App-Based Ride Sharing Services in Urban Cityscape: Factors Influencing Customer Satisfaction

Md. Khairul Alam Rasel*   Md. Ibrahim Khalil[†]   Mst Khadijatul Kobra[‡]

Abstract

This article examines consumer behavior toward App-Based Ride-Sharing Services (ABRS) in an urban setting of a developing economy and their expectations of this sector. Data were collected through a structured online questionnaire administered to 222 participants. Initially, a reliability test is conducted to check the validity of the items used in each variable. Secondly, Exploratory Factor Analysis (EFA) was conducted, and subsequently, regression analyses were used to test hypotheses. The study results show that Safety and Security (SAS), Driver's Skill and Behavior (DSB), Accessibility to Rides (ATR), Car Quality (CQ), APP's User-Friendliness (AUF), and Cost of Rides (COR) are respectively critical determinants for matching expectations of consumers to get harmonized with the experience of ABRS. The study is expected to provide an overall picture of the ABRS from the consumers' viewpoint in Dhaka city. The study contributes to the literature on app-based services by incorporating empirical evidence on consumer behavior and how this mode of service could be improved in large, busy cities like Dhaka.

Keywords: Ridesharing, Public Transportation, Consumer Expectations, Actual Behavior

1. Introduction

Transportation is one of the basic and important parts of civilization; thus, people are becoming more conscious about using vehicles and prioritizing private cars to reach their destination in this modern society (Balachandran & Hamzah, 2017).

The traditional transportation system is being replaced by a new form of transportation service widely known as app-based ridesharing services (ABRS), which have the potential to help achieve the shared economy and ensure the sustainability of the universe (Hansen et al., 2010; Geisberger et al., 2009). Considering the context of Bangladesh, the total population is nearly 170 million, whereas the population in urban areas is almost 21 million (Bangladesh Bureau of Statistics, 2023). The people in Dhaka city need to avail public transport services because most of them are engaged in different types of social, cultural, economic, and political activities (Shefali, 2000). In this city, the public buses are so crowded that they do not allow passengers to get easy access to the buses due to the rising number of passengers (Olsson & Thynell, 2004).

Therefore, ABRS is gaining popularity day by day across the capital city, Dhaka, as it facilitates passengers in avoiding traffic congestion, while passengers can also find a ride easily (Karim et al., 2020). Moreover, Murad et al. (2019) outlined that ride-sharing services are based on the choice of consumers to pick up vehicles as per comfort instead of riding on other available public transportation. Other benefits of ABRS include a virtual connection between consumers and service providers, accommodation of passengers as per their desire, and managing time frames in an effective way (Akbari et al., 2021; Boateng et al., 2019).

However, the widespread use of the internet throughout the country has made using ride-sharing services popular, especially in Dhaka (Islam et al., 2022). Hence, the blessings of technology have created opportunities for both the passengers and the carriers who drive

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* Assistant Professor, Department of Marketing, National University Bangladesh

[†] Assistant Professor, Department of Management, National University Bangladesh

[‡] Lecturer, Department of Tourism and Hospitality Management, Islamic University, Kushtia

vehicles (Karim et al., 2020). Experts believe that the transportation network of the country is key to the economic growth of Bangladesh, where ABRS can play a significant role (Islam et al., 2022). In this connection, Akhi (2021) stated the benefits of these services to the economy in the context of Bangladesh.

Consequently, ABRS are helping in ensuring a sustainable economy by providing passengers with a traffic-free ride through motorcycles, while it saves costs for the riders and reduces the number of vehicles on the street (Cynthia et al., 2019). Nonetheless, it has many contributions that encompass society, economy, and the environment as well (Islam et al., 2019).

As these transport services turn out to be well-liked, the number of complaints against the riders' or drivers' behavior is rising at the same pace. In addition, several unexpected incidents by the bikers are also happening in Dhaka (Anik, 2019). So, the future of ride-sharing services mostly relies on satisfying the needs of consumers of these services who understand the characteristics of the economy of a country (Akhi, 2021). Moreover, keeping the trust of consumers through ensuring ease, coziness, and reliable services is important for customer satisfaction as it adds to the consumer satisfaction of ride users (Pasharibu et al., 2018). So, consumers' satisfaction may lead to a sustainable delivery of ride-sharing services, as satisfaction comes from experiences after using a particular product or service, which forms the attitude of the consumer (Hill & Brierley, 2017). Rasheed et al. (2018) pointed to satisfaction as the most vital component for service providers to drive competitors away from the competition. To ascertain consumer satisfaction, various qualities like physical, interactive, and corporate image quality must be measured, which form the customer expectation about services (Hussain et al., 2015). Zeithaml et al. (2012) described that physical quality is related to tangible aspects of service, like car condition, and interactive quality arises from the interaction between the service provider and the receiver. They further added that corporate quality comes from the image the service provider has in the mind of the customer.

