



PLANNING MALAYSIA:

Journal of the Malaysian Institute of Planners

VOLUME 21 ISSUE 2 (2023), Page 287 – 305

AN ASSESSMENT OF GENDER DISPARITY THAT EXISTS IN THE TRANSIT SERVICE PROVISION: A CASE STUDY OF MRT FEEDER BUS SERVICE IN KLANG VALLEY, MALAYSIA

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Abstract

People are transported from one location to another in cities of Malaysia using a variety of urban mass transit systems. However, in urban area like Klang Valley, where infrastructure development is accelerating, each gender has distinct difficulties and has a different experience utilising public transportation systems. To ensure gender equality for those using public transportation, particularly bus transit, this study tends to reveal the gender differences in perception of MRT feeder bus service quality along the major routes of Klang Valley of Malaysia. MRT feeder buses are seen to have the promise of reducing the increasing congestion in our cities if they are managed effectively and sustainably. As a result, by examining the gender disparities in perceptions of the quality of the MRT feeder transport services, this research broadens the investigation of the MRT feeder bus services. For this study, a quantitative method was used, and convenience sampling was used. The questionnaire was distributed at the chosen MRT Feeder Bus stations along the main routes in the Klang Valley, Malaysia. Results from the survey supported the effectiveness and efficiency of service delivery, demonstrating that both genders found punctuality, waiting times, journey times, and the frequency of MRT feeder buses to be above 80% satisfactory. However, the study found that, there is gender disparity in the connection between gender and the cleanliness of bus stops, the distance from the starting point to the bus stop, and the fear of criminality at MRT feeder bus stations (all stops assessment). According to the results of the factor analysis, six variables can affect passenger satisfaction, including bus reliability, comfort, condition, driver attitude and appearance, access and egress issues, and bus stop evaluation. As a result, it suggests that a high number of women will experience greater fear while travelling on public transportation if inadequate planning and management of the overall public transportation infrastructure design is not remedied. It recommends a complete improvement of safety measures for women and girls as well as an increase in the service frequency of the MRT feeder buses to keep current customers and draw in more new ones.

Keywords: Gender, MRT feeder bus, women safety, service quality, passenger satisfaction, fairness

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INTRODUCTION

Bus service and quality have an impact on how each person makes decisions and plans a variety of activities, including shopping, employment, education, health, leisure, and social gatherings. According to Thynell (2016), mobility is important for growing cities and improves people's quality of life. As a result, each person's wellbeing is favourably correlated with having access to the right mobility options (Pirra et al., 2021). Additionally, in order to have an inclusive bus system, equal access to opportunities, a focus on marginalised groups, and a reduction in the negative externalities of transportation for everyone are necessary (Boisjoly & Yengoh, 2017). Likewise, inclusive mobility may play a significant role in reducing social segregation (Gauvin et al., 2020). Physical, geographic, economic, facility, and exclusion linked to time and fear are further categories used by Pirra et al. (2021) to categorise mobility restrictions. To ensure that all people, regardless of gender, can use public transportation, such as bus service. In order to prevent the development of barriers and disparities for women, a gender assessment of the mobility analysis has been included (Sanchez & Gonzalez, 2016). In general, women commute more than males, with the exception of trips related to employment, where men commuted the most (Olmo & Maeso, 2013). According to Simievi et al. (2016), gender is one of the demographic characteristics that has a greater impact on travel behaviour. There may be a gender gap in views of service quality, according to extensive studies on gender and travel behaviour (Abenoza et al., 2018; Namgung & Akar, 2014). Because of differences in their unique travel needs, preferences, priorities, and access levels, male and female passengers perceive bus service differently (Fu & Juan, 2017).

