

# Analysis of Patient Satisfaction Levels of BPJS Siwalankerto Public Health Center Surabaya Using the Customer Satisfaction Index Method, Importance Performance Analysis, and Kano Method

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**Abstract:** Health Center is a health service facility that organizes the public health industry and first-level individual health industry by prioritizing promotive and preventive efforts to achieve the highest public health degree in its working area. Patient satisfaction can be seen from various indicators, one of which is assessing the level of patient satisfaction, thereby affecting the continuity and effectiveness of the service. The Siwalankerto Health Center is one of the initial level healthcare facilities in Siwalankerto Village, Wonocolo District, Surabaya City. The Siwalankerto Health Center has several service units: general poly, dental poly, KIA-KB poly, nutrition poly, and laboratory. This study aims to analyze the satisfaction of BPJS patients with services at the Siwalankerto Health Center Surabaya using the Customer Satisfaction Index (CSI), Importance Performance Analysis (IPA), and Kano methods. A total of 125 respondents obtained a CSI result of 84.9%, which means that BPJS patients at the Siwalankerto Health Center are delighted. Next, perform IPA and Kano analysis on the dimensions of the physical appearance of reliability, responsiveness, assurance, and empathy with 22 variables on 125 respondents. The results of the IPA analysis showed that 11 variables were in quadrant I, 6 variables were in quadrant II, 4 variables were in quadrant III and 1 variable was in quadrant IV. Meanwhile, in Kano's analysis, two variables are included in the must-be category, and other variables are in the one-dimensional category. Furthermore, the IPA-Kano integration was carried out to obtain priority strategies that must be carried out, namely improving performance on several variables, including the variable timeliness of service as promised and the doctor variable providing opportunities for patients to ask questions related to their illness.

**Keywords:** Siwalankerto Public Health Center at Surabaya City, Customer Satisfaction Index (CSI), Importance Performance Analysis (IPA), Kano, Integration of IPA-Kano

## 1. INTRODUCTION

Indonesia is a developing country actively promoting development in all fields, one of which is health. This is by Rencana Pembangunan Jangka Panjang bidang Kesehatan (RPJPK) 2005-2025, which aims to increase everyone's awareness, willingness, and ability to live healthy so that the highest level of public health can be realized. The Ministry of Health of the Republic of Indonesia has issued one of its policies by designing a health service program that we know today as Badan Penyelenggara Jaminan Sosial (BPJS).

Definition of BPJS, according to Law Number 24 of 2011 Badan Penyelenggara Jaminan Sosial, the definition of BPJS is a legal entity established to administer social security programs under government supervision. Based on the official website of BPJS Kesehatan [www.bpjs-kesehatan.go.id](http://www.bpjs-kesehatan.go.id), it is known that the number of BPJS participants in Indonesia has reached 187,982,949 people as of December 31, 2017, and increased to 217,549,455 people as of February 1, 2019 [1]. The Health Center, in this case, is positioned as the frontline to maintain public health before being referred to the hospital. One of the Health centers that provide BPJS Health services in Surabaya is the Siwalankerto Health Center. The Siwalankerto Health Center is one of the initial level healthcare facilities in Siwalankerto, Wonocolo District, Surabaya City.

Along with increasing social conditions where people are increasingly aware of quality, improving the grade or quality

of health services oriented to patient satisfaction is necessary. Patient satisfaction is the level of patient feeling that arises from the performance of the health service he gets after the patient compares it with what he expects [2]. Patient satisfaction is an essential key to improving quality care in health services.

In this study, we will discuss and measure the level of satisfaction of BPJS patients with services at the Siwalankerto Health Center Surabaya. There are advantages to the CSI method, namely efficiency in measuring universal satisfaction. The IPA method can display product/service attributes that need to be improved or reduced in the form of quadrants. The Kano method can divide service priority levels into functional categories and dysfunctional categories. The Customer Satisfaction Index, Importance Performance Analysis and Kano methods used in this study are expected to provide a thorough analysis of customer satisfaction levels and identify service attributes that are priority improvements and features which is less than optimal and provide suggestions for improving the quality of service at the Siwalankerto Health Center Surabaya.

