PROBLEMS FACED BY PASSENGER TOWARDS TRANSPORTATION SERVICES IN MADURAI DISTRICT

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Abstract:

Public Transport is transport of passengers by group travel systems available for use by the general public, typically managed on a schedule, operated on established routes and that charge a posted fee for each trip. The aim of the study is to analyze the problems faced by passenger towards transportation services in Madurai district. The sample size for the study is 500 by using simple random sampling method. By using raw soft calculator 385 sample size has been chosen , to get adequate error free results the 30 percentage had been added. Finally the sample size for the study is 500. The findings of the study shows that the important problems faced by passenger towards transportation services are Overcrowding [mean: 62.54; rank:1], Uncleanness [mean:58.91; rank:2], Improper Maintenance [mean: 51.54; rank:3] and Low speed [mean: 48.93; rank:4]. They are having the highest mean score for the most important problems faced by passenger towards transportation services.

Keywords: Public Transportation, Problems, Routes, Road transport.

1.1 INTRODUCTION:

Bus Transportation in India is a large and varied sector of the economy. Modes of conveyance for transport of goods in India, range from people's heads (on which loads are balanced) and bicycle rickshaws to trucks and railroad cars. The national railroad was the major freight hauler at the time of independence. But road transport in India grew rapidly after 1947. Both rail and road transport remains important. The share of India's transportation investments in total public investment declined during the period from the early 1950's to the early 1980's. Real public transportation investment also declined during much of that period because of the need for funds in the rest of the economy. As a consequence, by the early 1980's the transportation system in India was barely meeting the needs of the nation or preparing for future economic growth. The means of road transport available in India from inception to date are bullock carts, horse carriages, camel carriages, bi-cycle, cycle rickshaws, auto rickshaws, motor taxi, passenger buses and the like. The present study focused on the problems faced by the passengers using the public transport operated by Tamil Nadu State.

Transport sector occupies a place of pivotal importance in Indian economy. The tremendous growth in transport sector has expanded trade, commerce and industries phenomenally. Technological advancement has resulted in newer vehicles with advanced features in the buses. The government sector bus transport organizations have come under increasing pressure to deliver quality service and improve efficiency. Customer needs and expectations are changing when it comes to government or private services and their quality requirements in Thiruvannamalai District. However, service quality both in government and private sector organization is slow and is further exacerbated by difficulties in measuring outcomes, since TamilNadu state road transport has gained and has undergone a number of transformations.

1.2 REVIEW OF LITERATURE:

Maheshwari (2019) in their article examined that problems faced by the passengers, the researcher concluded that a satisfied employee can deal better with the customers and help in increasing customer satisfaction fostering a harmony between the employees and the organization. The success of every business depends upon the management but the glorious success depends upon the employees' satisfaction. When an individual is satisfied with his job to the maximum extent that his job can provide him, he performs effectively in his job. Omnibus operators have to take necessary steps for improving the job satisfaction of employees in order to get their full participation in the work and to compete in the competitive market.

Seshagiri Rao (2014) has expressed that the public sector passenger transport undertakings are constantly facing competition from other modes of transport. It is found that it is essential for the public sector transport undertakings to initiate various passenger friendly activities so as to attract the passengers to the services of public transport undertakings. It is stated that the passengers for night services are more attracted to corporation buses due to safe travel, besides saving time and money by travelling at night. It is suggested that the safety aspects need to be promoted and publicized and Concessional Annual Travel (CAT) with 10 per cent concession on normal fare in all services except A/c buses should be made available at all depots to attract the regular customers.

Mlyńczak et.al (2015) in their article examined that problem of reliability analysis of passenger transportation process. The researcher concluded that unfortunately there are very few attempts to assess reliability of a transportation system as a whole. From the analysis of sources of information about failures/faults occurrence during road and rail transportation process performance results, that there is huge amount of gathered data in different data bases. However, the problem is connected with uncertainty of those collected information. Moreover, there are also the inconvenience results from the lack of compatibility between different data sources, what limits the possibilities of research performance. Sometimes it also occurs that the necessary information is censored because of expected report results.

