

Service Quality Dimensions (SERVQUAL) and Customer Satisfaction towards Motor Ride-Sharing Services: Evidence from Bangladesh

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Abstract

Purpose: This study aimed to examine and evaluate the factors affecting Bangladeshi ride-sharing consumers' satisfaction levels.

Research methodology: The samples comprised 386 users of this application in Dhaka city selected using a convenience random sampling technique. The data obtained using a survey questionnaire were evaluated using Smart PLS 3.0. Furthermore, six hypotheses were developed to realize the objectives. This study used a positivist research methodology.

Results: The results showed a positive and significant relationship between tangibility, responsiveness, empathy, price fairness, and customer satisfaction. There is no conventional relationship between reliability and assurance of customer satisfaction.

Limitations: Customer satisfaction is vast, and this study only examined ride-sharing services in Dhaka city using SERVQUAL dimensions, which restricts the generalizability of the results.

Contribution: The findings would help the service providers participating in this operation better understand the appropriate actions to improve their commuter services.

Keywords: *SERVQUAL, Ride-Hailing, Bangladesh, customer satisfaction, tangibility, responsiveness*

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1. Introduction

The global development of ride-sharing services would enable users to move more simply due to app-based services and cashless transactions. Consumers could utilize a single app and account for all reasons when ride-sharing companies were offered (Chaudhry, El-Amine, & Shakshuki, 2018; Goula et al., 2021). Ride-sharing implies several people using the same car, truck, van, or other vehicles to get to the same location. This practice also refers to carpooling, ride-sharing, and sharing a motorcycle (Ghosh, 2018; Khuong & Dai, 2016). The forecast period of 2018–2025 showed that the Dallas ride-sharing market in the US, which had an estimated value of USD 51.3 billion in 2017, is expected to expand at a robust growth rate of more than 20%. By 2025, the ride-sharing market is anticipated to reach USD 220.5 billion (Reuters Plus). Dhaka is the most significant commercial centre and capital of Bangladesh. As a capital city, its transportation system is believed to be convenient for commuters and take less time. However, people are stuck in traffic and wasting valuable time.

In Dhaka, workers lose more than 3.2 million working hours daily, and the average traffic speed has decreased from 21 kmph to 7 kmph over the past decade (World Bank). In 2003, taxis and four-stroke autorickshaws were introduced, but they could not deliver good services (Islam, Huda, Nasrin, & Freelanch Researcher, 2019; Skok & Baker, 2019). The government set prices for taxis and autorickshaws numerous times, but the drivers hardly used the meters and sometimes declined

requests to go somewhere. In response to the ride-sharing businesses in wealthy nations, a Bangladeshi start-up called Pathao launched a comparable project in Dhaka in 2015. The following year, US company Uber started operating in this country, followed by Obhai, Obon, Lily, and Shohoz. The only employees of Obon and Lily are women, while Obhai also offers services for auto rickshaws. According to Bangladesh Road Transport Authority (BRTA), thousands of city residents are served by 24 ride-sharing businesses. A business analysis of IDLC Finance Ltd published in June 2018 predicted that 500,000 commuters chose to hail cabs via apps in November 2017 (Afroj, Hasan, Uddin, & Fuad, 2022; Rajesh, 2021). More than 100,000 people in Bangladesh have ride-sharing jobs, demonstrating the sector's influence on employment (Karim, Muhibbullah, Ulfy, & Hossain, 2020). Owners and drivers of cars and motorcycles prefer Uber-Pathao because of its advantages. A survey by two Senior Research Associates of the Policy Research Institute (PRI) found that the average monthly income of a Dhaka resident is estimated at BDT 30,000, roughly half the income made by an Uber car owner. In contrast, the gross monthly income of a ride-share car owner is around BDT 60,000 (B. Li, Krushinsky, Reijers, & Van Woensel, 2014; Zafri, Khan, Jamal, & Alam, 2021). A recent World Bank study also found Dhaka's average speed is between 7.0 and 8.0 km/h. A typical automobile travels at about 12 km/h, while a Pathao bike from a bike-sharing company travels at about 16 km/h. This implies that a person using Pathao travels faster than most other modes of transportation. The average monthly cost of owning, operating, and maintaining a car in Bangladesh is roughly Tk. 70,000. This cost could be covered by revenues from ride-sharing services. Therefore, people that do not own private automobiles could also benefit from these services.

Several approaches have been used to evaluate service quality. Kim, Schmöcker, Yu, and Choi (2018) used five dimensions of information, mobility, comfort, convenience, and safety to investigate the service quality of transfer facilities in South Korea's rail system. The Rasch analysis showed that the framework and components created were simple for the respondents to comprehend and assess. According to Tumsekcali, Ayyildiz, and Taskin (2021), the SERVQUAL model could also be expanded to assess customer satisfaction in Turkey. The study suggested SERVQUAL 4.0 model, which may be developed to assess service quality. Additionally, the study found that the model was quite accurate, even in the circumstances such as the aftermath of the COVID-19 epidemic. F. Rahman, Das, Hadiuzzaman, and Hossain (2016) examined Bangladesh's paratransit service quality. The study found the factors that significantly impacted service quality were punctuality, reliability, vehicle fit, and cost. Similarly, Grujičić, Ivanović, Jović, and Đorić (2014) examined the quality of Serbia's public transportation. The results showed that ventilation, cleanliness, and ticket pricing were the most important considerations when assessing service quality.

