



Implementation of the IPA Method in Patient Satisfaction Services at the Dr. Komang Makes Indonesian Navy Hospital, Website-Based

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Abstract

Hospitals play a crucial role in providing high-quality healthcare services, particularly for inpatients who require intensive and continuous care. However, gaps often exist between patient expectations and perceived service performance, leading to dissatisfaction and inefficiencies in hospital operations. This study aims to evaluate the quality of inpatient services at Dr. Komang Makes Indonesian Navy Hospital using the Importance Performance Analysis (IPA) method to identify priority areas for improvement. The research employed both library and field studies, including observations, interviews, and questionnaires distributed to 100 inpatients. Data were analyzed by calculating performance and expectation scores across five service quality dimensions—reliability, assurance, responsiveness, empathy, and tangibility—to determine satisfaction levels. The findings revealed an average satisfaction index of 1.01, indicating that overall inpatient services are satisfactory, particularly in the assurance, empathy, and tangible dimensions. However, the reliability and responsiveness dimensions showed notable performance gaps, especially concerning doctor visit schedules, clarity of procedures, and response to patient complaints. These results highlight the need for targeted interventions, such as enhancing digital integration, improving communication systems, and increasing staff responsiveness. The implementation of continuous IPA-based evaluations is recommended to support systematic quality improvement and strengthen patient trust. This study contributes to the development of a patient-centered, technology-driven service model that enhances healthcare quality and organizational performance at Dr. Komang Makes Indonesian Navy Hospital.

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1. Introduction

Hospitals, as healthcare institutions, carry a vital responsibility to provide optimal services to the public, particularly to inpatients who require intensive and continuous medical care. The quality of

inpatient services is a key determinant of patient perception and satisfaction, as patients evaluate not only the medical aspects but also the non-medical components such as comfort, communication effectiveness, staff friendliness, and accessibility of information (Parasuraman, Zeithaml, & Berry, 1988). A hospital that consistently delivers high-quality service can maintain a strong public image and foster trust among patients. In contrast, inadequate service quality often results in patient dissatisfaction, diminished confidence, and a negative reputation. Therefore, maintaining and improving service quality is a strategic imperative for hospitals to ensure the sustainability of healthcare delivery and to align with patient-centered care principles (Donabedian, 1988; Dagger, Sweeney, & Johnson, 2007). In the modern healthcare landscape, service quality directly correlates with patient loyalty, public trust, and institutional competitiveness (Cronin & Taylor, 1992).

Despite these expectations, many hospitals continue to face challenges in providing consistent and comprehensive inpatient care. Poor service quality—whether due to delays, ineffective communication, or insufficient patient engagement—has been identified as one of the main barriers to achieving patient satisfaction (Andaleeb, 2001). Patients who experience poor interactions with hospital staff or encounter difficulties accessing essential services are more likely to develop negative perceptions of the hospital. Furthermore, inpatients are particularly vulnerable, both physically and emotionally, making them highly sensitive to the quality of medical and non-medical care they receive (Alrubaiee & Alkaa'ida, 2011). These shortcomings highlight the necessity for hospitals to adopt continuous quality evaluation mechanisms that can identify weaknesses in their service delivery systems and formulate strategies for improvement (Zineldin, 2006). Without such evaluation, service inefficiencies may persist, undermining the hospital's mission to provide optimal healthcare.

Dr. Komang Makes Indonesian Navy Hospital represents a unique case in Indonesia's healthcare system, as it operates both as a military hospital and as a public healthcare provider. This dual role places the hospital under a dual mandate: to maintain military-grade discipline and efficiency while also meeting the expectations of civilian patients. The hospital continues to strive for excellence in improving its inpatient services, recognizing that inpatients require not only accurate and timely medical treatment but also emotional comfort, transparency, and responsive communication from healthcare professionals (Kotler, Shalowitz, & Stevens, 2011). Given that hospitalized patients often face anxiety and vulnerability, their satisfaction depends heavily on how the hospital's systems support them holistically. The hospital's leadership has therefore emphasized the integration of technology and patient-centered service delivery to meet the evolving needs of both military and civilian populations (Muninjaya, 2019). However, the extent to which these efforts effectively address patient expectations remains insufficiently understood and demands systematic evaluation.

