pull – Aligning services with actual patient demand, preventing unnecessary procedures, and ensuring efficient use of resources.
5. Continuous Improvement (Kaizen) – Fostering a culture where staff and management regularly evaluate and incrementally improve processes.

Patient Satisfaction

Patient satisfaction is defined as a subjective evaluation of healthcare experiences, reflecting the extent to which patients' expectations are met. It is closely linked to service quality, including interactions with medical staff, service reliability, and timeliness (Harahap et al., 2023). Satisfaction encompasses various aspects, such as quality of care, staff-patient communication, facility comfort, and treatment outcomes (Lidiana et al., 2024). Highly satisfied patients tend to have positive perceptions of healthcare facilities and are more likely to reuse services in the future, making satisfaction a key indicator of service quality (Sitepu & Kosasih, 2024). Patient satisfaction is multidimensional. Five commonly cited dimensions are (Istiqamah & Rachman, 2023):

1. Reliability – Ability of healthcare providers to deliver accurate and consistent services.
2. Responsiveness – Timely and appropriate response to patient needs, including information and medical care (Ahmad & Harahap, 2023).
3. Assurance – Patients' trust in providers' competence, professionalism, and ethical behavior.
4. Empathy – Providers' attention, understanding, and care for patients' conditions and feelings (Safitri et al., 2022).
5. Tangibles – Physical facilities, equipment, and appearance of staff.

Service quality is the primary determinant of patient satisfaction. The SERVQUAL model highlights five key dimensions tangibles, reliability, responsiveness, assurance, and empathy that collectively shape patient perceptions (Sulaiman et al., 2021). Well-maintained facilities, timely care, competent professionals, and empathetic staff contribute to positive experiences. Effective communication is critical, as transparency regarding diagnosis, procedures, and risks improves patient involvement, reduces anxiety, and enhances adherence to treatment plans (Dwamena et al., 2012). The physical environment, including cleanliness, lighting, noise, and layout, also affects comfort and stress, influencing satisfaction levels.

Operational factors such as waiting times, access, and inter-departmental coordination significantly impact satisfaction. Integrated appointment systems, clear workflows, and prioritization for urgent cases improve service flow and reduce dissatisfaction (Dwamena et al., 2012). Demographic and psychosocial characteristics age, education, socioeconomic status, and initial expectations moderate satisfaction outcomes. For instance, more educated patients may have higher expectations for technical and aesthetic aspects, while older patients may prioritize empathy and safety. Understanding patient heterogeneity is essential for designing effective interventions to improve satisfaction.

METHOD

This study employed a qualitative approach with a single case study design aimed at gaining an in-depth understanding of the implementation of Lean Management and patient satisfaction perceptions in a healthcare setting. The qualitative approach was chosen because it emphasizes the understanding of subjective and contextual phenomena, allowing the researcher to explore the interactions between management practices, continuous improvement processes, and patient experiences in detail. The single case study design provides a flexible framework to examine the factors influencing Lean Management effectiveness and how it impacts patients' satisfaction perceptions. The research was conducted at the Cardiology Outpatient Unit of RSUD Syarifah Ambami Rato Ebu Bangkalan, East Java, Indonesia. This location was selected due to its relevance to BPJS patients and the ongoing application of Lean Management, providing a rich context for qualitative analysis. The site allowed the researcher to observe operational practices, service flow, and interactions between healthcare staff and patients directly, which are crucial for evaluating the implementation of Lean Management.

Data were collected using in-depth interviews, participant observation, and document review. Interviews were conducted with medical staff, administrative personnel, and patients to identify their perceptions and experiences regarding the service flow and the impact of Lean Management implementation. Participant observation was employed to understand operational processes directly, including the identification of waste, service flow, and continuous improvement practices. Document review, such as service records, standard operating procedures, and internal evaluation reports, was used to complement and verify data obtained from interviews and observations. Data analysis was conducted thematically through open coding, grouping codes into categories, and identifying themes relevant to Lean Management implementation and patient satisfaction. This approach allowed the researcher to systematically link empirical findings with Lean Management theory and patient satisfaction literature while uncovering causal relationships and contextual dynamics. Data credibility was ensured through source triangulation, methodological triangulation, and member checking to maintain consistency and validity of the findings.

RESULTS AND DISCUSSION

Implementation of Lean Management and Waste Identification

The thematic analysis of Lean Management implementation revealed three central themes: the application of efficient service flow with Just-In-Time principles, the adoption of the 5S culture, and continuous Kaizen activities. Key informants highlighted that punctuality and standardized processes, particularly timely presence of physicians, were essential for maintaining smooth patient flow. Physical layout adjustments, including the decentralization of pharmacy and administrative units, reduced congestion and optimized service points. The integration of these strategies reflects a combination of time discipline and workflow redesign to enhance efficiency. The 5S culture Sort, Set in Order, Shine, Standardize, Sustain was applied comprehensively, extending beyond physical arrangement to process standardization and continuous evaluation. Informants emphasized punctuality, strategic placement of resources, and routine monitoring, including periodic evaluation reports and patient satisfaction surveys, as critical to sustaining 5S practices.

