Customer Satisfaction Analysis in the Healthcare Industry Using KANO Method and Importance Performance Analysis

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Abstract

Customer satisfaction is one of the most important aspects in the business world, especially in the service sector because it can increase customer loyalty, create a positive image for the company and ultimately contribute to long-term success. This study was conducted at MEDCORP, a company engaged in the healthcare industry, which seeks to increase sales by improving customer service. To measure and customer satisfaction, this study uses 5 dimensions of service quality, namely reliability, responsiveness, assurance, empathy and direct evidence. The methods used are the IPA and KANO methods. The IPA method uses data from customers to evaluate how important each attribute is and how well the company meets those expectations. The KANO method identifies attributes that can increase customer satisfaction if added or improved. This combination provides a more comprehensive understanding of customer needs and product performance that can be used as a reference for companies in achieving the service desired by customers, so that it can increase sales and customer satisfaction. Based on the results obtained, it is known that there are 23 negative gaps, so further analysis is carried out to determine the strategy set. The author makes three types of strategies that can be implemented, namely the main, middle, and final priority strategies based on the IPA-KANO integration classification. Through this research, it is expected to be used as a consideration for business actors or managers in determining improvements in service quality through continual improvement of MEDCORP's performance so that service quality and output become better.

Keywords: *Customer Satisfaction, Healthcare Industry, IPA, KANO*

1. Introduction

Increasing customer satisfaction is a fundamental aspect in the sustainability of a business. Customer satisfaction is one of the most important aspects. In increasingly fierce competition, companies are required to not only offer quality products, but also provide satisfactory service to customers. Good customer service can increase customer loyalty, create a positive company image, and ultimately contribute to long-term success [1], [2]. The service sector is closely related to how much customer satisfaction is in getting service so that customers want to come back to make purchases [3], [6]. MEDCORP is a company engaged in the health industry that handles sales and marketing of products throughout Indonesia.

MEDCORP is a company engaged in the healthcare industry that handles sales and marketing of products throughout Indonesia. As with the increasing growth of the healthcare industry in Indonesia, there is also increasingly tight industrial competition from competitors. Competitor competition in business refers to conditions in which various companies compete to get the same market share. To face this competition, it is important for companies to focus on product quality, innovation, and in-depth understanding of customers and competitor analysis [5].

Based on Top Brand Index 2024 data, the results of a comparison of the 5 top health brands over the past 4 years include MEDCORP, HOB, MSG, NSC and ZC. Of the 5 brands in 2024, MEDCORP was in first place in the top brand award in the health category with a score of 32.20%. This proves that MEDCORP has quite good potential in the eyes of customers.

Based on MEDCORP customer data during 2023-2024, the number of new customers who transacted decreased by 13.61%. In addition, the number of customer recommendations decreased in 2024 by 29.20%. This also affected revenue which decreased in 2024 by 0.74% compared to 2023. Based on the number of surveys related to the level of customer satisfaction conducted in 2024, overall customers who were satisfied only reached 50%.

To measure customer satisfaction, various methods can be used. Two popular and effective methods are KANO and Importance Performance Analysis (IPA). One way that can be done is to conduct a customer satisfaction survey to measure service standards [15]. The data processed is MEDCORP customer data. From the survey data, a customer satisfaction analysis will be carried out [4]. In the research that will be carried out, it is proposed to apply a method that integrates 5 service quality attributes to be applied to the kano and IPA methods to conduct customer satisfaction analysis [11]. By using this method, it can be one solution in improving service quality. It is hoped that the company can make the right and efficient decisions to get maximum profit.

This study employs a quantitative research approach to analyze customer satisfaction within a healthcare service provider, MEDCORP, by integrating the IPA and KANO models. This integration addresses a gap in existing service quality research, where previous studies often apply these models separately and fail to provide a comprehensive prioritization framework that simultaneously considers customer expectations and service delivery performance. By combining IPA and KANO, this research aims to deliver more actionable insights for strategic service improvement in the healthcare sector.