In response to technological advancements, hospitals worldwide have increasingly adopted web-based information systems to enhance efficiency and accessibility in service delivery. These systems enable patients to easily access information regarding room availability, doctor schedules, laboratory results, and administrative procedures, thereby promoting transparency and efficiency (Kuo, Yen, & Chen, 2011). However, implementation challenges often arise, including limited functionality, poor user interface design, and lack of awareness or training among patients regarding how to use such systems effectively. As a result, not all patients experience the intended benefits, and dissatisfaction persists (Lee & Yoon, 2021). Similarly, in Dr. Komang Makes Hospital, although the website-based system has been introduced to streamline inpatient information management, several patients report that the platform remains underutilized or insufficiently responsive to their needs. This gap between patient expectations and actual system performance reveals the importance of conducting a systematic evaluation of web-based service delivery to ensure its alignment with patient priorities and satisfaction goals (Aboueela et al., 2016).

To bridge the gap between patient expectations and perceived performance, a structured evaluation framework is necessary to measure the importance and performance of various service attributes from the patient's perspective. The Importance Performance Analysis (IPA) method serves as a practical and effective approach for this purpose (Martilla & James, 1977). IPA enables the identification of attributes that are considered highly important by patients but are currently

underperforming, thereby highlighting key areas that require improvement. By applying this method, hospitals can focus their resources strategically on maintaining critical service aspects and improving those that contribute most significantly to patient satisfaction. Consequently, this study aims to implement the IPA method to evaluate and enhance inpatient services at Dr. Komang Makes Indonesian Navy Hospital, particularly focusing on the hospital's website-based service system. The ultimate goal is to improve the quality, responsiveness, and patient-centeredness of care, contributing to the hospital's mission of providing high-standard and equitable healthcare services for all patients..

2. Research Methodolgy

The author collected data related to the author's research to obtain data and information about the company's problems based on patient care theory. The data collection included:

1. Library Research

In this study, the author cited several literature related to patient care using the Natural Science (IPA) method. The citations included theories or opinions from several journals related to the IPA method.

2. Field Research

The field study was conducted by involving competent parties in patient care. This was done to obtain data and information related to the problem being studied. The field study included:

a. Observation (Direct Observation)

In this section, the author observed the process of conveying information to patients, including service delivery, information delivery, and other services. The following is observational evidence at the Dr. Komang Makes Navy Hospital in the form of inpatient data:

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RUMKITAL Dr. KOMANG MAKES
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NAMA : SAMSAN GENOIS DOHITM
TGL. LAHIR : 11-04-2009
ALERGI : -

RAHASIA
HPL HARUS DIPINDAOKAN SEMERA
SETELAH SELESAI LAYAKAN

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PANGKALAN UTAMA TNI AL 1
RUMKITAL Dr. KOMANG MAKES
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NAMA : M. SAHREZA KAMAL
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RAHASIA
HPL HARUS DIPINDAOKAN SEMERA
SETELAH SELESAI LAYAKAN

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RAHASIA
FILE RAHASIA DIKEMBALIKAN KHUSUS
SETELAH SELESAI LAYANAN

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Figure 1. Inpatient Patient Book at Dr. Komang Makes Indonesian Navy Hospital
Source: Dr. Komang Makes Indonesian Navy Hospital

b. Interview

This section involved direct interviews with the management of Dr. Komang Makes Indonesian Navy Hospital to obtain information such as the current system and weaknesses of the existing system, necessitating the development of a new system at Dr. Komang Makes Indonesian Navy Hospital. The following is evidence from interviews conducted by researchers with inpatients at Dr. Komang Makes Indonesian Navy Hospital:



Figure2. Interview with an inpatient at Dr. Komang Makes Indonesian Navy Hospital
Source: Dr. Komang Makes Indonesian Navy Hospital

c. Questionnaire

A questionnaire is a data collection technique that involves providing respondents with a set of questions or written statements to answer. The questionnaire was distributed to patients at Dr. Komang Makes Indonesian Navy Hospital.

