



# FACTORS THAT SATISFY THE USERS OF APP CABS IN A COVID STRICKEN NATION: AN INSIGHT INTO URBAN INDIA

**Dr Swapna Datta Khan <sup>1</sup>**

*Assistant Professor, Army Institute of Management, Kolkata, India*

**Ms Deepa Meel <sup>2</sup>**

*Aspiring Research Scholar (applied to MAKAUT), India*

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## ABSTRACT

*The SARS Co V19 virus touched India in early 2020 and by March 20 the entire nation was in the process of observing a strict lockdown. The Covid 19 protocol in urban India came with a slew of restrictions on the citizens' movement and traffic within cities. In May 2020, the lockdown was eased and the App Cab businesses of the Transportation Sector issued instructions to combat the pandemic while yet ferrying urban commuters efficiently, such as the compulsory sanitization of vehicle after each trip and a stringent check on the health records and hygiene levels of their drivers. In this paper, the 22-item multidimensional SERVQUAL instrument was used to generate an initial construct and Exploratory Factor Analysis revealed an underlying construct throwing light n the drivers of user satisfaction with relation to App Cab commute in Indian cities.*

**KEY WORDS:** *Construct, Covid 19, Pandemic, App Cab, Customer Satisfaction, SERVQUAL*

## 1. INTRODUCTION

In 2020, the SARS CoV19 touched India in March and the Central and State Governments imposed strict lockdown to stem the transit of the deadly virus. After May 2020, the lockdown was eased, commercial activities were re-introduced and citizens moved outside for necessities, albeit warily. At this time the App Cab companies introduced a slew of measures to abide by the newly introduced Covid protocol and yet satisfy the customer. This paper throws light on the factors that drive customer satisfaction of App Cabs in Indian cities in these trying times.

## 2. LITERATURE REVIEW

Covid-related measures taken by the two major Indian App Cab companies

Uber: Pandemic related measures taken for safer travel by Uber App Cab are as follows:

- a) Only two occupants are allowed at a time to ensure social distancing. Thus, Uber Pool facility of a pool-cab system was suspended
- b) Hygiene supplies are provided to each car and the driver has to sanitize the car after each ride
- c) Besides, Uber supported health-care by providing free services to health-care workers, providing free meals and ferrying medical supplies
- d) Both riders and drivers have to wear face masks all the time
- e) A photo-based verification of driver each time they log in, where the driver has to photograph himself wearing a mask and the camera detects the same
- f) The ride can be cancelled by either driver or rider in case a mask is not worn

(Our approach to COVID-19, n.d.), (Uber announces new safety features amid COVID-19, masks now mandatory for both driver and riders, 2020)

**Ola: Pandemic related measures taken for safer travel by Uber App Cab are as follows:**

- a) The ride can be cancelled by either driver or rider in case a mask is not worn
- b) Hygiene supplies are provided to each car and the driver has to sanitize the car after each ride
- c) To maintain social distancing, customers have to handle their own luggage
- d) Payments are only cashless
- e) Only two occupants are allowed at a time to ensure social distancing
- f) A mask-recognition camera system is installed
- g) Mandatory integration with the Arogya Setu App
- h) Training of drivers in following hygiene protocols
- i) Monitoring of driver well being
- j) An open request to public to give inputs on how hygiene standards could be improved
- k) AC to be switched off to ensure adequate ventilation

(Ola Cabs: Ride Safe, n.d.), (Ola launches '10 Steps to a Safer Ride' for driver-partners and customers as services resume in 100+ cities in green and orange zones across the country, n.d.)