2. Methods

The research process began with identifying and formulating the research problem, followed by defining the scope, objectives, and expected contributions. A literature review was conducted to explore prior studies on service quality assessment, particularly those employing SERVQUAL dimensions (reliability, responsiveness, assurance, empathy, and tangibles), as well as to examine the theoretical underpinnings and applications of both the IPA and KANO methods. However, existing literature lacks empirical applications of the IPA–KANO integration in healthcare settings, particularly in operational customer service contexts, highlighting a gap this study aims to fill.

Data Collection: Primary data were collected through structured questionnaires distributed to customers who interacted with the MEDCORP contact center. The questionnaire evaluated customer perceptions across five service quality dimensions [10], [11]. Responses were measured using a 5-point Likert scale, where 1 represents "very dissatisfied" and 5 represents "very satisfied."

To ensure data validity and reliability, **classic instrument tests** were conducted. **Validity testing** was performed using item-total correlation coefficients, while **reliability** was assessed using Cronbach's alpha to confirm internal consistency.

Once validated, the data were analyzed using two complementary methods:

- The **IPA method** was used to measure performance gaps between customer expectations (importance scores) and actual service delivery (satisfaction scores). The analysis produced average scores for satisfaction (**X**), importance (**Y**), and the suitability index (**Tki**), calculated as the ratio between satisfaction and importance [13].
- The **KANO model** was used to classify each service attribute based on its influence on customer satisfaction [12]. Attributes were categorized as attractive, one-dimensional, must-be, indifferent, or reverse, helping identify which improvements would enhance customer experience.

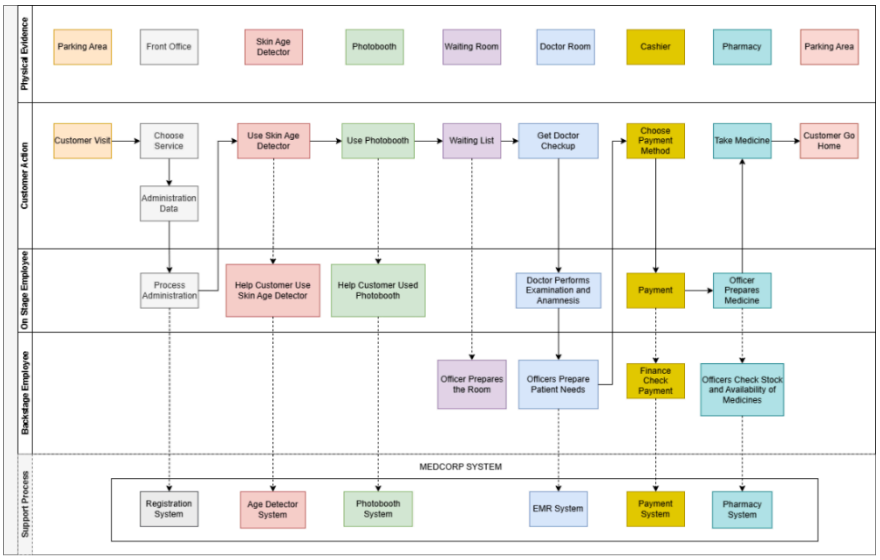
By combining these two methods, companies can identify the most important product attributes, evaluate their performance, and formulate strategies to improve customer satisfaction. This approach helps companies to establish a three-tiered strategic framework by integrating the IPA and KANO results: primary, secondary and tertiary-priority improvements. This integrated approach enables a more nuanced

understanding of customer satisfaction drivers and provides actionable recommendations for resource allocation in service enhancement.

3. Results and Discussion

Service blueprint

Explanations related to the processes and services currently taking place at MEDCORP will be described and mapped by compiling a service blueprint to provide an explanation of the service flow, from customer arrival to customer completion of transactions at MEDCORP.