Critical factors for the public transit ridership gap include the rise in gender imbalance in transit utilisation (CSE, 2019). The development and promotion of public transit as a sustainable method of transportation has been a focus of planners and policymakers. The investigation of gender and passengers' opinions of the quality of transport services, however, receives little attention from transit authorities (SQ). Studies on SQ evaluation with a differentiation in gender can aid in the formulation of gender-specific policies that will both maintain current users and draw in new ones (Jyoti et al., 2021). For instance, Mandhani et al. (2021) noted that while evaluating service quality elements, females prioritise "waiting conditions" and "punctuality" whereas males choose "service frequency" and "vehicle cleanliness." In a similar vein, Arabikhan et al. (2016) discovered that females have higher expectations and lower perceptions of bus service than males do. Despite strong signs to the contrary, gender imbalance has not been adequately addressed in literature on service quality. Therefore, it is crucial to investigate the relationships between gender difference and service quality. In order to meet necessary demand and boost bus usage,

transportation providers and legislators should effectively strategize gender-specific strategies. Due to the aforementioned gaps in the literature, the current study's goal is to investigate and determine how service quality relates to both male and female passengers along the MRT feeder bus service routes in Malaysia's Klang Valley and at the same time evaluate overall level of satisfaction of the MRT feeder bus by both genders. The implementation of effective and fair transportation standards that will benefit all users, lessen discrimination based on gender, and enhance current transportation options for women. In order to formulate gender-specific policy measures, it was necessary to identify the component that needed to be given priority in the study's determination of the existence of gender discrepancy in the perceptions of service quality.

RESEARCH BACKGROUND

Rider perceptions of bus service have been the subject of several studies, including Arabikhan et al. (2016) and Echaniz et al. (2018). These studies have shown that changing rider perceptions can significantly enhance service quality, increase transit use, and lessen urban problems.

The accessibility of public transportation and how it accommodates different genders' needs for mobility have received relatively little attention. There have been few research that look at the problems women have choosing their modes of transportation and whether there is a big gender gap. The majority of research on urban mobility has been done in developed nations; Malaysia and other emerging nations, particularly, have limited information on this topic. By examining gender differences in the MRT feeder bus use and accessibility in the Klang Valley, Malaysia, this study aims to close this gap.

Gender Differences in Mobility Trip Patterns

Women travel more than men do in metropolitan places around the world (Ng & Acker, 2018). Men, in contrast, make direct and linear travels from work to home. However, to integrate many obligations linked to childcare and household chores, women have been known to "trip-chain" in advanced and emerging market economies. This involves taking multiple multi-purpose excursions in a single trip (Peters, 2013).

Bus transportation is a poor alternative for women who must balance a lot of activities because it is also much more punishing for them to lose time while travelling (Pirra, 2021). Other factors, like family, exacerbate the variations in mobility patterns between the genders that have been identified. Women travel more frequently than males do in cities around the world (Ng & Acker, 2018). Women, on the other hand, use "trip-chaining," as it is known in advanced and emerging market economies, which combines multiple multi-purpose trips into

one trip, to combine different responsibilities related to childcare and household work. Men, on the other hand, do have linear and direct trips between work and home (Peters, 2013). Moreover, women are more likely to travel with children. Their movements are coordinated with their children's mobility patterns and requirements (Peters, 2013; Scheiner & Holz-Rau, 2017). As more women participate in the labour market in both formal and informal sectors, women's travel habits become even more complicated as a result of the need to juggle family and professional obligations. Bus transportation is a poor alternative for women who must balance a lot of activities because it is also much more punishing for them to lose time while travelling (Pirra, 2021). Other factors including family wealth, location, age, and social background exacerbate the variations in movement patterns between the sexual practice that have been identified (Pirra, 2021).

Additionally, according to Berg and Ihstrom (2019), some of the major obstacles to adopting public bus usage are the distance between homes and bus stops, the poor coordination of bus routes, long wait times, a lack of connectivity between services, the lack of schedule adjustments during peak hours, and the safety of the route connecting the home to the nearest bus stop.

Women Safety and Security Concern in Bus Usage

1. The security and safety of public transportation is one of the most important variables influencing women's mobility decisions to use it. Therefore, safety could be described as "the prevention of unintentional tragedies as floods, earthquakes, and accidents at work, whereas security is the prevention of unintentional unpleasant activities by people, such as robbery, mugging, and terrorist operations" (Candia et al., 2019). Women, regardless of age or background, are typically more worried with their safety and personal security since they are more likely to be exposed to high levels of violence, which influences the mode of transportation chosen. In terms of mobility, when there is a perceived threat, women could choose a less effective or more expensive alternative (Singh, 2020).