Munim and Noor (2020) examined young people's opinions on the bus service in Norway. The study showed that tangible features, empathy, and environmental performance significantly impacted customer satisfaction. Additionally, Mikhaylov, Gumenuk, and Mikhaylova (2015) found that the physical dimension in Russia significantly impacted the calibre of public transportation services. Based on these studies involving PUVs from various nations, the SERVQUAL model may be used to assess service quality. The ideal methodology to evaluate service quality is constantly up for discussion.

Customer satisfaction measures how motor-ride-sharing services fulfil the customers' functional needs. It focuses on five performance factors, including tangibility, dependability, responsiveness, assurance, empathy, and price.

The number of companies offering ride-sharing services has increased recently, resulting in considerable competition among several operators, including Uber, Pathao, Obhai, and Lily. In this aspect, understanding consumer happiness is crucial for developing corporate strategies. Therefore, this study helps academics and marketing executives understand client satisfaction with ride-sharing services.

2. Literature Review

Giang, Trang, and Yen (2017), in *An Examination of Factors Influencing the Intention to Adopt Ride-sharing Applications*, found that perceived utility and ease of use positively impact attitudes toward ride-sharing behaviors. The study also examined the significance of attitude, arbitrary standards, and perceived behavioral control in determining the intention to use ride-sharing services. In an *Integrated Model of Service Quality, Price Fairness, Ethical Practice, and Customer Perceived Values for Customer Satisfaction in Sharing Economy Platform*, Hamenda (2018) found that service quality affects customers' satisfaction directly and indirectly, with perceived value as a partial mediator. The study recommended that businesses include ethical behavior, fair pricing, and high service standards in their strategic plans to boost customer satisfaction. These insights have strategic implications that help firms maintain their edge in a cutthroat market.

Mahapatra and Telukoti (2018) concluded in *Obstacles Experienced by Uber Drivers and Consumer Satisfaction in Pune City* that drivers experience manageable challenges and are generally satisfied with the firm's services. Customers adore Uber for its efficient administration, but this is only one of several reasons. According to V. H. Kumar and Sentamilselvan (2018), customers consider cost, comfort, convenience, service quality, and customer care while selecting a taxi service provider. The study was based on a survey conducted in Chennai.

Results represent what consumers in the Chennai market think and their happiness with call taxi service providers. CHIA (2017) used the SERVQUAL model to evaluate ride-hailing service quality dimensions toward customer satisfaction in Kuala Lumpur, Malaysia. The study aimed to identify the discrepancy between the ride-hailing service providers and the customers' expectations of the service quality provided. The findings indicated that all five service factors positively and substantially correlated with customer satisfaction. Furthermore, Levin, Kockelman, Boyles, and Li (2017) found that on-demand ride-sharing services such as Uber have the potential to reduce automobile ownership, shift traffic from single occupancy to ride-sharing, and delay travel plans during peak hours. According to Levin et al. (2017), ride-sharing services such as Uber have the potential to decrease car ownership, shift single occupancy traffic, and delay travel plans during rush hours. These impacts lessen overall traffic congestion in an urban area (Amegayibor & Korankye, 2021; Z. Li, Hong, & Zhang, 2016; Rangana, Madhushani, & Jayarathna, 2019).

Zhang and Zhang (2018) examined the connection between US public transportation usage and ride-sharing. The study found that the correlation between ride-sharing and public transportation utilization is larger for urban residents or households with fewer automobiles. The findings imply the potential for combining public transit and ride-sharing systems to promote multimodal transportation, increase the use of both modes, and enhance sustainable mobility, which is advantageous for the environment and the general population. In a study on *Mobile App-Based Taxi Services and Customer Satisfaction*, Rasheed, Mazhar, and Shahid (2018) found that mobile app-based trips significantly influenced the taxi industry expansion. The study recommended that the government establish a regulated framework for taxi numbers, rates, and service standards. Also, charges should be fair, and passengers must refrain from improperly bartering for trips.

Ride-sharing services have made it simpler for individuals to travel. However, Chaudhry et al. (2018) stated that passenger safety is still a hot subject in the media. Little and large precautions must be performed to ensure the safety of the driver and passengers throughout a given journey. Suhaimi, Talib, Bachok, and Saleh (2018) found that Uber's service security, cost, convenience, and information and communications technology (ICT) affected customer happiness and return usage. The study suggested that Uber operators must improve their offers to satisfy growing customer expectations for public transportation. Since ICT significantly impacts attaining sustainable global and tourist development, it is crucial for the transportation and tourism industries (Pekkaya, Pulat İmamoğlu, & Koca, 2019).

Balachandran and Hamzah (2017) found that comfort, reliability, price, promotion and coupon redemption, and reliability positively and significantly related to customer satisfaction in Malaysia.

Comfort has a major impact on customers' satisfaction with ride-sharing services. According to Hahn and Metcalfe (2017), the advent of ride-sharing and autonomous cars is anticipated to have a significant positive influence on society. The study predicted a tremendous advancement in the knowledge of how ride-sharing programs affect the economy in the next ten years. For instance, Uber and Lyft are incentivised to highlight the positive aspects of their services while downplaying the negative ones (Sugiarto & Octaviana, 2021).