## 2. RESEARCH METHOD

### a. Method and Data Source

The method used in this research is Customer Satisfaction Index, Importance Performance Analysis, and Kano method, while the source of data is primary data obtained by conducting

direct surveys of respondents (patients) who have been registered as BPJS patients, aged at least 17 years and currently being treated at the Siwalankerto Health Center Surabaya

b. Research Variable

The variables used in this research are patient satisfaction variables of BPJS Siwalankerto Health Center Surabaya.

Table 1. Satisfaction Variables

Attributes	Dimension
A1 Cleanliness and comfort of the toilet	Tangible
A2 Availability of trash cans	
A3 Health center officers are clean and tidy (wear uniforms).	
A4 Comfort seat in the waiting room	
A5 Availability of parking space	
A6 Cleanliness and comfort of the Medical ward	
A7 Medical equipment is functioning properly and according to standards	Reliability
B1 Timeliness of the service as promised	
B2 The agility of pharmacists in preparing drugs that have been prescribed by doctors for patients	
B3 Medicines available are comprehensive	
B4 The agility of Health Center officers in making referral letters	
B5 Doctors have trained as a medical doctor	Responsiveness
C1 Health Center staffs provide fast, precise, and friendly favor	
C2 Health Center staffs are friendly in responding to questions posed by patients	
C3 The intelligibility of pharmacists in providing explanations regarding rules for taking medication to patients	Assurance
D1 The proficiency in registration process	
D2 The expiration of drug was available	
D3 The Clarity and accuracy of doctors for diagnosing patients' diseases	
D4 The impregnability of vehicle parking	Empathy
E1 Doctors provide opportunities for patients to ask questions related	

to their illness

E2	Health center staffs evince virtuous words, attitude, and body language
E3	The behavior toward of the Health Center staffs to all patients is same

c. Step of the Research

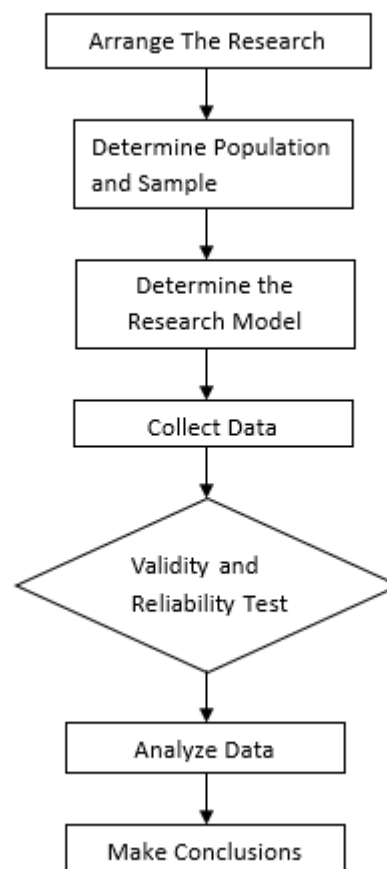


Figure 1. Step of the Research

3. RESULT AND DISCUSSION

a Validity Test

Validity test was done to acquire the validity of statement attributes of the questionnaire. It can be valid if the data can represent the research variable data that will be measured [3]. The hypothesis used in the validity test can be seen as follows

H<sub>0</sub> : ρ = 0 (Invalid question items)  
 H<sub>1</sub> : ρ ≠ 0 (Valid question item)

The results of the validity test in table 2

Table 2. Validity Test

Attributes	P-Value	Conclusion
Tangible A1	0,000	Valid

	A2	0,000	Valid
	A3	0,000	Valid
	A4	0,000	Valid
	A5	0,000	Valid
	A6	0,000	Valid
	A7	0,000	Valid
Reliability	B1	0,000	Valid
	B2	0,000	Valid
	B3	0,000	Valid
	B4	0,000	Valid
	B5	0,000	Valid
Responsiveness	C1	0,000	Valid
	C2	0,000	Valid
	C3	0,000	Valid
Assurance	D1	0,000	Valid
	D2	0,000	Valid
	D3	0,000	Valid
	D4	0,000	Valid
Empathy	E1	0,000	Valid
	E2	0,000	Valid
	E3	0,000	Valid

Based on the table above, all of the question variables have p-value smaller than  $\alpha = 0.05$ , which means REJECT  $H_0$ . So it can be concluded that all the questions for the five-dimensional variables on the questionnaire are valid. They can measure what is desired and can reveal data from the variables appropriately.