To the best of the authors' knowledge, the existing literature on app-based ride-sharing services in the context of Bangladesh has primarily identified the factors influencing consumer satisfaction by examining environmental, social, personal, and economic dimensions. While prior studies have evaluated consumer expectations across these factors, consumers' actual service experience remains underexplored.

According to Zeithaml et al. (2012), service quality is determined by the gap between consumer expectations and actual service experience. Considering this theoretical perspective, the present study aims to bridge this gap by comparing consumers' expectations with their actual experiences, thereby revealing a more comprehensive understanding of consumer satisfaction in the app-based ride-sharing sector in Dhaka.

2. Literature Review

2.1 Overview
Ridesharing services, also called app-based ridesharing services (ABRS), are the companies that connect drivers of privately owned vehicles to those who look for transportation through an online application to reach a specific destination (Olayode et al., 2023). In this connection, Tang et al. (2019) explained that ride-sharing services provide an online platform, available to use on smartphones, to avail a car, which is not possible in traditional taxi services or public transportation. ABRS are becoming popular because they match the urban lifestyle well in addressing the challenges of the existing transportation system through sharing a ride by adopting the feature of the shared economy and reducing the number of vehicles on the street

(Iqbal et al., 2024), which in turn ensures the sustainability of the transportation system in urban areas. Having the availability of Google Maps, a Google application, to identify the exact location of passengers, picking up a passenger has been easy and time-effective, which has also warranted maximum use of vehicles and reduced the cost of riding a car (Flores & Rayle, 2017). Presently, the passengers of bus services in Dhaka city prioritize four facilities-availability and less time, confirmed seat, interior environment, and staff's behavior, and in many cases, the public transport owners and operators do not seriously consider the comfort of the passengers in Dhaka city (Rahman & Nahrin, 2012). Many people cannot compete for access to the buses and take seats. As the bus operators intend to earn more profit, they overlook the basic needs of people, which has resulted in many people searching for alternative transport (Rahman & Nahrin, 2012).
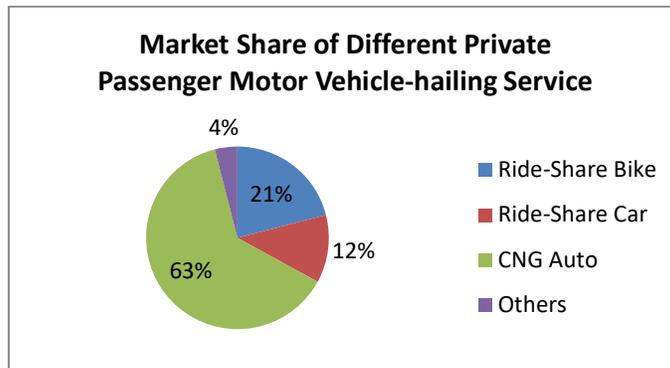
Therefore, ABRS are expanding across the city, where Uber, Pathao are quite popular, addressing and alluring huge market potential of app-based ride sharing services (Islam et al., 2022). Thus, app-based transportation has increased the demand for ride services, and it has made the market competitive as the consumers put emphasis on high-quality services and professionalism (Balachandran & Hamzah, 2017).

2.2 App-based Ride Sharing Services in Bangladesh
The history of ABRS in Bangladesh is not long. Uber, an American based company, launched its operations in Dhaka on 22 November, 2016 as the first company (Hassan, 2017), and Pathao is the Bangladeshi owned first company running its operations in this country founded in October, 2015 to provide the delivery services for different e-commerce services of Bangladesh having focus on motorbike services, later on mid-2016, it started ride sharing services (Elius, 2018).

However, there are other several technology-based rides sharing services operating in Bangladesh such as share-A-Motorcycle (SAM), Chalo, Amar Ride, BDCABS, MUV, Shohoz Rides, Bahon, Ezzyr, Taxiwala, Dako, Goti, Hellowride, Obhai etc. (Akhter, 2018).