Agarwal (2006) in their article examined that "Urban Transport, Indian Infrastructure Report", Overcrowding, slow operations and poor maintenance of vehicles were the main problems of these vehicles. Therefore, improvement in the public transport becomes the integral part of the sustainable transport system in the mere future. By keeping this in mind,

the present study focuses on identifying the level of passengers' satisfaction and dissatisfaction area towards public transport and the problems faced by them in Tamil Nadu State.

1.3 OBJECTIVE OF THE STUDY:

The main objective of the study is to analyze the problems faced by passenger towards transportation services in Madurai District.

1.4 SIGNIFICANCE OF THE STUDY:

Road Transport plays an important role in the economic development of the nation. Motor Transport as well as road construction had contributed significantly to the growth of the gross national product all over the world. There is tremendous scope for creating lot of employment through road construction and maintenance. The main advantage offered by road transport is its flexibility. Motor vehicles can easily collect and distribute loads from door to door and pick up and put down passengers anywhere. Villages cannot be served by railways as the distances are small and traffic usually is insufficient. A network of roads is therefore required to reach the rail heads. These roads will not only serve the villages but will supplement the railway income. Road transport is indispensable for agricultural development too. The agriculturist will not get a proper reward for his labour and investment of capital unless the markets are made easily accessible. This is possible only if good roads connect the villages with the market centres so that wastages of agricultural produce will be eliminated. Development of trade is closely dependent on road transport. Buying and selling is impossible without roads. Road transport is the dominant mode in this movement measured by the value of the country's exports. It is also significant that domestic movement of India's export Cargo is heavily dependent on road and road transport.

1.4 RESEARCH METHODOLOGY:

Research methodology attempts to approach a topic scientifically to validate the research design. In this process the researcher produces authentic research findings. This chapter provides information about the methods, techniques and tools used in research for the study such as research design, study unit of research, population, sampling design and sources of data, from which the data were collected for the research purpose. In this chapter, the details of the usage of many kinds of variables and information related to different tests done to emphasize the nature of data validity-reliability for analysis and interpretation in the research are incorporated. Finally, the present chapter provides the description of different statistical tools and packages used for analyzing data to prove the hypotheses.

Sample size refers to the number of elements to be included in the study. The total population in the Madurai districts are 3,038,252. Based on this, by using the given formula the sample size was derived as 384. But for the purpose of sampling adequacy of the results of the study and for offering the error free result, 30 percentage of samples, that is 130 were considered. The total sample size of the passengers is 514. To estimate the sample size (n) for passengers the following formula was considered in the research study.

$$\text{Sample Size (n)} \quad \frac{Z^2 * P * Q * N}{E^2 (N-1) * Z^2 * P * Q}$$

n= the sample size

N= Total passengers

p = "sample proportion"

q= 1-p

e= the acceptable error

z = the value of standard variation at a given confidence interval, which means the z-score is 1.96 Here n denotes the sample size; p means the percentage of the population, desired margin of error at 5 percent and z is the confidence interval assumed 95 per cent confidence interval, which means the z-score is 1.96.

1.4.1 Sources of Data:

Primary data: The primary data were collected through problems faced by the passengers in Sivagangai district with the help of a face-to-face interview using pre-tested. Schedule was used to collect the data from problems faced by the passengers in transportation services in Madurai district.

Secondary data: The secondary data were collected from various journals, magazines and various related websites.

1.5 DATA ANALYSIS & INTERPRETATION:

1.5.1 Demographic Profile of the Respondents:-

In order to understand the demographic profile of the passengers, percentage analysis was used to identify the personal information like gender, age, marital status, residential status, education. The Table 1.1 shows the demographic profile of the respondents.

Table 1.1 Demographic profile of the Respondents

Demographic Profile	Options	Frequency	Percent
Gender	Male	320	62.3
	Female	194	37.7
	Total	514	100
Age	Less than 30 years	113	22
	31 to 40 years	183	35.6
	41 to 50 years	167	32.5
	51 to 60 years	37	7.2
	Above 60 years	14	2.7
	Total	514	100
	Married	426	82.9

Marital status	Unmarried	45	8.8
	Widowed	43	8.3
	Total	514	100
Educational Qualification	Master Degree	61	11.9
	Degree	118	23
	Diploma/ ITI	95	18.5
	Illiterate	215	41.8
	Others	25	4.8
	Total	514	100

Source: Primary Data

- **Gender:** Among 514 respondents considered for the study, 320 respondents (62.3%) are male and 197 respondents (37.7%) are females.

