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The effectiveness of special carriages for female in protecting female train passengers

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Abstract. PT Kereta Commuter Indonesia (KCI) is one of PT Kereta Api (KA) Indonesia managing Greater Jakarta Commuter Trains. PT KCI started to provide special carriages for females during peak hours in 2011. Up to December 2019, PT KCI has 1,100 units of electrical carriages. In 2019, the average daily passengers were 979.853 on weekdays with maximum daily passengers of 1,154,080. PT MRT Jakarta started to provide special carriages for females during peak hours in May 2019, about 2 months after its opening of phase 1a from Lebak Bulus to Bundaran HI. By operating 16 transit units the average daily passengers are 83,000 with maximum daily passengers 93,000. The availability of special carriages for females was intended to protect female passengers from criminal acts and sexual harassment. However according to previous research and media coverage, the special carriages were not consistently provide a positive impact to female passengers. This research is intended to evaluate this issue and provide recommendations regarding this service.

Keywords: Special carriages for female, protecting, female train passengers

1. Introduction

PT Kereta Commuter Indonesia (KCI) is one of PT Kereta Api (KA) Indonesia managing Greater Jakarta Commuter Trains. According to its official website accessed in 2020 [1], PT KCI started to modernize electrical train services, simplified the provided routes into only six main routes, provide special carriages for female during peak hours, and rebranding the airconditioned economy class electrical train services with new name, commuter line in 2011. Up to December 2019, PT KCI has 1,100 units of electrical carriages and will continue to strengthen its fleet. In 2019, the average daily passengers were 979.853 on weekdays with maximum daily passengers of 1,154,080. As the train operator, PT KCI serves 80 stations all over the Greater Jakarta, Banten and Cikarang within 418.5km length of line. The six main routes of the Greater Jakarta electrical train services (further called as KRL) are (1) Bogor/ Depok-Manggarai-Jakarta Kota PP (2) Bogor/ Depok-Tanah Abang-Pasar Senen-Jatinegara PP (3) Bekasi-Jatinegara-Manggarai-Jakarta Kota PP (4) Rangkasbitung-Maja-Parung Panjang-Serpong-Tanah Abang (5) Tanah Abang-Duri PP (6) Tanjung Priok-Jakarta Kota PP. The KRL services were quite demanded by the public live in Greater Jakarta. Even during the 2020 Covid-19 pandemic, the services were still very crowded, especially during peak hours. As the local governments within Greater Jakarta (Jakarta, Bogor, Depok, Tangerang, and Bekasi) concerned about the possible spread of the virus if physical distancing and the use of face mask were not able to be practiced, they proposed large scale social restrictions (PSBB). Within these restrictions there were only certain vital services and businesses such as food, health, electricity, internet, fuel, etc allowed to operate. This illustration is provided to bring the real description of the importance of KRL services for commuter

transports within the Greater Jakarta. According to national census conducted in 2010 as cited in <https://worldpopulationreview.com/world-cities/jakarta-population/> [2] this large agglomeration was consisted about 28 million population (Jakarta Province 9.6 million, Bogor Regency 4.8 million, Tangerang Regency 2.8 million, Bekasi Regency 2.6 million, Bekasi Municipality 2.4 million, Tangerang Municipality 1.8 million, Depok Municipality 1.8 million, South Tangerang Municipality 1.3 million and Bogor Municipality 1 million). It was forecasted that the Greater Jakarta population was over 30 million.

Meanwhile, according to its official website accessed in 2020 [3], PT MRT Jakarta, which was started its operation of phase 1a from Lebak Bulus to Bundaran Hotel Indonesia since 24 March 2019 consisted of 13 stations. There were seven elevated stations (Lebak Bulus, Fatmawati, Cipete Raya, Haji Nawi, Blok A, Blok M, and ASEAN) and there were six underground stations (Senayan, Istora, Bendungan Hilir, Setia Budi, Dukuh Atas, and Bundaran Hotel Indonesia). PT MRT Jakarta started to provide special carriages for females during peak hours in May 2019, about 2 months after its opening of phase 1a from Lebak Bulus to Bundaran HI. By operating 16 transit units the average daily passengers are 83,000 with maximum daily passengers 93,000. Since the opening on 24 March 2019 up to 26 November 2019, the total number of passengers was 19,990,950.

