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Understanding passenger satisfaction and expectations in free bus service based on socio-demographic characteristics in Johor and the Klang Valley, Malaysia

Husna Zakaria[1], Munzilah Md. Rohani[1]*, Muhammad Fazreen Mohd Pozi[2]
[1]Smart Driving Research Centre, Faculty of Civil Engineering and Built Environment, Universiti Tun Hussein Onn Malaysia, Malaysia
[2]Planning and Special Project, Johor Public Transport Corporation, Malaysia

Abstract
Free bus service is known to serve passengers with the same goal as normal bus does. In fact, the implementation of free bus service acts as an alternative solution for those who have financial limitations. To keep a high satisfaction level of passengers regardless of various backgrounds, it is important for the free bus providers to maintain the quality of their service. Therefore, this study aims to understand the relationship between socio-demographic characteristics and the satisfaction level and expectation of passengers on free bus services allocated in Klang Valley and Johor, Malaysia. A survey was conducted among the free bus users to collect data on their socio-demographic characteristics and their experiences with the service quality offered. According to the survey, teens and single people were the primary passengers of the free bus service. Moreover, passengers who had low income, no driving license, and no vehicles were also more likely to use the service. The overall satisfaction level of passengers was high (mean score > 3.6), indicating that the service quality provided by the free bus service provider met the expectations of passengers. However, no evidence was found from this study to relate socio-demographic factors with satisfaction level.

Keywords:
Expectancy Theory;
Free Bus Service;
Satisfaction Level;
Socio-demographic Characteristics;

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Corresponding Author:
Munzilah Md. Rohani
Smart Driving Research Centre, Faculty of Civil Engineering and Built Environment, Universiti Tun Hussein Onn Malaysia, Malaysia
Email: munzilah@uthm.edu.my

INTRODUCTION

In Malaysia, road users have access to many public transportation services such as buses, taxis, and trains [1]. Buses and taxis are widely used in all regions including rural areas. However, only places in urban areas like Kuala Lumpur cover all types of rail-based public transport. The country also encourages people to use public transportation, like buses, in large cities such as Kuala Lumpur to reduce traffic congestion and travel times. Public transportation systems have been identified as an alternative solution to promote sustainable practices worldwide in several studies [2][3]. Malaysia has also implemented stage bus (stop-and-go) as referred to by the Land Public Transport Agency (APAD) [4]. In addition, a stage bus is known to commute along a route authorized by APAD to carry passengers on a service that contains fare levels, with separate fares, timetables, and fare schedules for each fare level [5]. It has been implemented in most states such as Kuala Lumpur, Penang, Kelantan, and Johor. In Peninsular Malaysia, there is a total of 5,728 registered stage buses under APAD to support the legislative backing of statutory roles included in the Parliament Acts [6]. With that, the action of providing free bus services is introduced in two states of Malaysia which are Johor and Klang Valley. This free bus service serves as an initiative to help Malaysians to reduce the burden in terms of travel costs along with providing a handy and practical public transport system that covers all regions. Aside from cost, a free bus

service promotes a sustainable environment by pushing passengers to switch from private vehicle use to shared, eco-friendly transportation [7].

The implementation of a free bus service is an ambitious effort aimed at increasing accessibility and social mobility. Implementing a free bus service overcomes financial issues, making public transport a feasible alternative for a larger population. By ensuring that transit is not a costly burden for passengers, this practice helps to achieve social equity [8]. Aside from cost, a free bus service promotes a sustainable environment by pushing passengers to switch from private vehicle use to shared, eco-friendly transportation [7]. To increase public awareness and promote greater acceptance, successful outreach about the effort is critical, including clear route information and scheduling. A free bus service not only tackles transportation issues, but also leads to a more welcoming, environmentally friendly, and integrated city [9].

Apart from passengers experience alone, the variation backgrounds (socio-demographic characteristics) of passengers can have a large impact on public bus ridership [10]. When dealing with travelling costs, this is where the causes of external factors strike in. External factors may be related to the socio-demographic characteristics of the user which include the number of passengers for certain countries depending on the variety of demand [11]. These socio-demographic characteristics include vehicle ownership, monthly salaries, housing effect as well as age and gender factors. Hence, they eventually become the reason for the limitation in determining transportation type for daily activities by the passengers [12]. Income levels as well as employment status, for example, are important socio-demographic characteristics in influencing the demand for public transport especially in free bus service. Passengers with lower income may be more likely to use the free bus service as an affordable option of transportation [13]. According to Gauvin et al. [14], it is believed that the public transport authorities do not yet adequately cover the requirements that distinguish between men and women users. This is because there is no sufficient data about the usage of public transport among male and female passengers, thus, making it impossible to enhance the gender-equality policies towards the free bus service. For instance, when compared to men, who traditionally commute to work by car and have the privilege of household vehicle use, women are more likely to be using public transportation [15].

