Analysis of Community Trust Levels Using Commuter Line Public Transportation During the COVID-19 Pandemic

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Abstract. As a provider of transportation services, the Commuter Line has experienced a fairly heavy impact due to the COVID-19 pandemic. Various policies were implemented to suppress the transmission of the virus on public transportation, especially on the KRL Commuter Line train. Currently, people feel that the policy rules for using the commuter line are felt to be loose by some parties, but KCI still has to implement physical distancing to break the chain of the spread of the virus such as limiting the number of passengers and the prohibition of receiving cellular phones or chatting while on the Commuter Line train. However, this has not significantly increased the number of people who reused the commuter line KRL compared to the number of users before the pandemic. The purpose of this research is to identify the level of satisfaction of KRL-Commuter Line transportation service users regarding the services provided during the pandemic and to identify the level of public trust in the public transportation services during the pandemic. The method used is a descriptive qualitative research method with technical analysis of IPA (Importance Performance Analysis). After analyzing, the results of this study indicate that most of the KRL-Commuter Line users are still not satisfied. It can be proven that in the analysis using IPA all the gaps between performance and expectations are negative, which means that the performance of KRL-Commuter Line transportation has not been in accordance with the

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wishes of consumers' expectations of KRL-Commuter Line service users during the pandemic.

Keywords: Transportation · Commuter Line · Satisfaction

1 Introduction

The development of COVID-19 transmission in 2020 is quite large, because it has spread throughout the world, affecting all countries, including Indonesia (Hidayat, 2022). The pandemic has an impact on all aspects of life throughout the world including the transportation sector (Alkharabsheh and Duleba, 2021). As a transportation service provider, commuter lines experienced a quite heavy impact due to the pandemic (Sogbe, 2021) both from the user and service provider aspects (Gkiotsalitis and Cats, 2021) in a way that one of the public transportation service providers, PT. KCI continues to improve service improvement and improvement to reduce the increased risk of the spread of the virus. Unfortunately, not all government policies have a positive impact on a company. Mobility restriction policies established by the government as an effort to prevent the widespread transmission of the pandemic negatively impact public interest in using public transportation (Rosa, Nazaruddin, and Karim, 2022) and passenger travel patterns especially in the Jabodetabek Region (Trihatmojo, 2021).

By having the number of daily passengers' range from the biggest compared to other public transportation services, Commuter Line transports passengers as many as 1 s/d 1.1 million people per day. Unfortunately, the pandemic caused a decrease in the number of passengers by over 50%. Almost the same conditions occur also in Wuhan (Liu et al., 2020). The restoration of the public transportation system after the pandemic is very important to support economic and social recovery (Shen et al., 2020). Therefore, according to (Zhou et al., 2021) analysis and evaluation needs to be done on urban transportation planning, policy governance and public transportation operational services. Transportation safety and convenience is needed to minimize waste road use due to the increasing volume of vehicles and is the success of the government in public services (Hidayat, 2022).

Many studies have carried out the impact of the pandemic on the transportation sector, including the studies which were cited from (Mack, Agrawal, and Wang, 2021). In addition, several studies that have conducted research related to the impact of COVID-19 mainly focused on three areas which are trends in mobility, use of modes of transportation, and equalization of the impact of changes in transportation. Several studies have analyzed mobility patterns during a pandemic. In a study in Colombia, Arellana, Márquez, and Cantillo, (2020) it analyzes the short term impact of the pandemic on air, goods and urban transportation. They found that government policies, including a ban on air passengers travel, reduced mobility, transit passengers and congestion. A study by Riggs and Appleyard (2020) analyzes shifts in travel behavior due the pandemic in March and April 2020. As summarized from previous research, it was found that there was an increased number of people who walked and used bicycle trips for recreational purposes caused by remote work (that is, additional travel generated while working from home). A study Abouk and Heydari, (2021) also conducted data analysis from

Google and found trends at the daily location mobility in the following locations which has decreased during a pandemic among transit stations, pharmacies, retail, grocery stores, and recreation. And lastly. Research conducted by Mulyono, Agus Taufik; Wismadi, Arif; Ikaputra; Kurniawan, Dwi Ardianta; Harmanto, Jan Prabowo; Puspitasari, (2020) regarding the analysis of the willingness of railroad users to the application of the COVID-19 protocol show the results of research that train passengers are more in high compliance with the application of Health procedures both on their facilities, infrastructure and personal devices.

Research was made to know behavior change and the level of public satisfaction with public transportation especially the KRL commuter line and as PT.KCI input material for designing a post-pandemic transportation policy. The purpose of this research is to find out the level of satisfaction of users of KRL-commuter public transport services for services provided during the pandemic and to know the level of public trust in KRL-commuter public transport services during the pandemic.