2. In support of Singh's (2020) discovery, the international transport forum (ITF, 2018) publication "women's safety and security: a public transport priority," published by the oecd publishing, paris, provided some figures. The report claimed that 80% of women and girls have seen harassment in public and that 80% were concerned about being harassed when using public transportation. Even though there is a rising problem with sexual harassment on public transportation, there is a significant underreporting problem because 90% of incidents go unreported (ITF, 2018).
3. Changes in the design of transportation interchanges and waiting places, such as bus stops, may be necessary to address personal security issues where security concerns, such as crime and violence, are perceived as being more dangerous to people's safety, particularly women and girls (Coppola & Silvestri, 2020). Contrastingly, the presence of police or transportation workers for monitoring appears to have a greater influence on reducing women's fear of crimes than interventions like security cameras and lights (Hortelano et al., 2019). Coppola and Silvestri (2020) validated the gender discrepancy between perceived and accurate perception in terms of safety and security in a bus station, finding that women do indeed feel less safe. The study supports previous findings about the placement of security cameras, which only men notice, lessening the likelihood that people will feel less afraid of entering these locations. Typically, women's movement may be constrained by apprehension about sexual harassment on public transit. This issue becomes more urgent since women are more likely than males to rely on public transportation to meet their mobility demands.

METHODOLOGY

A quantitative methodology was used in this study. The method used to collect the data was a self-administered questionnaire, which is the most popular method for assessing passengers' thoughts. At the chosen MRT feeder bus stations in the Klang Valley, survey forms were distributed using convenience sampling. The most congested MRT stations were chosen as the sampling frame for the study (based on observer counts in the pilot survey). A total of 380 passengers were chosen as the sample size, as advised in the research of Kadir et al. (2020) and Olabayonle et al., due to the huge population for the entire MRT feeder bus stops (2021). By using convenience sampling, 380 questionnaires were sent to passengers at the chosen mrt feeder bus stations. The remaining surveys were filled out by people waiting at bus stops who did not ride the MRT feeder bus, making them ineligible to serve as the study population. Only 303 (79.7%) were valid and subjected to additional analysis.

All of the data was collected over a six-month period, from September 2019 to March 2021. Prior to Malaysia's first lockdown due to the Covid-19 pandemic. In this study, the enumerator will ask the questions and the respondents' responses will be recorded, resulting in higher quality data and a greater response rate. Chua (2013) recommends on-field surveys when the desired sample includes respondents from a highly particular target population. This method is deemed appropriate for this study since the respondents are highly knowledgeable persons with the necessary experience to comprehend the MRT feeder bus transit system issue.

There were three sections in the questionnaire. The first part of the questionnaire asked questions on the respondents' sociodemographic profiles. The trips characteristics were explored in the second section. Here, participants were questioned regarding their purpose of their trip, how often they utilised MRT feeder bus and the travel time. The diverse user experiences with using MRT feeder bus service were the emphasis of the third section. It examined the bus service quality in term of their respective level of satisfaction. Participants were asked to express their level of agreement or disagreement with a number of issues, including the bus conveniences, bus reliability, bus condition, driver's attitude and behaviour, degree of difficulties in ingress and egress and lastly the bus station assessment for example the safety, cleanliness among others. Service qualities, served as the dependent variable in this study while the respondents' sociodemographic details, including their gender, income, level of education, and travel habits, are independent factors. For the purpose of presenting the descriptive findings, such as the frequency analysis and the cross-tabulation of variables, the data were analysed using IBM Statistical Package for Social (SPSS) software, version 24.

DISCUSSION OF FINDINGS

Demographic Background of the Passengers

Following is an analysis and presentation of the passenger's demographic background, which covers gender, age group, educational attainment, household income, and employment position. Table 1 reveals that 37.3% of the passengers were men and 62.7% of the passengers were women. Of all respondents, 62.7% are in the 20 to 29 age group, which is the most economically active. The remaining amount was split between those who were 30 to 39 years old (12.5%). 12.5% of respondents were under the age of 20, while 6.0% were over the age of 40. Additionally, a higher percentage of travellers than usual (64.4%) had a bachelor's degree or higher, while 35.6% had high school or college diplomas. The average monthly income of some passengers (45.9%) was over RM6,000, while that of 21.8%, 16.5%, and 15.8% was between RM2,000 and RM3,999. It

is obvious that those with high incomes opted out of using public transportation; this was likely owing to their access to and ownership of private vehicles.