Research by Zhang and Yang et al. [16] found that the free bus service has made public transportation more pleasant to the elderly. This includes the benefits of having accessibility, daily exercise, and better well-being. However, Abdul Sukor et al. [9] in their study revealed that young passengers in Penang's perceptions of free bus service are based on three reasons; free service, secure, and smooth traffic flow. Most passengers claimed that they used the free bus service because it offered good service free of charge. The socio-demographic characteristics also have a strong relationship with occupation status. Occupation status is described as which mode of occupation they work for (full-time, part-time, students, jobless, and others) meanwhile occupation sector is described as which company or organization they work for (government, private, self-employed, and others) [17]. Students, part-time workers, and those with no job are most likely to use public transportation. This is because they cannot afford to own personal vehicles with their unstable incomes and at worst, no income at all. In recent decades, free bus services have been introduced and established in a number of regions worldwide. Initially, it was implemented as an alternative policy that could give benefits to certain groups of people such as the elderly and students [18].

Aside from the socio-demographic characteristics discussed earlier, driving licenses and vehicle ownership also have a strong relationship with one another. When a person does not own a driving license, it is impossible for him or her to own any motorized vehicles because it is prohibited to drive without a driving license. This logically makes those without driving licenses and private vehicles drawn to use active transport (walking or cycling) as well as approaching public transportation services. To illustrate, Zakaria and Mohd Noor [19] found that people who do not own any vehicles tend to use public transport and non-motorized vehicles. Acknowledging the different backgrounds of passengers becomes essential for public transport companies to successfully personalize services and boost entire ridership.

Determining the Satisfaction Level of Passengers on Free Bus Service

In order to attract passengers to keep on using the free bus service, it is vital to maintain their satisfaction levels. This is because bad judgments towards public transportation can lead to users' dissatisfaction when using the services making them lose interest [20]. Passengers on free bus service seek a pleasant and joyful traveling experience. The primary focus is on

guaranteeing an enjoyable experience for passengers, with an ergonomic seating plan, enough space for legs, and well-maintained interiors. A relaxing mood for passengers in public buses is created by the calming natural lighting and proper ventilation systems [21]. Smart features like Internet access, USB charging ports, and easy-to-read informative displays may help to improve the overall experience [22]. The quiet engine system and skillful drivers also contribute to a pleasant and smooth riding experience that can eliminate the impact caused by poor road conditions [21][23].

Overall, the dedication to passenger experience on free bus service goes beyond simply providing transportation; it tries to make the everyday trip a positive and joyful part of passengers' routines. Passenger satisfaction level is solely based on how the service quality (internal factor) could serve or surpass their initial expectations. To determine the satisfaction level of passengers, this paper has highlighted eight service quality factors that are related to free bus services as shown in Table 1. All factors were then included in this study.

Application of Expectancy Theory on Free Bus Service

However, the satisfaction level of passengers for free bus service is determined by the theory of expectancy since it represents passengers' evaluation of the service quality provided. Expectancy theory is a psychological framework (shown in Figure 1) that describes how people make choices depending on their presumptions about the final results and values of their activities. This theory states that individuals are driven to select the choice that maximizes their predicted satisfaction, which is governed by expectation [37]. As shown in Figure 1, the basic framework of expectancy theory has three important keys: expectancy, instrumentality, and valence. An individual gets excited if he or she feels that (a) effort will result in satisfactory performance (expectancy), (b) performance will be valued (instrumentality), and (c) the importance of the rewards is extremely favorable (valence).

Table 1. Service quality factor to determine the satisfaction level of passengers