**Similar Studies**

In their study, Bhuvanewari, Varghese, Rajasekaran, & Muthulakshmi, 2018, analyzed the factors affecting customer retention and proved that the growth of digital marketing efforts in the geographical area of Coimbatore city. They emphasized that security, information quality and perceived usefulness would bridge the gap between demand and supply. (Bhuvanewari, Varghese, Rajasekaran, & Muthulakshmi, 2018)

Thilakarathne & Jayaratne, 2019 studied the factors that affect user satisfaction for the app cabs in India. And emphasized on professionalism of service, affordability, reliability, travel-time efficiency and safety. (Thilakarathne & Jayaratne, 2019)

Ghosh & Mitra, 2019, analyzed the sentiments of App Cab drivers in Kolkata with the aim of identifying issues. They noted that meeting customer expectations and earning satisfaction have an impact on the drivers' satisfaction levels. The drivers were dissatisfied with improper calculation of cancellation fees and the possible blocking of accounts. The drivers also mentioned the need for sturdier methods of compensation and safety mechanisms. (Ghosh & Mitra, 2019)

Pandya, Rungta, & Iyer, 2017 noted that with the advancement of technology, the app cabs had given serious competition to the traditional taxi services in Indian cities due to the variety of payment options, the

possibility of vehicle tracking and the 24x7 service. (Pandya, Rungta, & Iyer, 2017)

Le-Klähn, Hall, & Gerike, 2014 analyzed the user satisfaction of the public transport systems of Munich. They noted that information, ticket price, service frequency, comfort and ease-of-use drove user satisfaction levels at Munich. (Le-Klähn, Hall, & Gerike, 2014)

Sivasakthi, Nandini, Priyadharshini, & Vanathi, 2019 studied the taxi services available in India and said that people preferred app cab services as a necessary luxury and feel justified for the tariff levied. (Sivasakthi, Nandini, Priyadharshini, & Vanathi, 2019)

**3. OBJECTIVE**

Research objective (in the pandemic-stricken environment)

- a) To reveal the drivers of consumer satisfaction of the urban India consumer of the App Cab
- b) To throw light on the satisfaction levels as observed through the primary data

**4. RESEARCH METHODOLOGY**

Many methods of the measurement of Service Quality and Customer Satisfaction in the Services Sector have evolved. However, the 22-item multidimensional SERVQUAL instrument developed by Parasuraman *et al.* is yet relevant and most prominent and has been used by a Focus Group to decide on the set of initial variables. (Buttle, 1996) 35 initial variables (as depicted in Table 1), so decided, were measured using Likert Scores and options as: Strongly Disagree/ Disagree/ "I am OK"/ Agree/ Strongly. "Customer Satisfaction", here has been synonymized with "Service Quality", and is approached holistically, keeping the SARS CoV19 virus pandemic as a backdrop. Thus the 35 initial variables are generalized and are measured in the backdrop of the pandemic. The questionnaire, so created was thrown open (using Google Forms) to a snowball sample of 146 respondents. The genuine data of 146 responses fell short to facilitate Exploratory Factor Analysis and thus was simulated to create a database of size 561 to enable analysis. Demographic details of city of residence were noted are depicted by Figure 1, using the classification of Indian cities into X, Y, Z (based on the 2001 census of India and reclassification in 2008). (Classification of Indian cities, 2021)



Sno	SERVQUAL Acronym	Question	Sub Question or Variable Details	Variable Name
1	Reliability (Rel)	Providing services as promised (Promise)	The App Cab reaches me within an appropriate time	Rel_Promise1
2			The App Cab takes me to my destination as promised	Rel_Promise2
3		Dependability in handling customer service problems	The App Cab Customer Care responds whenever I have contacted them	Rel_Dependability1
4			The App Cab Customer Care has always solved my problem	Rel_Dependability2
5		Provides Services at the correct time	The App Cab arrives promptly when called	Rel_Prompt
6		Maintaining Error Free Records	My profile in the App is always correctly updated	Rel_Record1
7			The App has an undertaking that the passenger is not suffering from Covid or Covid-related ailment	Rel_Record2
8	Responsiveness (Res)	Keeping customers informed about when services will be performed	The App informs me about the time when the Cab should be expected	Res_Info1
9			The App informs me about the time when the Cab would reach	Res_Info2
10		Readiness to respond to customer enquiries	Whenever I have asked the driver a question, he has eagerly answered me correctly	Res_Answer
11	Assurance (Ass)	Employees who instill confidence in customers	I always feel confident about the driving skills of the driver	Ass_Emp1
12			Whenever I have interacted with the customer service of the App Cab, I have felt confident regarding their efforts	Ass_Emp2
13		Making customers feel safe in their transactions	The payment system is transparent	Ass_Paymt
14		Employees who are constantly courteous	The driver of the App Cab is always courteous	Ass_Courtesy
15		Employees have the knowledge to	The driver has knowledge about the App and the Cab system	Ass_EmpKnow1

