Analysis of the Service Level of the Serang Train Station During the Pandemic of COVID-19

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ABSTRACT

The increasing number of COVID-19 cases in Indonesia has caused a decrease in the number of users of public transportation services, one of which is users of train transportation services. This makes some facilities at the station require adjustments to the applicable rules. The purpose of this study is to measure the level of satisfaction and importance of train station service during the COVID-19 pandemic, determine the gap between the level of satisfaction and importance, and determine the attributes that are prioritized for improvement. This research uses Service Quality and Importance Performance Analysis methods. The results of the data analysis show that the expected station services are not in accordance with what is received by users of Serang Train Station services. It is necessary to improve the quality of service and increase the number of facilities at the station to increase the satisfaction of service users who use Serang Train Station services.

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1. INTRODUCTION

In March 2020, there was a health problem in Indonesia, namely the first positive case of infection with severe acute respiratory syndrome coronavirus (SARS-CoV-2) or COVID-19. The World Health Organization (WHO) stipulates restrictions on social interaction, wearing masks, and washing hands to reduce the risk of being infected with the virus [1]. The spread of the COVID-19 virus has rapidly impacted lifestyles and travel. This impact has also resulted from government regulations during the COVID-19 pandemic, such as travel restrictions, the closure of entire sectors of the economy, and individual choices to reduce direct contact with others [2].

The impact of the spread of COVID-19 resulted in a decrease in the number of passengers at Serang Train Station. In pre-pandemic conditions based on the average number of train passengers at Serang Train Station in 2019 amounted to 42,792 passengers [3] and the average number of train passengers at Serang Train Station in 2020 after the pandemic was 21,848 passengers [3]. The Ministry of Transportation has set regulations to suppress the spread of the virus by limiting modes of transportation as stipulated in the Minister of Transportation Regulation Number PM 18 of 2020 concerning

Transportation Control in the Context of Preventing the Spread of Corona Virus Disease (COVID-19) [4]. Therefore, station services are also required to improve the quality of their services during the COVID-19 pandemic.

The Importance Performance Analysis method shows the priority attributes and the level of conformity in service performance but has not shown the difference between satisfaction and service interests. The results showed that Grogol Train Station had met 78.72% of the PM 63 of 2019 benchmarks. From the level of passenger satisfaction, the average level of conformity is still below 100%, namely 77.07% [5]. Then using the same method shows consistency and gap results from the average dimension <-1, where the analysis results show that the quality of Jakarta LRT performance is good but needs a change in priorities because the gap is close to the value of 1 [6].

The Service Quality method shows that the Reliability dimension ranks first with a value of -0.255, the Tangibles dimension ranks second with a value of -0.1744, the third order is Assurance with a value of -0.12, the fourth order is Responsiveness with a value of -0.02, and the last order is the Empathy dimension with a value of 0.01 [7]. Research using Service Quality and Importance Performance Analysis methods obtained a satisfaction achievement value for each attribute: tangible of 77.84%, reliability of 83.98%, assurance of 81.04%, responsiveness of 80.96%, and empathy of 70.78%. The value of passenger satisfaction at Maja Train Station is included as good, with an average satisfaction achievement value of 78.53% [8].

The purpose of this study is to determine the level of satisfaction and importance of Serang Train Station services, determine the size of the gap value between the level of satisfaction and importance of Serang Train Station services, and find out what attributes are prioritized for improvement at Serang Train Station based on the results of the Cartesian Diagram analysis.

2. METHODS

2.1 Data Collection

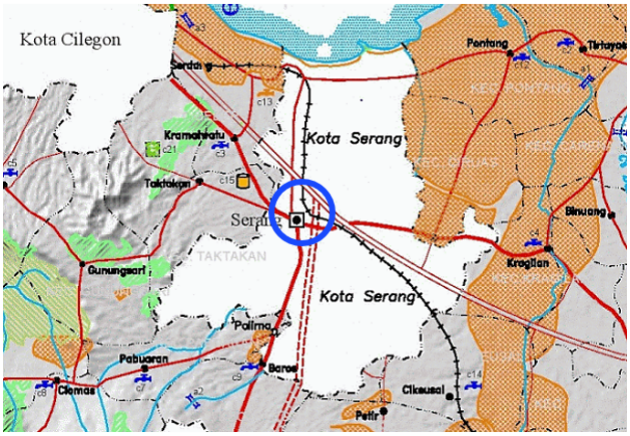

Figure 1. Research Location

This research was carried out at Serang Station, at Jl. Kitapa No. 2, Serang City, Banten. The sampling technique used was incidental sampling. Incidental sampling is a sample taken by chance and can be used as a sample [9]. In this sampling method, the sample members are train passengers who happen to be encountered during data collection. The population of this study was train passengers at Serang Train Station in December 2020, totaling 16,486 passengers [3]. Based on Slovin's formula [10] with a margin of error of 10%, this research required 99.397 samples to be collected, rounded up to 100 respondents.