Service quality	Explanation
Comfort (CF)	Important keys in determining comfort are average riding comfort, estimated riding comfort, comfort disorders that suddenly arise and constant vehicle vibration and movements [24]. Comfort level can also be assured with information accuracy, good condition of terminals and public transport operates in good condition including staffs' behaviour [20][23].
Responsiveness (R)	Referred to the willingness of staff to help and deliver excellent service to passengers. The mindset and immediate responses of staff in whatever passengers requested and arguments including their professional attitude when handling any possible situations that might occur inside the free bus [25], [26].
Capacity (CP)	Capacity control in public transportation is either done via reservation (express bus) or based on a first-come, first served basis (shuttle and stage bus). However, the one thing in common is that there are no accurate estimations for how many passengers will be riding the bus at any particular time. This is likely to happen because bus is known to be able to bring large numbers of people at one time regardless of what type of bus given [27]. The issue has become the spotlight since only a small number of users can use the services at one time due to the maximum capacity is relatively low [28].
Facility (FAC)	Must be equipped with modern technology to create connections when transiting. However, the accessibility which features available inside the free bus must be reachable via mobile phones, the duration to meet the service criteria, sufficient service hours provided as well as the overall facility served must be at a reachable area [29][30].
Safety (SF)	Can be described as the feeling of being safe from environmental problems and human crimes. Based on the research made by Talmizi and Tahir [23], the level of users' safety is important as it involves the life of the users.
Speed (SPD)	Speed prediction is important to determine the passenger information and how well bus providers managing the services. External variables, such as traffic volume and infrastructure have an impact on this factor. One of the initiatives to improve the speed of public transportation in urban centres is by implementing the bus ways in which, normal car users are not allowed to use the ways during rush hours [31][32].
Ticketing system (TS)	Nowadays, the ticketing system has been extremely smooth due to the contactless card that allows passengers to scan through their wallet or bag to make payments. The data is stored and once the card gone missing, all information can be restored. This payment method also allows users to not waste passengers' time without having to queue at the ticket counter for top-ups or physical ticket [33], [34].
Information provision (IN)	In public transport, information is defined as to deliver goods or services to customers. A well-information provided at the station as well as while on ride have influence on the service quality offered. Items related to information includes stops schedule, duration of service, price and any service interruption for maintenance purposes informed to the customer [35]. The most effective way to promote the public transportation services is via advertising on social media which covers in the form of visual and audio [36].

Figure 1. Basic expectancy theory framework

In the context of the free bus services, passengers may have varying expectations depending on the characteristics of the service quality factors, which passengers can compare to what they actually receive when using the free bus service [38]. This eventually leads to if the actual satisfaction level surpassing their expectation, they will be pleased; otherwise, they will be disappointed. On the other hand, passengers may also consider other reasons when using public transport or free bus service such as saving energy, money, and time, acting as a sustainable solution, and improving public welfare [8]. Passengers will be pleased if the actual service they receive reflects their own expectations or otherwise, they will be dissatisfied. Using expectancy theory as a guide, this study aims to explore passenger satisfaction and expectations in free bus services based on socio-demographic characteristics in Johor and the Klang Valley, Malaysia.

METHODOLOGY

Figure 2 shows the flowchart of the methodology which included a few steps in order to complete the study. The free bus service operated in Johor and Klang Valley were the main focus of this study. This study distributed a series of questionnaire survey to the passengers of free bus service in all districts of the two states. The survey design was arranged with the need of dependent and independent variables that were later used in the analysis part of this study. It was designed based on the expectancy theory framework, as shown in Figure 3. The questionnaire consists of Section A (Demographic Background), Section B (Passenger Satisfaction Level), and Section C (Passenger Expectation Versus Real Satisfaction Level). Section A required respondents to give details regarding their demographic background with 8 items included. In Section B, respondents were asked to rate the eight service quality factors based on the 5-point Likert-scale question.