Picture 1. Service Blueprint

Service blueprint is a tool that is said to provide opportunities for innovation and evaluation in a service. Every point of interaction between customers and officers is very important to create a positive experience for customers. The quality of this interaction can affect customer perceptions of the services provided by MEDCORP and as a reference in creating questionnaires in this study.

Survey Indicator Variables

In this study, the determination of attribute indicators is determined based on important indicators at the meeting point between customers and officers. This is done to determine the critical attributes that influence the MEDCORP service satisfaction factor. As explained, these 5 dimensions will be described in several questions that can later be assessed directly by customers with a Likert scale assessment [8], [9].

Table 1. Dimensions of Service Quality

No	Attribute	Attribute Code	Indicator
1	Reability	K_1	The information provided to customers is accurate and according to needs.
2		K_2	The service provided is equally good every time the customer uses it.
3		K_3	The accuracy of the examination carried out by the officer.
4		K_4	The accuracy of the officer in conducting the examination.
5		K_5	The clarity of the information provided.
6		K_6	The timeliness of the examination.
7	Responsiveness	D_1	The suitability of the actions given by the officer with the customer's needs.
8		D_2	The officer is quick in responding to customer questions or complaints.
9		D_3	The availability of the officer to help customers when needed.
10		D_4	The ability of the officer to prioritize immediate action.
11	Assurance	J_1	Good knowledge and skills in providing services.
12		J_2	The friendliness of the officer when interacting with customers.
13		J_3	The patience of the officer in providing service.

No	Attribute	Attribute Code	Indicator
14	Empathy	E_1	Ease of using the parking lot.
15		E_2	Good communication skills to establish positive relationships with customers.
16		E_3	The ability of doctors and nurses to provide services to customers.
17		E_4	Ease of using the skin age detector.
18	Tangible	B_1	Good quality materials in marketing and information provided to customers.
19		B_2	Cleanliness of the examination room.
20		B_3	Comfort of the examination room.
21		B_4	Completeness of medical equipment.
22		B_5	Good appearance and neatness of the officer.
23		B_6	The condition and accuracy of the product received is good.

Number of Respondents

Sampling techniques are divided into 2 (two), namely probability sampling and non-probability sampling. This study will use probability sampling. Sample calculation using the Solvin method is used to calculate the minimum number of samples from a population. The simplest formula for determining sample withdrawal is the sampling size formula developed by Eliot M. Slovin [23]. The respondent data used are customers who transaction at MEDCORP during 2024. The population of new MEDCORP customers in 2024 reached 175.451. Therefore, the minimum sample calculation method using the Solvin approach is considered appropriate using a sampling error rate of 5%. So a minimum of 399 samples are obtained or rounded up to 400 samples.

Validity and Reliability Test

Based on the r table value for 400 customers, the r table score with a significant rate of 5% is 0.1. The R value is said to be valid if the calculated r value ≥ 0.1. While for the Reliability test, it is used to show the coherence of the questionnaire structure using the Alpha Cronbach's technique, with the condition that if the reliability coefficient is more than 0.6, then the attribute can be said to be reliable [12]. Reliability and validity tests are carried out on each question. The following are the results of the table recap regarding the validity and reliability tests on each questionnaire.

Table 2. Validity and Reliability Test

Attribute	Reability		Responsiveness		Assurance		Empathy		Tangible	
	R Score	Cronbach's Alpha	R Score	Cronbach's Alpha	R Score	Cronbach's Alpha	R Score	Cronbach's Alpha	R Score	Cronbach's Alpha
Performance	0,71	0,96	0,74	0,96	0,81	0,96	0,66	0,96	0,75	0,96
Importance	0,81	0,98	0,85	0,98	0,81	0,98	0,82	0,98	0,82	0,98
Fungsional	0,81	0,93	0,85	0,93	0,81	0,93	0,82	0,93	0,82	0,93
Disfungsional	0,55	0,91	0,69	0,91	0,66	0,91	0,59	0,91	0,64	0,91

KANO

Based on this, the KANO calculation combines functional and dysfunctional and then draws conclusions with existing categories. This KANO method will be classified based on the functionality and dysfunctional questionnaires [7]. Based on this, the questionnaire will be distributed to 400 respondents. The results will be classified according to the table above based on the answers from the respondents. Then look at which service attribute is the largest. The following is a summary of the KANO test results.