2.2 Data Processing

Data were obtained from respondents by distributing questionnaires to respondents. The questionnaire contains 28 questions grouped into five dimensions of Service Quality, with the scale used being a five-level Likert scale. The research variables used in this study are passenger satisfaction as the dependent variable (Y) and service quality in the form of assurance (X1), reliability (X2), tangible (X3) responsiveness (X4), empathy (X5), as the independent variable (X). The stages of this research begin with observation, data collection with questionnaires, validity and reliability testing, data processing with service quality and importance-performance analysis methods, and compiling conclusions and suggestions. The stages of this research are illustrated in the Figure 2.

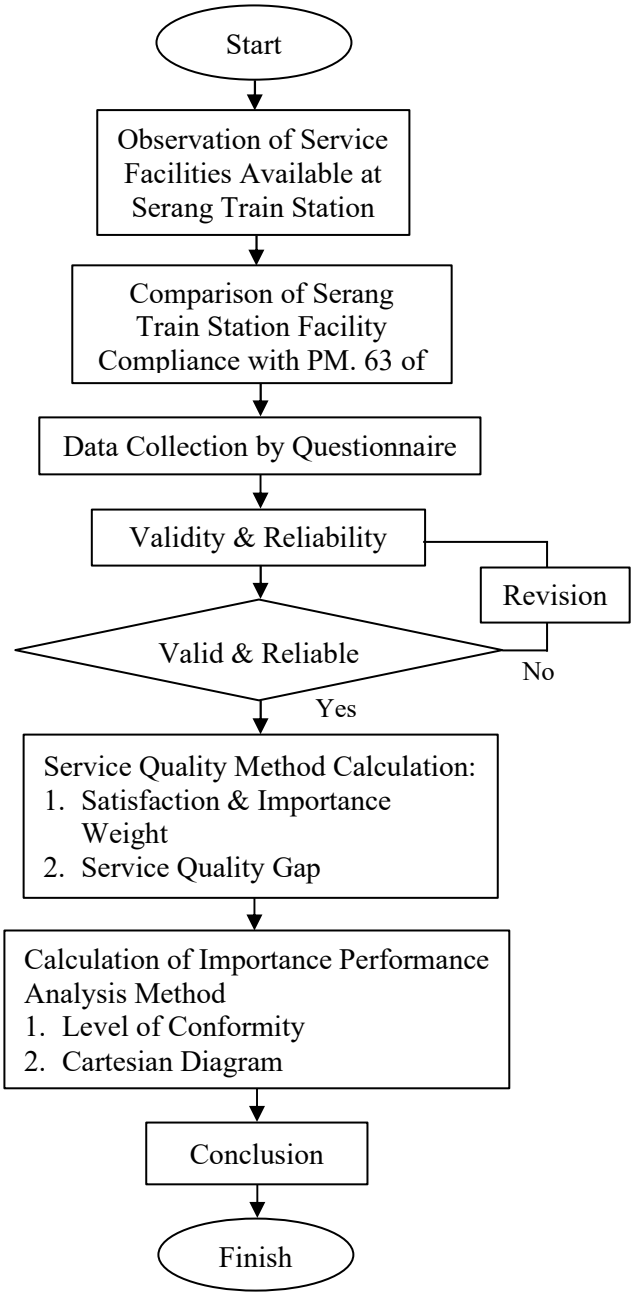

Figure 2. Data Processing Method

3. RESULTS AND DISCUSSION

3.1 Data Processing

3.1.1 Analysis of Conformity of Serang Train Station Services with Station Service Standards Based on PM No. 63 of 2019

Comparison of actual conditions and service availability at Serang Station with PM No. 63 of 2019 concerning Minimum Service Standards for Transportation of People by Train:

Table 1. Observation Results of Service Facilities at Serang Station with Station Minimum Service Standards Based on PM. 63 of 2019