The availability of special carriages for females was intended to protect female passengers from criminal acts and sexual harassment. However according to previous research and media coverage, the special carriages were not consistently provide a positive impact to female passengers. For example, according to Kirmandita [4] in 2017, based on the observation on the Greater Jakarta KRL services and interview to several female passengers of the Greater Jakarta KRL, there were several interesting findings as follows:

1. Instead of feeling comfortable in the special carriages for females, they have suffered unpleasant experiences such as fighting over/ quarrel over a seat and insulting each-other between other female passengers resulting in great anger and exhaustion. Many passengers considered the special carriages for female as the battle zones where the one who deftly seek for opportunities will get the advantage.
2. If a male is considered as a threat for a female, it will be better to launch a special carriage for male instead.
3. The provision of a safe and comfortable transport mode for females has not been chased an increasing number of working females. The provisions of only two special carriages for females were from enough. They should be prepared to be crammed within the special carriages.
4. Instead of only avoiding sexual harassment, females need to avoid unpleasant body smell of males especially during the afternoon trips in which in general after a day of hard work. Therefore, the need for special carriages for females was greater in the afternoon trips.
5. Several pregnant females (especially with a slim look and considered not pregnant by others) were forced to execute special strategies to guarantee a seat. For example, a residence of Depok who works at Cikini chose to take an opposite trip first to Kota Station during the afternoon trip to guarantee a seat from Kota to Depok.
6. A pregnant female who travel in in the special carriage for female often fail to ask other female to give her seat and ask back the pregnant female to ask such priority seat in the regular carriage.

This research is intended to evaluate the effectiveness of special carriage for females and provide a recommendation regarding this service. The observation was made for both the Greater Jakarta KRL services and the MRT Jakarta services.

2. Previous Studies

According to Ispurwanto & Pricillia [5] in 2011, Bogor-Jakarta KRL passenger regretted the frequent late arrival/ departure of the train, the poor physical condition of the train, unclear travel information for passengers and the existence of sexual harassment. The main idea of proxemics theory was that social relations between individuals affect the way they maintain physical distances between passengers. In

general, the respondents were disturbed by nearby strangers or involved in physical or eye contact with them. Female respondents were more likely to feel disturbed by strangers compared to male respondents. Female respondents were more likely to be disturbed by the existence of nearby male passengers. On the contrary male respondents were more likely to be comfortable with surrounding female passengers [6] (Ilyas, 2017). Therefore, based on this finding, the provision of special carriages for females should be beneficial. According to Anugerahani [7] in 2012, the provision of special carriages for females was appreciated by the passengers of Prameks (Prambanan Ekspres serving Yogyakarta-Surakarta vv). They did not mind if the officers who supervised the special carriages for females were males. The officers were required to ask the males passengers who occupied the special carriage for females to move to the general carriages.

According to Verma et al [8] in 2016, there were several factors that can encourage females' ridership on public buses, i.e.:

1. All ages females' safety on bus stops
2. Safety during boarding and alighting
3. Safety between fellow passengers and between passengers and bus crews
4. Comfortability of the transport infrastructure
5. Attitude of bus crews toward female passengers
6. Reduction of illegal stops
7. Provision of special buses for females
8. Provision of special seats for females
9. Bus schedule information system

Although this reference was regarding public bus travel, but the content was in general relevant to be discuss in this paper as a comparison. For example, although it's the fact that 61% of female respondents were dissatisfied with the bus services, they kept using the services because they were captive users.

3. Method

Data were collected from a direct interview from respondents of Greater Jakarta KRL and Jakarta MRT passengers with the distribution of data collection location of about 200 respondents were as follows:

- Each 25 respondents at certain Greater Jakarta KRL stations (Jakarta Kota, Manggarai, Jatinegara, Tanah Abang and Duri)
- Each 25 respondents at certain Jakarta MRT stations (Lebak Bulus, Blok M, Bundaran HI)

The questionnaire was intended to identify:

- (1) level of satisfaction of the respondents on existing conditions of the use of special carriages for females and other related matters.
- (2) priority of improvement required for special services for females.