#### b Reliability Test

The reliability test is used to determine the consistency of the measuring instrument, whether the measuring device used is reliable and remains consistent if the measurement is repeated [4]. High and low reliability is indicated by a number called the reliability coefficient. The SPSS program provides facilities for measuring reliability with the Cronbach Alpha ( $\alpha$ ) statistical test.

The results of the reliability test on all component variables are presented in the following table:

Table 3. Reliability Test

Variables	Cronbach's Alpha	Conclusion
Tangible ( $X_1$ )	0,842	Very High Reliability
Reliability ( $X_2$ )	0,685	High Reliability

Responsiveness ( $X_3$ )	0,791	High Reliability
Assurance ( $X_4$ )	0,711	High Reliability
Empathy ( $X_5$ )	0,780	High Reliability

Based on the table above, it can be concluded that the dimensions of reliability, responsiveness, assurance and empathy dimensions have high reliability with Cronbach's Alpha values obtained between 0.6 to 0.8. While the physical appearance dimension has very high reliability, Cronbach's Alpha value is more than 0.8. This means that someone's answer to a question is consistent and stable over time

#### c Customer Satisfaction Index

The customer satisfaction index or Customer Satisfaction Index (CSI) is a measurement of the overall level of customer satisfaction by comparing the performance of services or products with customer needs in obtaining services [5].

##### 1. Mean Importance Score (MIS)

$$MIS_j = \frac{\sum_{i=1}^n Y_{ij}}{n}; j = 1, 2, \dots; i = 1, 2, \dots, 125$$

$$MIS_1 = \frac{\sum_1^{125} Y_{11}}{125}; j = 1, 2, \dots; i = 1, 2, \dots, 125$$

$$= \frac{4,3 + \dots + 5}{125} = 4,652$$

##### 2. Weight Factors (WF)

$$WF_j = \frac{MIS_j}{\sum_{r=1}^p MIS_r} \times 100\%; p = 1, 2, \dots, 22$$

$$WF_1 = \frac{MIS_1}{\sum_1^{22} MIS_1} \times 100\%$$

$$= \frac{4,652}{4,652 + \dots + 4,6744} \times 100\%$$

$$= \frac{4,652}{101,576} \times 100\% = 4,5798$$

##### 3. Mean Satisfaction Score (MSS)

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

$$MSS_1 = \frac{\sum_1^{125} X_{ij}}{125}$$

$$= \frac{4,7 + \dots + 3,2}{125} = 4,013$$

##### 4. Weight Score (WS)

$$WS_j = WF_j \times MSS_j$$

$$WS_1 = 4,5798 \times 4,013$$

$$= 18,3779$$

Table 4. Customer Satisfaction Index (CSI)

Attributes	Mean Importance Score (MIS <sub>j</sub> )	Weight Factors (WF <sub>j</sub> )	Mean Satisfaction Score (MSS <sub>j</sub> )	Weight Score (WS <sub>j</sub> )
A1	4,652	4,5798	4,013	18,3779
A2	4,6288	4,5570	4,314	19,6606
A3	4,6344	4,5625	4,413	20,1334
A4	4,624	4,5523	3,995	18,1872
A5	4,4112	4,3428	4,122	17,9026
A6	4,652	4,5798	4,444	20,3527
A7	4,7064	4,6334	4,446	20,6019
B1	4,6344	4,5625	4,025	18,3631
⋮	⋮	⋮	⋮	⋮
E1	4,5344	4,4640	4,070	18,1705
E2	4,636	4,5641	4,329	19,7569
E3	4,6744	4,6019	4,313	19,8470
Total			424,514	

$$CSI = \frac{424,514}{5} = 84,903\%$$

Based on the results of the CSI value obtained a value 84.508%. This value is in the "81-100" interval, which means that BPJS Health Center Siwalankerto Surabaya patients are very satisfied with the services at the Siwalankerto Surabaya Health Center

d Importance Performance Analysis

Importance-Performance Analysis (IPA) was first introduced by Martilla and James in 1977 in their article entitled "Importance Performance Analysis" in the Journal of Marketing [6]. Importance Performance Analysis (IPA) is used to compare consumer ratings between importance and performance.