No.	Parameters	Types of Service	Conditions at the Station		Description
			Available	Not Available	
1.	Safety	Safety information and facilities	✓		12 kg fire extinguishers are available in non-ticketed areas and ticketed areas.
		Health information and facilities	✓		Only 1 (one) wheelchair is available.
		Lighting	✓		The light intensity at Serang Station is 123 lux.
		Platform	✓		The height difference between the platform stairs and the train floor is ±19 cm.
		Assembly Point	✓		Assembly point markers are available at the station.
2.	Security	Security facilities	✓		CCTV cameras have been installed at several points in the station area.
		Security officers	✓		Security guards are stationed at several points in the station area.
		Security disturbance information	✓		Security guards in the station area are scattered at several points.
3.	Reliability	Ticket sales service	✓		There is only 1 (one) counter for manual ticket purchases.
		Train service network map operation schedule information	✓		Train operation schedule maps are installed in both ticketed and unticketed areas.
		Train arrival and travel disruption information	✓		Loudspeakers for train arrival information are in good condition.
4.	Convenience	Waiting area/room	✓		Passenger density ± 0.35 m2 /person.
		Boarding Area		✓	-

No.	Parameters	Types of Service	Conditions at the Station		Description
			Available	Not Available	
		Restroom	✓		The condition of the station toilet is still suitable for use, but it is still lacking in cleanliness.
		Prayer room	✓		The prayer room area at the station is suitable for worship.
		Air circulation facilities in an enclosed waiting area	✓		There are 2 (two) fans in the station area.
		Garbage bins	✓		There are trash bins scattered at several points in the station area.
		No-smoking appeal	✓		Readings related to smoking restrictions are scattered at several station areas.
5.	Ease	Service information	✓		The sound of the public notification system is already 20 dB higher than the existing noise.
		Information on onward transportation/ other transportation integration	✓		There are visual media (posters) with a small size.
		Parking lot	✓		Sufficient for 2 (two) and 4 (four) wheel vehicle mobility.
		Directional signage		✓	-
6.	Equality	Facilities for passengers with special needs	✓		The guiding block at this station has not been free from surrounding objects.
		Nursery room		✓	-

Based on the analysis conducted by evaluating the condition of Serang Train Station, it can be known the service attributes at Serang Train Station with the formula:

$$\text{Attribute Availability Percentage} = \frac{\text{Attribute availability}}{\text{Number of attributes based on PM. 63 of 2019}} \times 100\% \quad (1)$$

$$= \frac{21}{24} \times 100\% = 87{,}5\%$$

In this calculation, the condition of the available attributes at Serang Station with reference to PM Transportation No. 63 of 2019 is 21 out of 24 attributes, so the percentage of attribute availability is 87.5%.

3.1.2 Handling COVID-19 Prevention at Serang Train Station during the Pandemic Period

Serang Train Station seeks to take precautions so that users remain safe and comfortable when traveling through Serang Train Station, which is guided by the Regulation of the Minister of Transportation of the Republic of Indonesia No. PM 18 of 2020 concerning Transportation Control in Preventing the Spread of Corona Virus Disease 2019 (COVID-19), Decree of the Minister of Health of the Republic of Indonesia HK.01.07/MENKES/382/2020 concerning Health Protocols for the Public in Public Places and Facilities in the Context of Prevention and Control of Corona Virus Disease 2019 (COVID-19), and SE Kemenhub No. 72 of 2022 concerning Guidelines for the Implementation of Domestic Travel by Railway Transportation during the Corona Virus Disease 2019 (COVID-19) Pandemic, the following are the results of a survey conducted in knowing the efforts to handle COVID-19 carried out by Serang Train Station:

1. Health screening through PeduliLindungi to ensure passengers have received COVID-19 vaccination injections.
2. Provide electronic (online) ticket purchase
3. Implementation of social distancing in the waiting room of Serang Train Station and trains.
4. COVID-19 Prevention Warning Sign and health protocol appeal
5. Provision of portable hand washing stations and hand sanitizers
6. Restriction of queuing distance at Serang Train Station counter

3.1.3 Characteristics of Respondents

Respondents in this study are train passengers who will depart at Serang Train Station. Respondent characteristics are used to see passenger preferences for Serang Train Station services. The characteristics of respondents in this study can be seen in Table 2.