- **Age**: Age is one of the most important factors for a human being and age also serves as a yard stick to participate or discontinue in any occupation or profession. Among 514 respondents considered for the study; 113 respondents (22%) were less than 30 years, 183 respondents (35.6%) were in the age group of 31 to 40 years, 167 respondents (32.%)were in the age group of 41 to 50 years, 37 respondents (7.2%) belongs to the age group between 51 to 60 years and 14 respondents (2.7%) were above 60 years. Thus, majority of the passengers contacted are in the age group of 30 to 40 years.

- **Marital status:** Among 514 respondents considered for the study, 426 respondents (82.9%) are married, 45 respondents (8.8%) are not married and 43 respondents (8.3%) are divorced. Hence, majority of the respondents contacted for the study are married.

- **Educational Qualification:** Among 514 respondents considered for the study, 61 respondents (11.9%) are qualified with Master Degree, 118 respondents (23%) have completed their degree, 95 respondents (19%) are qualified with diploma/ ITI, 215 respondents (41.8%) are illiterates and 25 respondents (4.8%) are categorized as belonging to other group. The other category includes Secondary school leaving certificate or higher secondary certificate.

1.5.2 Association between the demographic profile of the respondents and their duration of the journey:

Chi- square analysis is generally used to find the association between two categorical variables. It tests whether or not a statistically significant association exists between a dependent and an independent variable. Here, chi-square analysis is used to find the association between the demographic profile of the passengers and their duration of the journey.

The Table 1.2 represents the association between the demographic profile of the passengers and their duration of the journey.

H$_0$: There is no significant association between demographic profile of the respondents and their duration of the journey

Table 1.2 Association between the demographic profile of the respondents and their duration of the journey

Demographic Factor	Chi-Square Value	Sig.Value
Gender	1.451	0.003
Age	0.845	0.000
Marital Status	1.389	0.001
Educational Qualification	2.456	0.005
Monthly Income	1.789	0.001
Monthly Savings	2.371	0.000

Source: Primary Data

It is observed from the above Table that, the chi square value for the variable, ' Gender' is 1.451, 'Age' is 0.845, Marital status is 1.389, Educational Qualification is 2.456, Monthly Income is 1.789 and Monthly savings is 2.371 and the significant value for all the variables is 0.000. It implies that there is a significant association between the demographic profile of the respondents and their duration of the journey.

1.5.3 Relationship between Income and Savings of the passengers - Correspondence Analysis:
Correspondence analysis is a statistical technique that helps to knowledge about the categorical variables and shows the dimensions or association of the categorical variables to each other. The Monthly Income and savings are the main sources for doing any business. The correspondence analysis is used to club the group of variables.

Hypothesis Ho: There is no significant relationship between Annual Income of the passengers and savings of the passengers.

Table 1.3 Relationship between Income and Savings of the passengers

Correspondence Table						
	Level of Savings					
Monthly Income	Less than 10000	10000-15000	15000-20000	20000-25000	Above Rs.50000	Active Margin
Less than 20000	267	1	0	0	0	268

|					
Rs.20000 to 30000	0	140	0	0	0	140
Rs. 30000 to 40000	0	0	45	0	0	45
Rs.40000 to Rs.50000	0	0	0	45	0	45
Above Rs.50000	0	0	0	0	16	16
Active Margin	267	141	45	31	16	514

Source: Primary data

Table 1.4 Correspondence Analysis

Dimension	Singular Value	Inertia	Chi Square	Sig.	Proportion of Inertia		Confidence Singular Value	
					Accounted for	Cumulative	Standard Deviation	Correlation 2
1	.381	.145	27.186	.001	.694	.694	.092	
2	.253	.064			.306	1.000	.112	.296
Total		.209			1.000	1.000		
a. 8 degrees of freedom								