Level of satisfaction was measured using a Likert scale from 1 (very dissatisfied) to 4 (very satisfied) in terms of:

1. Officers services both in the special carriages for females and the general carriages.
2. Information systems in both the special carriages for females and the general carriages.
3. The capacity of each transit unit in the peak hour.
4. The capacity of each carriage in peak hour in both the special carriages for females and the general carriages
5. The behaviour of the passengers in the special carriages for females.

The priority of improvement required for special service for females was measured using a Likert scale from 1 (very low priority) to 4 (very high priority):

1. Additional frequency of the train arrival in peak hours.
2. Additional length of the transit unit in the peak hours.
3. Additional number of special carriages for females in the peak hours
4. Additional provision of the priority seats
5. Additional availability of the supervision officers in the carriages.

The data were collected at each determined station in the morning and afternoon peak hours. The gender proportion was deliberately set to 5:8 (male : female) as we want to capture more responses from females regarding their experience using special carriages for females. The collected data were then analyzed using men difference t-test with 2.5 (the departure from dissatisfied to satisfied and the departure from low priority to high priority). Statistical significances were evaluated using 0.05 as a threshold.

4. The Data

There were 195 responses collected consist of 75 males and 120 females to satisfy our target of gender proportion of 5:8. About 70% of responses were collected in the evening peak hour (137 respondents) and the rest 58 respondents were approached at the morning peak hour. Somehow our male respondents (29.53 years old) were on average significantly 3.22 years older ($\alpha=0.010$) than female respondents (26.31 years old). Our MRT respondents (30.15 years old) were on average 3.90 years older ($\alpha=0.002$) than our KRL respondents (26.25 years old). This might reflect the relatively higher position in the job of MRT users (MRT line was stretched along an elite office building corridor). The car ownership of KRL passengers (0.51 car per passenger) were only marginally higher than the MRT passengers (0.46 car per passenger). Interestingly motorcycle ownership of KRL passengers (1.00 motorcycles per passenger) was significantly higher 0.24 motorcycle per passenger than MRT passengers (0.71 motorcycles per passenger). Again, this might reflect the lower socio-economic status of KRL passengers compared to MRT passengers, although this was not true if we look at similar monthly expenses and educational attainment of KRL and MRT passengers. The percentage of KRL passengers (30.8%) who were university students was more than the percentage of MRT passengers (15.4%) who were university students.

5. Results

Tables 1 and 2 show the results of the mean difference between responses and 2.5 both level of satisfaction of the respondents on existing conditions of the use of special carriages for females and other related matters and priority of improvement required for special services for females. Table 1 is for KRL passengers and Table 2 is for MRT passengers.

Table 1. Results of Mean Differences with 2.5 for KRL Passengers (N=130)

Items	Mean	Mean Difference	α	Significant At $\alpha<0.05$ (Yes/No?)
Officer service in regular train	2.80	0.30	<0.001	Yes
Officer service in a special train for female	3.01	0.51	<0.001	Yes
Information system in regular train	2.93	0.43	<0.001	Yes
Information system in a special train for female	3.03	0.53	<0.001	Yes
Capacity of transit unit in peak hours	2.20	-0.30	<0.001	*Yes*
Capacity of special carriage for female in peak hours	2.41	-0.09	0.242	No
Capacity of regular carriage in peak hours	2.30	-0.20	0.003	*Yes*
Behaviour female in special carriage for female	2.49	-0.01	0.925	No
Additional frequency of the train arrival in the peak hours	3.38	0.88	<0.001	Yes
Additional length of the transit unit in the peak hours	3.35	0.88	<0.001	Yes
Additional no. of special carriages for females in peak hours	3.14	0.64	<0.001	Yes
Additional provision of the priority seats	3.18	0.68	<0.001	Yes
Additional supervision officers in the carriages	3.18	0.68	<0.001	Yes

From Table 1, we find that according to the KRL passenger respondents, there were several existing conditions considered as less than satisfactory, i.e.

