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Improving the Quality of Eye Care Services Using the Servqual Method, Importance–Performance Analysis, and the 5 whys Analysis (Case Study: ABC Eye Clinic)

Fiona Rahmi Alikaputri
Universitas Airlangga, Indonesia
Email: fiona.rahmi.alikaputri-2024@feb.unair.ac.id

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ABSTRACT
The presence of visual disturbances can reduce productivity, as visual information cannot be captured properly. East Java is a province with a high rate of visual impairment in Indonesia, reflecting the high incidence of eye conditions in the region and underscoring the need for affordable eye health services. ABC Eye Clinic is an eye clinic located in East Java that has received several complaints from patients, including the need to improve public facilities, a lack of distinction between general patients and BPJS patients, lengthy service times, doctors not arriving on time, and the need to activate a website for up-to-date information. Therefore, this study was conducted with the aim of identifying service gaps and critical service attributes at ABC Eye Clinic. This quantitative study collected questionnaire data from 90 patients on 20 service attributes based on the SERVQUAL dimensions, and analyzed them using three methods: SERVQUAL, to measure service gaps between patient perceptions and expectations; Importance-Performance Analysis (IPA), to map and determine critical service attributes; and 5 Whys Analysis, to identify the root causes of problems related to the critical attributes. The critical attributes produced by the Importance-Performance Analysis served as the basis for root cause identification using the 5 Whys Analysis. The root causes identified through the 5 Whys Analysis were developed into four alternative improvement recommendations, including the development of a mechanism to accommodate patient criticism and suggestions, the division of parking areas and the implementation of valet parking, the development of a patient data information system, and the development of job descriptions and job specifications.

INTRODUCTION

One of the industries that continues to grow in Indonesia and plays an important role in public health is the health industry. Health is a form of human capital necessary to support economic development, as it is a prerequisite for increasing productivity. This fundamental role of health underlies the importance of health development, which is a national development effort aimed at achieving awareness, willingness, and the ability to live a healthy life in order to realize an optimal degree of health (Ministry of Health, 2019). Health development emphasizes several sectors, including treatment, rehabilitation, health promotion, and disease

prevention. Law No. 36 of 2009 concerning Health states that health efforts are to be carried out in an integrated, comprehensive, and sustainable manner. This is in line with one of the systems belonging to the World Health Organization, namely Universal Health Coverage (UHC). UHC is a health insurance system that ensures every citizen has fair access to promotive, curative, rehabilitative, preventive, and quality health services at affordable costs (Yandrizal et al., 2016). UHC contains two core elements: financial risk protection when residents use health services, and fair and quality access to health services for every citizen. UHC supports the improvement of health service quality for all conditions, one of which is visual impairment, and one of its programs specifically focused on eye health is Universal Eye Health.

The sense of sight is an important component in improving the quality of human life, as various forms of visual information are absorbed through the eyes (Enoch et al., 2020; Pallasmaa, 2024). There are several vision disorders that cause the eyes to be unable to function as they should, ranging from mild visual impairment and moderate visual impairment to severe visual impairment that results in blindness (Alvarez-Peregrina et al., 2022). Mild vision disorders consist of refractive abnormalities such as myopia, hypermetropia, and astigmatism (Cui et al., 2021; Wajuihian, 2022; Yamamah et al., 2015). Moderate vision disorders consist of retinal abnormalities such as diabetic retinopathy and vitreous opacity, and infectious abnormalities such as keratitis and iridocyclitis. Severe vision impairment encompasses disorders that can cause blindness, including glaucoma and cataracts (Flaxman et al., 2017; Keeffe & Resnikoff, 2018). These three categories of disturbance can affect all levels of society worldwide, thereby inhibiting human activities and causing a decrease in productivity. In response, the World Health Organization, together with the International Agency for the Prevention of Blindness (IAPB), designed a program aimed at reducing avoidable blindness by 2020, known as Vision 2020.

Indonesia joined the Vision 2020 program in 2000, at a time when it held the highest blindness rate in Southeast Asia at 1.5% (Nur Aini & Santik, 2018). In response, the Ministry of Health of the Republic of Indonesia, together with the Association of Ophthalmologists (PERDAMI), designed a national vision disorder management program in the form of strategies and planning outlined in the Roadmap for Managing Vision Disorders in Indonesia for 2017–2030 (IAPB, 2017). One of the key aspects emphasized in this program is access to health services and service delivery, which aims to provide comprehensive, quality, and affordable eye health services carried out regularly and continuously at all levels of health service (Ministry of Health of the Republic of Indonesia, 2018).