Table 2. Characteristics of Respondents

Characteristics of Respondents		Percentage (%)	Description
Gender	Male	42	Female passengers outnumber male passengers due to work factors that are more vulnerable to the pandemic and limited personal transportation.
	Female	58	
Age	< 25	71	Age in the <25 years group generally refers to people actively working or still in the education process.
	26-35	18	
	36-45	7	
	> 46	4	
Job Type	Public Servant	7	Railway transportation is more convenient and efficient for students to move to educational institutions.
	Private Employee	30	
	Self-employed	9	
	Student	54	
Purpose of Trip	Education	30	Opening of tourist attractions with the implementation of CHSE (Cleanliness, Healty, Safety, and Environmental Sustainability) protocols and cost efficiency.
	Occupation	27	
	Tourism	43	

3.1.4 Validity Test

Validity means the extent to which the accuracy of a measuring instrument in performing its measuring function [11]. Based on the test results, it shows that of the 28 service attributes, the level of satisfaction and importance has a value of $r_{count} \geq r_{table}$ (0.256), so all attributes are declared valid so that attributes (1)–(28) can be used as instruments in this study. The results of testing the validity of the questionnaire data can be seen in Table 3.

Table 3. Satisfaction and Importance Validity Test

No	Pearson Correlation (r_{count}) Satisfaction	Pearson Correlation (r_{count}) Importance	r_{table} 10% (N=100)	Description
1	0,792	0,788	0,256	Valid
2	0,723	0,853	0,256	Valid
3	0,755	0,792	0,256	Valid
4	0,672	0,839	0,256	Valid
5	0,796	0,828	0,256	Valid
6	0,704	0,750	0,256	Valid
7	0,689	0,780	0,256	Valid
8	0,772	0,817	0,256	Valid
9	0,653	0,893	0,256	Valid
10	0,586	0,875	0,256	Valid
11	0,687	0,831	0,256	Valid
12	0,624	0,763	0,256	Valid
13	0,705	0,850	0,256	Valid
14	0,747	0,876	0,256	Valid
15	0,759	0,885	0,256	Valid
16	0,774	0,873	0,256	Valid
17	0,787	0,846	0,256	Valid
18	0,799	0,884	0,256	Valid
19	0,727	0,823	0,256	Valid
20	0,843	0,868	0,256	Valid
21	0,822	0,874	0,256	Valid
22	0,730	0,849	0,256	Valid
23	0,814	0,823	0,256	Valid
24	0,805	0,830	0,256	Valid
25	0,769	0,727	0,256	Valid
26	0,792	0,884	0,256	Valid
27	0,792	0,857	0,256	Valid
28	0,726	0,891	0,256	Valid

3.1.5 Reliability Test

After the questionnaire data is declared valid, then proceed with reliability testing. From the reliability testing results, 25 service attributes were obtained at the performance level and importance level with a Cronbach's Alpha value > 0.7 [12]. The results of the reliability testing of the questionnaire data can be seen in Table 4.

Table 4. Reliability Test of Satisfaction and Importance

Reliability Statistics		
Cronbach's Alpha of Satisfaction	Cronbach's Alpha of Importance	N of Items
0,970	0,984	28

3.1.6 Service Quality

The following calculations are used to find the average score of the satisfaction level ($\overline{X}$) and the average score of the importance level ($\overline{Y}$) using the equation [13]:

$$\overline{X} = \frac{\sum_{i=1}^{n} Xi}{n} \quad (2)$$

$$\overline{Y} = \frac{\sum_{i=1}^{n} Yi}{n} \quad (3)$$

The service quality value is the difference between satisfaction and importance, called the service quality gap. One option for applying gap theory in measuring service quality is to use service performance measures [14]**.** The service quality gap value plays a role in identifying possible causes of gaps between expected quality and perceived quality
[15], which is formulated as follows:

$$Servqual\ Gap\ Value = Satisfaction\ Value – Importance\ Value \quad (4)$$

3.1.7 Importance Performance Analysis (IPA)

After obtaining data through the Servqual method, the data is then analyzed using Importance Performance Analysis. The goal is to determine the service attributes prioritized for improvement [16]. In this method, it is necessary to measure the level of conformity to determine how much the customer is satisfied with the company's performance [17]. The formula used is as follows:

$$Tki = \frac{Xi}{Yi} \times 100\% \quad (5)$$

Table 5. Calculation of Service Quality Gap and Conformity Level (Tki)