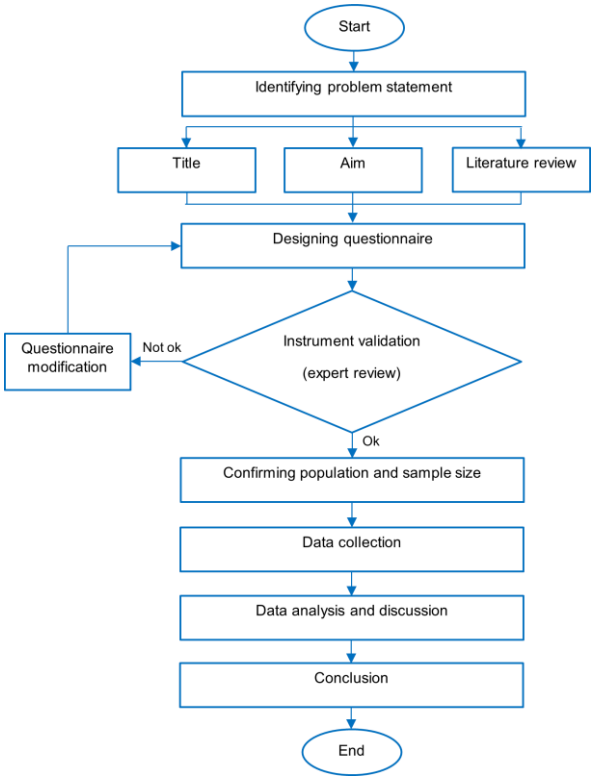

Figure 2. Flowchart of the methodology

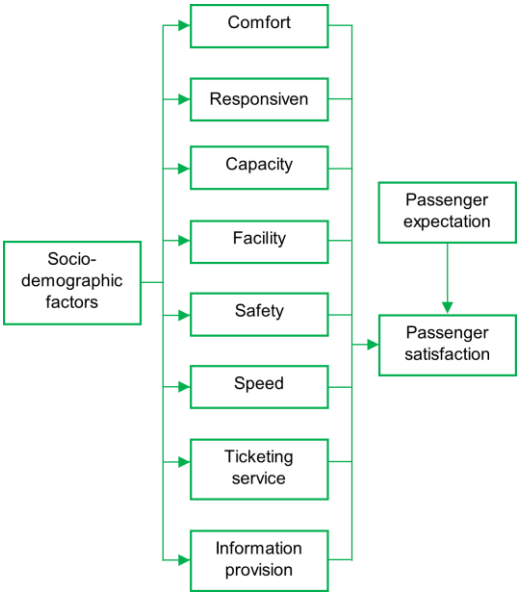

Figure 3. Expectancy theory framework for this study

In Section C, comparisons between respondents' expectations and real satisfaction levels were asked.

Since the research main instrument was questionnaire surveys, it was manually distributed for four months in Johor (June 2022 to September 2022) and three months in Klang Valley (August 2023 to November 2023). Before distributing the surveys, an expert review was

also carried out. Five experts were chosen in accordance with the claims made by Polit et al. [39], who stated that a minimum number of three experts is adequate for the process of instrument validation. Each and all experts were asked to evaluate every item in the questionnaire (draft). Later, amendments were made by the researcher based on the comments and recommendations made through the validation process by the experts. After the validation process was completed, a reliability analysis was performed.

A total of 53 items were asked in the questionnaire. Further details of the instrument are shown in Table 2 alongside the result of the reliability analysis in Table 3. Reliability analysis, also known as a pilot study, is an analysis to determine the consistency of the responses by the respondents. A scale or test, for example, is said to be accurate if repeated measurements taken under the same conditions yield the same result [40]. Gliem et al. [41] stated that Cronbach's alpha (α) a value more than 0.90 is excellent and highly acceptable. If Cronbach's alpha (α) value obtained is below the acceptable range, modification and item deletion are required when necessary. The pilot study is once again run until the value lies within the acceptable range. Therefore, 20 respondents were called to run this analysis and all items in Section B and Section C reached Cronbach's alpha (α) range of $0.852 \leq \alpha \leq 0.968$.

Table 2. Questionnaire details

Section	Item	No. of item	Source
A	Socio-demographic background	8	–
B	Comfort	8	[3],
	Responsiveness	5	[23],
	Capacity	4	[42]–
	Facility	6	[48]
	Safety	5	
	Speed	3	
	Ticketing service	3	
	Information provision	4	
C	Passenger expectation	3	[49], [50]
	Passenger satisfaction	4	

Table 3. Reliability analysis result

Section	Item	α
B	Comfort	0.920
	Responsiveness	0.943
	Capacity	0.852
	Facility	0.933
	Safety	0.968
	Speed	0.958
	Ticketing system	0.867
	Information provision	0.967
C	Passenger expectation	0.918
	Passenger satisfaction	0.913

This indicates that the survey received such positive feedback from the respondents towards the questions asked.

Sample Size and Data Collection Process

In this study, the targeted respondents (population) were daily users of the free bus service in Johor and Klang Valley. In Johor the number of daily passengers is approximately 3,105 passengers/day meanwhile in Klang Valley it was reported that the number of daily passengers is approximately 54,355 passengers/day. The drastic difference between the number of passengers in Johor and Klang Valley is that in Johor, the free bus service is only open to the Malaysians meanwhile in Klang Valley, the bus service is only free for the Malaysians while foreigners have to pay upon each trip. Therefore, foreign passengers are only included in the number of daily passengers in Klang Valley. By referring to Krejcie and Morgan [51], the sample size needed for Johor and Klang Valley are 375 and 382 respectively. 400 sets of questionnaires were then distributed to the targeted respondents in each state. However, only 375 sets were returned back in Johor meanwhile for Klang Valley, only 183 were returned. This marks that Klang Valley has a lower response rate when compared to Johor because the duration of each trip was too short and there were too many foreign passengers on ride.

The process of distributing questionnaire surveys was conducted through physical and online forms (scanned through a QR code). However, both forms were not allowed to be distributed without permission to avoid data obtained out of the targeted population. Respondents were also informed that every information obtained through the survey remained confidential and was used for research purposes only. Data collection was conducted with respondents willing to contribute well. Respondents were chosen according to the criteria as shown in Figure 4. The criteria must be followed in order to get a higher response rate and accurate information of the respondents can be obtained. Respondents were then briefed about the actual purpose of conducting the survey and they were allowed to ask questions to help them understand the survey well.