The users who were intercepted also included 48.8% of students, 43.9% of people working in the business sector, 4.6% of people working in the public sector, 1.7% of women who were housewives, and 0.7% of those who were seniors or retirees. According to the research, women between the ages of 20 and 29 make up the majority of daily MRT feeder bus service patrons. Thus, it's important to determine whether there is or is not a gender imbalance in the supply of services. Table 1 showed the gender differences in perception of service level of satisfactory of MRT feeder bus service provision particularly safety, ingress and egress as these two indicators are gender sensitive. In several of the variables assessing the impact on satisfaction levels, both genders were satisfied with the MRT feeder bus services. These include the degree of onboard convenience, the bus' reliability, its physical condition, the driver's attitude, and the ingress and egress challenges. The results may have been caused by respondents' dependence on buses, given that many of them are low-income earners and the MRT feeder bus service is a relatively new piece of infrastructure. As the result is contradict the claim of many other studies such as Rohana et al. (2018), Ahmad and Shefa (2017), Mubarak & Suparman (2019) which proved otherwise. However, compared to other countries in Asia, Malaysia is doing great as per the public bus transport satisfactory with the service provision is concerned. For example, in many of Indonesia's major cities, it is still difficult to locate a convenient, secure public transit option (Mubarak & Suparman, 2019). But as Malaysia working toward achieving United Nation's Sustainable Development Goals (SDG 11) on sustainable cities (access to transport and expanded public transport). Only 20% of people currently use public buses, which is a low percentage compared to Malaysia's National Transport Policy (NTP) 2019–2030's target of 40% by the end of 2030. The low use of public bus transportation is attributed to the benefits of private transportation especially women, including flexibility, comfort, privacy, and safety (Ibrahim et al., 2021). As a benchmark, countries like Singapore and Australia, feeder bus services in Malaysia still require improvement in a number of areas, including frequency of service, cleanliness and comfort while waiting for the bus at the bus station, hours of service, and reliability of service, among others, to keep the current users and attract the interest of high-income earners. Numerous studies undertaken in Malaysia (Shaharrudin et al., 2018; Chuen et al., 2014; Borhan et al., 2019; and Abdul Jalil et al., 2015) have shown a steady rise in the number of people relying on private cars, particularly in the Klang Valley. The study's findings regarding the evaluation of bus stops showed that several of the metrics utilised to measure female satisfaction with bus stops were unsatisfactory. These include the bus

stop's condition, its location in relation to its respective origins, and its safety and security (fear of crime) factors (Table 2).

Table 1: Gender Differences in the Satisfaction of Passengers with the MRT Feeder Bus Service