No.	Questions	Gap $\overline{X}$-$\overline{Y}$	Tki (%)
Assurance (X1)			
1	Information and safety equipment, such as light fire extinguishers, are easily accessible	-0,39	90,89
2	Lighting in the station area is functioning properly	-0,50	88,24
3	Officers can provide a sense of security while at the train station	-0,50	88,32
4	The platform floor is not slippery and not waterlogged	-0,39	90,87
5	There is CCTV (Closed Circuit Television) and security officers while at the train station	-0,50	88,34
6	Officers who take body temperature measurements wear personal protective equipment in the form of masks and face shields	-0,33	91,97
7	The station provides health services in the form of health posts or coordinates with the local Health Office	-0,69	82,84
8	There are physical distancing markings at each queue counter	-0,26	93,72
	Average	-0,45	89,42
Reliability (X2)			
9	Accurate ticket booking service (train, train schedule, and seat)	-0,46	89,33
10	Timeliness of train arrival and departure with the predetermined schedule	-0,45	89,68
11	There is a train operating schedule map that is easy to read	-0,40	90,72
12	The station provides online ticket purchase services through the KAI Access application to minimize physical contact	-0,17	95,99
13	Train stations have adequate announcement loudspeakers	-0,20	95,36
	Average	-0,34	92,20
Tangible (X3)			

No.	Questions	Gap $\overline{X}$-$\overline{Y}$	Tki (%)
14	Seating is available in the departure lounge and in the ticket purchase lounge	-0,37	91,33
15	The condition of the station area is always clean and tidy	-0,49	88,50
16	Public toilet facilities at the station are in good condition and clean	-0,73	83,18
17	Availability of supporting facilities at the station, such as minimarkets, ATMs, charger points, and cafeterias in the station area	-0,46	89,20
18	The state of the public musholla in the train station area is in good condition and maintained	-0,70	83,64
19	The station sterilizes the work area before and after use, provides a hand sanitizer, and arranges seating at the stations 1 meter apart	-0,49	88,33
20	Availability of adequate car and motorcycle parking lots	-0,43	89,88
21	Availability of hand washing stations with soap at the station	-0,40	90,45
	Average	-0,51	88,05
Responsiveness (X4)			
22	Informative and communicative advanced public transport signs are available	-0,62	85,17
23	There is 1 (one) officer who can communicate when receiving complaints from customers	-0,54	87,14
24	Officers are swift in taking action against passengers who violate health protocols	-0,39	90,71
25	The process of checking goods and passengers is carried out quickly by officers	-0,48	88,26
	Average	-0,51	87,82
Emphaty (X5)			
26	Facilities for passengers with special needs are in good condition, such as counters for people with disabilities and toilets for passengers	-0,57	86,71
27	Officers actively participate in preventing transmission of COVID-19 by complying with health protocols such as maintaining distance, using masks and hand glove	-0,36	91,51
28	Officers are willing to help customers when experiencing difficulties	-0,34	92,20
	Average	-0,42	90,15
	Overall Average	-0,45	89,37

Based on the calculation results in Table 5, it can be seen that the attribute with the largest gap value is the public toilet facilities at the station with a gap of -0.73. Meanwhile, in the service quality dimension, it can be seen that the tangible and the responsiveness dimensions have the largest gap, namely -0.51. Subsequently, the degree of customer satisfaction with the quality of service of Serang Train Station during the COVID-19 pandemic assessed from the suitability between satisfaction and importance shows that the attribute is the top priority in improving service quality is the availability of health services at the station with a suitability level value of 82.84%. As for the suitability in each dimension of service quality, namely in the responsiveness dimension with a suitability level of 87.82%, the tangible dimension of 88.05%, the assurance dimension of 89.42%, the empathy dimension of 90.15%, and the reliability dimension of 92.20%. Overall the level of conformity is 89.97%, meaning that the comparison of conformity between the level of importance and the level of performance is quite good and appropriate, this is supported by Sudaryanto's opinion in [18] if the percentage of the level of conformity is 80-100%, it shows that the performance of each attribute has fulfilled the wishes of consumers, but there is still a need to improve and improve service quality. After finding the X and Y values, the coordinate points of each questionnaire instrument are found which will then be mapped onto a Cartesian diagram [19].

In the Importance Performance Analysis analysis, a four-quadrant cartesian diagram mapping is carried out for all variables that affect service quality. The quadrant line on the cartesian diagram is a line that divides the plane into four parts, with a vertical line representing the x-axis (abscissa) and a horizontal line representing the y-axis (ordinate) [20] obtained from the average result of the average score of the satisfaction level for X and the importance level for Y divided by 28 attributes, namely $\overline{\overline{X}} = 3{,}79$ and $\overline{\overline{Y}} = 4{,}24$.