A standard population-based survey for collecting blindness and visual impairment data, known as the Rapid Assessment of Avoidable Blindness (RAAB), has been conducted in Indonesia (Ismandari, 2018). This survey was conducted across 15 provinces considered to be representative of the entire Indonesian population, including North Sumatra, West Sumatra, South Sumatra, DKI Jakarta, West Java, Central Java, East Java, South Kalimantan, Bali, West Nusa Tenggara (NTB), East Nusa Tenggara (NTT), South Sulawesi, North Sulawesi, Maluku, and West Papua. The RAAB survey is designed to provide data on the prevalence of blindness and visual impairment, their main causes, the output and quality of eye care services, barriers to access, cataract surgical coverage, and other indicators of eye care services in a given geographical area. Rachmawati (2020), in the Orphanet Journal of Rare Diseases, reported that

the RAAB survey conducted between 2014 and 2019 found that East Java had the highest blindness rate at 12%, followed by NTB at 11% and South Sumatra at 9%. This indicates a notably high incidence of eye diseases leading to visual impairment and blindness in East Java. The high incidence of eye disorders has consequently led to an increase in the number of patients seeking eye health services. Therefore, adequate eye health services are needed in East Java, particularly in Surabaya as the provincial capital. Eye health services can be obtained at various health facilities, such as health centers, hospitals, and clinics; however, certain eye conditions require specialized examinations using specific equipment, which can only be carried out at an eye hospital or eye clinic (Zeithaml, 2015).

ABC Eye Clinic is one of the eye clinics located in Surabaya. Its vision is to create comprehensive eye health services that improve the quality of life of patients, and one of its missions is to provide professional eye health services of international standards in line with advances in medical technology. According to management, ABC Eye Clinic is often used as a referral when a person with visual impairment undergoes an initial eye examination with a general practitioner. Although ABC Eye Clinic has been established for more than ten years, management only developed a service-related questionnaire in January 2021 and distributed it in February 2021. Several complaints were submitted by patients, including the need to improve public facilities, a lack of distinction between general patients and BPJS patients, the length of service time, doctors not arriving on time, and the need to activate the clinic's website for up-to-date information. The most common and recurring complaints concern the improvement of public facilities, the length of service time, and the punctuality of doctors (Andersen et al., 2010; Fatihudin, 2019).

Several previous studies have examined service quality in healthcare settings using similar methods. Research in an eye clinic context has been conducted by various scholars. A study at Geta Eye Hospital in Nepal used the SERVQUAL model developed by Parasuraman et al. (1988) to assess patient satisfaction across five quality dimensions: reliability, responsiveness, assurance, empathy, and tangibility (Patients Satisfaction using SERVQUAL model: A study of Geta Eye Hospital, Nepal, 2022). Similarly, research in Indonesian eye clinics has identified critical attributes requiring improvement, including nurses' friendliness, responsiveness in the patient reception process, and the availability of complete medicines and medical equipment (Eye Clinic X Study, ITS Surabaya). Other studies have applied SERVQUAL to measure service quality in ophthalmology services, with findings indicating that the SERVQUAL instrument is a useful tool for assessing and monitoring service quality in LASIK services, enabling staff to identify areas for improvement from the patients' perspective (Measuring patient's expectation and the perception of quality in LASIK services).

Despite the extensive body of research on healthcare service quality using SERVQUAL, IPA, and 5 Whys Analysis, several gaps remain. Most existing studies examine service quality gaps using SERVQUAL or IPA in isolation, without fully integrating both methods to identify critical attributes and then systematically tracing root causes using 5 Whys Analysis, particularly in the context of eye clinics in Indonesia. Additionally, limited research has been conducted specifically in eye care service settings that face unique challenges such as long waiting times, inadequate parking facilities, and poor website information accessibility. The novelty of this study lies in its integration of SERVQUAL to measure service gaps, Importance-Performance Analysis (IPA) to determine critical service attributes, and 5 Whys Analysis to

identify the root causes of problems, within the specific context of ABC Eye Clinic in Surabaya — a setting that has received little attention in previous literature. This study also provides empirical evidence from a real-world clinical setting using data collected in 2021.

To measure and evaluate the quality of services at ABC Eye Clinic, a targeted questionnaire was distributed to identify the attributes patients expect from the clinic's services. This was followed by SERVQUAL calculations to identify gaps between customer perceptions and expectations, mapping using Importance-Performance Analysis to determine which attributes are considered most important by patients yet are underperforming, and the formulation of alternative improvement recommendations derived from the root causes identified through 5 Whys Analysis, ultimately producing conclusions and practical suggestions.

METHOD

This research uses a quantitative approach with main stages: identification, data collection, data processing, analysis, and drawing conclusions and suggestions. The identification stage includes field studies, identification of service attributes based on the SERVQUAL dimension, as well as sample determination using the Slovin formula and questionnaire preparation. Data collection was carried out through primary data (patient questionnaires) and secondary data (management data). The data obtained was then tested using sufficiency, validity, and reliability tests. Data processing was carried out using the SERVQUAL method to measure the gap between expectations and perceptions, Importance-Performance Analysis (IPA) to determine priority attributes, and 5 Whys Analysis to find the root of the problem. The final stage includes analyzing results, preparing improvement recommendations, and drawing conclusions and suggestions to improve service quality.