Table 1: List of 35 initial variables, as decided by the Focus Group

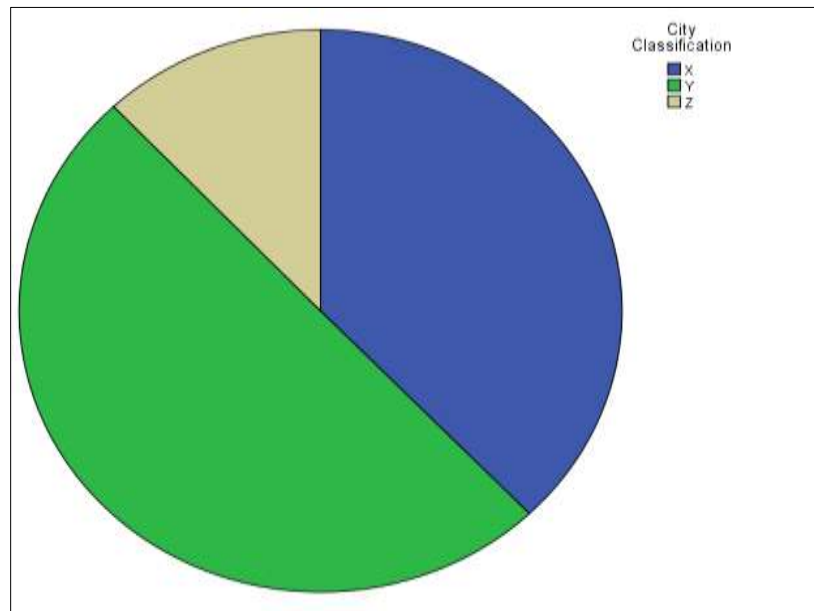


Sno	SERVQUAL Acronym	Question	Sub Question or Variable Details	Variable Name
16		answer customer queries	The Customer Service executives are knowledgeable enough to answer my queries	Ass_EmpKnow2
17	Empathy (Emp)	Giving customers individual attention	The App communicates with me on an individual basis (remembering my profile settings)	Emp_Attn
18		Employees deal with customers in a caring fashion	I feel well cared for when I interact with the Customer Service staff	Emp_Care
19		Having the customer's best interests at heart	The Customer Service staff keep my interests above all	Emp_CustInt1
20			The behaviour of the driver makes me feel that my interests are above all else	Emp_CustInt2
21		Employees who understand the needs of the customers	The Customer Service Staff understands my needs when I interact with them	Emp_CustNeed1
22			The driver understands my needs very well and helps	Emp_CustNeed2
23		Convenient Business Hours	The App Cabs are active 24x7	Emp_Convenience1
24			The Customer Service is active 24x7	Emp_Convenience2
25	Tangibles (Tan)	Modern Equipment	The App Cab is equipped with modern amenities	Tan_Equip1
26			The App Cab has wifi which I can access	Tan_Equip2
27			The App Cab has sanitizing equipment on offer	Tan_Equip3
28			The driver has a body-temperature checking equipment	Tan_Equip4
29	Visually Appealing Facilities	The App Cab exterior is visually appealing	Tan_VisAppeal1	
30		The App is visually appealing to use	Tan_VisAppeal2	

Table 1: List of 35 initial variables, as decided by the Focus Group

Sno	SERVQUAL Acronym	Question	Sub Question or Variable Details	Variable Name
31		Employees have a neat professional appearance	The driver is always neatly dressed	Tan_EmpHygiene1
32			The driver always wears a clean mask	Tan_EmpHygiene2
33			The driver wears gloves	Tan_EmpHygiene3
34		Visually appealing materials associated with service	The App Cab interior is comfortable	Tan_CanInterior1
35			The App Cab interior is visually appealing	Tan_CanInterior2
			Total Number of Variables	35