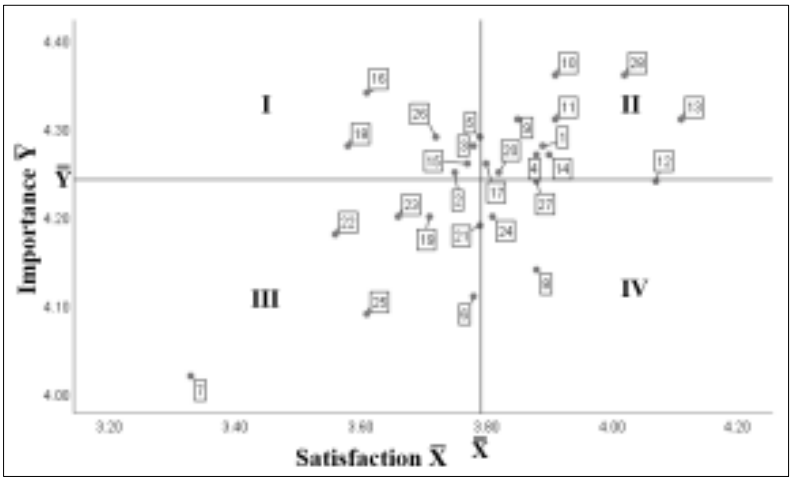

Figure 3. Cartesian Diagram of Satisfaction and Importance of Serang Train Station Services

Quadrant I has high importance and low satisfaction. Attributes included in this quadrant are:
1. The lighting in the station area is functioning properly;
2. Officers can provide a sense of security while at the station
3. There is CCTV (Closed Circuit Television) and security officers while at the station;
4. Conditions in the station area are always clean and tidy;
5. Public toilet facilities at the station are in good condition and clean;
6. The condition of the public musholla in the station area is in good condition and well maintained;
7. There are facilities for passengers with special needs in good condition, such as counters for people with disabilities, toilets for disabled passengers, and pedestrian paths with guiding blocks.

Quadrant II has high importance and high satisfaction. Attributes included in this quadrant are:
1. Information and safety equipment such as fire extinguishers (APAR) are easily accessible;
2. The platform floor is not slippery and not waterlogged;
3. Accurate ticket booking service (train, train schedule, and seat);
4. Timeliness of train arrival and departure with the predetermined schedule
5. There is an easily readable train operation schedule map;
6. The train station has an adequate announcement loudspeaker;
7. Seating is available in the departure waiting room and the ticket purchase waiting room;
8. Availability of supporting facilities at the station, such as minimarkets, ATMs, charger points, and cafeterias in the station area;
9. Availability of adequate car and motorcycle parking lots;
10. Officers are willing to help customers when experiencing difficulties.

In quadrant III, customers consider low importance and low satisfaction less important, and implementation is still not good. Attributes included in this quadrant are:
1. Officers who take body temperature measurements wear personal protective equipment such as masks and face shields;

2. Stations provide health services in the form of health posts or coordinate with the local Health Office;
3. The station sterilizes the work area before and after use, provides a hand sanitizer, and arranges seating at the stations 1 meter apart;
4. Availability of hand washing stations with soap at the station;
5. Informative and communicative signs related to continued public transportation are available;
6. Availability of 1 (one) officer who is capable of communicating when receiving complaints from customers;
7. Officers carry out the process of checking goods and passengers quickly.

Quadrant IV has low importance and high satisfaction, meaning that customers do not consider it important, but service providers carry it out well. Attributes included in this quadrant are:
1. There are physical distancing markings at each queue counter;
2. The station provides online ticket purchase services through the KAI Access application to minimize physical contact;
3. Officers are swift in taking action against passengers who violate health protocols;
4. Officers actively participate in preventing COVID-19 transmission by complying with health protocols such as maintaining distance, using masks, and hand glove.

4. CONCLUSION

Based on the calculation, the average customer satisfaction level is 3.79. Meanwhile, the average value of the level of service interest is 4.24. So, it can be concluded that the level of satisfaction felt by users of Serang Train Station services is still lower than the level of service interest. Then for the gap value between the level of satisfaction and interest in services at Serang Train Station as a whole, it is -0.45. While in the service quality dimension, the largest average gap value is in the tangible dimension and the responsiveness dimension, which is -0.51. The value of all attributes is negative (-) or (<0), this indicates that there is still a difference or gap between satisfaction and interest in services, meaning that service users are still not satisfied with the services provided by Serang Train Station. The results of the Cartesian diagram analysis show that the attributes of the statement included in quadrant I so that it becomes a priority for improvement by the Serang Train Station include attributes, lighting, security officers, CCTV (Closed Circuit Television), station area conditions, public toilet facilities, public prayer rooms, availability of passenger facilities with special needs.

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