Table 3. KANO Category

Attribute Code	Attribute	A	M	O	R	Q	I	KANO Category
K_1	**Reability**	129	119	70	0	0	82	A
K_2		217	82	39	0	0	62	A
K_3		103	186	51	0	0	60	M
K_4		77	81	145	0	0	97	O
K_5		89	100	157	0	0	0	O

Attribute Code	Attribute	A	M	O	R	Q	I	KANO Category
K_6		36	103	183	0	0	78	O
D_1	**Responsiveness**	47	138	155	0	0	60	O
D_2		39	107	164	0	0	90	O
D_3		86	152	90	0	0	72	M
D_4		7	194	115	0	0	84	M
J_1	**Assurance**	67	169	104	0	0	60	M
J_2		129	119	70	0	0	82	A
J_3		30	232	78	0	0	60	M
E_1	**Empathy**	40	243	66	0	0	51	M
E_2		24	262	53	0	0	61	M
E_3		33	200	80	0	0	87	M
E_4		27	105	189	0	0	79	O
B_1	**Tangible**	79	160	80	0	0	81	M
B_2		36	233	60	0	0	71	M
B_3		129	119	70	0	0	82	A
B_4		123	103	75	0	0	99	A
B_5		149	123	78	0	0	50	A
B_6		65	205	49	0	0	81	M

From these results it is known that:

1. Attributes that have category A number 6
2. Attributes that have category O number 6
3. Attributes that have category M number 1

IPA

In the initial stage, the average calculation of the Expectation and Reality Attributes is carried out to obtain the values of the x and y quadrants. Then, the gap calculation is carried out to see the gap between expectations and reality [13]. Based on this, the Gap is obtained by subtracting the average of each Reality attribute from the average of each Expectation attribute. Based on this, the following results are obtained:

Table 4. Gap of Importance and Performance

Attribute Code	Attribute	Average		GAP
		Importance	Performance	
K_1	**Reability**	4,18	3,35	-0,83
K_2		4,25	3,45	-0,80
K_3		4,20	3,40	-0,80
K_4		4,30	3,40	-0,90
K_5		4,35	3,43	-0,93
K_6		4,20	3,5	-0,70
D_1	**Responsiveness**	4,20	3,28	-0,93
D_2		4,03	3,45	-0,58
D_3		4,15	3,38	-0,78
D_4		4,20	3,45	-0,75
J_1	**Assurance**	4,25	3,43	-0,83
J_2		4,25	3,40	-0,85
J_3		4,25	3,48	-0,78
E_1	**Empathy**	4,18	3,48	-0,70
E_2		4,33	3,48	-0,85
E_3		4,25	3,38	-0,88
E_4		4,30	3,40	-0,90
B_1	**Tangible**	4,23	3,43	-0,80
B_2		4,23	3,33	-0,90
B_3		4,23	3,28	-0,95
B_4		4,00	3,23	-0,78
B_5		4,25	3,50	-0,75
B_6		4,18	3,50	-0,68
Average		**4,2152**	**3,4065**	

Gap value analysis is carried out after calculating the level of importance and satisfaction felt by customers, indicating that the satisfaction felt by customers. From the table results, it is known that there is no positive gap, while the negative gap of 23 means that the level of reality is lower than the desired level of expectation so that it can be stated that the 23 attributes need to be analyzed and the root of the problem can be found by analyzing more deeply using the KANO-IPA method.