RESULT AND DISCUSSION

Determination of Questionnaire Attributes

In conducting evaluations, it is necessary to describe the service sector by determining attributes as indicators of service fulfillment. These attributes were obtained through a *brainstorming* process with the management of ABC Eye Clinic and adjusted to customer complaints that often appeared.

Table 1. Service Attributes Based on SERVQUAL Dimensions

No	Dimensions	Code	Attribution
1	*Tangible*	T1	Neatness of the appearance of doctors, nurses, and employees
2		T2	Clinic implements health protocols (3M)
3		T3	Clinic cleanliness (waiting room, bathroom, prayer room, diagnostic room)
4		T4	Availability of decent and sufficient lounge seats
5		T5	Availability of proper and sufficient parking space
6	*Empathy*	E1	Doctors and nurses are friendly and fair
7		E2	Doctors care about patient complaints
8		E3	Patients can choose a treating physician
9		E4	Employee sincerity in serving patients

10	*Reliability*	RL1	Clear operating hours
11		RL2	The registration flow is easy to understand
12		RL3	Doctor came as scheduled
13		RL4	Length of waiting time for services
14		RL5	Affordable service rates
15	*Responsiveness*	RV1	The process of receiving responsive patients
16		RV2	Responsive doctors and nurses
17	*Insurance*	A1	The accuracy of the doctor in delivering the diagnosis
18		A2	Accuracy of diagnostic test results
19	*Information*	I1	Transparency of diagnostic test results
20		I2	The clinic website is easily accessible and provides the information needed

Source: Developed by the author based on SERVQUAL dimensions (Parasuraman et al., 1988) and adjusted to patient complaints at ABC Eye Clinic

The determination of the service attributes used in the questionnaire refers to the 5 (five) dimensions of SERVQUAL delivered by Parasuraman, namely *tangibles, responsiveness, reliability, empathy* and *assurance* (Berry et al., 1988) and 1 (one) additional dimension in the form of *information*, namely how well a company conveys the necessary information. There are 5 (five) *tangible attributes* related to the physical facilities and infrastructure of the ABC Eye Clinic, 4 (four) *empathy* attributes related to the ABC Eye Clinic's efforts to meet the patient's wishes, 5 (five) *reliability* attributes that are the ability of the ABC Eye Clinic to provide appropriate services, 2 (two) *responsiveness* attributesshows the ability of ABC Eye Clinic to help and provide fast and responsive services to patients, 2 (two) *assurance attributes* show the guarantee of ABC Eye Clinic's services to patients and 2 (two) information attributes.

Test Statistical Data

Data Sufficiency Test

The data adequacy test was carried out to determine the number of *samples* needed and must be met so that the data obtained through the questionnaire can represent the existing conditions of the ABC Eye Clinic. The data adequacy test was carried out using *the slovin equation* showing data on the number of patients at the ABC Eye Clinic from March to May 2021.

Table 2. Number of Patients at ABC Eye Clinic (March – May 2021)

Moon	**Number of Patients**	***Mean***
March	754	759
April	744	
May	779	
Total	**2277**	

Source: Internal data from ABC Eye Clinic management, 2021

Then the slovin equation *is calculated.*

$$n = \frac{N}{1 + (N)(\propto)^2}$$

$$n = \frac{759}{1 + (759)(0.1)^2} = 88{,}358 \approx 89$$

The large number of *samples* needed and must be met so that the data obtained through the questionnaire can represent the existing conditions of the ABC Eye Clinic is obtained from the results of the data adequacy test. From the calculation of the data sufficiency test, the number of *samples* needed to fill out the questionnaire was 89 respondents and in this study 90 respondents were obtained. The number 89 was obtained from the results of calculations using *the slovin equation* by considering the average value of ABC Eye Clinic patients in March – May 2021 and an error value of 10%. The period chosen for the calculation of the N value was obtained from the first 3 (months) since the distribution of the questionnaire from the ABC Eye Clinic took place.