**Table 1**

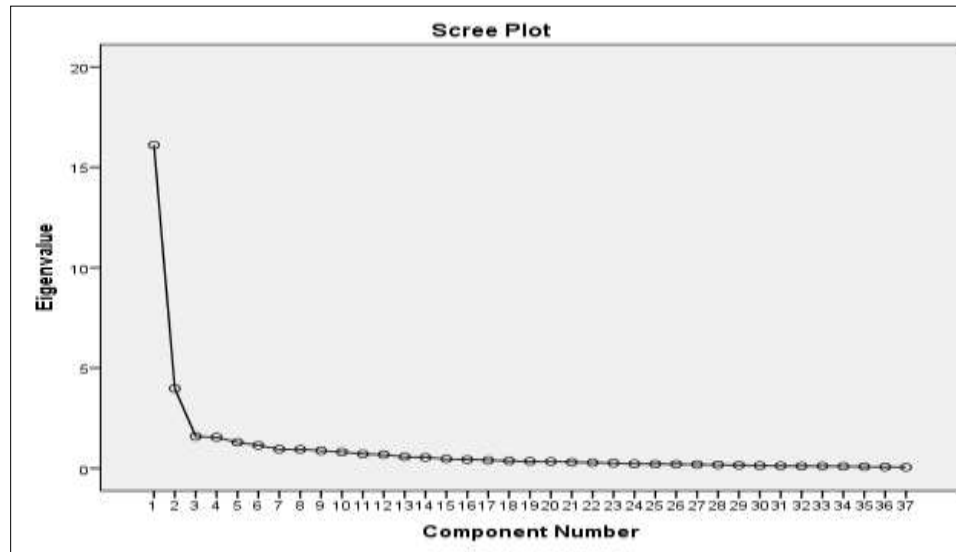


**Figure 1: Respondents' demographics with respect to city classification**

The data has been treated with Exploratory Factor Analysis (Varimax Rotation), using the SPSS Statistical Package and Bartlett Factor Scores recorded. (Methods to compute factor scores, and what is the “score coefficient” matrix in PCA or factor analysis?, n.d.) The age of the respondent though recorded, has not been taken cognizance of. The city of residence and home-based travel has been recorded to throw the final light of the level of satisfaction of the respondent with reference to location, using city classification.

## 5. ANALYSIS AND FINDINGS

The data collected and compiled (after necessary simulation) over 35 initial variables was put through Exploratory Factor Analysis (EFA) (with Varimax Rotation and saving the Bartlett Factor Scores). (Methods to compute factor scores, and what is the “score coefficient” matrix in PCA or factor analysis?, n.d.) The Kaiser-Meyer-Olkin Measure of Sampling Adequacy showed a healthy score of 0.900. The EFA unearthed up six factors which accounted for 69.37% variance. The Scree Plot is shown in Fig2 and the rotated component matrix is shown in Table 2.



**Figure 2: The Scree Plot**

The six Factors are as described:

**Factor1: Covid Precautions and Comfort;** Factor 1 contributes to 43.369 % of total variance. The customer is satisfied if he feels safe in the pandemic. Though he

prefers safety and security, he also requires basic necessities such as Internet Connectivity, Modern Amenities and Comfort. The variables contributing to Factor1 are listed in Table 3.

	Variable Name	Variable Description	Factor Loading
<b>Factor 1: Covid Precautions and Comfort</b>	Tan_EmpHygiene2	The driver always wears a clean mask	.857
	Tan_EmpHygiene3	The driver wears gloves	.841
	Tan_Equip4	The driver has a body-temperature checking equipment	.830
	Tan_EmpHygiene1	The driver is always neatly dressed	.692
	Rel_Record2	The App has an undertaking that the passenger is not suffering from Covid or Covid-related ailment	.690
	Tan_Equip3	The App Cab has sanitizing equipment on offer	.682
	Tan_Equip2	The App Cab has wifi which I can access	.639
	Tan_Equip1	The App Cab is equipped with modern amenities	.567
	Tan_CanInterior1	The App Cab interior is comfortable	.561
	Tan_VisAppeal1	The App Cab exterior is visually appealing	.525