The increasing number of rides sharing services are an indication of the popularity of those services in the buzzling city (Islam et al., 2022). Antara (2020) opined about the staggering number of bikes in the city and mentioned the introduction of ABRS as the reason for such rise. According to Kamal and Ahsan (2018, April 28), the market share of these services in Bangladesh are divided among various vehicles as per the following chart.

Market Share of Different Private Passenger Motor Vehicle-hailing Service

- 4% Others
- 21% Ride-Share Bike
- 12% Ride-Share Car
- 63% CNG Auto

2.3 SERVQUAL Model and Consumer Satisfaction

This study has adopted the SERVQUAL model to Measure the consumer satisfaction for app-based ride sharing service in Bangladesh. The SERVQUAL Model or Service Quality Model was developed by Valarie Zeithaml, A. Parasuraman , and Leonard Berry in 1988. It is a key method to determine the service quality experienced by customers. They said that the SERVQUAL model illustrates the development of 22-item instruments for assessing the consumer perception of service quality. The model included five factors (Parasuraman et al., 1988) namely Tangibles, Reliability, Responsiveness, Assurance, and Empathy.

However, consumer satisfaction is the result of positive feelings generated when a passenger finds that his expectation meets the performance of services. A consumer or passenger might experience three levels of satisfaction- satisfied, dissatisfied or highly satisfied (Kotler et al., 1999). While Patterson et al. (1997) finds customer satisfaction is a way to create competitive advantage and few researchers think performance and quality are important considerations for consumer satisfaction (Goode et al., 2005; Szymanski and Henard, 2001; Chao and Kao, 2009; Lenka et al., 2009).

2.4 Determinants of Consumer Satisfaction in App-based Ride Sharing Services

Consumer satisfaction of ABRS in Dhaka city depends on various factors. Bappy and Haque (2018) identified some factors that affect the passengers' satisfaction of Uber car services: Accessibility, Drivers' Performance, Comfort, Safety and Affordability. On the other hand, Tangibles, Reliability, Responsiveness, Assurance and Empathy are the factors that affect consumer satisfaction (Khan et al., 2016). Besides, Jahan (2019) considered six factors to measure the impact on consumer satisfaction on the ride-sharing industry: Speed of Ride, Cost of Ride, Security of Users, Convenience of Ride, Waiting Time, and Drivers' Behavior. Furthermore, the researcher stated that the passengers' satisfaction on ABRS depends on the positive influences of numerous factors. This researcher also found that the speed of ride is a momentous factor but the security of rides, waiting time, and drivers' behavior are insignificant factors toward the consumers' satisfaction. However, Tangible, Reliability, Price, Promotion, and Coupon Redemption, and Comfort are the variables that can influence passengers' satisfaction on the ride-sharing services in Malaysia (Balachandran and Hamzah, 2017).

Shmueli et al. (2015) found that ride-sharing provides not only environmental, social, and financial benefits but also ensures high potential and flexibility. Saadat et al. (2018) examined consumers are not interested in waiting a long time to avail themselves of the sharing services and consumers also expect improved services with lower costs. Hussein (2016) found that service quality influences consumer satisfaction. As there is no switching cost from one ride-sharing company to another, the consumers can switch over to the competitors whenever they feel better (Khairani and Hati, 2017).

Cavana and Corbett (2007) found that vital determinants of consumer satisfaction are service frequency, reliability, convenience, and responsiveness. Khuong and Dai (2016) stated that customer satisfaction should be measured regularly to gain a competitive advantage over rivals. In addition, service quality, frequency, reliability, convenience, and responsiveness are considered vital service quality factors. They also found that comfort and price have positive effects on customer satisfaction and reliability, and price, responsiveness, and satisfaction directly influence consumer loyalty.

Noor (2019) worked with the variables of availability, comfort, safety, cost effectiveness, timing, reliability, image, and drivers' behaviors. This researcher further found that availability, comfort, and safety affect the customers' perception positively, and the other

factors- timing, image, and drivers' behavior moderately influence the satisfaction of consumers. Najmah et al. (2019) stated that there is a significant relationship between service quality and consumer perception, consumer perception and consumer satisfaction, and consumer perception and brand image. Gargiulo et al. (2015) studied that one of the possible solutions for increasing clients' trust and satisfaction is to design a user-friendly service delivery model. It indicates the mobile application that works as a virtual bus, ensuring connectivity between the clients and the cars.