The next step is to create a science graph. Science graphs are made by looking at all the results, namely perception as the x-axis and expectations as the y-axis. Based on this, the following average is obtained for Performance (x) the average is 3.4065. While Importance (y) is 4.2152. The following is a science graph:

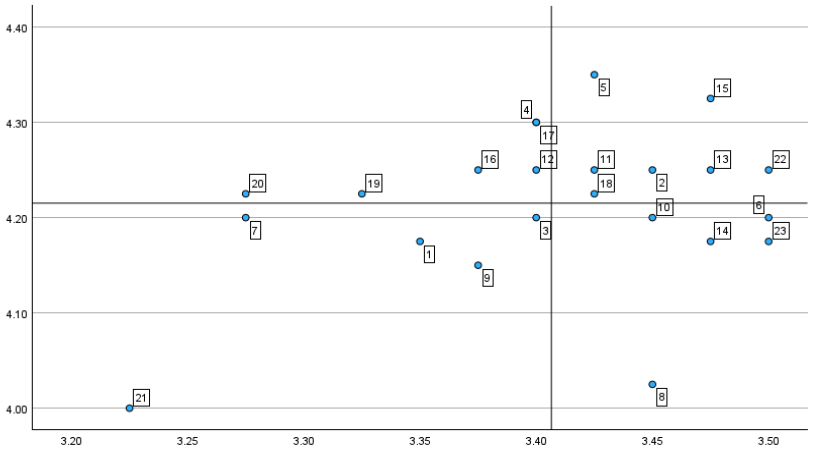


Figure 1. IPA Quadran

From the results of the IPA quadrant in the form of a Cartesian diagram of patient satisfaction with service quality, it can be seen in Figure 1 that there are 23 question attributes divided into 4 quadrants with the following descriptions:

1. Attributes included in quadrant I total 6
2. Attributes included in quadrant II total 7
3. Attributes included in quadrant III total 5
4. Attributes included in quadrant IV total 5

Table 5 shows the classification of each question attribute that has been classified based on the Cartesian diagram of expectations and performance shown in Figure 1 so that the grouping results in each quadrant are as follows:

Table 5. IPA Clasification

Attrubite	Attribute Code	Quadran IPA	Clasification
Reability	K_4	I	High Priority
Assurance	J_2	I	High Priority
Empathy	E_3	I	High Priority
Empathy	E_4	I	High Priority
Tangible	B_2	I	High Priority
Tangible	B_3	I	High Priority
Reability	K_2	II	Maintain Achievement
Reability	K_5	II	Maintain Achievement
Assurance	J_1	II	Maintain Achievement
Assurance	J_3	II	Maintain Achievement
Empathy	E_2	II	Maintain Achievement
Tangible	B_1	II	Maintain Achievement
Tangible	B_5	II	Maintain Achievement
Reability	K_1	III	Low Priority
Reability	K_3	III	Low Priority
Responsiveness	D_4	III	Low Priority
Responsiveness	D_3	III	Low Priority
Tangible	B_4	III	Low Priority
Reability	K_6	IV	Overrated
Responsiveness	D_2	IV	Overrated
Responsiveness	D_4	IV	Overrated
Empathy	E_1	IV	Overrated

Attrubite	Attribute Code	Quadran IPA	Clasification
Tangible	B_6	IV	Overrated

KANO and IPA Integration

In this study, calculations were carried out using the integration of KANO and IPA. The following are the results of the integration of KANO and IPA.