Validity Test

Table 3. Validity Test Results for Perception Questionnaire

Attribution	PERCEPTION		
	R Count	R Table	Validity
T1	0,417	0,2096	Valid
T2	0,753	0,2096	Valid
T3	0,753	0,2096	Valid
T4	0,294	0,2096	Valid
T5	0,305	0,2096	Valid
E1	0,753	0,2096	Valid
E2	0,228	0,2096	Valid
E3	0,222	0,2096	Valid
E4	0,299	0,2096	Valid
RL1	0,442	0,2096	Valid
RL2	0,265	0,2096	Valid
RL3	0,551	0,2096	Valid
RL4	0,302	0,2096	Valid
RL5	0,753	0,2096	Valid
RV1	0,299	0,2096	Valid
RV2	0,228	0,2096	Valid
A1	0,442	0,2096	Valid
A2	0,417	0,2096	Valid
I1	0,551	0,2096	Valid
I2	0,293	0,2096	Valid

Source: Primary data processed using Microsoft Excel and SPSS, 2021

Table 4. Validity Test Results for Expectation Questionnaire

Attribution	HOPE		
	R Count	R Table	Validity
T1	0,555	0,2096	Valid

T2	0,423	0,2096	Valid
T3	0,555	0,2096	Valid
T4	0,302	0,2096	Valid
T5	0,300	0,2096	Valid
E1	0,423	0,2096	Valid
E2	0,364	0,2096	Valid
E3	0,442	0,2096	Valid
E4	0,378	0,2096	Valid
RL1	0,555	0,2096	Valid
RL2	0,508	0,2096	Valid
RL3	0,345	0,2096	Valid
RL4	0,288	0,2096	Valid
RL5	0,423	0,2096	Valid
RV1	0,375	0,2096	Valid
RV2	0,508	0,2096	Valid
A1	0,555	0,2096	Valid
A2	0,555	0,2096	Valid
I1	0,483	0,2096	Valid
I2	0,216	0,2096	Valid

Source: Primary data processed using Microsoft Excel and SPSS, 2021

Table 5. Validity Test Results for Importance Questionnaire

Attribution	**IMPORTANCE**		
	R Count	**R Table**	**Validity**
T1	0,529	0,2096	Valid
T2	0,479	0,2096	Valid
T3	0,436	0,2096	Valid
T4	0,449	0,2096	Valid
T5	0,319	0,2096	Valid
E1	0,313	0,2096	Valid
E2	0,313	0,2096	Valid
E3	0,482	0,2096	Valid
E4	0,517	0,2096	Valid
RL1	0,450	0,2096	Valid
RL2	0,515	0,2096	Valid
RL3	0,513	0,2096	Valid
RL4	0,436	0,2096	Valid
RL5	0,482	0,2096	Valid
RV1	0,517	0,2096	Valid
RV2	0,560	0,2096	Valid
A1	0,517	0,2096	Valid
A2	0,436	0,2096	Valid
I1	0,515	0,2096	Valid
I2	0,328	0,2096	Valid

Source: Primary data processed using Microsoft Excel and SPSS, 2021

The validity test is used to identify the valid properties of the assessment results of each ABC Eye Clinic attribute. Valid is if the statement on the questionnaire is able to reveal something that the questionnaire means. This test was carried out using Microsoft Excel software using the Pearson-Correlation technique and SPSS software. The validity test tests the relationship of two variables, namely the free variable and the bound variable. The assessment of each attribute statement is an independent variable and the total assessment of the attribute statement is a bound variable. To get valid results, there are conditions that must be met, namely the R value of the calculation must be greater than the R value of the table. The R value of the calculation was obtained from the calculation results in Microsoft Excel, while the R of the table was obtained from the reference of Table R which was determined based on the *degree of freedom*, which was 95% and the number of respondents was 88. The R of the table obtained is 0.2096. There are three questionnaires that are tested for their validity, namely a questionnaire on perception, expectation, and importance of the number of statements of 20 (twenty) pieces each and adjusted to the attributes of service.

Reliability Test

The reliability test aims to find out whether the validity test results are data consistent with the questionnaire measurements. The reliability test was performed after all the ABC Eye Clinic attribute statements from the questionnaire were said to be valid. The reliability test was used to identify the reliable nature of the questionnaire distributed. The reliability in question is if the respondent's answers to the statement are consistent and stable from time to time. This test was conducted using SPSS software and compared to *Cronbach's Alpha* of 0.6. If the value of the resulting coefficient is greater than *Cronbach's Alpha value* then the attributes in the questionnaire can be said to be reliable.

Table 6. Reliability Test Results for Perception Questionnaire

PERCEPTION	
Cronbach's Alpha	N of Items
0,761	20

Source: Primary data processed using SPSS, 2021

Table 7. Reliability Test Results for Expectation Questionnaire

HOPE	
Cronbach's Alpha	N of Items
0,801	20

Source: Primary data processed using SPSS, 2021

Table 8. Reliability Test Results for Importance Questionnaire

IMPORTANCE	
Cronbach's Alpha	N of Items
0,795	20

Source: Primary data processed using SPSS, 2021

SERVQUAL calculations

After conducting a statistical test, the GAP 5 SERVQUAL calculation is then carried out with the following calculation formula:

$$Skor\ SERVQUAL = Skor\ Persepsi - Skor\ Harapan$$

Table 9. SERVQUAL Calculation Results (Gap 5)