Source: Primary data

Figure 1.1 Relationship between Income & Savings – Correspondence Analysis
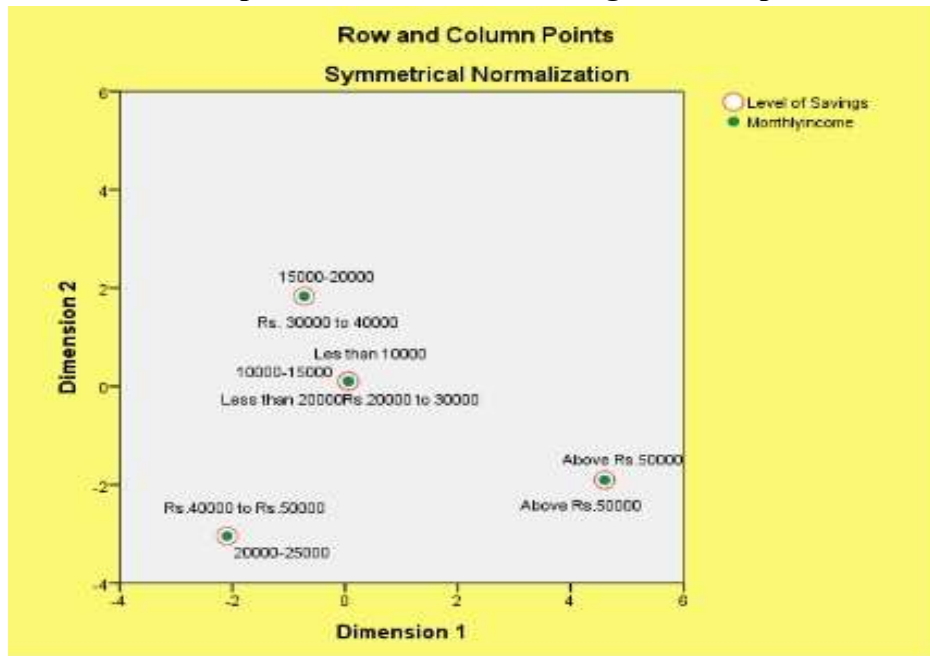
The correspondence diagram illustrates that people who have higher level of income group and their respective saving is high. People who have low level of income group and their respective saving is low. The significant level is less than .05 i.e. sig values is 0.01. Therefore null hypothesis is rejected and the alternative hypothesis is accepted. There is significant relationship between Income and savings.

1.5.4 Preference of bus in passenger overcrowded in peak hours of travel:

Preference of bus in passenger overcrowded in peak hours of travel given in below table 1.5.

Table 1.5 Preference of bus in passenger overcrowded in peak hours of travel – Descriptive Statistics

S.No	Preference	Frequency	Percentage
1	Always	289	56
2	Sometimes	141	27
3	Rarely	84	17
Total		514	100

Source: Primary data

Out of 514 respondents that the preference of bus in passenger overcrowded in peak hours of travel 56% of the respondents were said that always overcrowded in peak hours of travel, 27% of the respondents were said that sometimes overcrowded in peak hours of travel and 17% of the respondents were said that rarely overcrowded in peak hours of travel. Therefore, majority of the respondents were said that always said that preference of bus in passenger overcrowded in peak hours of travel.

1.5.5 Problems faced by passenger towards transportation services – Garret Ranking Method:

Passengers have faced different problems namely uncleanness, Discourtesy of the crew, Pilferage of change by the Conductor, Improper maintenance, Over Crowding, Low speed, Very old buses Henry Garrett's ranking method is employed to ascertain the important problems faced by passengers. Sample passengers are asked to rank the important problems according to their order of priority with the help of Henry Garrett Ranking percentage score. The ranking are then converted into percentage and total scores are obtained by referring to the standard recommended by Henry Garrett. The details of important problems faced by passengers and Garrett score along with ranking are displayed in the following table 1.6