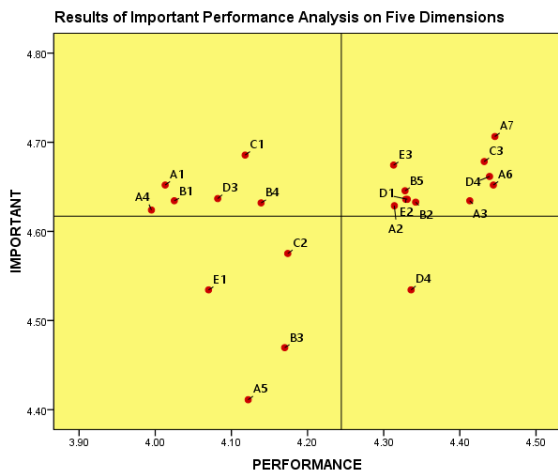


Figure 2 Importance Performance Analysis (IPA) on Five Dimensions

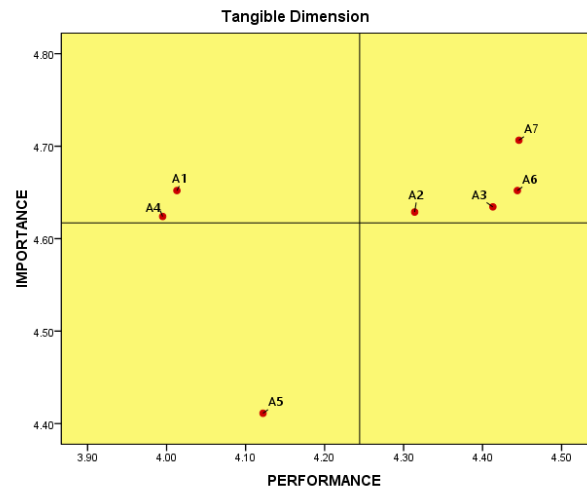


Figure 3 Importance Performance Analysis (IPA) on Tangible Dimensions

Based on Figure 3, the variables included in quadrant I which are superior services that need to be maintained are A2, A3, A6, and A7. In quadrant II which is a high-priority service and needs improvement are A1 and A4. In quadrant III which is a service that is not paid attention to by the Siwalankerto Health Center and service quality is low in A5

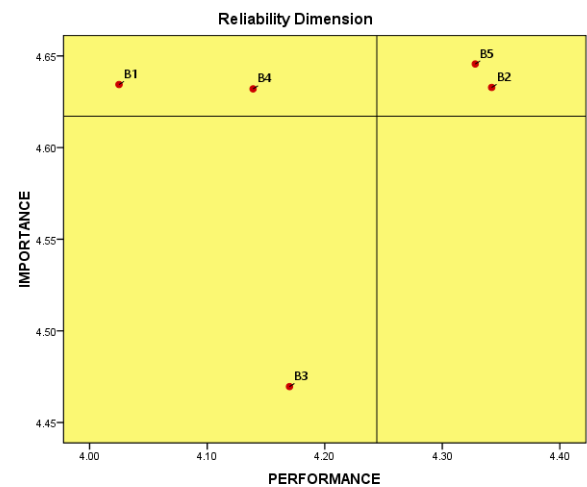


Figure 4 Importance Performance Analysis (IPA) on Reliability Dimensions

Based on Figure 4 the variables included in quadrant I which are superior services so that they need to be maintained are B2 and B5. In quadrant II, high priority and need improvement are B1 and B4. In quadrant III, which is a service that the Siwalankerto Health Center does not pay attention and service quality is low in B3.

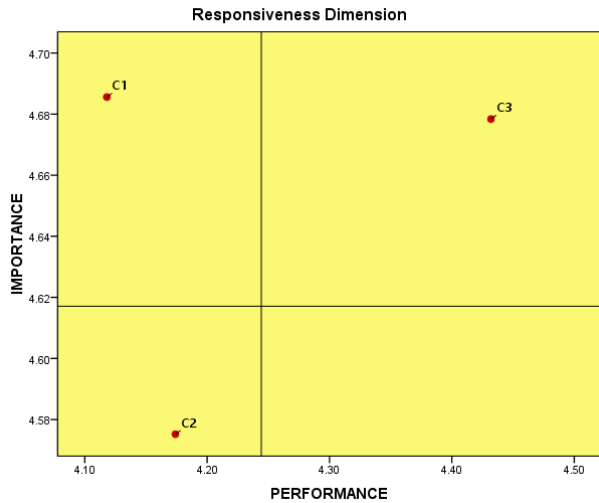


Figure 5 Importance Performance Analysis (IPA) on Responsiveness Dimensions

Based on Figure 5, the variable that is included in quadrant I which is a superior service so it needs to be maintained is C3. In quadrant II, the high priority and needs improvement is C1. In the low priority quadrant III, the service element is not paid attention to by BPJS patients and the quality of service from the Siwalankerto Health Center is also low in C2