In a study on The Share-a-Ride Problem: People and Packages Sharing Taxis, B. Li et al. (2014) found that taxi sharing has great promise for urban areas. However, the study emphasized traditional freight service requirements to ensure that all demands are satisfied. This numerical analysis supports the feasibility of taxi-sharing systems. The results also showed a trade-off between taxi companies' earnings and the percentage of accepted parcels. In a study of Trends in Taxi Use and the Advent of Ride-hailing, 1995-2017, Conway, Salon, and King (2018) found that ride-hailing correlates with transit and non-motorized transport use. Furthermore, ride-hailing negatively relates to vehicle ownership and is used more frequently by residents of denser areas. Communities must include for-hire vehicles in their long-term planning, given the increasing growth of ride-sharing services. P. K. Kumar and Kumar (2016) found that customers are interested in using discounts while making their decisions. The survey also showed that users easily use mobile applications to book cab services and redeem coupons.

Dhawan and Yadav (2018) identified the factors influencing customers' decisions regarding ride-sharing services. These factors include cost, discounts provided, cab aggregator brand, ride-sharing option, and environmental consciousness. Other factors are service quality in terms of driver smartness, punctuality, good driving skills, physical safety, and privacy.

2.1 Tangibility

Tangibility is physical existence and being seen, felt, and touched. From a banking standpoint, it comprises the technology, branch ambience, staff, and environment (Khan & Fasih, 2014; Ocampo et al., 2019). Customer satisfaction in the banking sector is significantly influenced by tangible factors. Banks and the service sector must rely significantly on tangible components to please clients because their products are intangible. Furthermore, customers often make frequent bank switching decisions (Iberahim, Taufik, Adzmir, & Saharuddin, 2016; Javed, Liu, Mahmoudi, & Nawaz, 2019). This is because banks do not place enough value on tangible factors. Modern equipment, ambience, and staff are just a few tangibles that greatly impact customer happiness and retention. Therefore, banks must enhance these concrete elements to ensure distinctiveness, consumer happiness, and sustained growth (Arokiasamy & Huam, 2014; Kansra & Jha, 2016; Naab & Bans-Akutey, 2021; Suhaimi et al., 2018). Tangible and intangible factors have a big impact on customer satisfaction in banking. They should be included in the value proposition to increase client satisfaction and foster long-lasting connections (Khan & Fasih, 2014). According to some studies, a company's profitability is positively impacted by the quality of its services (M. Li et al., 2015; M. R. H. Polas, Raju, Hossen, Karim, & Tabash, 2022; Sabir, Irfan, Akhtar, Pervez, & ur Rehman, 2014).

H1: *Tangibility positively and significantly relates to customer satisfaction.*

2.2 Reliability

Reliability relates to how businesses handle their issues and keep track of their clients effectively and precisely (Mitiku & Nega, 2021; Parasuraman, Zeithaml, & Berry, 1985; Yousuf, 2017). Customers favor businesses that engage with them and maintain their commitments. In the banking sector, reliability is defined as providing services on schedule (Basera, Mwenje, & Ruturi, 2019). It is key to fostering strong customer relationships (Behdioğlu, Acar, & Burhan, 2019; Parasuraman et al., 1985). Studies have shown that SERVQUAL's reliability is a crucial component with a favorable impact on customer satisfaction. It is one aspect of service quality that influences customer happiness (Kashif, Shukran, Rehman, & Sarifuddin, 2015). Technology adoption assists businesses in gaining an advantage and offering trustworthy services, leading to client satisfaction (Khan & Fasih, 2014; Sibai, Bay Jr, & Dela Rosa, 2021).

H2: *Reliability positively and significantly relates to customer satisfaction.*

2.3 Responsiveness

Response time is a measure of how fast a business responds to customer inquiries and resolves its issues. Businesses must understand customer demands in this environment to create efficient and secure operations (Parasuraman et al., 1985). Studies show that timeliness greatly impacts the service quality model and increases customer satisfaction (Al-Azzam, 2015; Hawlader, Rana, Kalam, & Polas, 2021). Client satisfaction increases when staff members promptly answer customers' questions (Al-Azzam, 2015). The staff members' response is significantly influenced by their attitudes and behaviors. Therefore, companies must routinely give their workers the training needed for client relations. This would increase consumer satisfaction and improve business relationships (Alam & Mondal, 2019; Loke, Taiwo, Salim, Downe, & Petronas, 2011).

H3: *Responsiveness positively and significantly relates to customer satisfaction.*

2.4 Assurance

Assured customers have faith and confidence in the business to provide them with the best services available (Arsanam & Yousapronpaiboon, 2014; Sumi & Kabir, 2021). When personnel provide services with respect, consumers are assured that their issues would be resolved (Khan & Fasih, 2014). Similarly, employee expertise and politeness build trust (Parasuraman et al., 1985). Previous studies showed that trust positively impacts consumer satisfaction, while staff trust positively impacts purchase intention (Khan & Fasih, 2014; Peitzika, Chatzi, & Kissa, 2020).

