

Analysis of Patient Customer Satisfaction Index on Health Services and Prioritization of Health Service Indicators using the Analytical Hierarchy Process at Wonogiri Regency Hospital

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Abstract:

Regional General Hospital dr.Soediran Mangun Soemarmo or commonly referred to as the Wonogiri District General Hospital (Wonogiri District Hospital) is a provider of health services under the auspices of the Wonogiri district government. Wonogiri District Hospital is responsible for creating quality public services. This study aims to analyze patient satisfaction at the Wonogiri District Hospital and to analyze the order of priority of health service indicators that need to be improved by the Inner Hospital of Wonogiri District Hospital using the Customer Satisfaction Index (CSI) and the Analytical Hierarchy Process (AHP). 108 samples of patients were taken and obtained CSI results of 86.06%, namely the respondents were very satisfied with the health services at the Inner Clinic of the Wonogiri District Hospital. Based on the results of the AHP, the priority order of indicators that need to be improved by the Inner Poly at the Wonogiri District Hospital is sought. The highest priority indicator that must be improved first is the attribute "Regular monitoring of the patient's condition" with a priority weight value of 0.216.

Keyword — Wonogiri District Hospital, Health Service Indicators, Customer Satisfaction Index (CSI), Analytical Hierarchy Process (AHP).

I. INTRODUCTION

Health insurance by the government is provided through quality health services and in accordance with patient expectations. But in fact, there are still health services with procedures that are less informative, convoluted, less transparent, limited facilities, inconsistent, and inadequate facilities and infrastructure. According to the Annual Report of the Ombudsman of the Republic of Indonesia (2020), there were 215 community reports on health services with 38% of them alleging deviations in procedures. Broadly speaking, health services are considered to be far from the principles of good governance. If there are still complaints or problems from the community, it is necessary to make improvements that are carried out continuously and continuously for health service providers. Services that are carried out well and in accordance with needs are the expectations of the community as service users so as to realize public satisfaction as users. Quality health services can be seen from the human resource management system and health service infrastructure that are professional and managed by credible institutions. Because health service providers by institutions that have credibility will improve the quality of services which in turn can support the achievement of an optimal degree of public health.

According to the Ministry of Health of the Republic of Indonesia (2016), good health services must meet five main requirements including, available and continuous, acceptable and appropriate, easily accessible, affordable, and quality). The community is getting smarter and demands the realization of good management of health service providers and upholds the principles of transparency, efficiency, participation, accountability, and respects the dignity and dignity of the community as users of health services (patients) both in terms of services and the performance of a health service provider [1]. The implementation of good health can help in health development, because with a healthy society, a good quality of human resources will be created as well. Efforts to improve the quality of public services, especially in the health sector, can be carried out jointly, programmatically, integrated, directed, and consistent with reviewing the needs and expectations of the community, so that the services provided to the community are appropriate, fast,

cheap, open, and easy to implement. Hospitals as the main facilities for public services in the field of health for the community or as a place for providing complex health services. This complexity arises based on the Minister of Health of the Republic of Indonesia No. 159 b of 1998 Article (1) Paragraph (1) which states that hospitals are health facilities that organize health service activities and can be used for health worker education and research. Therefore, it is hoped that the achievement of the hospital's obligation to provide safe, quality, anti-discrimination, and effective health services by prioritizing the interests of patients in accordance with hospital service standards in accordance with Law No. 44 of 2009 Article 1 concerning Hospitals.

Regional General Hospital dr. Soediran Mangun Soemarmo or commonly referred to as wonogiri regency general hospital (Wonogiri Regency Regional Hospital) is an advisory service provider under the auspices of the Wonogiri regency government. Wonogiri Regency Hospital is responsible for creating quality public services. Wonogiri Regency Hospital, especially Inner poly, also needs to be responsive to the demands of public services for its patients regarding the type, quality, and quantity of services expected, so a community satisfaction survey is needed to find out the level of community satisfaction with the services provided so far even though Wonogiri Regency Hospital, especially Inner poly, has improved in order to improve better services by providing many types of services and many types Repair.