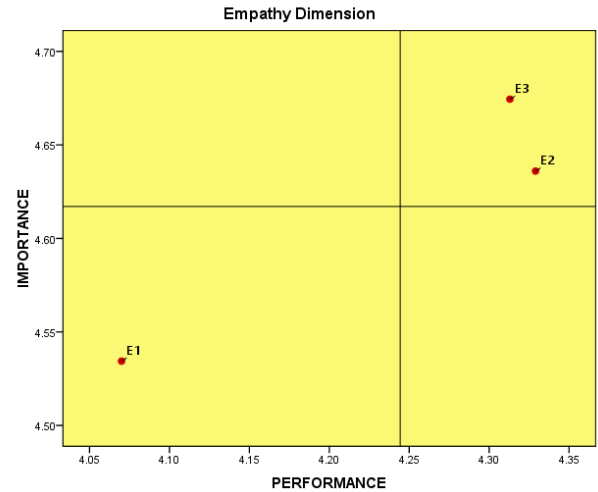


Figure 7 Importance Performance Analysis (IPA) on Empathy Dimensions

Based on Figure 7, the variables included in quadrant I which are superior services that need to be maintained are E2 and E3. In the low priority quadrant III, the service element is not paid attention to by BPJS patients and the quality of service from the Health Center is also low in E1.

e KANO

The Kano method is a method that aims to categorize attributes of a product or service based on the ability of the product/service to provide satisfaction to customers or service users. With the help of the R Studio Software, the following results were obtained:

Table 5. Kano

Code	O	A	M	I	R	Q	O+A+M	I+R+Q	Kano
A1	67	20	29	9	0	0	116	9	O
A2	64	17	25	19	0	0	106	19	O
A3	64	24	26	11	0	0	114	11	O
A4	62	21	25	14	3	0	108	17	O
A5	57	21	29	17	1	0	107	18	O
A6	66	23	16	20	0	0	105	20	O
A7	69	15	24	14	3	0	108	17	O
B1	37	15	56	9	8	0	108	17	M
B2	72	26	8	16	1	2	106	19	O
B3	64	33	16	12	0	0	113	12	O
B4	66	29	24	6	0	0	119	6	O
B5	60	29	16	16	4	0	105	20	O
C1	55	37	23	8	2	0	115	10	O
C2	76	16	19	14	0	0	111	14	O
C3	51	30	38	6	0	0	119	6	O
D1	64	30	21	10	0	0	115	10	O
D2	57	33	24	10	1	0	114	11	O
D3	68	26	14	17	0	0	108	17	O
D4	70	20	13	22	0	0	103	22	O
E1	37	29	50	8	1	0	116	9	M
E2	59	37	21	8	0	0	117	8	O

Figure 6 Importance Performance Analysis (IPA) on Assurance Dimensions

Based on Figure 6, the variables included in quadrant I which are superior services that need to be maintained are D1 and D4. In quadrant II, a high priority and needs improvement is D3. In quadrant IV there are elements of service that are considered less important but in fact, satisfactory service is D2.

E3	67	28	18	10	2	0	113	12	O
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From the results of calculations using the Kano method, it is found that attributes B1 and E1 are included in the Must Be (M) category, which is a basic need if this variable can be met, then service users do not increase their satisfaction. On the other hand, because consumers consider this category to be appropriate, then the fulfillment of this category will not increase service user satisfaction. However, if this variable is not sufficient to meet basic needs, service users will be dissatisfied.

The other variables from the table above are in the One Dimensional (O) category, which indicates that the increase in service user satisfaction increases proportionally when this variable is increased. On the other hand, satisfaction will decrease if the service on this variable decreases.

f Integration Importance Performance Analysis (IPA) with Kano

IPA-Kano integration is used to complete the shortcomings of each method. The integration of the IPA-Kano method can formulate strategic priorities for the development of each service indicator. In addition, the IPA-Kano method can provide the right strategic decisions as well as firm and avoid wrong decisions [7].