H4: *Assurance positively and significantly relates to customer satisfaction.*

2.5 Empathy

Empathy refers to how businesses comprehend and address client problems and concerns (Parasuraman et al., 1985). Banks must show empathy for their clients when responding to their questions and difficulties to realize a competitive advantage and have happy clients. Empathy has been linked to higher levels of customer satisfaction (Stević et al., 2021; Wieseke, Geigenmüller, & Kraus, 2012). Other studies have found that customers are not satisfied with the quality of the services when personnel lack empathy (Bhattacharjee, Jahanshahi, Polas, Hossain, & Asheq, 2019; Loke et al., 2011). Therefore, compassionate behavior towards employees fosters a favorable perception of businesses, enhancing their financial health (Khan & Fasih, 2014). Staff members that care about consumers also overlook inconsistencies and blunders (Khan & Fasih, 2014). Studies have demonstrated how empathy influences customer loyalty and service excellence (Al-Azzam, 2015; Pakurár, Haddad, Nagy, Popp, & Oláh, 2019).

H5: *Empathy positively and significantly relates to customer satisfaction.*

2.6 Price Fairness

Price is the sum of money spent by buyers to buy a product or obtain a service (Lichtenstein, Ridgway, & Netemeyer, 1993). Cost is essential in the communications business as the focal point of a war between players for acquiring and retaining customers. The price of a smart device and the cost of a mobile subscription, data plans, or bundles indicate how much customers must pay to access data services (Erevelles, Srinivasan, & Rangel, 2003). Customers also have price alternatives due to the diversity of payment choices, adaptability, and flexibility of mobile data service. Price has a negative relationship with the intention to use mobile data services (Severt, Shin, Chen, & DiPietro, 2022). It is also the strongest predictor of mobile data service user behavior (Lichtenstein et al., 1993) and the chance of purchase (Choi, Jung, & Kim, 2017). However, the cost is important when selecting an Internet service provider. It is the most important consideration when selecting a mobile service provider for voice and text services (Erevelles et al., 2003). Price is a key factor in customer satisfaction (Hult, Mena, Gonzalez-Perez, Lagerström, & Hult, 2018). In this study, customers are probably price-sensitive, meaning the pricing model impacts brand preference and intention to continue using the service (Afrin, Sehreen, Polas, & Sharin, 2020; Bhattacharjee, Polas, & Rahman, 2018; Widiastiti, Yasa, & Rahanata, 2020).

H6: *Price Fairness positively and significantly relates to customer satisfaction.*

Further investigation into the service quality characteristics and customer satisfaction with ride-hailing services is necessary due to the industry's rapid growth and its role. There is inadequate information on customer satisfaction with ride-sharing services in Bangladesh. Therefore, this study aimed to examine the connection between customer happiness and service quality in Malaysian ride-sharing businesses. It used six service quality aspects to gauge customer satisfaction with ride-sharing services in Dhaka, Bangladesh. The quality aspects are tangibility, reliability, responsiveness, assurance, empathy, and price.