Dimensions	Attribution	Average		Gap Attributes
		Perception	Hope	
Tangible	T1	3,352	3,455	-0,10
	T2	3,523	3,364	0,16
	T3	3,523	3,455	0,07
	T4	2,727	3,682	-0,95
	T5	2,648	3,943	-1,30
Empathy	E1	3,352	3,364	-0,01
	E2	3,830	3,648	0,18
	E3	3,352	3,591	-0,24
	E4	3,727	2,693	1,03
Reliability	RL1	3,659	3,455	0,20
	RL2	3,648	3,500	0,15
	RL3	3,364	3,557	-0,19
	RL4	2,386	3,943	-1,56
	RL5	3,727	3,364	0,36
Responsiveness	RV1	3,727	2,648	1,08
	RV2	3,830	3,500	0,33
Insurance	A1	3,727	3,455	0,27
	A2	3,625	3,455	0,17
Information	I1	3,364	3,523	-0,16
	I2	2,250	3,943	-1,69

Source: Primary data processed using SERVQUAL method, 2021

The calculation of SERVQUAL is carried out by calculating the *gap* 5 or *service gap* which is the gap between the perceived services and the services expected by ABC Eye Clinic patients. If there is a negative value in the calculation results, then it can be concluded that there is a gap related to the perception and expectations of ABC Eye Clinic patients towards ABC Eye Clinic services, namely what the patient feels is not in accordance with his expectations so that it can be interpreted that the clinic has not been able to meet the patient's expectations.

Of the 20 (twenty) attributes of the questionnaire, there are 9 (nine) attributes that have a gap value of 5 negative. These attributes include the neatness of the appearance of doctors, nurses, and employees (T1) of -0.10, the availability of proper and sufficient waiting room seats (T4) of -0.95, the availability of proper and sufficient parking spaces (T5) of -1.30, doctors and nurses are friendly and fair (E1) of -0.01, patients can choose the doctor who treats (E3) by -0.24, doctors come according to schedule (RL3) of -0.19, service waiting time (RL4) is -1.56, transparency of diagnostic examination results (I1) is -0.16, and the clinic website is easily accessible and provides the required information (I2) is -1.69.

In this study, not all attributes that have a negative *gap* value are focused on analyzing the root of the problem and proceeding to the development of alternative improvement recommendations. Although attributes that have a negative gap value indicate that the clinic has not been able to meet the expectations of patients, the service improvements that need to be focused on must also consider the importance felt by ABC Eye Clinic, so that these improvements have added value for patients and can increase patient satisfaction with ABC Eye Clinic services.

Importance – Performance Analysis (IPA) Diagram Creation

After defining the service attributes and calculating the SERVQUAL value, *the gap* 5 ratio is known which is then entered into the *Importance – Performance Analysis* diagram. The *Importance – Performance Analysis* diagram aims to find out the location of attributes in Quadrants I, II, III, and IV with the X axis in the form *of performance*, namely what the patient feels about the services of the ABC Eye Clinic and the Y axis in the form *of importance*, which is the value of the importance of the attributes of the ABC Eye Clinic service in the eyes of the customer. Figure 4.1 below shows the *Importance – Performance Analysis* diagram with 20 (twenty) service attributes.

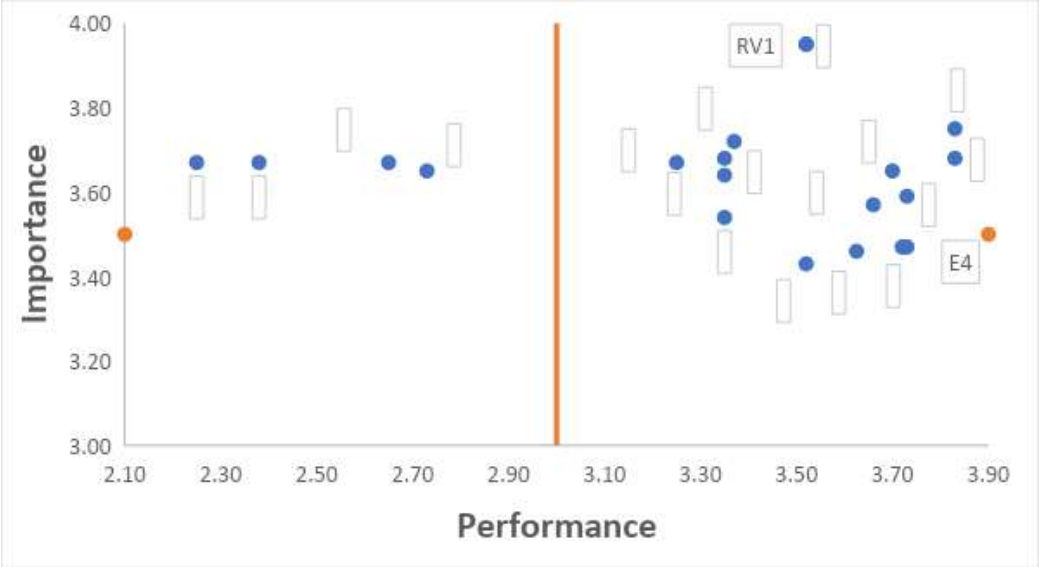

Figure 1. Importance-Performance Analysis (IPA) Diagram

Source: Author's own work based on questionnaire data processed using IPA method (adapted from Miranda, 2010)