Element		Measurement Scale			
		Very Dissatisfied %	Dissatisfied %	Satisfied %	Very Satisfied %
Convenience of buses					
Information and guidance	M	1.0	3.3	23.1	9.9
	F	0.0	5.0	35.0	22.8
Ease of boarding or alighting bus	M	1.0	2.3	21.5	12.5
	F	0.0	2.3	36.0	24.4
Seat Availability	M	1.7	2.3	23.4	9.9
	F	1.3	3.6	35.3	22.4
Seat Comfort	M	1.7	3.0	23.4	9.2
	F	0.3	4.3	37.6	20.5
Crowdedness	M	2.3	2.6	23.1	9.2
	F	0.7	4.0	37.3	20.8
Air Conditioning	M	1.7	2.0	21.8	11.9
	F	0.0	2.0	37.6	23.1
Cleanliness	M	2.0	2.3	22.4	10.6
	F	0.7	3.0	35.6	23.4
Physical Condition	M	1.3	2.3	22.8	10.9
	F	0.0	1.7	38.9	22.1
Other Bus Users Behaviour	M	1.0	3.0	23.4	9.9
	F	0.0	3.6	37.0	22.1
Vehicle Breakdown	M	1.3	2.0	21.8	12.2
	F	0.0	2.3	37.0	23.4
Reliability of the Bus					
The bus arrives on time	M	3.0	9.2	19.5	5.6
	F	5.9	17.2	29.4	10.2
Bus departs on time	M	3.6	7.6	19.5	6.6
	F	7.6	15.2	31.0	8.9
Travel Time	M	2.6	7.6	22.1	5.0
	F	5.6	16.5	32.3	8.3
Service Frequency	M	3.0	8.6	19.5	6.3
	F	2.6	17.8	30.0	12.2
Safety while onboard	M	0.7	3.6	25.4	7.6
	F	0.0	6.3	38.6	17.8
Bus Condition					
The appearance of the Bus	M	1.0	3.0	15.2	18.2
	F	0.0	2.0	29.7	31.0
Storage Availability in the Bus	M	1.0	4.0	13.9	18.5
	F	0.3	3.6	29.0	29.7
Provision and Visibility of Handrails	M	0.7	2.6	17.5	16.5
	F	0.3	1.0	31.7	29.7
Shape or diameter of Handrails	M	0.7	2.0	23.8	10.9
	F	0.0	3.0	38.6	21.1
	M	0.7	3.0	23.4	10.2

Passenger Injured due to the Handrails	F	0.3	2.3	36.6	23.4
Bus Spaciousness	M	0.7	3.3	15.5	17.8
	F	0.3	1.7	29.7	31.0
Driver Behaviour/Attitude					
Physical Appearance of the Driver	M	0.7	2.3	25.1	9.2
	F	0.0	4.0	38.0	20.8
Helpfulness of the Driver	M	1.0	2.6	22.4	11.2
	F	0.3	5.9	35.6	20.8
Improper Bus Parking	M	1.0	1.7	25.7	8.9
	F	0.3	3.0	39.6	19.8
Degree of Difficulties in Ingress and Egress of the Bus Passenger					
The gap between kerb and bus is wide	M	1.0	2.0	19.1	15.2
	F	0.0	3.6	33.7	25.4
Steps are too high or otherwise	M	0.7	2.3	17.5	16.8
	F	0.3	2.3	35.0	25.1
Kerb Level Vary with the Bus Level	M	0.7	2.3	18.5	15.8
	F	0.0	3.3	32.7	26.7
Comfort Level of handrails	M	0.7	2.0	17.5	17.2
	F	0.3	1.7	33.3	27.4
Handrail Access during Ingress/Egress	M	0.7	2.3	18.5	15.8
	F	0.0	2.0	35.6	25.1
Preference mode of Ingress/Egress	M	0.7	2.3	16.8	17.5
	F	0.3	2.0	36.0	24.4
Ease of Carrying bags while Ingress/Egress	M	0.7	2.0	18.5	16.2
	F	0.0	2.0	35.0	25.7
Possibilities of Stumbling on moving Buses	M	1.0	3.3	15.8	17.2
	F	0.3	2.6	34.3	25.4
Bus Stops Assessment					
Bus Stop Cleanliness	M	0.7	3.3	18.2	15.2
	F	0.0	4.0	33.7	25.1
Information before travel, during and after alighting	M	0.7	3.3	19.5	13.9
	F	0.3	4.3	34.3	23.8
Bus Stop distance from the final destination	M	0.7	3.3	17.5	15.8
	F	0.3	2.6	36.0	23.8
Fear of crime at the bus stop	M	1.7	2.6	19.1	13.9
	F	24.4	34.0	4.3	0.0
Shelter provision at the bus stop	M	1.3	2.0	19.1	14.9
	F	0.3	3.6	34.0	24.8
Seat comfort	M	1.3	2.0	18.5	15.5
	F	0.7	4.0	34.7	23.4
Condition of the bus stop	M	1.3	2.6	17.2	16.2
	F	35.0	24.4	3.3	0.0
Routes map at the bus stop	M	1.3	2.6	17.8	15.5
	F	0.7	4.3	34.0	23.8
Distance to the bus stop	M	1.3	2.3	18.2	15.5
	F	24.8	35.3	2.6	0.0