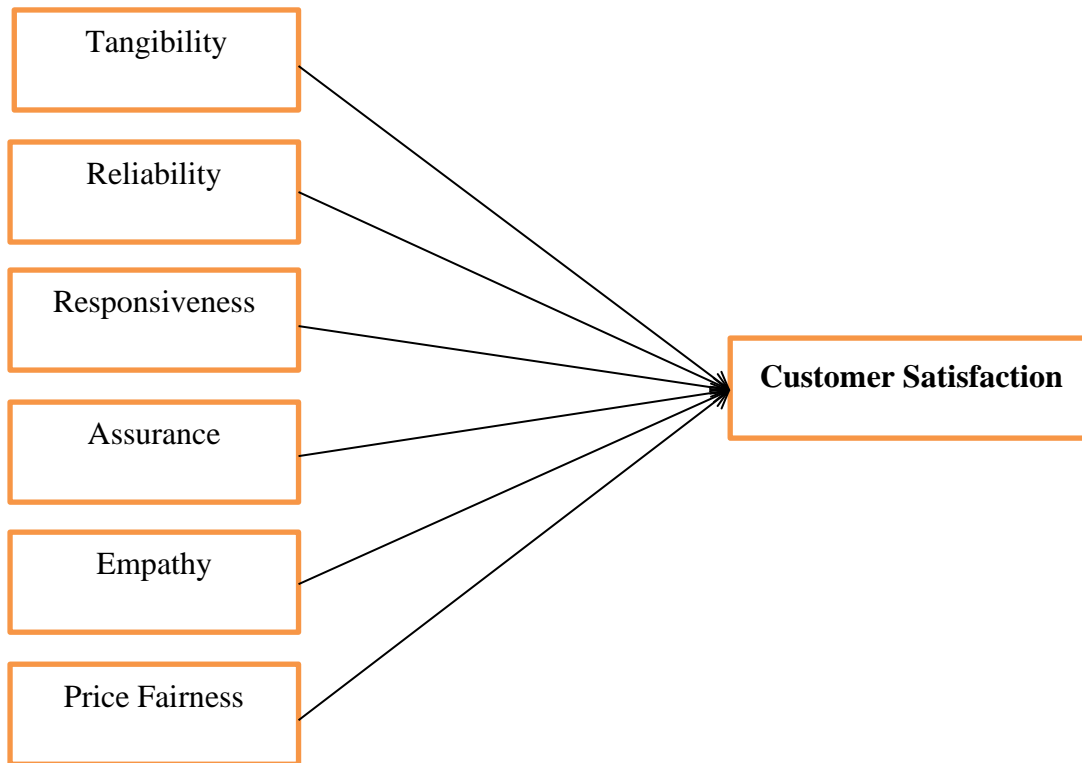


Figure 1: The Framework of the study

3. Research Methodology

This study adopted the positivist research approach and used 386 respondents selected through convenience sampling. Primary data were collected using structured questionnaires distributed to users of the ride-sharing application in Dhaka, Bangladesh. Convenience random sampling was adopted as the number of the population was unknown. Locally trained study assistants helped collect the data from respondents. The respondents were given 5-10 minutes to fill out the questionnaires. They were informed that their personal information would be kept confidential and used only for study purposes. National and international reputable corporations such as Uber, Pathao, and Obhai provide organized car and motorbike sharing services in Dhaka. The questionnaire was developed through a Google form spread via different digital platforms such as email, Facebook, and WhatsApp. The study participants comprised those that have used cab services in the last year and booked the cab using a mobile app on their smartphones. The demographic variables included gender, age, marital status, occupation, educational qualification, and monthly income. The study constructs are tangibility, reliability, responsiveness, assurance, empathy, and price.

Five items from the constructs were adopted from SERVIQUAL Dimension (Parasuraman et al., 1985), while the price was adopted according to the need of this study. The items under each construct were measured using a Five Likert scale anchored from '1' for strongly disagree to '5' for strongly agree. Data were analysed using the statistical software Smart PLS 3.0, while the hypotheses were formulated based on the study objectives.

3.1 Questionnaire Development

Factor	Items	Code
Tangibility	The vehicles used by the riders are in good condition.	TAN1
	Ride-sharing apps are visually appealing.	TAN2
	The functions of the apps are easy to find and operate.	TAN3
Reliability	The ride providers meet their promised timeframes for pick-up.	REL1
	The riding company is sympathetic and cordial when the customer has problems.	REL2
	They provide their services at times promised.	REL4
Responsiveness	Prompt service is provided by employees of helplines.	RES1
	Employees or apps inform customers when services occur.	RES2
	Employees respond to request.	RES3
Assurance	Employees are trustworthy.	ASS1
	You feel safe in dealings.	ASS2
	Employees are polite.	ASS3
Empathy	Firms give each customer individualized attention.	EMP1
	Employees provide individualized attention.	EMP2
	Employees understand customer needs.	EMP3
	Employees have the best interests of the customer in mind	EMP4
	The services operate at convenient hours.	EMP5
Price	The price is reasonable comparing the distance.	PRI1
	The price is competitively lower than the usual transports.	PRI2
	The apps provide discount pricing for regular use.	PRI3
Customer Satisfaction	Overall, I am satisfied with the services.	CS1
	Being a customer of service has been a good choice for me.	CS2
	Service has lived up to my expectations.	CS3
	Service is concerned with what solutions are the best for me.	CS4
	Service offers me good solutions.	CS5

4. Results and Discussions

4.1 Respondent's Demographic Profile

Table 1 shows that 36.79% of respondents were women and 63.21 % were men. Based on age, 36.01% of respondents were 30-33 years old. The data further indicate that 48.7% of respondents were married, while 49.22% were single. Also, 46.37% of respondents were undergraduate students, 23.06% worked for the government, and 49.22% earned less than \$500 per month.

Table 1. Demographic Profile of Respondents

Characteristics	Frequency	Percentage	Characteristics	Frequency	Percentage
Gender			Education Level		
Male	244	63.21	Intermediate or below	56	14.51
Female	142	36.79	Under Graduate	179	46.37
Age			Post Graduate	115	29.79
22-25 Years	55	14.25	Others	36	9.4
26-29 Years	79	20.47	Monthly Income (US Dollar)		
30-33Years	139	36.01	below 500\$	190	49.22
34-37 Years	88	22.8	501-1000\$	122	31.61
38 years or above	25	6.48	1001\$-1500\$	45	11.66
Marital Status					

Single	188	48.7	1501-2000\$	18	4.66
Married	190	49.22	2001 or above	11	2.85
Divorced	8	2.07			
Occupation					
Self-employed	56	14.51			
Lecturer	22	5.7			
Government employee	89	23.06			
Private Employee	77	19.95			
Student	133	34.46			
Others	9	2.33			

Total- 386

4.2 Model Measurement, Validity and Reliability

Table 2 shows that the outside loadings exceed 0.50, while the composite reliability is more than 0.70 (Hair Jr, Sarstedt, Matthews, & Ringle, 2016). The Cronbach's alpha value exceeds 0.70, while convergent validity is maintained when both items' factor loading is greater than 0.50 (Hair Jr et al., 2016).