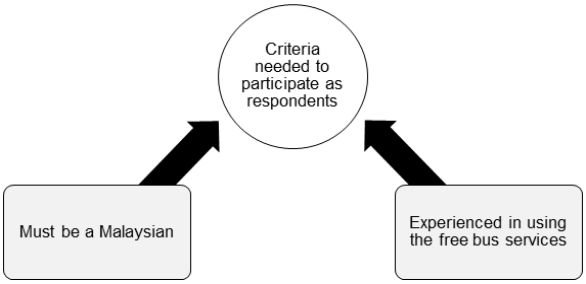

Figure 4. Criteria needed to participate as respondents

Analysis Method

In this study, data processing involved converting the survey responses into a format that can be edited to generate any statistical analysis. Such processes included data entry, editing, coding, and monitoring the entire data processing process. In recent decades, the ability to improve and enhance the techniques of data processing can be done with the help of advanced technologies [52]. Therefore, data processing was done with the help of Microsoft Excel. Analysis such as frequency, correlation, t-test, and regression model were then fulfilled by using SPSS ver-26. Before running the correlation analysis, the Kolmogorov-Smirnov test was applied first to validate the normality of the continuous data obtained for a sample size of more than 50 [53]. As shown in Table 4, the Kolmogorov-Smirnov values obtained are 0.000 in which all data available are not normally distributed with a significance level of less than 0.05 making the non-parametric analysis can be applied. Thus, the correlation analysis that was applied in this study is the Spearman. Meanwhile, for t-test analysis, the one sample t-test was applied because the test is a useful tool to compare the data gathered in a single variable from one population [54]. The test was not applicable to identify the relationship between the two variables. As for regression analysis, the linear regression was used to investigate the strength of predictors [55][56]. In this study, predictors act as independent variables (passenger expectation) to predict the dependent variable (passenger satisfaction).

Table 4. Summary value for Kolmogorov-Smirnov coefficient in normality test

Section	Kolmogorov-Smirnov Sig.
A	.000
B	.000
C	.000

RESULTS AND DISCUSSION

Table 5 shows the result of passengers' demographic background in the two states, Johor and Klang Valley. The result shows some similarities in all demographic items where the same groups of passengers dominate the highest amount of frequency. It was found that in both states, female passengers, aged below 20 years, single passengers, SPM holders, and students, who had no income, owned no motorized vehicle, and only used the service sometimes in a week were keen to use the free bus service. However, it is an exception for driving license ownership. This is because in Johor most passengers have no driving license (209) meanwhile in Klang Valley, most passengers have a driving license (116).

Table 5. Demographic background of passengers

Demographic item	Variation	Frequency	
		Johor	Klang Valley
Gender	Male	136	72
	Female	239	111
Age	<20	208	112
	21-30	74	53
	31-40	13	6
	41-50	27	6
	51-60	16	1
	>61	37	5
Marital status	Single	272	166
	Married	84	16
	Single father/mother	19	1
Education level	No	22	4
	PT3/PMR/SRP	103	1
	SPM	124	60
	STPM/Certificate/Diploma	87	58
	Degree/Master	39	58
	PhD	0	2
Occupation	Private	76	28
	Government	24	8
	Self-employed	14	4
	Student	234	128
	Others	27	15
Income level (RM)	No income	258	79
	<1000	43	58
	1001-1500	16	5
	1501-2000	28	4
	2001-2500	2	8
	2501-3000	11	8
	3001—3500	6	9
	>3501	11	11
Driving license ownership	No	209	67
	Yes	166	116
Vehicle ownership (motorized)	No	220	109
	1	109	53
	2	35	11
	>3	11	10
Frequency of using	Sometimes	167	147
	1-2 days/week	53	19
	3-4 days/week	51	17
	>4 days/week	104	0

Mean Score Analysis of Satisfaction Level Between Passengers in Johor and Klang Valley

Assessing the mean score analysis in this study allows us to differentiate the mean between categories or circumstances. The mean score analysis of the service quality factors was done to compare the mean between the two states, Johor and Klang Valley making it possible to rate the satisfaction level among passengers. Table 6 shows the mean score analysis based on the 5-point Likert-scale question. Referring to Hamzah et al. [57], the mean score values of Johor and Klang Valley all can be labeled as high and very high mean scores. For Johor, the mean score values ranged from 3.6613 to 4.2134 with information provision as the lowest and comfort as the highest mean score value. However, the result actually varies for Klang Valley. The lowest mean score value is 3.6634 for the responsiveness factor meanwhile the highest mean score value is 4.1355 for the comfort factor.