Customer Satisfaction Index (CSI) or customer satisfaction index is used to analyze the level of customer satisfaction as a whole by looking at the level of performance and the importance or expectations of the attributes of the product or service . In everyday life a person is often faced with an election of various alternatives, which ultimately requires prioritization of existing choices . In determining these priorities , one will use logical factors by comparing these choices assisted by criteria related to choice. This has illustrated how the principle of the Analytical Hierarchy Process (AHP) method .

Analytical Hierarchy Process (AHP) is a method to rank or rank the best alternative satisfaction, in making decisions has many goals or criteria that must be met or considered. Some criteria that are compared to one another (their level of importance) are the main

emphasis on this concept of AHP [2]. Analytical Hierarchy Process (AHP) is a process to develop a numerical score to rank each alternative decision based on how far each alternative decision is meet the criteria of decision makers.

Based on the background description described above, in this study , researchers will conduct a study entitled "Analysis of Patient Customer Satisfaction Index on Health Services and Prioritization of Health Service Indicators Using Analytical Hierarchy Process at Wonogiri Regency Hospital", with the hope of being able to analyze the priority level of criteria that need to be improved for decision making by Wonogiri Regency Hospital after an analysis of patient satisfaction with health services at the Inner poly Wonogiri Regency Regional Hospital is known

The objectives of the study:

- a. Describe the characteristics of outpatients at the Inner Poly of Wonogiri Regency Hospital.
- b. Analyze the level of satisfaction of outpatients at inner poly Wonogiri Regency Regional Hospital based on the analysis of customer satisfaction index.
- c. Analyze the order of priority of service indicators that need to be improved by the Wonogiri Regency Hospital based on the Analytical Hierarchy Process method.

II. RESEARCH METHOD

A. Methode and Data Source

The method used in this study is the Analytical Hierarchy Process (AHP) method and uses primary data obtained by conducting a survey of people who are service patients health at the Inner poly Wonogiri Regency Regional Hospital. The survey was conducted through the distribution of questionnaires and the interview process directly to respondents, namely health service patients at the Inner Poly of Wonogiri Regency Hospital.

B. Research Variable

As a special measuring tool to measure the quality of a service (service) which is developed by simplifying ten dimensions into five main dimensions [3]. The idea of service quality consisting of five main dimensions is known as SERQUAL (Service Quality) [4] namely:

1. Tangible Dimension namely the ability of a company to show physical

facilities , products, and the environment that can be responded to by the five human senses.

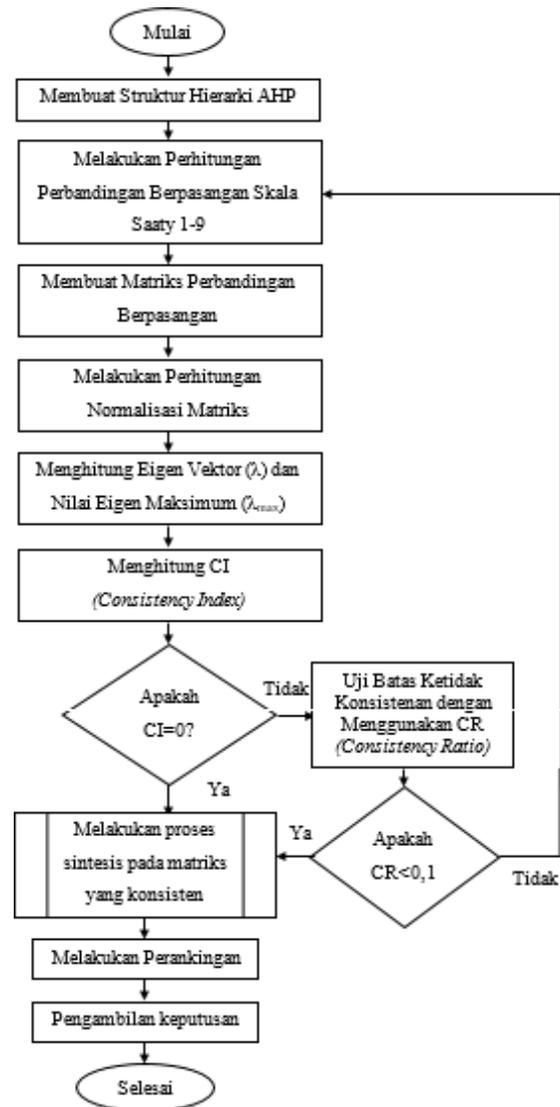
2. Reliability Dimension is the ability to provide fast, accurate, and precise service to customers for the products or services offered.
3. Responsiveness Dimension is the ability to provide fast (responsive) service with the delivery of information that is easy to understand by customers and responsible for the information that has been provided.
4. Assurance Dimension is the ability of employees to have knowledge and an attitude of manners . This is so that customers / consumers have confidence in the quality of service that has been provided by company employees .
5. Empathy Dimension is a sincere attitude of concern for customers individually by always trying to understand specific customer needs . The service includes needs and wants.