1. Capacity of transit unit in peak hours
2. Capacity of special carriage for female in peak hours

3. Capacity of regular carriage in peak hours
4. Behaviour female in special carriage for female

All of the five proposed improvements were considered as priority by the KRL passenger respondents to enhance service for female passengers.

From table 2, we find that according to the MRT passenger respondents, all of the existing conditions considered satisfactory. Possibly because MRT services were still new and the passenger demand was still under the provided capacity. However, all of the five proposed improvements were considered as priority by the MRT passenger respondents to enhance service for female passengers.

Table 2. Results of Mean Differences with 2.5 for MRT Passengers (N=65)

Items	Mean	Mean Difference	α	Significant At $\alpha < 0.05$ (Yes/No?)
Officer service in regular train	3.29	0.79	<0.001	Yes
Officer service in a special train for female	3.52	1.02	<0.001	Yes
Information system in regular train	3.45	0.95	<0.001	Yes
Information system in a special train for female	3.43	0.93	<0.001	Yes
Capacity of transit unit in peak hours	3.05	0.55	<0.001	Yes
Capacity of special carriage for female in peak hours	3.02	0.52	<0.001	Yes
Capacity of regular carriage in peak hours	2.95	0.45	<0.001	Yes
Behaviour female in special carriage for female	2.89	0.39	0.002	Yes
Additional frequency of the train arrival in the peak hours	3.32	0.82	<0.001	Yes
Additional length of the transit unit in the peak hours	3.28	0.78	<0.001	Yes
Additional no. of special carriages for females in peak hours	3.06	0.56	<0.001	Yes
Additional provision of the priority seats	3.22	0.72	<0.001	Yes
Additional supervision officers in the carriages	3.14	0.64	<0.001	Yes

6. Concluding Remarks

As females became a significant part of working forces, we should ensure that their daily mobility is safe. Therefore, every effort to enhance the quality of female mobility including in KRL and MRT services should be endorsed.

7. References

- [1] PT Kereta Commuter Indonesia 2019 *Sekilas PT Kereta Commuter Indonesia (Brief Information of Kereta Commuter Indonesia Ltd)* Available online from krl.co.id [Accessed 30-1-2020]
- [2] World Population Prospect-Revision 2019 *Jakarta Population 2020* Available online from <https://worldpopulationreview.com/world-cities/jakarta-population/> [Accessed 2-5-2020].
- [3] PT MRT Jakarta 2019 *Pusat Data (Data Center)* Available online from <https://www.jakartamrt.co.id/ruang-media/pusat-data/> [Accessed 30-1-2020].
- [4] Kirmandita, P. 2017 *Dilema Gerbong Khusus Perempuan (Dilemma of Special Carriage for Female)* Available online from <https://tirto.id/dilema-gerbong-khusus-perempuan-coXw> [Accessed 30-1-2020]
- [5] Ispurwanto, W. and Pricillia, V.W. 2011 Analisis Kepuasan Penumpang Gerbong Kereta Api Khusus Wanita Menggunakan Model Servqual (Satisfaction Analysis of Special Carriage for Female Passenger *Humaniora* Vol 2 No.1. pp 544-557.
- [6] Ilyas, A. 2017 *Proxemics dalam Ruang Publik Perkotaan: Studi Mode Choice Pada Masyarakat Penglaju Jabodetabek (Proxemics in Urban Public Space: Mode Choice Study in Greater Jakarta Commuter Community)* *Indonesian Journal of Sociology and Education Policy* pp 48-69.
- [7] Anugerahani, N. 2012 *Pengaruh Relationship Marketing terhadap Loyalitas Pelanggan yang Dimediasi oleh Kepuasan Pelanggan pada Kereta Api Gerbong Khusus Wanita Prambanan*

Ekpres (Prameks) (The Effect of Relationship Marketing to Customer Loyalty Mediated by Customer Satisfaction on Special Carriage for Female on Prambanan Ekpres Train). Undergraduate Thesis, Department of Management, Faculty of Economy, Universitas Sebelas Maret (Unpublished).

- [8] Verma, M., Manoj, M., Rodeja, N. and Verma, A. 2017 Service Gap Analysis of Public Buses in Bangalore with Respect to Women Safety *Transportation Research Procedia* 25 pp 4322-4329.