Table 2. Measurement of Model Assessment

Constructs	Items	Loading	AVE	CR	Alpha	R-Square	NFI	SRMR
Tangibility	TAN1	0.774				0.736	0.899	0.076
	TAN2	0.648	0.572	0.799	0.744			
	TAN3	0.835						
Reliability	REL1	0.770						
	REL2	0.786	0.584	0.808	0.744			
	REL3	0.732						
Responsiveness	RES1	0.795						
	RES2	0.848	0.675	0.861	0.759			
	RES3	0.819						
Assurance	ASS1	0.781						
	ASS2	0.821	0.642	0.843	0.721			
	ASS3	0.801						
Price Fairness	PRI1	0.861						
	PRI2	0.737	0.596	0.815	0.766			
	PRI3	0.710						
Empathy	EMP1	0.796						
	EMP2	0.827	0.699	0.874	0.785			
	EMP3	0.883						
Customer Satisfaction	CS1	0.794						
	CS2	0.786						
	CS3	0.815	0.524	0.842	0.767			
	CS4	0.684						
	CS5	0.487						

Table 2 shows that the AVE value for each variable exceeds 0.50. The R² value demands that endogenous components are investigated. Cohen (1988) proposed three distinct impacts, including small (R² = 2%), medium (R² = 13%), and large (R² = 26%). In this regard, customer satisfaction significantly impacts external factors by 73.60%. The model is suitable for the inquiry since the NFI value is close to one (1) (Hair Jr et al., 2016). The NFI value lies between 0.899 and 0.9, meaning the model is deemed fit when the SRMR is less than or equal to 0.08 (Hair Jr et al., 2016). The allowable range is not met with the SRMR value of 0.076.

Table 3. Values of the Stone Geiser indicator (Q²) and Cohen's indicator (f²) of the model in the SEM

Variables	Q ²	Customer Satisfaction (f ²)
Assurance	0.286	0.042
Customer Satisfaction	0.311	
Empathy	0.391	0.074
Price Fairness	0.212	0.056
Reliability	0.191	0.049
Responsiveness	0.342	0.122
Tangibility	0.169	0.102

Large effect > 0.34; Medium effect > 0.14; Small effect > 0.01 (Cohen, 1988)

Table 3 shows that each latent variable's Q² value is larger than 0, implying the model's predictive significance remains (Chin, 1998). Assurance, empathy, price fairness, reliability, responsiveness, and tangibility affect customer satisfaction insignificantly. Overall, the model has excellent predictive significance and adequate fitness.

4.3 Discriminant validity

4.3.1 Fornell-Larcker criterion Analysis

Table 4 lists the correlation coefficients between square roots and latent variables (LV) along the major diagonal of the SEM. The model's discriminant validity was evaluated using the Fornell-Larcker criterion (Fornell & Larcker, 1981). Additionally, the square root of all variables has a maximum value between 0.724 and 0.836. This indicates the variables are certified, and the approximation model's discriminant validity is maintained.

Table 4. The Fornell-Larcker Criterion analysis for discriminant validity

		1	2	3	4	5		
1	Assurance	0.801						
2	Customer Satisfaction	0.698	0.724					
3	Empathy	0.548	0.691	0.836				
4	Price Fairness	0.718	0.645	0.665	0.772			
5	Reliability	0.581	0.625	0.618	0.655	0.764		
6	Responsiveness	0.622	0.621	0.536	0.607	0.661	0.821	
7	Tangibility	0.481	0.551	0.521	0.494	0.678	0.475	0.756

*The diagonals are the square root of the AVE of the latent variables and indicate the highest in any column or row

Note: LV- Latent Variable

4.3.2 Heterotrait-Monotrait (HTMT) Analysis

The discriminant validity of the HTMT values was always less than 0.85, as shown in Table 5. An HTMT value of 0.85 was used to assess the variables' discriminant validity.

Table 5. The heterotrait-monotrait (HTMT) analysis for discriminant validity

		1	2	3	4	5	6	7
1	Assurance							
2	Customer Satisfaction	0.839						
3	Empathy	0.72	0.829					
4	Price Fairness	0.756	0.785	0.832				
5	Reliability	0.748	0.678	0.811	0.787			
6	Responsiveness	0.633	0.644	0.681	0.845	0.675		
7	Tangibility	0.679	0.769	0.677	0.741	0.655	0.567	

*Discriminant validity exists if the HTMT<0.85 (Henseler et al., 2005).

*Discriminant validity exists if the HTMT<0.90 (Gold et al., 2001).

4.3.3 Cross Loads

The discriminant validity is determined by load values when they exceed the initial values. Crossing load values are preferred when the principal diagonal values and the correlations between latent variables (LV) and square roots of AVE values are clearer. The model's validity is preserved by supplying AVE values between the LV and square roots, as shown in Table 6.

Table 6. Values of the cross loads of individual items in the SEM

Items	Tangibility	Reliability	Responsiveness	Assurance	Price Fairness	Empathy	Customer Satisfaction
TAN1	0.774	0.464	0.333	0.406	0.381	0.27	0.372
TAN2	0.648	0.437	0.327	0.196	0.21	0.201	0.308
TAN3	0.835	0.611	0.411	0.446	0.477	0.607	0.527
REL1	0.597	0.732	0.506	0.431	0.458	0.443	0.57
REL2	0.415	0.642	0.588	0.516	0.574	0.492	0.564
REL3	0.545	0.476	0.417	0.381	0.469	0.485	0.528
RES1	0.409	0.478	0.795	0.437	0.482	0.478	0.591
RES2	0.368	0.402	0.848	0.457	0.443	0.402	0.561
RES3	0.391	0.436	0.819	0.628	0.564	0.436	0.62
ASS1	0.475	0.552	0.619	0.781	0.585	0.511	0.573
ASS2	0.371	0.418	0.452	0.821	0.539	0.424	0.541
ASS3	0.307	0.421	0.418	0.801	0.599	0.379	0.561
PRI1	0.363	0.619	0.518	0.607	0.861	0.634	0.7
PRI2	0.376	0.407	0.474	0.539	0.737	0.404	0.543
PRI3	0.434	0.472	0.407	0.517	0.71	0.482	0.444
EMP1	0.467	0.511	0.462	0.523	0.553	0.796	0.592
EMP2	0.406	0.472	0.354	0.382	0.483	0.827	0.477
EMP3	0.428	0.558	0.506	0.456	0.616	0.883	0.64
CS1	0.425	0.573	0.573	0.507	0.608	0.722	0.794
CS2	0.43	0.66	0.598	0.603	0.628	0.613	0.786
CS3	0.367	0.449	0.568	0.515	0.542	0.448	0.815
CS4	0.317	0.276	0.377	0.491	0.449	0.421	0.684
CS5	0.467	0.511	0.462	0.395	0.272	0.145	0.487