Segment Analysis for Gender

There has been an increase in discourse on providing gender-specific services in public transportation (Ceccato (2017); Ceccato & Loukaitou-Sideris, 2020). In

order to examine this, the study went on to analyse the quality of the bus service in relation to gender-specific issues. Analysis was conducted to test the relationship between gender and crime fear at each chosen MRT feeder bus stop, and it was found that the P-value for the chi-square test was 0.035, which was less than 0.05. The null hypothesis was rejected and it can be concluded that, at the MRT feeder bus stops, there is a significant correlation between gender and safety and security "fear of crime." The majority of people were satisfied with their respective safety quality, indicating that the overall safety concern at the bus stations was widely shared (Table 1). However, further statistical analysis showed the gap in perception between the genders.

Women's mobility is hampered by dangerous public transportation, according to Ceccato (2017). As a result, it necessitates a comprehensive strategy to safety, which includes realising how victimisation and fear interact. Therefore, it is believed that victimisation and fear are both influenced by an individual's qualities and their intersection, in addition to gender (Ceccato & Loukaitou-Sideris, 2020). A second test was conducted to find the relationship between gender and the satisfaction on the bus stop condition and it was found that the p-value was 0.033, which was less than 0.05 and therefore, the null hypothesis is rejected. In other words, the gender assessment of the state of the bus stop is significantly correlated with it.

Table 4: Relationship between gender and the distance to bus stop from the origin

	Chi-Square Tests		Asymptotic Significance (2-sided)
	Value	df	
Pearson Chi-Square	8.142 ^a	3	.043
Likelihood Ratio	9.302	3	.026
Linear-by-Linear Association	.855	1	.355
N of Valid Cases	303		

The third test was conducted to test the relationship between Gender and the perception of the distance from the origin to the bus stop, and based on the result shown in table 4, the chi-square test revealed that the p-value was 0.043, and therefore the null hypothesis is rejected. The study found, there is a significant relationship between gender and the perception of distance from the origin to the bus stop. The study discovered that overall perception for a new service system was positively skewed, owing to high-quality infrastructure installations in the first few years of operation. At first glance, many users perceived safety as a positive overall quality. However, a closer look at user type differentiation revealed the opposite, indicating some gender issues such as fear

of crime, bus stop conditions, and the distance to the bus stop from the origin that still falls short of the quality expected by female riders. This important finding lends support to other recent studies on equality issues (Peters, 2013; Pirra et al., 2021).

Exploratory Factor Analysis

The exploratory factor analysis (EFA) identified the potential structure of the latent variables, which is commonly used to reduce variables to a smaller and manageable size after removing the items that did not have the common cores identified by Ibrahim et al (2021). The principal component (PC) technique for EFA was chosen in this study because it is highly recommended and widely used in many applications to identify latent variables in transportation studies by several researchers such as Obsie et al. (2020) and Morton et al. (2016). In this study, the factor with Eigenvalues greater than one was kept (Ibrahim et al., 2021; Maskey et al., 2018). An exploratory analysis was performed on 44 items to assess the level of service provided by the MRT feeder bus. Six factors were identified as having eigenvalues greater than one and total variance of 77.292%, namely bus convenience (11), bus reliability (6), bus condition (5), driver appearance/attitude or behaviour (5), difficulties in ingress and egress (8), and bus stop assessment (9) Two items with less than 0.5-factor loading were removed, as recommended by Maskey et al. (2018) and Uca et al. (2017). In EFA, the varimax rotation method was used to identify critical factors and facilitate interpretation (Hair et al., 2014). The Kaiser-Meyer-Olkin (KMO) and Bartlett's tests of sphericity, factor loading of the items, and reliability analysis of each identified factor are the main criteria considered in EFA. Table 6 shows that the KMO value (0.939) and Bartlett's test of sphericity ($\chi^2 = 18224.853$, $p = 0.000$) are significant, indicating that the inter-correlation matrix has an adequate common variance. The factor analysis has a high level of sampling adequacy (Hair et al., 2014). Table 5 also shows that the factor loading ranges from 0.506 to 0.819 for all samples, with factor loading greater than 0.50 indicating satisfactory factor loading (Kuo and Tang, 2013). Finally, the reliability result shows a Cronbach's alpha value greater than 0.70 as a threshold. Cronbach's alpha for all factors ranges from 0.893 to 0.976, meeting Hair et al. (2014) recommendation. The results indicate that the six extracted factors are extremely reliable.