Table 6. Integration IPA-Kano

Var.	Kano	IPA	Strategy Priority
A1	One Dimensional	II	Enhancement of 3rd Performance
A2	One Dimensional	I	Sustainment of 3rd Performance
A3	One Dimensional	I	Sustainment of 3rd Performance
A4	One Dimensional	II	Enhancement of 3rd Performance
A5	One Dimensional	III	Enhancement of 4th Performance
A6	One Dimensional	I	Sustainment of 3rd Performance
A7	One Dimensional	I	Sustainment of 3rd Performance
B1	Must-be	II	Enhancement of 1st Performance
B2	One Dimensional	I	Sustainment of 3rd Performance
B3	One Dimensional	III	Enhancement of 4th Performance
B4	One Dimensional	II	Enhancement of 3rd Performance
B5	One Dimensional	I	Sustainment of 3rd Performance
C1	One Dimensional	II	Enhancement of 3rd Performance
C2	One Dimensional	III	Enhancement of 4th Performance

C3	One Dimensional	I	Sustainment of 3rd Performance
D1	One Dimensional	I	Sustainment of 3rd Performance
D2	One Dimensional	IV	Sustainment of 4th Performance
D3	One Dimensional	II	Sustainment of 3rd Performance
D4	One Dimensional	I	Sustainment of 3rd Performance
E1	Must-be	III	Sustainment of 2nd Performance
E2	One Dimensional	I	Sustainment of 3rd Performance
E3	One Dimensional	I	Sustainment of 3rd Performance

Based on the results of the IPA-Kano Integration in the table above, the order of priority strategies that must be carried out by the Siwalankerto Health Center is as follows:

1. Improve performance on attributes B1
2. Improve performance on attributes E1
3. a. Maintain performance on attributes A2, A3, A6, A7, B2, B5, C3, D1, D4, E2 and E3  
 b. Improve performance on attributes A1, A4, B4, C1, and D3.
4. a. Improve performance on attributes A5, B3, and C2.  
 b. Maintain performance on attributes D2.

### 3. CONCLUSION

#### a. Conclusion

Based on research on BPJS Health Center Siwalankerto patients, it is concluded as follows :

1. The level of satisfaction of BPJS patients with the Siwalankerto Health Center services based on the calculation results of the CSI value of 84.903%, which means that BPJS patients at the Siwalankerto Health Center are very satisfied.
2. Based on the Importance Performance Analysis (IPA) it can be concluded that the priority strategies that must be carried out by the Siwalankerto Health Center are:
  - a. Maintain performance on attributes A2, A3, A6, A7, B2, B5, C3, D1, D4, E2 and E3
  - b. Improve performance on attributes A1, A4, B1, B4, C1, and D3
3. Based on the analysis using Kano method, it can be concluded that :
  - a. Attributes B1 and E1 are included in the Must Be (M) category, which are basic needs if this variable can be met, then service users do not increase their satisfaction. On the other hand, because consumers consider this category to be appropriate, the fulfillment of this category will not increase service user satisfaction. However,

if this variable is not sufficient to meet basic needs, service users will be dissatisfied.

- b. Other variables are included in the One Dimensional (O) category which shows that service user satisfaction increases proportionally if this variable is increased. On the other hand, satisfaction will decrease if the service on this variable decreases.
4. Based on the results of the integration between Importance Performance Analysis (IPA) and Kano, the main strategic priorities that must be carried out by the Siwalankerto Health Center are :
    - a. Improve performance on attributes B1, E1, A1, A4, B4, C1, D3, A5, B3, and C2.
    - b. Maintain performance on attributes A2, A3, A6, A7, B2, B5, C3, D1, D4, E2, E3, and D2.

#### b. Suggestion

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 research, it is suggested to the Siwalankerto Health Center maintain and improve services that need improvement. It is hoped that from the results of this evaluation, the performance of the Siwalankerto Health Center in the future can be even better and can serve the community with maximum performance.
2. For further research, it is hoped that new researchers can conduct more specific research, pay attention to language structure, and clarity of questions so that respondents' answers are more stable

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