System development can involve constructing a new system, replacing the existing system entirely, or improving an existing system. The methodology for developing a patient satisfaction decision support system using this method is illustrated in the following waterfall diagram:

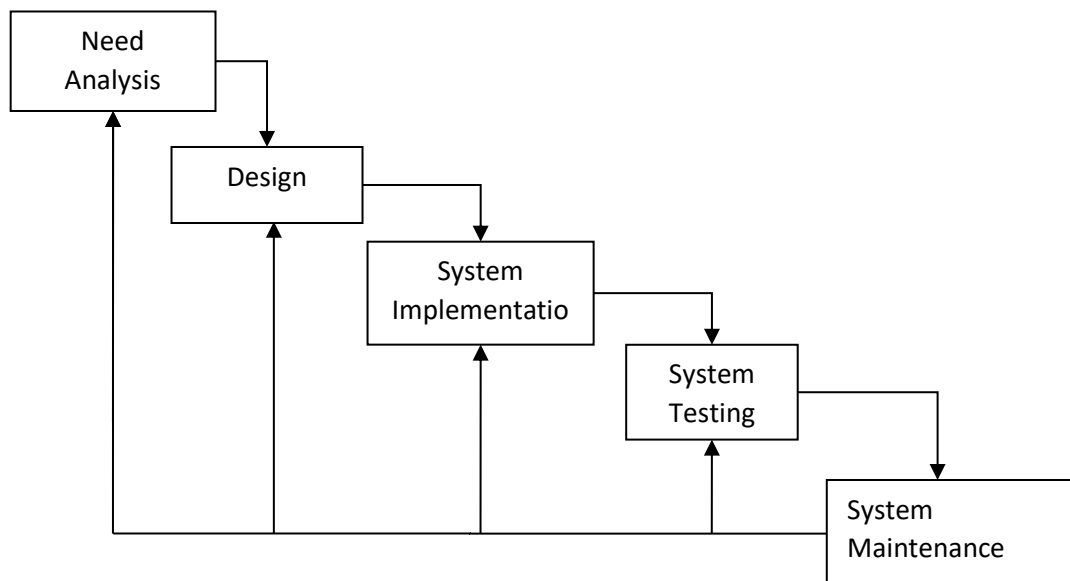


Figure 3. Research Framework

The research mapping using a waterfall diagram can be explained as follows:

1. Needs Analysis
Contains the elements that must be included in the design results to be able to solve existing problems according to the objectives. The data required for system design are questionnaire data, patient data, and service data.
2. System Design
In general, the design of an inpatient service system using the Natural Sciences (IPA) method utilizes the Unified Modeling Language (LML) design model, namely use case diagrams, class diagrams, activity diagrams, and sequence diagrams.
3. Coding
Coding is the translation of the design into a computer-recognizable language. This is performed by a programmer who translates the transactions requested by the user. The inpatient service application at Dr. Komang Makes Indonesian Navy Hospital was developed using PHP and a MySQL database.
4. Program Testing
This research used black-box (interface) testing, a software test that tests the application's functionality against its internal structure or operation. Specific knowledge of the application code/internal structure and general programming knowledge is not required; the testing is conducted for each designed equipment block.
5. Implementation
After the program testing process is completed, a more specific system implementation process is carried out. Software that is difficult to convey to users will inevitably undergo changes.

3. Results and Discussion

Inpatient care is a crucial indicator for assessing the quality and performance of a hospital. Inpatients require not only medical treatment but also prompt, informative, and humane service. At Dr. Komang Makes Indonesian Navy Hospital, inpatient care is equipped with a website-based information system designed to facilitate patient access to information about their care. However, based on initial observations and field findings, several issues require further analysis.