This research is different from research previously done and also different from research analysis of the willingness of railroad users to the application of the COVID-19 protocol (Mulyono, Agus Taufik; Wismadi, Arif; Ikaputra; Kurniawan, Dwi Ardianta; Harmanto, Jan Prabowo; Puspitasari, 2020) because it uses IPA and SERVQUAL analysis to determine the level of user satisfaction and priority improvement of service attributes to meet community expectations and increase public interest in using public transportation through the sole Commuter Line of the period and post pandemic.

2 Method

2.1 Data Collection Method

IPA Method in general and used in various fields of study because of the ease of application and display of analysis results which makes it easier to propose performance improvements (Ariyoso, 2009). Simulation of conditions identification used the method SERVQUAL to measure the quality of service felt by respondents. In this study, the SERVQUAL method has five dimensions namely reliability, guarantee, physical form (tangible), empathy and responsiveness (Kumar and Hundal, 2019).

Passenger responses are obtained through primary surveys conducted through the dissemination of questionnaires online. Determination of the number of respondents needed using the slovin method so that 389 samples are needed. The selection of respondents is done by the random sampling method, so that the respondents obtained are expected to match the passenger profile, where the number of KRL Commuter Line passengers is 8,693,290 passengers or Rerata 14,488.82 people per day (KRL–Commuter Line Indonesia n.d.). Dissemination is carried out to Commuter Line train user communities in order to get a broad response to the communities that are being sorted by the Commuter Line Community on social media. The research was conducted around the September 2021 period.

2.2 Data Processing

Data processing is done using dimension parameters on the method SERVQUAL. This SERVQUAL Method is designed to measure the quality of service felt by respondents

(Zeithaml, Parasuraman, and Malhotra 2000). Then, the cartesian diagram is used to map each quality attribute over service (Supranto, 2006) (Table 1).

Table 1. Satisfaction Dimension in KRL-Commuter Line Jabodetabek

Variable	Service Attributes		Coding
Tangible	1	The passenger waiting room at the station is clean and comfortable	T1
	2	There are complete facilities at the station during the Covid-19 pandemic (hand washing facilities, hand sanitizer, etc.)	T2
	3	There is a clear hint of information at the station (route map, arrival hours/departure KRL)	T3
	4	There is a distance guard when lining up at the station	T4
	5	There is easy access to and from the KRL platform or arrival/departure line	T5
	6	Conditions inside KRL are clean and comfortable	T6
	7	There are complete facilities inside the KRL (distance guard sign, air conditioning, travel route instructions, loudspeakers, etc.)	T7
Reliability	8	Examination of travel requirements and application of KRL passenger health protocols	RB1
	9	Seating and passenger restrictions that stand according to Government-regulated quotas	RB2
	10	KRL travel on schedule and on time	RB3
	11	Integrated security and surveillance system	RB4
Responsiveness	12	Speed and skill of officers in serving prospective passengers (ticket purchase, gate tap in - out, etc.)	RS1
	13	There are facilities for conveying suggestions	RS2
	14	Ease in obtaining information about the KRL Commuter Line	RS3
	15	There is a CCTV camera inside KRL	RS4

(*continued*)

Table 1. (*continued*)

Variable	Service Attributes		Coding
	16	There are officers inside the KRL who are on guard or even the patrol monitor the condition of passengers to continue implementing health protocols in the KRL	RS5
Assurance	17	Guaranteed to get a sense of security, comfort and calm while at the station (strictly applying health protocols)	A1
	18	Guaranteed to get a sense of security, comfort and calm when in KRL (done to be disinfected routinely in KRL)	A2
	19	Safety and safety guarantees when passengers must move trains at the transit station	A3
	20	Service information is easy to obtain, clear and easy to understand	A4
Empathy	21	Concern officers receive complaints, criticisms, and advice as well as complaints about information needs regarding KRL Commuter Line service services	E1
	22	The friendliness and courtesy of officers towards passengers	E2
	23	Officers serve passengers fairly (without being picky), and prioritize passengers with special needs, children, pregnant women, and the elderly.	E3
	24	Officers always look neat	E4
	25	Queue system based on first come first service (the first one comes the first is served)	E5

Quadrant A:

Quadrant A demonstrates factors or attributes that are considered to affect customer satisfaction, including service elements that are considered very important, including service elements that are considered very important, but management has not implemented it according to the wishes of the customer, so it is disappointing or dissatisfied.