Table 6. KANO and IPA Integration

Attribute Code	IPA	KANO	KANO and IPA Integration	Decision
E_3	I	M	Fatal	Improve 1
B_2	I	M	Fatal	Improve 1
J_1	II	M	Survival	Maintain 1
J_3	II	M	Survival	Maintain 1
E_2	II	M	Survival	Maintain 1
B_1	II	M	Survival	Maintain 1
K_3	III	M	Chronic Disease	Improve 2
D_3	III	M	Chronic Disease	Improve 2
D_4	IV	M	Fitness	Maintain 2
E_1	IV	M	Fitness	Maintain 2
B_6	IV	M	Fitness	Maintain 2
K_4	I	O	Defenceless Strategy Point	Improve 3
E_4	I	O	Defenceless Strategy Point	Improve 3
K_5	II	O	Major Weapon	Maintain 3
D_1	III	O	Defenceless Zone	Improve 4
K_6	IV	O	Supportive Weapon	Maintain 4
D_2	IV	O	Supportive Weapon	Maintain 4
J_2	I	A	Dusty Diamond	Improve 5
B_3	I	A	Dusty Diamond	Improve 5
K_2	II	A	Precious Treasure	Maintain 5
B_5	II	A	Precious Treasure	Maintain 5
K_1	III	A	Rought Stone	Improve 6
B_4	III	A	Rought Stone	Improve 6

After the combination of KANO and IPA integration is carried out, it will be continued regarding the strategy that will be implemented and how the priority of the strategy can have more added value and improve customer quality [14], [16], [17]. From the results of the study with 23 providing a series of improvement solutions. Priority actions are divided into 3, namely top priority, middle priority and last priority. The following are actions based on the priority scale for each attribute.

Table 7. Priority Scale Actions

Attribute Code	Root of the Problem	Action	Priority Scale
E_3	Lack of procedures for reviewing officers regarding updated materials	1. Provide a knowledge base as a guide for employees 2. Conduct regular performance reviews to hone employee skills and knowledge	High Priority
B_2	Many examination rooms are damaged	1. Increase the number of air fresheners 2. Conduct routine and comprehensive checks on the cleanliness of medical rooms	
J_1	Officers still do not understand the ongoing promos and knowledge of existing services	1. Hold knowledge sharing at the beginning of the shift	
J_3	Lack of patience and hospitality of officers in serving customers	1. Maintain hospitality by routinely conducting 5S training for employees.	
E_2	Communication methods that are not yet uniform between 1 officer and another officer	1. Conduct periodic roleplays 2. Conduct periodic controls using the Mystery Guest method (hire vendors)	
B_1	Promotional materials that are difficult for customers to access	1. Improve information to servers about current promotions 2. Provide promotional materials that are easily accessible to customers	

Attribute Code	Root of the Problem	Action	Priority Scale
	and marketing media are not available at all outlets		
K_3	Assessment of patients is still lacking, causing miss leading	1. Ensure employees understand applicable SOPs 2. Provide a knowledge base as a guide for employees	
D_3	MPP is still incomplete at each outlet, resulting in emptiness	1. Ensure the number of MPP employees is as needed 2. Ensure employee shift schedules are appropriate so that there are no vacancies	
D_4	Lack of readiness and responsiveness of officers in dealing with customers	1. Employees must be responsive in solving problems and meeting customer needs and prioritizing customers 2. Prioritize actions according to the queue 3. Implement a queue system	
E_1	Difficulty parking for outstanding outlets with minimal parking space	1. Provide parking valley for outstanding outlets	
B_6	Errors in providing products/quantity of goods resulting in complaints about returning goods	1. Ensure that the goods provided are appropriate and in good condition by routinely conducting product QC 2. Make stock opname of incoming and outgoing products	
K_4	Lack of understanding of officers regarding customer desires	1. Leaders ensure that inspections and operational activities run according to SOP (as field control) 2. The medical department routinely holds refreshments to ensure that they are in accordance with SOP	Middle Priority
E_4	Customers have difficulty using the skin age detector tool independently	1. Providing guidelines in using skin age detectors to customers 2. Providing assistance in using skin age detectors 3. Carrying out periodic maintenance"	
K_5	Communication that is not yet maximal from officers to customers, causing miss perception	1. Sharpen good communication skills with customers 2. Conduct regular training and periodic roleplays regarding service	
D_1	Customer acceptance after different actions according to skin type and condition, resulting in many complaints	1. Ensure appropriate actions according to ICD10 and patient needs 2. Ensure prescribed and administered medications are in accordance with the doctor's prescription 3. Provide a more detailed explanation of Inform Concern to the patient"	
K_6	Queue numbers are not yet available at each outlet	1. Maintain timely service by providing consistent service 2. Provide queue numbers so that the examination time runs properly"	
D_2	Complaint standardization and 24-hour service providers are not yet available to Customers	1. Implementation of SLA response time to see response time 2. Availability of 24-hour contact center"	
J_2	There are officers who still do not meet the 5S standards in customer service	1. Maintaining hospitality 2. Holding periodic roleplays	Low Priority
B_3	At each outlet, the distribution needed to complete the examination room is not evenly distributed	1. Ensure that beds and medical devices are clean and replaced regularly by making a stock opname of medical materials 2. Conduct routine and comprehensive controls on the cleanliness of medical rooms 3. Separate medical waste and infectious waste 4. Implement the use of PPE for medical personnel"	
K_2	There is no suggestion box or customer satisfaction rating at each outlet	1. Provide a suggestion box or service usage rating after a transaction so that it can be a place for assessment and input to the company.	
B_5	Officers still do not meet grooming standards	1. Conduct routine grooming training for employees 2. Take photos of operational readiness before and after 3. Procure uniforms regularly"	
K_1	Information received by officers at each outlet is not evenly distributed	1. Conduct knowledge sharing at the beginning of the shift 2. Conduct regular performance reviews to hone employee skills and knowledge	