4.4 Structural Model Assessment

Figure 1 illustrates the structural model assessment, where t-values and R square were calculated using the bootstrapping procedure with default resampling 500 during analysis by Smart PLS 3.0. Initially, the data collected were put in the SPSS database and made into a CSV file for analysis in the Smart PLS. The database was then imported into the Smart PLS for analysis. The validity and reliability were checked before testing the hypotheses using bootstrapping. Q square and f-square were also checked using cross-validated commonality.

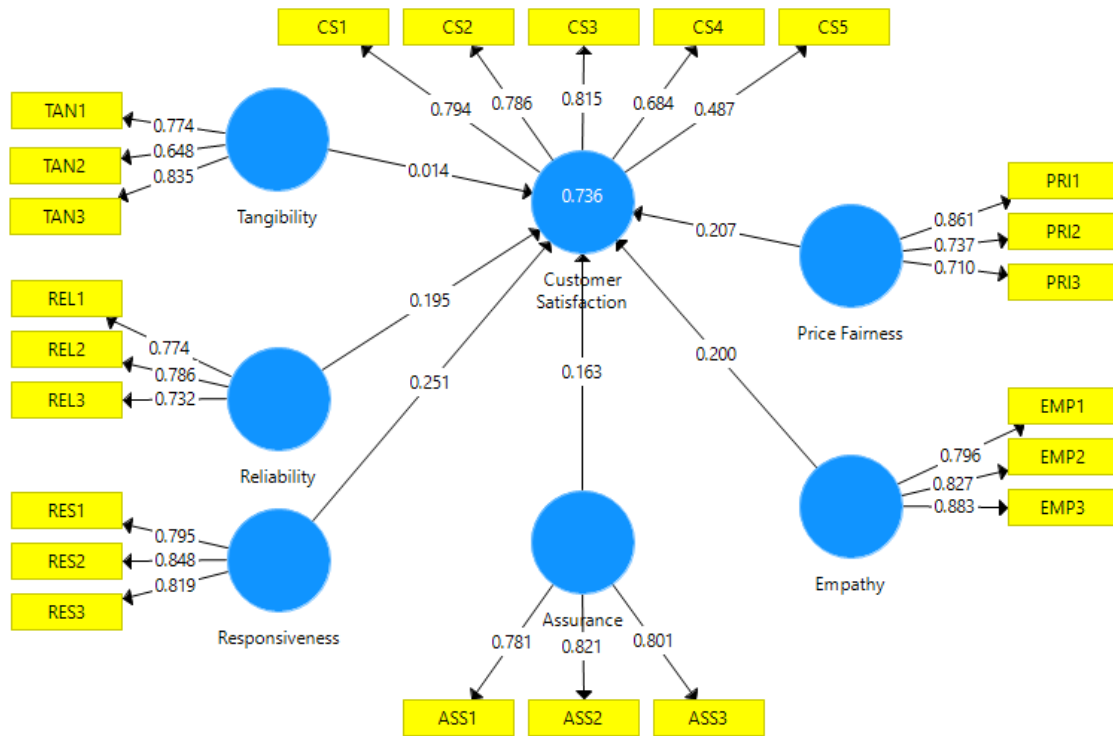


Figure 2. Standardized results of SEM calculations

4.5 Hypotheses Testing (Direct & Indirect effects)

Table 7 shows the results of the direct and indirect impact hypotheses. According to the first hypothesis, tangibility and consumer satisfaction have a favorable and substantial relationship. There is no positive and significant correlation between tangibility and customer satisfaction ($\beta = 0.016$, $t = 0.197$, $p < 0.05$), indicating the first hypothesis is disproved. This result contradicts A. Rahman, Hasan, and Mia (2017), Nambiar, Ramanathan, Rana, and Prashar (2018), and M. Polas, Juman, Karim, Tabash, and Hossain (2020).