Some patients still complain about delays in service, a lack of clear information, inconsistent doctor schedules, and difficulty accessing certain features on the hospital website. This suggests a potential mismatch between patient expectations (importance) and their experience (performance).

Without structured measurement, hospital management finds it difficult to determine which aspects of care are important to patients and whether these aspects are being met effectively. Therefore, an analysis method is needed that can provide a clear and measurable picture of the gap between these priorities and performance.

The Importance Performance Analysis (IPA) method was chosen because it presents analysis results in a quadrant format that is easy to understand and use for decision-making. With this method, aspects of inpatient care can be mapped into four categories: top priority, maintain performance, low improvement, and excess resources. This allows the hospital to focus service improvements on the aspects that patients truly need.

The author provided questionnaires to 100 respondents. Patients at the Dr. Komang Makes Indonesian Navy Hospital completed the questionnaires regarding the services provided by the hospital. The following is an attachment of the questionnaires provided, along with five completed questionnaires.

The following are the results of the questionnaires completed by 100 patients at the Dr. Komang Makes Indonesian Navy Hospital. The following table summarizes the respondents' responses:

Table 1. Questionnaire Completion Results

Atribut	No.	Statement	Performance					Hope				
			STS	TS	N	S	SS	STS	TS	N	S	SS
<i>Relability</i>	1	Doctor's visit schedule according to the information provided	0	0	23	41	36	0	0	23	38	39
	2	Nurses administer medication according to schedule and the correct dosage.	0	0	28	31	41	0	0	31	36	33
	3	Information regarding inpatient procedures is conveyed clearly.		0	29	35	36	0	0	28	34	38
	4	Laboratory test results are provided on time	0	0	32	31	37	0	0	30	33	37
	5	Hospital staff work according to procedures	0	1	32	33	34	0	0	31	41	28
	6	Inpatient services continue to run smoothly even during peak hours or when there are many patients.	0	0	35	31	34	0	0	32	34	34
<i>Assurance</i>	7	The officer provides an explanation regarding treatment and procedures in easy-to-understand language.	0	0	32	31	37	0	0	29	40	31
	8	The officer provides an explanation regarding treatment and procedures in easy-to-understand language.	0	0	34	29	37	0	0	31	40	29
	9	Patients feel safe during hospitalization	0	0	34	31	35	0	0	31	39	30
	10	Medical information is conveyed accurately by the doctor	0	0	31	34	35	0	0	37	32	31
	11	Patient identity and data are kept confidential	0	0	31	35	34	0	0	36	32	32
	12	Nurses are responsive to patient requests	0	0	29	41	30	0	0	32	42	26
<i>Responsive nes</i>	13	Administrative staff responded quickly in the registration process.	0	0	27	37	36	0	0	35	27	38
	14	Officers are quick in handling patient complaints	0	0	38	39	23	0	0	29	42	29
	15	Assistance services are available if patients experience difficulties in using the facilities.	0	0	34	30	36	0	0	33	33	34
<i>Tangible</i>	16	The cleanliness of the inpatient rooms is well maintained	0	0	30	28	42	0	0	29	39	32
	17	The medical equipment used looks modern and complete.	0	0	33	39	28	0	0	31	39	30
	18	The bed and its equipment are comfortable for the patient.	0	0	36	29	35	0	0	38	28	34
<i>Empathy</i>	19	Nurses are friendly and polite to patients and listen to patients' complaints attentively.	0	0	35	34	31	0	0	38	37	25
	20	Doctors give enough time when consulting with patients	0	0	20	41	39	0	0	40	32	28

1. Satisfaction Level

The Importance Performance Analysis (IPA) method also includes a calculation to determine the priority order of services, which is measured by the satisfaction level to determine the best service improvement priorities to achieve patient satisfaction.