Correlation Between Socio-Demographic Factors between Satisfaction Level

Spearman correlation was carried out to investigate the relationship between independent and dependent variables. The sign of the correlation coefficient shows the direction of the correlation while the absolute value of it indicates the strength of the association between the two variables. The correlation strength is then referred to Senthilnathan [58]. Table 7 provides the results of the correlations between the independent and dependent variables for Johor and Klang Valley. In Johor, for the gender dependent variable, the Spearman coefficient shows that the value obtained is less than 0.1 and mostly approximates to zero coefficient. This indicates that gender and all service quality factors have no correlation at all. However, it can be seen that all correlation coefficient values are positive, and the achieved coefficient ranges from 0.153 to 0.311 (very low to low), which implies all the independent variables (except facility and information) are positively related to the dependent variable (age and marital status). For dependent variables such as education level and occupation, only the independent variable of comfort and responsibility shows the result of a coefficient value of more than 0.1. Although the values obtained are considered very low, the correlation still happens between them. For income level, only two independent variables (responsiveness and ticketing system achieved a coefficient value of more than 0.1. However, the coefficient value for the ticketing system is negatively correlated which drives that the lower income groups are more satisfied with the ticketing system. This also applies to the dependent variable (driving license ownership) and independent variable (ticketing system), and dependent variable (vehicle ownership) and independent variable (comfort, safety, speed, and ticketing system). Lastly, for the frequency of using the free bus service, only for service quality factor did not achieve a coefficient value of more than 0.1 which includes responsiveness, capacity, speed, and information provision.

However, as shown in Table 7, the result of the Spearman correlation for Klang Valley varies from Johor. Overall, the result exhibited that low correlation between the dependent and independent variables found in the analysis. The highest coefficient captured was -0.235 between marital status and facility. Although the study made an assumption that demographic variables like age, gender, income, education, and occupation directly affect satisfaction levels, this hypothesis was disproved when the results revealed that these variables actually mediate the effects of other variables like characteristics of the quality of the services.

Table 6. Mean score analysis result of service quality factors in Johor and Klang Valley

Service quality factor	Johor (N = 375)			Klang Valley (N = 183)		
	Mean	Std. Dev	Rank	Mean	Std. Dev	Rank
CF	4.2134	0.66193	1	4.1355	0.69339	1
R	3.8523	0.83008	6	3.6634	0.82457	8
CP	3.9620	0.90862	4	3.7678	0.82168	5
FAC	3.9141	0.79799	7	3.7898	0.86483	4
SF	4.0699	0.80859	3	3.9257	0.82312	2
SPD	3.9269	0.87391	5	3.7157	0.86574	7
TS	4.1049	0.91460	2	3.9091	0.91600	3
IN	3.6613	0.92660	8	3.7527	0.89948	6

Table 7. Spearman correlation analysis result

Demographic item	Spearman coefficient							
	CF	R	CAP	FAC	SF	SPD	TS	IN
Johor (N = 375)								
Gender	.042	.013	.038	-.031	.018	-.071	.033	-.145**
Age	.244**	.279**	.311**	-.034	.119*	.237**	.162**	-.092
Marital status	.153**	.216**	.252**	-.074	.116*	.257**	.170**	-.086
Education level	.112*	.100	.051	.067	-.014	.009	-.052	.065
Occupation	-.115*	-.130*	-.050	.022	.012	-.033	-.051	.029
Income level	.047	.112*	.028	.006	-.007	-.001	-.101	.068
Driving license ownership	-.022	.004	.022	-.049	-.056	-.044	-.192**	-.055
Vehicle ownership	-.158**	-.022	-.094	-.065	-.152**	-.110*	-.186**	.031
Frequency of using	.138**	.065	.072	.120*	.161**	.082	.169**	.001
Klang Valley (N = 183)								
Gender	.030	.032	.055	.114	.012	-.016	.001	-.069
Age	-.021	-.103	-.023	-.109	-.027	-.076	-.006	-.053
Marital status	-.121	-.185*	-.136	-.235**	-.033	-.114	-.091	-.151*
Education level	.037	-.029	-.011	-.018	-.003	-.025	.077	.039
Occupation	-.036	.001	-.022	.118	.035	.083	-.026	.089
Income level	.000	.053	.003	-.103	.013	.039	.045	.015
Driving license ownership	-.062	-.117	-.144	-.121	-.099	-.074	-.004	-.039
Vehicle ownership	-.099	-.109	-.107	-.175*	-.065	-.058	-.004	-.033
Frequency of using	.010	.065	.086	.095	.025	.008	.033	.091

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Additionally, the study made an assumption that characteristics of service quality, such as comfort, responsiveness, capacity, facility, safety, speed, ticketing system and information provision have a greater influence on passenger satisfaction than demographic variables. The study also notes that the context and location of the study between Johor and Klang Valley may have an impact on satisfaction level (significant difference as presented in Table 8) due to various reasons contributed by norms and culture between states. However, this is not included in this study.