The Importance-Performance Analysis diagram is a method used to determine which service quality attributes need to be improved, maintained, or eliminated. In this study, 20 service attributes of ABC Eye Clinic were mapped on a Cartesian diagram in which the X-axis represents performance (patient perceptions of each attribute) and the Y-axis represents importance (the degree of importance assigned to each attribute by patients). The Cartesian diagram is divided into four quadrants that indicate the priority level of each attribute.

Quadrant 1, the "concentrate here" area, contains four attributes with high importance but low performance: the availability of proper and sufficient waiting room seats (T4), the

availability of proper and sufficient parking space (T5), the length of waiting time for services (RL4), and the accessibility and informativeness of the clinic website (I2). These four attributes are considered important by patients, yet their performance is deemed unsatisfactory, meaning ABC Eye Clinic needs to make improvements in these areas. Accordingly, these four attributes are referred to as critical attributes.

Quadrant 2 is the "keep up the good work" area, containing attributes that demonstrate good performance and are considered important by patients. These include the neatness of the appearance of doctors, nurses, and employees (T1); the clinic's implementation of health protocols or 3M (T2); the friendliness and fairness of doctors and nurses (E1); doctors' attentiveness to patient complaints (E2); patients' ability to choose their treating doctor (E3); clear operating hours (RL1); an easy-to-understand registration flow (RL2); doctors arriving on schedule (RL3); affordable service rates (RL5); a responsive patient admission process (RV1); responsive doctor and nurse services (RV2); and transparency of diagnostic examination results (I1). The attributes in this quadrant are considered important to patients and are perceived to meet their expectations, resulting in relatively high satisfaction. These attributes should be maintained as they represent strengths in the eyes of patients.

Quadrant 3 is the "low priority" area, where both importance and performance are considered low by patients. This quadrant contains attributes that are deemed less important and that perform poorly. Improvements to attributes in this area warrant careful reconsideration, as their impact on perceived benefits is minimal. In this study, no attributes of ABC Eye Clinic fall within this quadrant.

Quadrant 4 is the "possible overkill" area, containing attributes with low importance but high performance as perceived by patients. The ABC Eye Clinic service attributes in this area include the cleanliness of the clinic — encompassing the waiting room, bathroom, prayer room, and diagnostic room (T3) — the sincerity of employees in serving patients (E4), the accuracy of doctors in delivering diagnoses (A1), and the accuracy of diagnostic examination results (A2). These attributes are considered less important by patients yet perform very well.

From the results of the attribute mapping using Importance-Performance Analysis, it can be concluded that the service attributes of ABC Eye Clinic requiring improvement — hereafter referred to as critical attributes — are those in Quadrant 1, consisting of T4, T5, RL4, and I2. There is a notable difference between the results of the SERVQUAL calculation and those of the Importance-Performance Analysis mapping, specifically in the number of service attributes identified as needing improvement, which was reduced from nine attributes to four. This is because the importance values obtained from the questionnaire results play a determining role in identifying critical attributes through IPA, whereas importance is not considered in the SERVQUAL calculation.

Perancangan 5 Whys Analysis

Table 10. Root Cause Analysis Using 5 Whys

Attribute Code	Critical Attributes	The Root Cause of the Problem 5 Whys Analysis	Root Problem Code
Q4	Availability of decent and sufficient lounge seats	Lack of facilities to accommodate criticism and suggestions related to patient waiting rooms	RCA1

		Waiting room seat slots are limited for *social distancing*	RCA2
Q5	Availability of proper and sufficient parking space	The clinic is on the side of a large road with high land prices	RCA3
		Clinic prioritizes doctor's car first	RCA4
		No more attention from the clinic management to the suitability of the number of parking attendants and the number of vehicles	RCA5
RL4	Length of waiting time for services	Doctors' busy varies	RCA6
		Examination adjustments based on the patient's disease and the doctor's expertise vary	RCA7
		Absence of computerization in the drug acceptance system and patient status	RCA8
I2	The clinic website is easily accessible and provides the information needed	Doctors' busy varies	RCA9
		No SOP related to employee jobdesc	RCA10

Source: Author's analysis based on IPA results and confirmation with ABC Eye Clinic management, 2021

The table shows that there are 10 (ten) root problems resulting from 4 (four) critical attributes from the mapping results using the Importance – Performance Analysis diagram. The root of the above problem was obtained from the results of the analysis of the actual condition of the ABC Eye Clinic and has been confirmed directly by the management of the ABC Eye Clinic. The root result of this problem will later be used as a basis for determining alternative improvement recommendations.