Table 7. Result of Direct and Indirect Effect Hypotheses

Hypotheses	Relationship	Std Beta	Std Error	t-value	p-value	Decision
H1	Tangibility → Customer Satisfaction	0.016	0.073	0.197	0.844	Rejected
H2	Reliability → Customer Satisfaction	0.190	0.09	2.174	0.030	Supported
H3	Responsiveness → Customer Satisfaction	0.253	0.081	3.097	0.002	Supported
H4	Assurance → Customer Satisfaction	0.164	0.092	1.763	0.078	Rejected
H5	Price Fairness → Customer Satisfaction	0.206	0.088	2.358	0.018	Supported
H6	Empathy → Customer Satisfaction	0.207	0.083	2.406	0.016	Supported

The second hypothesis assumed that reliability and customer satisfaction have a positive and noteworthy relationship. Table 7 shows that customer satisfaction and reliability have a good and substantial link ($\beta = 0.190$, $t = 2.174$, $p > 0.05$), supporting the second hypothesis. This finding is

consistent with Iberahim et al. (2016), Pakurár et al. (2019), and M. Polas et al. (2020). The third hypothesis assumed that responsiveness and customer satisfaction have a favorable and noteworthy relationship. Table 7 shows a strong positive correlation between responsiveness and customer satisfaction ($\beta = 0.253$, $t = 3.097$, $p > 0.05$), confirming the third hypothesis. The result supports Ali and Raza (2017), Iglesias, Markovic, Bagherzadeh, and Singh (2020), and M. Polas et al. (2020).

The fourth hypothesis stated a strong positive correlation between assurance and customer satisfaction. Table 7 indicates no positive correlation between assurance and customer satisfaction ($\beta = 0.164$, $t = 1.763$, $p < 0.05$), disapproving of the fourth hypothesis. This finding contradicts Pham and Ahammad (2017), Pakurár et al. (2019), and M. Polas et al. (2020). According to the fifth hypothesis, there is a strong positive correlation between pricing fairness and customer satisfaction.

Table 7 indicates a strong and positive correlation between pricing fairness and customer satisfaction ($\beta = 0.206$, $t = 2.358$, $p < 0.05$), supporting the fifth hypothesis. This result supports Kwak, Puzakova, and Rocereto (2015), Konuk (2019), and M. Polas et al. (2020). The sixth hypothesis assumed a strong positive correlation between empathy and customer satisfaction. Table 7 shows that customer satisfaction and empathy have a good and substantial link ($\beta = 0.207$, $t = 2.406$, $p < 0.05$), confirming the sixth hypothesis. This finding also supports Othman, Harun, Rashid, and Ali (2019), Fida, Ahmed, Al-Balushi, and Singh (2020), and M. Polas et al. (2020).

5. Conclusion

This study aimed to examine and evaluate the factors affecting Bangladeshi ride-sharing consumers' satisfaction levels. Four of the six hypotheses formulated were supported, and two were rejected. Furthermore, there were no relationships between tangibility and assurance with customer satisfaction among Bangladesh-based respondents. This was probably due to proper trust and credibility towards e-hailing services.

E-hailing services have significantly changed Bangladesh regarding clients' comfort, convenience, safety, and satisfaction with quality services. However, population, congested roadways, transportation culture, and congestion may make U.S.-based techniques inappropriate in Bangladesh. This is because e-hailing services cannot consistently track customer feedback, resolve complaints immediately, or provide 24/7 customer care. Furthermore, Uber does not meet its promises, resulting in a 63% customer dissatisfaction rate. Pathao, a Bangladeshi start-up founded by three millennials, has grown rapidly, scoring 49% on the SERVQUAL aspects. The growth is reflected in social acceptance, good word-of-mouth, and customer satisfaction. The Bangladesh Road and Transportation Authority (BRTA) should consider extra measures to ensure passenger-oriented transportation service. This study is a sustainable competitive indicator for improving the service providers' quality.

A portion of the population has not used or has no interest in using a ride-sharing service. The current and prospective service providers may convert this group into potential clients by addressing the issues perceived by the target market. Customers express concern about the service's safety and security concerns. However, some customers chose ride-sharing services over conventional transportation modes because they were more affordable, flexible, convenient, time-efficient, and simple. These services are preferred due to their simplicity, adaptability, convenience, lack of need for fare haggling, comfort, time savings, affordability, and lack of fuss. Uber and Pathao account for more than three-quarters of the market and are favored by consumers due to their dominance in transportation and first-mover advantage.

This study is beneficial for current and prospective gig economy service providers. Understanding the clients' preferences and opinions would be beneficial to businesses. Therefore, companies must incorporate the results into their strategy to boost consumer happiness as well as increase their market presence and business growth. This study used several convenience samples to assess ride-sharing's current state and future potential in Bangladesh. However, a more definitive study is necessary

because this is only exploratory. Future studies could investigate how customers feel about ride-sharing services, their satisfaction, and how they compare to more conventional transportation forms. The studies could also assess the gig economy from the supply side or how service providers see their jobs in this sector. Additionally, comparable studies might be conducted in the other possible gig economy service industries.

Limitation and Study Forward

This study adopted a cross-sectional approach, indicating the longitudinal approach could be employed in the future. It was also conducted in one metropolitan area, necessitating future studies in other cities. Furthermore, this study only focused on customer satisfaction, specifically on ride-sharing services in Dhaka city, using SERVQUAL dimensions, thereby the results cannot be generalized. The study's impartiality may be diminished because the respondents' feedback could contain prejudices depending on the services received. Therefore, future studies should adopt a systematic sampling strategy rather than the current unsystematic sampling procedure. Future academics might use the results to improve the geographic coverage and ride-sharing services offered by app-based firms. Future studies should also examine Gen Z and Y to provide more knowledge regarding the customer satisfaction level among ride-sharing users. This would help two or more countries better understand this sector.

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