Table 8. Comparison test of passenger satisfaction level between Johor and Klang Valley

State	Service Quality	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
				Lower	Upper
Johor (N = 375)	CF	.000	4.21341	4.1462	4.2806
	R	.000	3.85227	3.7680	3.9366
	CP	.000	3.96200	3.8697	4.0543
	FAC	.000	3.91408	3.8331	3.9951
	SF	.000	4.06987	3.9878	4.1520
	SPD	.000	3.92685	3.8381	4.0156
	TS	.000	4.10493	4.0121	4.1978
	IN	.000	3.66133	3.5672	3.7554
Klang Valley (N = 183)	CF	.000	4.13546	4.0343	4.2366
	R	.000	3.66339	3.5431	3.7837
	CP	.000	3.76776	3.6479	3.8876
	FAC	.000	3.78978	3.6636	3.9159
	SF	.000	3.92568	3.8056	4.0457
	SPD	.000	3.71574	3.5895	3.8420
	TS	.000	3.90913	3.7755	4.0427
	IN	.000	3.75273	3.6215	3.8839

Gap Analysis on Passenger Expectation Versus Real Satisfaction Level Between Johor and Klang Valley

Measuring the expected and real levels of satisfaction with regard to service quality among free bus passengers is the primary goal of the analysis of expectation versus satisfaction level in this study. Real satisfaction is the level of satisfaction a passenger actually feels after using the free bus service, whereas expectation is the quality of service the passenger actually wants or anticipates before using the service. The degree of customer satisfaction or dissatisfaction with the quality of the services is indicated by the difference between expectation and real satisfaction.

Two methods were used to analyse the survey results; gap analysis and descriptive statistics. The higher mean scores of the service quality dimensions in Table 6 indicate that the free bus service in both states had a high degree of customer satisfaction, according to the earlier methodology. However, as shown in Table 9, the latter method demonstrated that, in most cases, the service quality did not live up to the customers' expectations because there was a negative difference in both states between the real and expected levels of satisfaction. With a mean score difference of 1.4%, the passengers in Johor had a smaller gap than those in Klang Valley, where the difference was 3.92%.

Figure 5 and Figure 6 compare the passenger satisfaction score and the expectation score of the free bus service in Lembah Klang and Johor. A linear regression model was used to analyse the relationship between the two scores. The R-squared values of the model were 0.9862 for Johor and 0.9722 for Klang Valley, indicating an excellent fit of the model to the data.

Table 9. T-test analysis results to compare passenger expectation and real satisfaction level

Item	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
			Lower	Upper
Johor (N = 375)				
STF	0.000	4.24267	4.1739	4.3115
EXP	0.000	4.30299	4.2321	4.3739
Klang Valley (N = 183)				
STF	0.000	3.87295	3.7580	3.9879
EXP	0.000	4.03093	3.9081	4.1538

This means that there were some discrepancies between the actual and the predicted scores. The model explained about 98.62% of the variation in the satisfaction score for Johor, while the rest was attributed to other factors or random errors. Similarly, the model explained about 97.22% of the variation in the satisfaction score for Klang Valley, while the rest was attributed to other factors or random errors.

Based on the findings in Figure 5 and Figure 6, the impact of bus passenger expectations and quality of service is significant in shaping the overall experience and satisfaction of passengers. Passengers create early expectations about this free bus service based on their own experiences, recommendations from other passengers, and advertisements. These expectations include factors like speed, cleanliness, comfort, and staff attitude. The actual performance of free bus services determines how well they perform. When the level of service meets or surpasses passengers' expectations, it results in positive feedback and increased satisfaction. When the satisfaction level of passengers exceeds their expectations, this can guarantee that they will be using the free bus services continuously without any constraints and lead to loyalty.