Tabel 1 Research variable

No.	Dimensi	Variabel
X ₁	Tangible	Convenience of service room and waiting room (X ₁₁)
		Hygiene of available medical tools (sterile) (X ₁₂)
		Availability of clear information/announcement's board (X ₁₃)
		Availability of adequate patient examination rooms and guarded privacy (X ₁₄)
		Cleanliness, tidiness, and courtesy of officers (X ₁₅)
X ₂	Reliability	The ability of officers to provide services (X ₂₁)
		Nurses' responsiveness in helping doctors (X ₂₂)
		Regularity and tidiness of administrative activities (X ₂₃)
		The ability of doctors to treats patients (X ₂₄)

No.	Dimensi	Variabel
		Services in accordance with health protocols (X ₂₅)
X ₃	Responsiveness	Accuracy in service time (X ₃₁)
		The ability of officers to provide feedback (X ₃₂)
		Clarity of officers in the delivery of information (X ₃₃)
		Punctuality of officers at the service location (X ₃₄)
		Availability of doctors listening to patient complaints (X ₃₅)
		The readiness of officers in responding to all criticism (X ₃₆)
X ₄	Assurance	The medical equipment used is complete and up to date (X ₄₁)
		Accuracy of diagnosis by doctor (X ₄₂)
		Clarity in providing health information or medical prescriptions (X ₄₃)
		Patient data safe (X ₄₄)
		Skills of officers in carrying out their duties (X ₄₅)
X ₅	Emphaty	Periodic monitoring of the patient's condition (X ₅₁)
		The ability of doctors to respond to patient complaints (X ₅₂)
		The officer asks about the patient who will be treated (X ₅₃)
		The willingness of nurses to respond to patient complaints (X ₅₄)

C. Step pf the Result



III. RESULT AND DISCUSSION

The determination of the sample size in this study used the Lemeshow formula [5] as follows:

$$n = \frac{Z_{1-\frac{\alpha}{2}}^2 \cdot \alpha P(1-p)}{d^2}$$

For $\alpha = 5\%$, $p = 0,5$, and $d = 0,1$, the sample size taken is:

$$n \geq \frac{1,96^2 \cdot 0,5(1-0,5)}{0,1^2} \text{ atau } n \geq 96$$

A minimum of 96 respondents were respoenden.

A. Validity Test

Validity tests are used to measure whether or not they are valid on instruments [6]. Validity can be determined from the correlation or total variable with its forming variables .

Tabel 2 Validity test

Dimensi	Variabel	P-value	Kesimpulan
Tangible	X _{1.1}	0,000	Valid
	X _{1.2}	0,000	Valid
	X _{1.3}	0,000	Valid
	X _{1.4}	0,000	Valid
	X _{1.5}	0,000	Valid
Reliability	X _{2.1}	0,000	Valid
	X _{2.2}	0,000	Valid
	X _{2.3}	0,000	Valid
	X _{2.4}	0,000	Valid
	X _{2.5}	0,000	Valid
Responsiveness	X _{3.1}	0,000	Valid
	X _{3.2}	0,000	Valid
	X _{3.3}	0,000	Valid
	X _{3.4}	0,000	Valid
	X _{3.5}	0,000	Valid
	X _{3.6}	0,000	Valid
Empathy	X _{4.1}	0,000	Valid
	X _{4.2}	0,000	Valid
	X _{4.3}	0,000	Valid
	X _{4.4}	0,000	Valid
	X _{4.5}	0,000	Valid
	X _{4.6}	0,000	Valid
Assurance	X _{5.1}	0,000	Valid
	X _{5.2}	0,000	Valid
	X _{5.3}	0,000	Valid
	X _{5.4}	0,000	Valid
	X _{5.5}	0,000	Valid

Based on the validity test results for each variable with the calculation results using IBM 25 SPSS software, it was found that all question variables had a p-value smaller than $\alpha = 0.05$ which means reject H0 so that it can be concluded that all the questions in the questionnaire can measure the same aspect, which means that it is valid.