Table 5: Result of the exploratory factor analysis of the MRT feeder bus service

Factor/Item	EFA			
	Factor Loading	Eigenvalue	Explained Variance	Cronbach's Alpha
Bus Convenience (BC)		23.918	23.699	0.971
BC 1	0.739			
BC 2	0.745			
BC 3	0.692			

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BC 4	0.716			
BC 5	0.747			
BC 6	0.744			
BC 7	0.742			
BC 8	0.751			
BC 9	0.738			
BC 10	0.754			
BC 11	0.758			
Bus Reliability (BR)		4.035	3.812	0.893
BR 1	0.512			
BR 2	0.506			
BR 3	0.619			
BR 4	0.595			
Bus Condition (BCD)		2.573	2.354	0.954
BCD 1	0.774			
BCD 2	0.782			
BCD 3	0.805			
BCD 4	0.812			
BCD 5	0.819			
Driver Appearance (DA)		2.019	1.812	0.944
DA 1	0.706			
DA 2	0.725			
DA 3	0.671			
DA 4	0.718			
DA 5	0.719			
Difficulties in Ingress and Egress (DINEN)		1.541	1.336	0.976
DINEN 1	0.815			
DINEN 2	0.782			
DINEN 3	0.807			
DINEN 4	0.831			
DINEN 5	0.831			
DINEN 6	0.806			
DINEN 7	0.819			
DINEN 8	0.802			
Stop Assessment (SA)		1.187	0.994	0.966
SA 1	0.742			
SA 2	0.741			
SA 3	0.766			
SA 4	0.734			
SA 5	0.719			
SA 6	0.750			
SA 7	0.764			
SA 8	0.749			
SA 9	0.742			

KMO = 0.939, $\chi^2 = 18224.853$, $p < 0.000$

Total variance explained = 77.292

Note: EFA = Exploratory factor analysis, KMO = Kaiser-Meyer-Olkin measure, χ^2 = Bartlett's test of sphericity.

CONCLUSION AND RECOMMENDATIONS

In conclusion, women tend to favor more flexible means of transportation because they have more intricate travel schedules than men do, but they also find public transportation to be more appealing. This suggests that new trends like MRT feeder bus service may draw more female users than male users, making flexible modes more appealing to women. Women may decide to give up driving altogether if better options are available. Cities should create rules that take into account women users' preferences since they will make up the majority of users if they wish to further promote the development of flexible and sustainable forms of transportation.

The majority of cities especially in the asia continent lack transportation policies or programs that are aimed at enhancing the transit user experience for women riders, despite the fact that they prefer to use public transportation more than men do and that most of their trips are not for commuting purposes and take place during off-peak hours. Vienna is one city whose urban development does take gender into account. Before an infrastructure project begins, data is gathered to ascertain how various groups of people use public transportation and spaces. This practice was sparked by a survey on men and women's usage of public transportation conducted in the late 1990s. Women's preferences and choices for mobility are significantly influenced by variables related to transportation safety and security, particularly in urban regions where more women than males utilize public transportation and strongly rely on these systems to go around. Examples from the itf's compendium on women's safety and security: a public transport priority (2018) demonstrate that the majority of women in the world experience unsafe conditions in public transportation and have experienced various forms of physical or verbal harassment as well as other types of violence in open areas. In order to avoid this, when given the option of taking public transportation, walking, cycling, or driving themselves, taxis, or other for-hire ride services, are frequently chosen by women.

Alarming statistics show that women in many asian nations have significant levels of inequality in access to economic resources and possibilities for livelihood. Take bangladesh, for instance. Despite owning only 8% of the productive assets in rural areas, women still only make up a small portion of the workforce, at an estimated 34%. The percentage of women who commute on public transportation who have encountered sexual harassment—verbal, physical, or other forms—is estimated to be over 94%. In jakarta, almost 90% of women said that the safety of public transport was poor or very poor, compared to only 35% of men who shared the same worry about security (turner, 2013). The safety of cities' public transportation systems must be taken into account if they want to raise ridership and occupancy rates. This will help draw in more

female travellers and enhance the travel experience for the large proportion of existing female users.