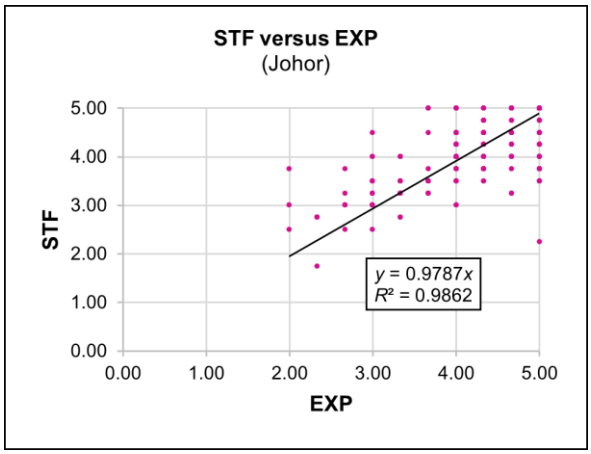

Figure 5. STF versus EXP for Johor

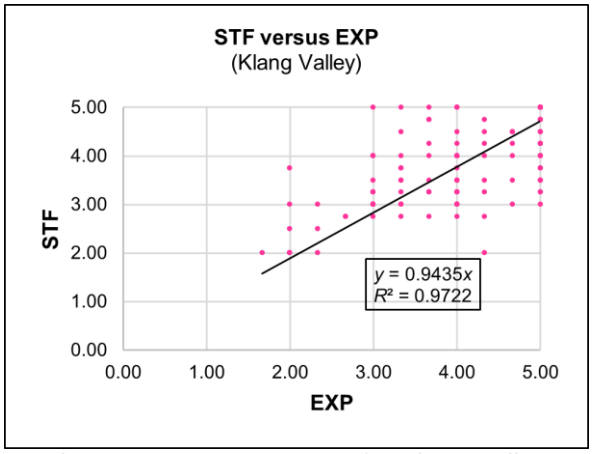

Figure 6. STF versus EXP for Klang Valley

While in fact, this marks the achievement of the bus providers as they can deliver excellent service according to the needs of passengers.

CONCLUSION

The purpose of this study was to understand passenger satisfaction and expectations in free bus services based on socio-demographic characteristics in Johor and the Klang Valley, Malaysia. First, this study examined the socio-demographic background of the passengers. Female passengers are more likely to use public transport than male passengers, who typically drive to work and have the privilege of using household vehicles. These findings are consistent with the research described earlier in this paper. In addition, since the free bus service is the only simpler and less expensive way for younger passengers (mainly students) to get from one place to another, they are more willing to use it than older passengers. This study found that married passengers are among the lowest respondents to the research survey who utilize the free bus service, possibly because the free bus service is unable to attract this demographic. The finding is also consistent with Sultana's research [50], which found that most married couples choose to use their own cars since having more household members makes utilising a private vehicle more convenient. Furthermore, low-income passengers were inclined to use the free bus service more frequently. Respondents without a driver's license were likewise identified among the higher passengers. Apart from not having a driver's licence, they did not possess a vehicle which is why they used the free bus.

In addition to the socio-demographic background of the passengers, the findings of the Spearman correlation analysis demonstrate that the passengers' level of satisfaction is not impacted by their socio-demographic characteristics, as indicated by the poor strength of the correlation coefficient. Other aspects might impact the level of satisfaction. This has been explained by Ponrahono et al. [59], the level of passenger satisfaction is impacted by the economy, environmental impact, timeliness, quality of service and passenger expectations. This study demonstrated that people use the free bus service voluntarily, regardless of the diversity in their backgrounds. Despite the fact that the service is free of charge, most travelers in this study are happy with the services they receive. The gap analysis finding does, however, show that for both states—Johor and Klang Valley—the mean difference in genuine satisfaction level is marginally less than expected. Passengers who experience more issues—such as delayed arrivals or heavy traffic—tend to score poorly on satisfaction surveys. Conversely, a significant linear relationship between expectations and actual satisfaction scores indicated that passengers had a positive experience with the service. This finding supports the concept of expectation theory, which states that passengers are encouraged to use the free bus service provided. When these expectations match the actual experience, it increases pleasure and loyalty.

Furthermore, this study illuminates the degree of satisfaction with the quality of service provided by free-fare bus operators. High mean ratings across all service quality categories indicated in this study suggest that passengers are satisfied with the quality of the services provided. These encouraging testimonies show how the free-fare bus service satisfies the needs and expectations of its users. In fact, advertising the free bus service can draw in more daily commuters even while the government offers fantastic possibilities for bus operators to keep up

their high standards of service. This will help to enhance Malaysia's environmentally friendly travel practices. Because it can be used on already-existing roads, a dependable bus route and timetable system is significantly less expensive to develop. As opposed to rail transit, it is initially more costly in areas without existing lines. The transport sector's role in both rising air pollution and climate change is a cause for grave concern [57]. Nonetheless, environmental issues can be avoided or minimised by putting into practice sustainable transportation strategies (free-fare bus services, in this case).

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