B. Reliability Test

Reliability tests are performed to measure the extent to which measuring instruments are trustworthy or reliable [7]. The high and low reliability is empirically indicated by a number called the coefficient of reability.

Tabel 3 Reliability Test

No	Variabel	Cronbach's Alpha	Kesimpulan
1	Tangible	0,707	High Reliability
2	Reliability	0,637	High Reliability
3	Responsiveness	0,672	High Reliability
4	Assurance	0,620	High Reliability
5	Empathy	0,579	Medium/Sufficient Reliability

Based on the table above , it can be seen that the results of the analysis with the value of Cronbach's Alpha in Appendix 7 for five dimensions (Physical Appearance , Reliability, Responsiveness , Warranty, and Empathy) has a high average reliability with Cronbach's Alpha values between 0.6 and 0.80.

C. Customer Satisfaction Index

Measurement of Customer Satisfaction Index is used to determine the customer satisfaction level in health services of Inner Poly Wonogiri Regency Hospital thoroughly with an approach that considers the importance level of service attributes measured [9]. CSI calculation results as follows

1. Determine the Mean Importance Score (MIS)

$$MIS_j = \frac{\sum_{i=1}^n Y_{ij}}{n} ; j = 1,2, \dots, p$$

2. Calculating Weight Factors (WF)

$$WF_j = \frac{MIS_j}{\sum_{r=1}^p MIS_r} \times 100\%$$

3. Calculating the Mean Stisfaction Score (MSS)

$$MSS_j = \frac{1}{n} \sum_{i=1}^n X_{ij} ; j = 1,2, \dots, p$$

4. Calculating Weight Score (WS)

$$WS = WF_j \times MSS_j$$

5. Calculating customer Satisfaction index

$$CSI = \frac{\sum_{j=1}^p WS_j}{\text{Highest Scale}} \times 100\%$$

So that the results of the CSI calculation are obtained as follows:

Tabel 4 Customer Satisfaction Index Results

j	Variable	(MIS _j)	WF	(MSS _j)	WS
1	X _{1.1}	3.743	0.0403	3.454	0.1391
2	X _{1.2}	3.673	0.0395	3.473	0.1373
3	X _{1.3}	3.668	0.0395	3.444	0.1360
4	X _{1.4}	3.673	0.0395	3.495	0.1382
5	X _{1.5}	3.716	0.0400	3.440	0.1376
6	X _{2.1}	3.734	0.0402	3.487	0.1402
7	X _{2.2}	3.740	0.0403	3.451	0.1389
8	X _{2.3}	3.759	0.0405	3.404	0.1377
9	X _{2.4}	3.856	0.0415	3.450	0.1432
10	X _{2.5}	3.795	0.0409	3.583	0.1464
11	X _{3.1}	3.634	0.0391	3.344	0.1308
12	X _{3.2}	3.624	0.0390	3.356	0.1309
13	X _{3.3}	3.851	0.0415	3.468	0.1437
14	X _{3.4}	3.713	0.0400	3.434	0.1373
15	X _{3.5}	3.703	3.426	0.0399	0.1366
16	X _{3.6}	3.658	3.363	0.0394	0.1324
17	X _{4.1}	3.749	3.353	0.0404	0.1353
18	X _{4.2}	3.774	3.549	0.0406	0.1442
19	X _{4.3}	3.642	3.413	0.0392	0.1338
20	X _{4.4}	3.661	3.506	0.0394	0.1382
21	X _{4.5}	3.728	3.487	0.0401	0.1399
22	X _{5.1}	3.730	3.413	0.0401	0.1370
23	X _{5.2}	3.725	3.460	0.0401	0.1387
24	X _{5.3}	3.659	3.430	0.0394	0.1351
25	X _{5.4}	3.691	3.370	0.0397	0.1339
Total					3.4425
$CSI = \frac{3.4425}{4} = 0.860628$					