Kaizen and continuous improvement activities were implemented across managerial, operational, and quality monitoring levels. Transformation of previously non-strategic units, monthly monitoring of clinical indicators, and operational adjustments in outpatient clinics demonstrated an ongoing effort to streamline processes and optimize patient experience. These practices collectively indicate that Lean principles were integrated at multiple levels to support sustainable service improvement. Despite these efforts, critical wastes were identified. Excessive waiting times, queue accumulation, and technical errors in system integration were the primary contributors to inefficiency. Administrative waste arose from duplicate processes, repeated data entry due to sudden schedule changes, and reliance on digital systems vulnerable to outages. Bottlenecks occurred particularly in high-volume units such as Cardiology, exacerbated by incomplete patient data during transitions between units, causing backflow and rework. Overall, the findings indicate that Lean Management implementation has improved efficiency and patient flow through Just-In-Time practices, 5S culture, and Kaizen, but persistent wastes in administrative processes and patient flow bottlenecks remain. Addressing these requires both operational discipline and robust system integration to ensure sustainable, patient-centered service delivery.

Impact of Lean Management Implementation on BPJS Patient Satisfaction

The analysis of BPJS patient perceptions revealed that the implementation of Lean Management positively influenced service responsiveness and physical comfort. Responsiveness was primarily enhanced through the decentralization of registration points, allowing returning patients to proceed directly to their respective specialist clinics. Informants noted that this approach reduced bureaucratic procedures and waiting times, creating a smoother and more efficient patient flow. Patients confirmed that the streamlined system improved their overall experience, even during complex procedures, highlighting the effectiveness of simplified, patient-centered service design. Physical comfort and environmental satisfaction were also significantly affected by Lean strategies. The deployment of cluster-based layouts with dedicated administrative and pharmacy counters in each unit minimized congestion and reduced travel distances within the hospital. This arrangement not only facilitated movement but also enhanced the psychological perception of a clean, organized, and comfortable environment. Patients acknowledged the improvements in room conditions, cleanliness, and overall comfort, indicating that operational efficiency and environmental organization together contributed to higher patient satisfaction.

Implementation of Lean Management to Enhance Patient Satisfaction

Lean Management in the Cardiology Outpatient Unit of RSUD Syarifah Ambami Rato Ebu Bangkalan positively influenced patient satisfaction. Principles such as Just-In-Time, 5S, Kaizen, and Waste elimination improved service flow, procedural organization, and staff-patient interactions. These findings align emphasizing patient-centered value on reducing waiting times and clarifying service pathways. Time management through Just-In-Time scheduling and 5S implementation enhanced operational efficiency and psychological comfort. Continuous improvement practices (Kaizen) reinforced Lean as an organizational culture rather than a technical method. Challenges remain in waiting time and IT integration, consistent, highlighting the need for system preparedness and contingency protocols. Patient satisfaction reflects SERVQUAL dimensions: empathy, reliability, responsiveness, and tangibles. Leadership commitment is critical to sustaining Lean, as emphasized where policy support, technological investment, and consistent monitoring allow rapid adaptation to patient feedback. Overall, Lean succeeds optimally when viewed as a long-term organizational culture with patients as the central focus, integrating efficient processes, stable IT systems, competent HR, and adequate facilities.

CONCLUSION

The implementation of Lean Management at the Cardiology Outpatient Unit of RSUD Syarifah Ambami Rato Ebu Bangkalan has shown a positive impact on patient satisfaction. The decentralization of patient registration and the establishment of service points at each clinic have significantly improved service speed, allowing patients to access their intended clinics without waiting at the central registration desk. This streamlined process enhances the perception of efficiency and responsiveness from the patient's perspective. Patient comfort is also improved through strategic facility layout and service clustering, which minimizes patient movement and prevents crowding. Clean, well-organized, and accessible facilities contribute positively to patients' psychological well-being and overall satisfaction with the service environment. The commitment of hospital leadership plays a crucial role in sustaining Lean practices. Investments in technology, coordination across units, and data-driven quality monitoring ensure that patient flows remain smooth, service quality is maintained, and national healthcare standards are met consistently.

The integration of digital systems and competent human resources forms the foundation of effective Lean implementation. Digitalization reduces manual errors and accelerates clinical processes, while disciplined management and internal evaluation ensure high-quality staff performance. Together, these elements enable the hospital to apply Lean principles effectively, such as Just-In-Time, Kaizen, and continuous improvement. Strategies to overcome resistance, including proper staff placement, competency-based rotation, and adherence to regulatory standards, foster a culture of quality and sustain Lean as an organizational practice rather than merely a technical procedure. From the patient's perspective, Lean Management has improved empathy, staff interaction, and procedural reliability. However, challenges remain regarding waiting times and physical comfort, particularly in waiting areas, which affect overall satisfaction. Addressing these issues will be critical to achieving comprehensive patient satisfaction. Conceptually, Lean Management enhances value from the patient's standpoint by eliminating non-value-added activities, simplifying workflows, and improving human interaction. Its success depends not only on technology and procedures but also on strong leadership, organizational culture, human resource integration, and adequate physical infrastructure. Consistent and sustainable implementation of Lean can therefore significantly improve patient satisfaction, establishing it as a key strategy for modern healthcare service excellence.

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