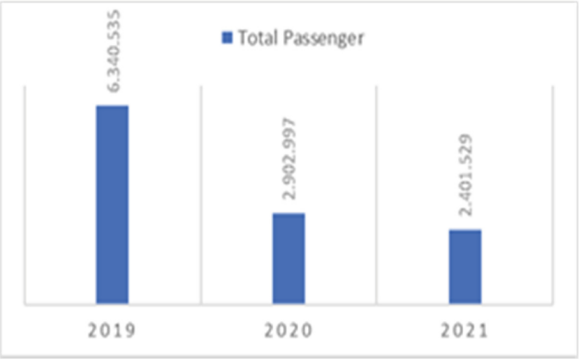

Fig. 1. Decreased Number of Commuter Passengers

Quadrant B:

This quadrant shows the main service elements that have been successfully implemented. These elements must be maintained as they are considered to be very important and very satisfying.

Quadrant C:

This quadrant shows several factors that are less important for customers. Implementation by the company is mediocre. Considered less important and unsatisfactory.

Quadrant D:

This quadrant shows factors that affect customers which are less important, but the implementation is excessive. Assuming less important but very satisfying.

3 Result and Discussion

3.1 Impact of the COVID-19 Pandemic on the Use of Commuter Line Transportation Facilities

Most Commuter Line service users have travel characteristics with the aim of working or even schools originating from areas around DKI Jakarta such as Jakarta, Bogor, Depok, Tangerang, and Bekasi. The number of users increases every year but during the occurrence of the pandemic, there was a decrease in the number of passengers (occupancy) of the Jabodetabek KRL. Significant decreases occurred in 2020 with a decrease rate of more than 50% (Fig. 1).

Distancing and lockdown social policies encouraged citizens to reduce movement and avoid crowded public transportation (Pase et al., 2020). The results found that respondents' preferences for the use of public transportation facilities, especially the Commuter line which experienced a fairly high decline. The public prefers private vehicles or public transportation with few passengers choosing as a mode of (Ariyani et al., 2020) biking or walking (Lee, Baig, and Pervez, 2021). This finding is in line with the results of other

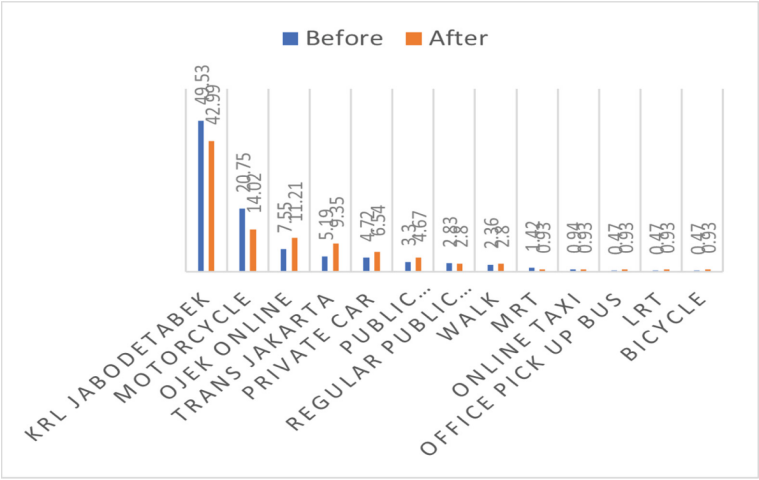

Fig. 2. Changes in the use of modes of transportation due to the pandemic

studies (Azwar and Abdurrohman, 2021). Other studies have found changes in community behavior in the selection of modes of transportation caused for security reasons (Lois et al., 2021) (Kopsidas et al., 2021) and there is a policy of limiting mobility (Widyarini, Pamungkas, and Pratiwi, 2022), as well as negative views on public transportation (Tirachini and Cats, 2020) (Fig. 2).

3.2 Respondents Satisfaction with the Quality of KRL Commuter Services During a Pandemic

To analyze the level of satisfaction of respondents with the quality of KRL-commuter services during a pandemic, this research uses IPA and SERVQUAL analysis. Both methods of analysis produce the most dominant attributes to achieving satisfaction of users of commuter line services. Servqual Gap is used to find out the gap between service quality levels (performance) with customer expectations (importance) while IPA analysis with cartesian diagrams to identify service attributes that are priority in efforts to improve service quality. The horizontal axis (X) shows the value of service quality level, and the upright axis (Y) shows the score of the expectation level. To measure the basis for service quality measurement, the gap between company performance and customer expectations is use SERVQUAL as seen on Table 2.

The overall SERVQUAL analysis results show there is a gap of −0.27 between service performance/quality scores (3.34) with score of importance/hope (3.61). Negative value indicates that the services provided by commuter KRL during the COVID-19 pandemic still did not match the expectations of respondents as service users. Furthermore, the highest gap is in the responsiveness, so it needs to be addressed while the smallest gap is in the tangible dimension.