Based on these results, it shows the calculation of the CSI value of 86.06%. This value is at a value interval of 76-100 (%) which means that patients who have been treated at inner poly the Wonogiri Regency Regional Hospital are very satisfied. Even though it has received an excellent CSI score, the Wonogiri Regency Hospital needs to improve again and

maintain the quality of health services in The Inner Poly provided to the community.

D. Important Performnace Analysis

IPA analysis is used to compare consumers ' assessment of service quality importance (Importance) with the level of service quality performance (Performance) [10]. IPA analysis on all dimensions to determine the extent of visitor satisfaction with the attributes related to each dimension, as follows:

Tabel 5 Position of the Variables of Each Dimension

Dimensi	Posisi	Variabel
Tangible	Quadrant II	X _{1.1}
		X _{1.5}
	Quadrant III	X _{1.3}
	Quadrant IV	X _{1.2}
		X _{1.4}
Realibility	Quadrant I	X _{2.5}
	Quadrant II	X _{2.4}
	Quadrant III	X _{2.2}
		X _{2.3}
Quadrant IV	X _{2.1}	
Responsiveness	Quadrant I	X _{3.3}
		X _{3.4}
		X _{3.5}
	Quadrant III	X _{3.1}
		X _{3.2}
		X _{3.6}
Assurance	Quadrant I	X _{4.2}
	X _{4.5}	
	Quadrant II	X _{4.1}

Dimensi	Posisi	Variabel
	Quadrant III	$X_{4.3}$
	Quadrant IV	$X_{4.4}$
Empathy	Quadrant I	$X_{5.2}$
	Quadrant II	$X_{5.1}$
	Quadrant III	$X_{5.4}$
	Quadrant IV	$X_{5.3}$

E. Analytical Hierarchy Process

AHP is used to determine the priority level of policy dimensions to be taken by the management of the inner poly the Wonogiri Regency Regional Hospital. The dimension of the policy to be taken, this analysis is obtained from the value of the cellition between expectations and reality which is high / above the median. The final result of AHP is a ranking or weighting of dimensional priority [10]. The result of the formation of a matrix between quality dimensions, as follows:

Table 6 Comparison Matrix Between Service Dimensions

Dimensi	X ₁	X ₂	X ₃	X ₄	X ₅
X ₁	1.000	2.809	1.320	3.022	6.015
X ₂	0.356	1.000	1.035	0.525	1.476
X ₃	0.758	0.966	1.000	0.758	0.678
X ₄	0.331	1.904	1.320	1.000	1.058
X ₅	0.166	0.398	0.678	0.945	1.000

Before proceeding on the synthesis step of the priority, a consistency test is carried out. For AHP models, a comparable matrix is acceptable if the consistent rasido value < 0.1 CR value < 0.1 is a value whose consistency level is good and accountable. The consistency test is first carried out by compiling the relative importance level of each criterion or alternative which is expressed as normalized relative weight.

$$\frac{g_{11}}{\sum_{i=1}^k g_{i1}} = \frac{1,000}{1,000 + 0,356 + \dots + 0,331 + 0,166} = 0,383$$

Table 7 Normalized Relative Weight Matrix

Dimensi	X ₁	X ₂	X ₃	X ₄	X ₅
X ₁	0.383	0.397	0.247	0.484	0.588
X ₂	0.136	0.141	0.193	0.084	0.144
X ₃	0.290	0.136	0.187	0.121	0.066
X ₄	0.127	0.269	0.247	0.160	0.103
X ₅	0.064	0.056	0.127	0.151	0.098

Furthermore, the normalized eigenfactors can be calculated by averaging the sum of each row in the normalized relative weight matrix with the number of dimensions.