**Table 3**



Rotated Component Matrix <sup>a</sup>						
	Component					
	1	2	3	4	5	6
Rel_Promise1	-.001	.440	.589	.284	.140	-.005
Rel_Promise2	-.058	.288	.662	.206	.155	.150
Rel_Dependability1	.210	.258	.326	.693	.041	.164
Rel_Dependability2	.186	.396	.144	.765	-.007	.132
Rel_Prompt	.122	.096	.355	.651	.214	.324
Rel_Record1	-.105	.101	.530	.369	.450	-.174
Rel_Record2	.690	-.056	-.022	.072	.189	.119
Res_Info1	.026	-.014	.813	.208	.174	.182
Res_Info2	-.028	.318	.771	.123	.139	.126
Res_Answer	.164	.473	.496	.354	.169	-.043
Ass_Emp1	.204	.392	.547	.112	.116	.313
Ass_Emp2	.304	.393	.267	.495	.258	.179
Ass_Paymt	.142	.302	.386	-.056	.713	.127
Ass_Courtesy	.230	.444	.527	.229	-.033	.171
Ass_EmpKnow1	.352	.341	.678	-.006	.192	.072
Ass_EmpKnow2	.161	.607	.245	.368	.260	.184
Emp_Attn	.141	.173	.442	.192	.556	.139
Emp_Care	.167	.554	.346	.141	.280	.332
Emp_CustInt1	.206	.616	.238	.097	.404	.062
Emp_CustInt2	.196	.689	.342	.189	.168	.137
Emp_CustNeed1	.141	.777	.166	.310	.047	.071
Emp_CustNeed2	.228	.623	.261	.381	.130	.144
Emp_Convenience1	.087	.173	.258	.182	.123	.816
Emp_Convenience2	.198	.172	.097	.179	.035	.860
Tan_Equip1	.567	.546	.131	-.063	.117	.138
Tan_Equip2	.639	.222	-.148	.205	.342	.110
Tan_Equip3	.682	.157	.048	.211	.343	.100
Tan_Equip4	.830	.199	-.097	.220	.145	.031
Tan_VisAppeal1	.525	.462	.226	.197	.111	.178
Tan_VisAppeal2	.249	.238	.225	.385	.468	.075
Tan_EmpHygiene1	.692	.197	.359	.100	-.098	.270
Tan_EmpHygiene2	.857	.172	.180	-.097	-.058	-.038
Tan_EmpHygiene3	.841	.095	-.002	.130	-.137	-.007
Tan_CanInterior1	.561	.395	.431	.194	.014	.129
Tan_CanInterior2	.542	.623	.273	.037	.031	.085

Table 2



**Factor2: Service at Contact Point;** The behaviour and knowledge displayed by the Customer Service and Driver (Customer Contact Points). The customer's

needs have to be understood and catered to. The variables contributing to Factor2 are listed in Table 4.

	Variable Name	Variable Description	Factor Loading
<b>Factor 2: Service at Contact Point</b>	Emp_CustNeed1	The Customer Service Staff understands my needs when I interact with them	.777
	Emp_CustInt2	The behaviour of the driver makes me feel that my interests are above all else	.689
	Tan_CanInterior2	The App Cab interior is visually appealing	.623
	Emp_CustNeed2	The driver understands my needs very well and helps	.623
	Emp_CustInt1	The Customer Service staff keep my interests above all	.616
	Ass_EmpKnow2	The Customer Service executives are knowledgeable enough to answer my queries	.607
	Emp_Care	I feel well cared for when I interact with the Customer Service staff	.554
	Ass_Emp2	Whenever I have interacted with the customer service of the App Cab, I have felt confident regarding their efforts	.393

**Table 4**

**Factor 3: Travel time-efficiency and surety;** The customer is particular of the promptness of the App Cab and its service. He also appreciates if the driver has good driving skills. The variables contributing to Factor3 are listed in Table 5.

**Factor 4: Customer Care Efficiency;** The customer is concerned about the level of responsiveness of the App Cab and its Customer Care. The variables contributing to Factor4 are listed in Table 6.

**Factor 5: Transparency in Dealings;** The customer is insistent on transparency when dealing with money or information. The variables contributing to Factor5 are listed in Table 7.