a. Calculating performance and expectation values

Performance (X) = $((1 \times \text{STS}) + (2 \times \text{TS}) + (3 \times \text{N}) + (4 \times \text{S}) + (5 \times \text{SS})) / \text{number of respondents}$

Expectation (Y) = $((1 \times \text{STS}) + (2 \times \text{TS}) + (3 \times \text{N}) + (4 \times \text{S}) + (5 \times \text{SS})) / \text{number of respondents}$

b. Satisfaction Level

Satisfaction Level = $(\text{Performance (X)} / \text{Expectation (Y)}) \times 100\%$

2. Calculating the satisfaction level

After calculating the Performance and Expectation scores, the patient satisfaction level will be calculated.

Calculating the Satisfaction Level = $(\text{Performance (X)} / \text{Expectation (Y)})$

Table 2. Results of the Satisfaction Level Test

Dimensi	No.	Statement	Satisfaction Level Results			
			Performance	Hope	Satisfaction Level	Description
Reliability	1	Doctor's visit schedule according to the information provided	4,13	4,16	0,99	Not Satisfied
	2	Nurses administer medication according to schedule and the correct dosage.	4,13	4,02	1,02	Satisfied
	3	Information regarding inpatient procedures is conveyed clearly.	4,07	4,10	0,99	Not Satisfied
	4	Laboratory test results are provided on time	4,05	4,07	1,00	Satisfied
	5	Hospital staff work according to procedures	4,00	3,97	1,01	Satisfied
	6	Inpatient services continue to run smoothly even during peak hours or when there are many patients.	3,99	4,02	0,99	Not Satisfied
Assurance	7	The officer provides an explanation regarding treatment and procedures in easy-to-understand language.	4,05	4,02	1,01	Satisfied
	8	The officer provides an explanation regarding treatment and procedures in easy-to-understand language.	4,03	3,98	1,01	Satisfied
	9	Patients feel safe during hospitalization	4,01	3,99	1,01	Satisfied
	10	Medical information is conveyed accurately by the doctor	4,05	3,94	1,03	Satisfied
	11	Patient identity and data are kept confidential	4,03	3,96	1,02	Satisfied
Responsiveness	12	Nurses are responsive to patient requests	4,01	4,10	0,98	Not Satisfied
	13	Administrative staff responded quickly in the registration process.	4,09	4,03	1,01	Satisfied
	14	Officers are quick in handling patient complaints	3,85	4,00	0,96	Not Satisfied
	15	Assistance services are available if patients experience difficulties in using the facilities.	4,02	4,01	1,00	Satisfied

Dimensi	No.	Statement	Satisfaction Level Results			
			Performance	Hope	Satisfaction Level	Description
<i>Tangible</i>	16	The cleanliness of the inpatient rooms is well maintained	4,12	4,03	1,02	Puas
	17	The medical equipment used looks modern and complete.	3,95	3,99	0,99	Not Satisfied
	18	The bed and its equipment are comfortable for the patient.	3,99	3,96	1,01	Satisfied
<i>Empathy</i>	19	Nurses are friendly and polite to patients and listen to patients' complaints attentively.	3,96	3,87	1,02	Satisfied
	20	Doctors give enough time when consulting with patients	4,19	3,88	1,08	Satisfied
		Average	4,04	4,01	1,01	Satisfied

Based on Table. above, it can be seen that the average value of patient satisfaction level on the quality dimension is 1.01 <1, it can be concluded that patients are satisfied with the services by Dr. Komang Makes Navy Hospital. However, based on the value of the satisfaction level per dimension, it has a variety of values with the number of patient levels, 70% of patients feel satisfied or as many as 14 questions out of 20 questions, patients feel satisfied with the services at Dr. Komang Makes Navy Hospital and 30% of patients feel dissatisfied or as many as 6 questions out of 20 questions feel dissatisfied with the services at Dr. Komang Makes Navy Hospital.