Table 1.6 Important problems faced by passenger towards transportation services

S.No	Problems	Total Score	Average	Rank
1	Uncleanness	5672	58.91	2
2	Discourtesy of the crew	2541	29.51	7
3	Pilferage of change by the Conductor	2852	31.42	6
4	Improper maintenance	4852	51.54	3
5	Over Crowding	6342	62.54	1
6	Low speed	4381	48.93	4
7	Very old buses	3564	35.61	5

Source: Primary Data

The Table 1.6 shows the ranks assigned by the important problems faced by passenger towards transportation services. From the estimated Garrett mean score and rank, it is revealed that the important problems faced by passenger towards transportation services are Overcrowding [mean: 62.54; rank:1], Uncleanness [mean:58.91; rank:2], Improper Maintenance [mean: 51.54; rank:3] and Low speed [mean: 48.93; rank:4]. They are having the highest mean score for the most important problems faced by passenger towards transportation services.

For the factors Very old buses [mean:35.61; rank:5], Pilferage of change by the conductor [mean: 31.42; rank:6] and Discourtesy of the crew [mean: 29.51; rank:7] are moderately problems faced by transportation services. Hence it is observed that overcrowding is the most important problems faced by the passenger towards transportation services.

1.5.6 Relationship between the Gender and problems faced by passenger towards transportation services – ANOVA:

Analysis of Variance (ANOVA) is a statistical technique that is used to compare the means of more than two groups. The null hypothesis for this test is that there is no significant association between the gender and problems faced by passenger towards transportation services. The Table 1.7 deals with the association between the gender and problems faced by passenger towards transportation services

H_0: *There is no significant relationship between the gender and problems faced by passenger towards transportation services*

Table 1.7 Relationship between Gender and problems faced by passenger towards transportation services – ANOVA

ANOVA						
Problems		Sum of Squares	Df	Mean Square	F	Sig.
Uncleanness	Between Groups	38.267	2	19.133	20.595	.432
	Within Groups	474.733	512	.929		
	Total	513.000	514			
Discourtesy of the crew	Between Groups	6.844	2	3.422	3.455	.489
	Within Groups	506.156	512	.991		
	Total	513.000	514			
Pilferage of change by the Conductor	Between Groups	7.911	2	3.956	4.002	.368
	Within Groups	505.089	512	.988		
	Total	513.000	514			
Improper maintenance	Between Groups	.481	2	.240	.240	.000
	Within Groups	512.519	512	1.003		
	Total	513.000	514			

Over Crowding	Between Groups	.788	2	.394	.393	.000
	Within Groups	512.212	512	1.002		
	Total	513.000	514			
Low speed	Between Groups	2.095	2	1.048	1.048	.000
	Within Groups	510.905	512	1.000		
	Total	513.000	514			
Very old buses	Between Groups	10.673	2	5.337	5.429	.787
	Within Groups	502.327	512	.983		
	Total	513.000	514			

<div align="center">Source: Primary Data</div>

The Table 1.7 reveals the results of the ANOVA. Based on the results, the significant value is greater than 0.05 for uncleanness, Discourtesy of the crew, Pilferage of change by the Conductor and Very old buses. So, the null hypothesis is rejected and it is concluded that there is no significant relationship between the gender and problems faced by passenger towards transportation services. On the other hand, the significant value is lower .05 for Improper maintenance, Over Crowding and Low speed. Hence, it is concluded that the null hypothesis is accepted and there is significant relationship between the gender and problems faced by passenger towards transportation services.

Table 1.8 Gender and problems faced by passenger towards transportation services – Post Hoc Analysis

Problems	Mean Score		
	1	2	3
Improper maintenance	2.8940	2.8410	
Over Crowding	3.6135	3.5621	3.5681
Low speed	3.4892	4.5189	
Very old buses	3.4511	3.6914	

<div align="center">**Source: Primary Data**</div>

The Table 1.7 shows the results of Duncan post hoc- analysis for examining the relationship between the gender and problems faced by passenger towards transportation services. It is observed that overcrowding is the main problems faced by passenger.