Attribute Code	Root of the Problem	Action	Priority Scale
B_4	Not all medical devices are available at all outlets	1. Re-evaluate the market and competitors so that they can keep up with the market and the availability of all action tools available at all MEDCORP outlets.N30	

4. Conclusion and Recommendation for Future Works

This study applied an integrated approach combining the KANO model and Importance–Performance Analysis (IPA) to evaluate customer satisfaction at MEDCORP. The results identified **23 critical service attributes** categorized across five dimensions: **Reliability (6 attributes)**, **Responsiveness (3)**, **Assurance (3)**, **Empathy (4)**, and **Tangibles (6)**. All 23 attributes exhibited negative performance gaps, indicating that customer expectations are not being fully met, resulting in a general dissatisfaction with current service levels.

These attributes were classified into **three strategic priority levels** to guide improvement efforts: primary, secondary, and tertiary priorities. **Primary Priority (11 attributes):** Attributes with the most critical service gaps requiring immediate attention, such as the competence of healthcare staff (E_3), cleanliness of the examination room (B_2), accuracy of examinations (K_3), and communication skills (E_2). **Secondary Priority (6 attributes):** Attributes with moderate gaps that should be addressed soon. **Tertiary Priority (6 attributes):** Attributes with lower urgency but still relevant for long-term improvement

Despite the insights provided by the IPA-KANO model in identifying service attributes that require improvement to enhance customer satisfaction, there is still a lack of clarity on how these efforts contribute to overall organizational performance. For example, the study's scope and data limitations did not include a cost-benefit analysis or feasibility assessment for implementing the proposed strategies. Future research is strongly encouraged to conduct a cost-benefit and feasibility analysis of the proposed improvements to guide practical implementation [22].

Future research should address this gap by specifying which business processes should be targeted for improvement [18] by, for instance, examining how specific service quality improvements affect internal workflow efficiency by applying lean service mapping to assess process changes before and after implementation. Additionally, future studies should explore how these efforts relate to organizational efficiency, exploring how streamlined processes and better service delivery can reduce costs [19]. Further research should examine how these service enhancements contribute to financial outcomes such as profitability and marketability [20]. Establishing these connections will provide a more comprehensive understanding of the strategic value of customer satisfaction initiatives and position service quality improvements as drivers of long-term competitive advantage [21].

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