Figure 3 shows the results of attribute mapping on the Cartesian Diagram. Quadrant II has the most number of attributes. The attributes that are in this quadrant have high satisfaction values and importance for service users so it must be maintained to ensure

Table 2. SERVQUAL GAP Calculation

Dimension	Performance	Importance	GAP
Tangible (×1)	3.42	3.62	−0.20
Reliability (×2)	3.26	3.48	−0.22
Responsiveness (×3)	3.24	3.63	−0.40
Assurance (×4)	3.36	3.64	−0.28
Empathy (×5)	3.42	3.65	−0.23
Total	**3.34**	**3.61**	**−0.27**

Source Research results, 2021, data processed

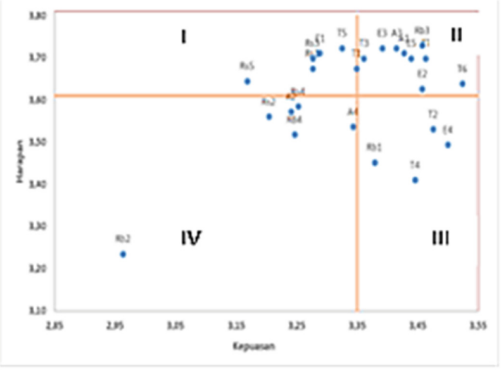

Fig. 3. Diagram Kartesius

performance. The service attribute that is in this quadrant, i.e. Rs 5, Rs 1, Rs 3, E1, T1 and T5.

Quadrant I is a quadrant with attributes that are considered very important for service users but their performance is still unsatisfactory, so it needs to be prioritized to improve the performance of their services to provide satisfaction and comfort for commuter KA service users. The service attribute that is in this quadrant, i.e. Rs 5, Rs 1, Rs 3, E1, T1 and T5 based on the results of the interview with the head of the PT KCI Operational Section, it is known that to improve service in serving commuter KA passengers, PT KCI has an SOP that service officers must comply with.

Quadrant III has attributes that have a low or mediocre level of importance and a low level of satisfaction too which does not require improvement or improvement. Service attributes that are in this quadrant are the attributes of RS 4, RS 2, A2, A4 and RB 2. Meanwhile, Quadrant IV has attributes considered by users of less important services, however, it just is excessive in implementation. The service attributes that are in this quadrant are those that are attributes T2, E4, RB 1 and T4.

Based on the results of the description and analysis of data processing using the Importance Performance Analysis (IPA) method, elements of service performance still

Fig. 4. GAP Analysis

need to be considered by making service improvements to provide satisfaction and comfort for users of Commuter Line train services by commenting on the Operational Procedure Service (SOP) standard set by the company.

After analysis on the Cartesian diagram, then the analysis gap is determined to know the gap between the performance of a variable and the consumer's expectations of the variable. Figure 4 indicates the highest gap value which is in the Rs5 attribute with a value of −0.48 i.e. officers in the KRL who stand guard on the spot or even the patrol monitors the condition of passengers to continue implementing health protocols in the KRL while attribute (T4) has the smallest gap value where there is a distance guard at the tap in/out queue at the station.

4 Conclusion

After research and analysis, the mobility restriction policy established by the government as a mitigation effort to spread the COVID-19 pandemic has an impact on transportation service provider, commuter lines. For three years, there was a decrease in the number of passengers using Commuter Line services. This condition is supported by changes in the preferences of users of public transportation services who tend to use public transportation with few passengers.

The results of the servqual analysis conclude that overall, the five service dimensions still do not meet user expectations. Overall, there is still a gap between service performance (performance) (score 3.34) and service user expectations (importance) (score 3.61) with a value of -0.27. The service dimension that still needs to be improved is the response dimension.

In the analysis of the Cartesian diagram, it is known that most service attributes in quadrant II have a high level of performance and importance for service service users so they must be maintained but there are attributes that need to be prioritized for improvement service performance because it has not met the expectations of service service users. The attribute is in quadrant I, as patrol officers monitor the condition of passengers in order to continue implementing health protocols in KRL (Rs5), officers are faster and more skilled at serving passengers when purchasing tickets, at gate tap in - out, etc., (Rs1), the ease with which users are informed about KRL-commuter (Rs3), the

critic buoys and suggests for more information about service services (E1), passenger waiting rooms at clean and convenient stations (T1), and easy access to and from the KRL (T5) arrival or departure line.

As Rs5 shows the highest value on the Gap Analysis, which is −0.48, the officers who are in charge in the KRL must do more intensive monitoring of the condition of passengers to continue implementing health protocols inside the Commuter Line Train. However, based on the results of the findings of this study, PT. Commuter Indonesia Train (PT. KCI) can prioritize attributes that have a high importance in order to improve service quality in the service quality dimension especially in officers patrolling the train to monitor users to continue to apply health protocols to minimize risk to the COVID-19 virus which still exists in Indonesia, and re-evaluate the door of tap-in and tap-out to avoid crowd buildup.

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