1.6 FINDINGS OF THE STUDY:
- It is observed that 320 respondents (62.3%) are male and 197 respondents (37.7%) are females.
- It is noted that among 514 respondents considered for the study; 113 respondents (22%) were less than 30 years, 183 respondents (35.6%) were in the age group of 31 to 40 years, 167 respondents (32.%)were in the age group of 41 to 50 years, 37 respondents (7.2%) belongs to

the age group between 51 to 60 years and 14 respondents (2.7%) were above 60 years. Thus, majority of the passengers contacted are in the age group of 30 to 40 years.

- It is found that among 514 respondents considered for the study, 426 respondents (82.9%) are married, 45 respondents (8.8%) are not married and 43 respondents (8.3%) are divorced. Hence, majority of the respondents contacted for the study are married.

- It is noted that among 514 respondents considered for the study, 61 respondents (11.9%) are qualified with Master Degree, 118 respondents (23%) have completed their degree, 95 respondents (19%) are qualified with diploma/ ITI, 215 respondents (41.8%) are illiterates and 25 respondents (4.8%) are categorized as belonging to other group. The other category includes Secondary school leaving certificate or Higher secondary certificate.

- It is observed that the correspondence diagram illustrates that people who have higher level of income group and their respective saving is high. People who have low level of income group and their respective saving is low. The significant level is less than .05 i.e. sig values is 0.01. Therefore null hypothesis is rejected and the alternative hypothesis is accepted. There is significant relationship between Income and savings.

- It is noted that out of 514 respondents that the preference of bus in passenger overcrowded in peak hours of travel 56% of the respondents were said that always overcrowded in peak hours of travel, 27% of the respondents were said that sometimes overcrowded in peak hours of travel and 17% of the respondents were said that rarely overcrowded in peak hours of travel. Therefore, majority of the respondents were said that always said that preference of bus in passenger overcrowded in peak hours of travel.

- It is observed that the ranks assigned by the important problems faced by passenger towards transportation services. From the estimated Garrett mean score and rank, it is revealed that the important problems faced by passenger towards transportation services are Overcrowding [mean: 62.54; rank:1], Uncleanness [mean:58.91; rank:2], Improper Maintenance [mean: 51.54; rank:3] and Low speed [mean: 48.93; rank:4]. They are having the highest mean score for the most important problems faced by passenger towards transportation services. For the factors Very old buses [mean:35.61; rank:5], Pilferage of change by the conductor [mean: 31.42; rank:6] and Discourtesy of the crew [mean: 29.51; rank:7] are moderately problems faced by transportation services. Hence it is observed that overcrowding is the most important problems faced by the passenger towards transportation services.

- It is observed that the results of the ANOVA. Based on the results, the significant value is greater than 0.05 for uncleanness, Discourtesy of the crew, Pilferage of change by the Conductor and Very old buses. So, the null hypothesis is rejected and it is concluded that there is no significant relationship between the gender and problems faced by passenger towards transportation services. On the other hand, the significant value is lower .05 for Improper maintenance, Over Crowding and Low speed. Hence, it is concluded that the null hypothesis is accepted and there is significant relationship between the gender and problems faced by passenger towards transportation services.

- It is noted that the results of Duncan post hoc- analysis for examining the relationship between the gender and problems faced by passenger towards transportation services. It is observed that overcrowding is the main problems faced by passenger.

1.7 CONCLUSION:

It is too difficult to any service sector to satisfy its customers and it is a known fact, that everyone is aware that it is complex task or process to satisfy the difficult categories of bus passengers and other kind of transport sectors too. But it is mandatory for the transport sectors to satisfy their passengers to retain them and make them to avail the bus transport services of a particular service provider for a long time and to continue its services for the next generation and also for their future survival. But all these objectives will be achieved if the service providers are able to find or identify the attitude, psychology, pre-travel expectation and post travel opinion of the passengers who prefer any service provider at their convenience. It is also necessary for the bus transport service providers to identify taste, preferences, usage pattern, different levels of age, level of Income of the passengers to assess their expectation level. But generally the passengers 'Needs And Desires are based on attitude, Psychological Behavior, Pre-Travel Expectation and Post-Travel Opinion. The researcher concluded that the important problems faced by passenger towards transportation services are Overcrowding, Uncleanness, Improper Maintenance and Low speed.

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