For the first critical attribute, namely the availability of a decent and sufficient waiting room seat (T4), has not been considered feasible and sufficient by ABC Eye Clinic patients. In terms of feasibility, one of the reasons is that the ABC Eye Clinic waiting room chair is not comfortable to use for patients who are in the elderly category. This is because the waiting room chair of the ABC Eye Clinic has never been replaced for the last 10 (years). The management of ABC Eye Clinic has also never paid attention to this because so far there have been no complaints from patients regarding the comfort of waiting room chairs. These complaints are due to the lack of a means to accommodate criticism and suggestions related to patient waiting rooms, which is the root of the first problem. In terms of adequacy, it is also not considered feasible because there are still some patients who do not get seats so they have to stand, due to the reduced number of seats for the implementation of social distancing as the second root of the problem.

For the second critical attribute, namely the availability of proper and sufficient parking space (T4), ABC Eye Clinic patients who use cars regret that they have to walk long distances and cross the main road to enter the clinic due to the lack of car parking space, so they have to park their cars a little far from the clinic area which can make it difficult for elderly patients. This is because ABC Eye Clinic does not have enough parking space for 2 (two) types of vehicles (cars and motorcycles) and prioritizes doctors' cars to fill the car park first as the third root of the problem. In addition, there is no more attention from the clinic management regarding the suitability of parking lots, parking attendants, and the number of vehicles as the

fourth root of the problem. ABC Eye Clinic also cannot easily expand the parking lot because ABC Eye Clinic is located on the side of a large road with high land prices being the fifth root of the problem.

The third critical attribute is the length of service waiting time (RL4). More than one respondent said that in a single visit, which includes registration, diagnostic examinations, doctor's examinations, and taking drugs at the pharmacy, it can take up to 3 (hours) or even more. This is certainly detrimental to worker patients who do not have much time or elderly patients who get tired easily. There are several factors that influence, including the delay of the doctor or the doctor coming not according to the specified schedule, because the doctor has different busyness as the sixth root of the problem. Furthermore, what causes the length of waiting time is that the examination process between patients is different, due to the adjustment of the examination based on the type of patient's disease and the difference in the expertise of the examining doctor, which is the seventh root of the problem. The eighth root of the problem is the absence of computerization in the drug acceptance system and patient status, because in the entire process, ABC Eye Clinic still uses manual methods where ABC Eye Clinic nurses still use paper and deliver it to the doctor's room, causing waste in the form of waiting and motion in the service process.

The last critical attribute has the code I2, namely the clinic website is considered less accessible and does not provide the information needed by potential patients. One of the required information is the doctor's practice schedule which is not listed by the IT officer. This is because in reality, the doctor's practice schedule changes every day due to the busyness of different doctors as the ninth root of the problem. In addition, the website has not been updated for the last 5 (years), because the IT officer who works at the ABC Eye Clinic does not have a clear jobdesc. ABC Eye Clinic IT officers not only develop websites but can also work in the operational, financial, and even human resource departments. This is due to the absence of SOPs related to the jobdesc of ABC Eye Clinic employees as the root of the last problem.

Alternative Repair Recommendations

Development of Means to Accommodate Criticism and Suggestions

This alternative improvement recommendation answers the root of the first problem, namely the absence of a means to accommodate criticism and suggestions related to patient waiting rooms. Alternative improvement recommendations are divided into 2 (two), namely the creation of posters containing links to submit criticism and suggestions, as well as improving the form of questionnaires. This alternative improvement recommendation is expected to answer the root of the first problem, namely the absence of a means to accommodate criticism and suggestions related to patient waiting rooms (RCA1).

Poster Creation

The poster contains a link to submit criticism and suggestions that can help visitors to the ABC Eye Clinic convey what complaints they experience while receiving services. The placement of this poster is in the waiting room so that visitors to the ABC Eye Clinic can fill it out at any time. Visitors can type directly the link on their browser or scan the QR Code to fill in criticisms and suggestions related to ABC Eye Clinic services.

Parking Yard Distribution and Valet Parking Enforcement

ABC Eye Clinic still prioritizes its car parking lot for doctor's cars so that it allocates cars for visitors to ABC Eye Clinic in distant places. This can cause complaints from visitors about the inconvenience of access to the clinic. Therefore, it is necessary to have a fair division of car parking yards for doctors' cars and visitors' cars. The implementation of valet parking is also needed so that all visitors to the ABC Eye Clinic car – both doctors and patients – have easy access to the ABC Eye Clinic and their vehicles remain parked safely. This alternative improvement recommendation is expected to answer the root of the problem of the clinic prioritizing doctor's cars first (RCA4) and there is no more attention from the clinic management to the suitability of the number of parking attendants and many vehicles (RCA5).