Discussion

The results of the Importance Performance Analysis (IPA) indicate that overall patient satisfaction at Dr. Komang Makes Indonesian Navy Hospital is at a satisfactory level, with an average satisfaction score of 1.01. This finding suggests that, in general, hospital services meet patient expectations, especially in key dimensions such as assurance, empathy, and tangible quality. These dimensions reflect the hospital's ability to maintain a sense of safety, professionalism, and empathy among medical staff, which are crucial elements of patient-centered care (Parasuraman, Zeithaml, & Berry, 1988). Patients' positive perceptions toward staff friendliness, confidentiality, and the accuracy of medical information indicate that the hospital has successfully upheld the trust and comfort of inpatients. However, the data also reveal specific areas of concern, particularly within the reliability and responsiveness dimensions. Patients expressed dissatisfaction with several items, including delays in service, unclear information regarding inpatient procedures, and slow responses to complaints. Such issues are consistent with prior studies indicating that inefficiencies in service delivery and communication significantly reduce overall satisfaction levels in healthcare institutions (Andaleeb, 2001; Alrubaiee & Alkaa'ida, 2011). Therefore, while the hospital demonstrates commendable performance in several aspects, these weaknesses suggest the need for targeted managerial interventions to enhance the consistency and timeliness of patient care processes.

From a strategic management perspective, the results of this study provide important implications for the hospital's quality improvement planning. The IPA quadrant approach allows the hospital to prioritize resource allocation effectively, ensuring that high-importance but underperforming attributes receive immediate attention (Martilla & James, 1977). Attributes such as "doctor visit schedule accuracy," "clarity of inpatient procedures," and "responsiveness to patient complaints" fall into the *concentrate here* quadrant—indicating areas with high patient expectations but low performance levels. Addressing these weaknesses will require systematic improvements in digital integration, workflow coordination, and staff responsiveness. The hospital's website-based information system should be optimized to provide real-time updates on doctor schedules, automated reminders for medication and appointments, and interactive feedback channels to address complaints promptly. This aligns with the modern concept of smart hospital management, where technology is

leveraged to enhance operational efficiency and patient experience simultaneously (Lee & Yoon, 2021; Kuo, Yen, & Chen, 2011). Strengthening these areas will not only improve patient satisfaction but also reinforce the hospital's reputation as a responsive and technology-driven healthcare provider. Thus, the IPA-based evaluation offers a practical framework for continuous improvement, ensuring that service enhancements remain aligned with patient priorities and organizational objectives.

4. Conclusion

The findings of this study demonstrate that the overall quality of inpatient services at Dr. Komang Makes Indonesian Navy Hospital is satisfactory, as indicated by a positive satisfaction index of 1.01. This suggests that the hospital has successfully met patient expectations, particularly in areas related to assurance, empathy, and tangibles, where staff professionalism, friendliness, and facility cleanliness received favorable assessments. However, the analysis also identified gaps in the dimensions of reliability and responsiveness, indicating that certain aspects of service delivery—such as timeliness of doctor visits, clarity of procedural information, and speed in addressing patient concerns—still require improvement. These insights underscore that maintaining patient satisfaction involves not only providing high-quality medical care but also ensuring consistency, reliability, and effective communication across all levels of hospital operations. To enhance service performance and further improve patient satisfaction, several actions are recommended. Hospital management should focus on improving key service attributes with high importance but relatively low performance, including strengthening digital infrastructure, standardizing communication procedures, and conducting regular staff training to enhance responsiveness and patient interaction. Additionally, the hospital's information system should be expanded into an integrated platform that enables real-time updates on medical schedules, laboratory results, and feedback channels. This initiative would enhance operational transparency and efficiency, supporting the hospital's transition toward a more patient-centered and technologically advanced healthcare model. Regular evaluations of service performance using analytical tools such as Importance-Performance Analysis are also encouraged to ensure continuous quality improvement. By implementing these measures, Dr. Komang Makes Indonesian Navy Hospital can strengthen its institutional reputation and establish itself as a benchmark for reliable and responsive inpatient care.

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