The eigenfactors for the physical evidence dimension are as follows:

$$\begin{aligned} \lambda_1 &= \frac{\sum_{j=1}^k g_{1j}}{k} \\ \lambda_1 &= \frac{\sum_{i=1}^5 g_{1j}}{5} \\ &= \frac{0,383 + 0,397 + \dots + 0,484 + 0,588}{5} \\ &= \frac{2,098}{5} \\ &= 0,420 \end{aligned}$$

Table 8 Eigen Factors of a Normalized Matrix

Kriteria/Alternatif	Eigen Faktor (λ)
Tangible	$\lambda_1 = \frac{2,098}{5} = 0,420$
Reliability	$\lambda_2 = \frac{0,699}{5} = 0,140$
Responsiveness	$\lambda_3 = \frac{0,801}{5} = 0,160$
Assurance	$\lambda_4 = \frac{0,906}{5} = 0,181$
Empathy	$\lambda_5 = \frac{0,495}{5} = 0,100$

Next determine the value of λ_{max} to determine the value of CI,

$$\begin{aligned} \lambda_{max} &= \left(\sum_{i=1}^k g_{i1} \times \lambda_1 \right) + \dots + \left(\sum_{i=1}^k g_{ij} \times \lambda_n \right) \\ &= (2,611 \times 0,420) + (7,077 \times 0,140) \dots \\ &\quad + (10,227 \times 0,100) \\ &= (1,096) + (0,990) \dots + (1,013) \\ &= 5,089 \end{aligned}$$

$$\begin{aligned}
 CI &= \frac{\lambda_{max} - k}{k - 1} \\
 &= \frac{5,089 - 5}{5 - 1} \\
 &= \frac{0,089}{4} \\
 &= 0,022
 \end{aligned}$$

The next test is measured using the Consistency Ratio (CR), which is the index value, or the comparison between CI and RI,

$$CR = \frac{CI}{RI} = \frac{0,022}{1,12} = 0,020$$

The CR value obtained is 0.075 or $CR < 0.1$ which means the data is said to be consistent.

The final results of the synthesis of data processing based on the AHP method using the help of Software Expert Choice 11 are as follows:

Tabel 9 Priority Weight of Each Dimension

Dimensi	Bobot Prioritas	Urutan Prioritas
Empathy	0,343	1
Reliability	0,207	2
Assurance	0,186	3
Responsiveness	0,185	4
Tangible	0,078	5
Consistency Ratio = 0,020		

Tabel 10 Attribute Priority Weight

Atribut	Bobot Prioritas	Urutan Prioritas
X _{5.1}	0,216	1
X _{2.4}	0,130	2
X _{4.1}	0,117	3
X _{3.3}	0,073	4
X _{1.5}	0,049	5

IV. CONCLUSION

A. Conclusion

From the results of data processing based on AHP analysis, the highest priority weight for the dimensions of health services in the Inner poly Wonogiri Regency Regional Hospital is the empathy dimension of 0.343 which means that the empathy dimension is the dimension that is prioritized in improving the quality of health

services in the Inner poly Wonogiri Regency Regional Hospital. The reliability dimension is in the second priority weight of 0.207; the assurance dimension has a priority weight of 0.186; the responsiveness dimension has a priority weight of 0.185; and in the last priority there is a tangible dimension with a priority weight of 0.078.

Furthermore, from the results of data processing based on AHP analysis, the priority weight order of health service attributes in the Inner poly Wonogiri Regency Regional Hospital is the attribute "periodic monitoring of the patient's condition" has a priority weight of 0.216; attribute "the ability of doctors to treat and treat patients" has a priority weight of 0.130; attribute "medical equipment used is complete and up to date" has a priority weight of 0.117; attribute "clarity officer in delivering information" has a priority weight of 0.073; and in the last priority there is the attribute "cleanliness, neatness, and courtesy of officers" which has a priority weight of 0.049.

B. Suggestions

Based on the results of the discussion and the conclusions obtained, some suggestions can be put forward as follows:

1. From the results of this study, it is suggested to the Inner poly Wonogiri Regency Regional Hospital in order to improve the quality of health services for better satisfaction of the people of Wonogiri Regency, especially in the empathy dimension, namely periodic monitoring of the patient's condition.
2. For further research, it is hoped that new researchers can conduct more specific research, paying attention to language structure and clarity of questions so that respondents' answers are better and more stable.

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