Development of Patient Data Information System

The development of a patient data information system is needed to shorten the time to record patient status and medication at the ABC Eye Clinic, because in its realization the ABC Eye Clinic still uses a manual method, namely using paper and needs to deliver the status to the doctor's room, so that the nurse produces waste in the form of motion. The development flow of the patient data information system is shown using the data flow diagram in Figure 5.3. This improvement recommendation is expected to help answer the root of the problem of the lack of computerization in the drug acceptance and patient status system (RCA8).

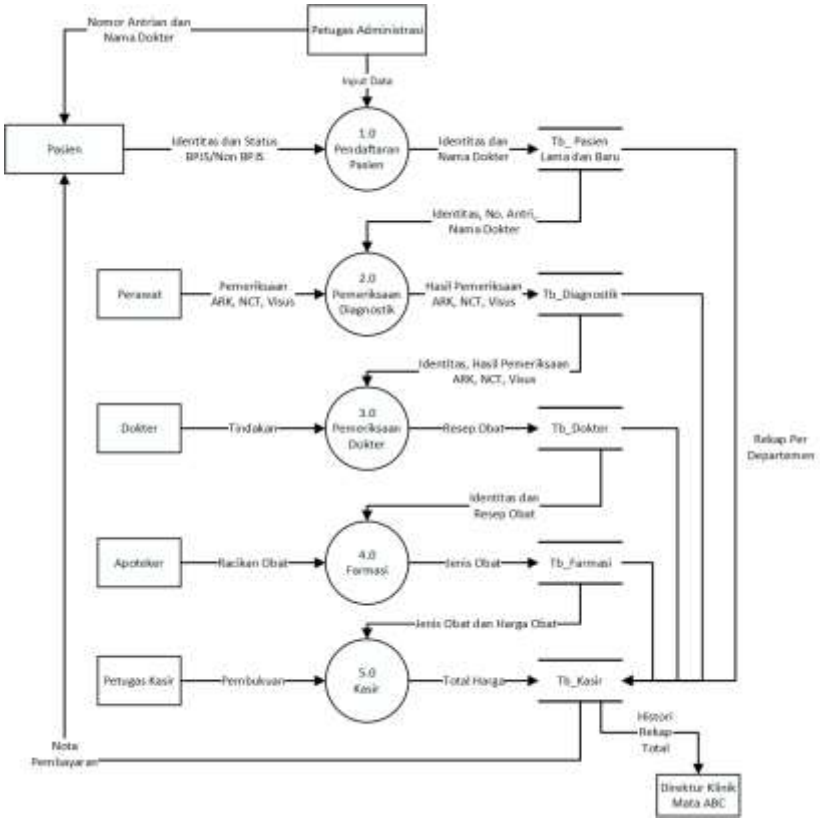

Figure 2. Data Flow Diagram for Patient Data Information System Development

Source: Author's own work based on system analysis at ABC Eye Clinic, 2021

Pengembangan Job Description dan Job Specification

The last improvement recommendation is the development of job descriptions and job specifications related to the 2 (two) most crucial positions and directly related to the critical attributes of the ABC Eye Clinic, namely IT Staff and Valet Parking Staff. The development

of alternative improvement recommendations can help answer the root of the problem, namely the absence of SOPs related to the job description of IT officers (RCA10)

CONCLUSION

The gap 5 or service gap in the service process at ABC Eye Clinic is known from the results of SERVQUAL's calculation from the results of a questionnaire with 90 respondents. There are 9 (nine) attributes that have negative values indicating that the perception of the service is not in accordance with the patient's expectations, including T1, T4, T5, E1, E3, RL3, RL4, I1 and I2. There are 4 (four) critical attributes based on the results of the Importance – Performance Analysis, namely the availability of proper and sufficient waiting room seats (T4), the availability of proper and sufficient parking spaces (T5), the length of waiting time for services (RL4), and the clinic website is easily accessible and provides the necessary information (I2). These four attributes need to be improved in service to increase patient satisfaction at ABC Eye Clinic. From the results of mapping using 5 Whys Analysis, there are 10 (ten) root problems that are the basis for the development of alternative improvement recommendations. Alternatives to improving the ABC Eye Clinic service process are sorted based on the benefits for all parties, including the distribution of parking lots and the implementation of valet parking, as well as the development of the ABC Eye Clinic's patient data information system. ABC Eye Clinic is expected to prioritize the implementation of improvement recommendations that are in accordance with the benefits for all parties, one of which is the distribution of parking lots and the implementation of valet parking. ABC Eye Clinic is expected to coordinate first before implementing improvement recommendations so that in the development process it does not harm any party. Further research is expected to be carried out in good coordination with clinical management related to the flow and length of time for data collection. The next research is expected to analyze the financial condition of the clinic so that it can analyze the financial causative factors.

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