**Factor 6: 24x7 Service;** The customer is particular of 24x7 service; The variables contributing to Factor6 are listed in Table 8.





	Variable Name	Variable Description	Factor Loading
<b>Factor 3: Travel time- efficiency and sureity</b>	Res_Info1	The App informs me about the time when the Cab should be expected	.813
	Res_Info2	The App informs me about the time when the Cab would reach	.771
	Ass_EmpKnow1	The driver has knowledge about the App and the Cab system	.678
	Rel_Promise2	The App Cab takes me to my destination as promised	.662
	Rel_Promise1	The App Cab reaches me within an appropriate time	.589
	Ass_Emp1	I always feel confident about the driving skills of the driver	.547
	Rel_Record1	My profile in the App is always correctly updated	.530
	Ass_Courtesy	The driver of the App Cab is always courteous	.527
	Res_Answer	Whenever I have asked the driver a question, he has eagerly answered me correctly	.496

Table 5

	Variable Name	Variable Description	Factor Loading
<b>Factor 4: Customer Care Efficiency</b>	Rel_Dependability2	The App Cab Customer Care has always solved my problem	.765
	Rel_Dependability1	The App Cab Customer Care responds whenever I have contacted them	.693
	Rel_Prompt	The App Cab arrives promptly when called	.651

Table 6

	Variable Name	Variable Description	Factor Loading
<b>Factor 5: Transparency in dealings</b>	Ass_Paymt	The payment system is transparent	.713
	Emp_Attn	The App communicates with me on an individual basis (remembering my profile settings)	.556
	Tan_VisAppeal2	The App is visually appealing to use	.468

Table 7



Factor 6: 24x7 Service	Variable Name	Variable Description	Factor Loading
	Emp_Convenience2	The Customer Service is active 24x7	.860
	Emp_Convenience1	The App Cabs are active 24x7	.816

Table 8

At this stage, an independent samples median test was conducted on Factor Scores over City Classification to check if there are any variation of opinions of customers (measured by the saved Factor Scores) over

the different classes of cities. No significant variation of customer opinion is noted. The analysis is shown in Table 9.

Hypothesis Test Summary				
	Null Hypothesis	Test	Sig.	Decision
1	The medians of Covid Precautions and Comfort are the same across categories of City Classification.	Independent-Samples Median Test	.981	Retain the null hypothesis.
2	The medians of Service at Contact Point are the same across categories of City Classification.	Independent-Samples Median Test	.102	Retain the null hypothesis.
3	The medians of Promptness and Surety of Service Delivery are the same across categories of City Classification.	Independent-Samples Median Test	.274	Retain the null hypothesis.
4	The medians of Responsiveness of Customer Care are the same across categories of City Classification.	Independent-Samples Median Test	.268	Retain the null hypothesis.
5	The medians of Transparency in Dealings are the same across categories of City Classification.	Independent-Samples Median Test	.268	Retain the null hypothesis.
6	The medians of 24x7 Service are the same across categories of City Classification.	Independent-Samples Median Test	.463	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

Table 9

## CONCLUSIONS AND RECOMMENDATIONS

### a. Managerial Implications

The factors unearthed could guide the marketing strategies of App Cab organizations towards enhanced customer satisfaction. Customers, wary of the spread of

the SARS CoV19 virus put Covid-related precautions and some basic comforts above all else. Much importance is also given to information-proliferation and travel-time efficiency and here, the Customer Care and drivers play a major role. It is intriguing to note that payment systems and 24x7 service are the last



factors to be considered, perhaps because the cost of the pandemic overshadows all other costs in the mind of the human being. The app cab organizations should educate their staff and drivers to respond to customers' needs accordingly. The research shows that performance is not varied over the different type of cities of the nation.

The data collected has been through convenience sampling and thus, is not likely to give exact results regarding types of cities. However, the results could guide such organizations to have individual feedback systems for different classes of cities and monitor the same closely.

### b. Research Implications

This research lays the foundation for exploration of Factor Relationships through Partial Least Squares and Structural Equation Modelling. Further, if the data is re-collected with multi stage stratified sampling, considering the demographic factors as age, gender and education, it could guide the researcher towards market segmentation and the results could be put to use to target and position offerings.

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