Thus, it is crucial to comprehend how various variables could affect general satisfaction with public transportation from the standpoint of developing policies. This knowledge can be utilised to more carefully choose the variables for market segmentation studies, which will aid in the improvement of target definition and investment acuity on the part of public management. Gender has a negligible impact on overall satisfaction, according to the study's findings. The results do show that women are more likely to criticise the services that are expected of them and those that are actually provided. As an illustration, the women's sample gave lower ratings to every attribute that was evaluated differently based on gender. Women, however, gave the majority of service qualities a higher priority than did males. Since money and travel goals can be utilised as predictors of gender, these variations may be rooted in differing usage and socioeconomic descriptive value. Women also stated that they experienced more dangerous situations, congested living circumstances, more feeder usage, all of which had a negative impact on satisfaction.

This study has found disparities between genders in how satisfied people are with the following three aspects of mrt feeder bus service: the security and safety at bus stops, the condition of the bus stops, and the distance from the origin to the bus stops. The goal of this study was accomplished by identifying gender differences in the degree of satisfaction with the services offered by feeder buses. These services include bus punctuality, frequency of service, seat availability, waiting time, travel time, and safety, among others, all of which need to be improved to stop women and girls' and women's continued growth in personal mobility, particularly in the central klang valley. Aside from bus arrival and departure timings and bus travel time, the study found that riders were generally happy with the service. Future research possibilities can look at the causes of such appraisal in more detail. The study did find gender disparities with regard to the issue of crime fear at the bus stop, the state of the bus stop, and the travel time from the point of origin to the bus stop. The results of this study are anticipated to help mrt feeder bus operators understand how gender variations affect the elements that affect how often people use the mrt feeder buses and, ultimately, how to improve the services. An increase in users, particularly among women and girls, high- and middle-income individuals, and eventual revenue maximisation could result from improved services, particularly in flm travel, waiting times, and safety. Future studies are advised to include non-users in their research to identify the barriers preventing the use of public transportation.

Men tend to prioritise service performance characteristics like reliability, service frequency, and travel time, while women prioritise comfort characteristics like vehicle interior conditions, fleet conditions, bus stop infrastructure, safety and security, and crowding conditions. This finding was supported by the factor analysis, which explained variance. Since the relative relevance data analysis did not yield enough solid evidence to substantiate it, further research is required. Additionally, as it would offer data from a more complicated context, the influence of gender should be further researched in multimodal investigations.

Specifically for the policy maker, putting in place systems that ensure a systematic collection of pertinent gender-disaggregated data (usage and provision) on access to and use of infrastructure by type, such as transportation, to inform infrastructure project planning and design is the first step in making the case for applying a gender lens to infrastructure projects.

A second phase entails creating frameworks for infrastructure design that consider the connections between infrastructure and the well-being of both men and women as well as societal objectives for environmental conservation. Throughout the project life cycle and during the project development and design phases, a gender analysis must be conducted as part of this process. Such an analysis ought to be connected to the strategic vision for infrastructure, which ought to incorporate environmental goals in addition to gender-specific priorities, demands, and usage of various facilities.

The lack of gender-sensitive governance in decision-making and throughout the value chain of infrastructure projects is addressed in the third stage. In order to ensure that infrastructure projects take into account the various needs and uses of infrastructure by various groups of women and men, as well as environmental considerations, it is crucial that women are well represented in the public positions that matter for decision-making throughout the infrastructure investment cycle. Infrastructure firms must also make sure that female workers are not subjected to discrimination and are given the chance to advance their careers.

CONFLICT OF INTEREST

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

AUTHOR CONTRIBUTIONS

All the listed authors have made substantial contribution to the work and approved it for publication

FUNDING

This research do not received any financial funding from any institution

ACKNOWLEDGMENTS

We thank all the undergraduates' students who are willing to be our enumerators in data collection process.

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Received: 2nd April 2023. Accepted: 7th June 2023