Considering the above-mentioned satisfaction determinants and performing focus group discussions, some factors are identified to measure the expectations and perception about ride-sharing services in Dhaka city:

1. **Access to Rides**
Access to rides refers to getting ride-sharing services from any place and commuting anywhere within the boundary of the service. The service should be round-the-clock (Bappy & Haque, 2018). Consumer satisfaction is usually higher for those services that are ready at any given point in time to avail. Noor (2019) found that availability affects the consumers' perception positively, and other factors like timing, image, and drivers' behavior moderately influence the satisfaction of customers. Hence, this study suggests the following hypothesis.

H_1: Access to rides affects satisfaction with app-based ride-sharing services

2. **Car Quality**
Car quality indicates cleanliness inside the cars, air conditioning, seating arrangement, overall quality, and being free from bad smells, etc. According to Litman (2008), service comfort means the availability of seats, space, journeys, and air conditioning. Few researchers in public transportation stated that comfort is an important factor that needs to be considered in this industry (Samson & Thompson, 2007). Budiono (2009) found that comfort is the most influential factor in consumer satisfaction in public transport. Hence, this study proposes the following hypothesis.

H_2: Car Quality affects satisfaction with app-based ride-sharing services

3. **Drivers' Skills and Behavior**
Drivers' skills and behavior include driving skills, literacy in traffic rules, etc. However, the performance of a driver is one of the key factors that greatly influence the passengers' satisfaction (Bappy & Haque, 2018). The Performance of drivers depends on their skills and behavior. Skills, soft skills, and etiquette of drivers were found to be the significant determinants of the overall satisfaction of consumers (Khan et al., 2016). Therefore, the following hypothesis has been drawn.

H_3: Drivers' skills and behavior affect satisfaction with app-based ride-sharing services

4. **Cost of Rides**
Ride costs should be based on fair and value-based pricing. In Malaysia, it is found that there is a significant relationship between fare and consumer satisfaction (Balachandran & Hamzah, 2017). Sometimes, price becomes the only trigger point in selecting a ride-sharing service. Khan et al. (2016) stated that the price of hiring a car is a significant attribute accepted by the market. Additionally, Oei and Ring (2017) mentioned that to gain a competitive advantage in the markets, Uber often reduces the fare rates. Hence, this study

has the following hypothesis. Khuong and Dai (2016) depicted that there were two variables that significantly affect consumers' satisfaction: comfort and price. They also recommended suggestions to enhance consumer satisfaction and consumer loyalty. They concluded that the cheaper the price, the higher the satisfaction level.

H₄: Cost of a ride affects satisfaction with app-based ride-sharing services

5. Discounts and Offers
Discounts refer to the deduction from the usual fare. As Lovelock and Wright (2002) stated, the promotion is to persuade the target market to make the decision to buy a product or service. Bappy and Haque (2018) said that Uber should frequently send promotional codes and discount offers to attract consumers. Middle-class people are discontented with the current charges as the discount is a part of pricing in taxi services (Khan et al., 2016). So, this study suggests the following hypothesis.

H₅: Discounts and Offers affect satisfaction with app-based ride-sharing services

6. Safety and Security
Both males and females are using ride-sharing services, but the difficulty arises when somebody faces harassment, especially females, as a significant percentage of females in Dhaka face sexual harassment on public transport, a longstanding concern for daily commuters (Navlakha, 2019). Besides, Bellini et al. (2005) stated that safety is an important consideration for customers. Aged people, women, and children are quite vulnerable in public transport in Bangladesh, as female commuters experience verbal abuse or sexual harassment in public transport (Sujauddin et al., 2023). Uber, the first and largest ride-sharing service provider in Bangladesh, includes safety features, including drivers' contact details, the car registration number, the number of rides that a particular driver partner has taken, and a rating, in order to give a sense to its customers that the ride is safe and secure (Hassan, 2017). Pathao also included almost the same features in providing their services to the passengers. So, the following hypothesis has been drawn:

H₆: Safety and Security affect satisfaction with app-based ride-sharing services

7. User-friendly App and Information
User-friendly apps and information refer to the application to be downloaded and get registered with that app by the users to avail themselves of the ride-sharing services. The users should get all the relevant information about each individual ride. Kamal and Ahsan (2018) reported that the Pathao app is the most successful ride-sharing app in Bangladesh in terms of providing services as per consumer expectations, with some exceptions regarding Uber. Showkat and Choudhury (2019) emphasized the user-friendliness of the application to easily access and use the service of the provider. Consequently, the following hypothesis is drawn:

H₇: User-friendly application affects satisfaction with app-based ride-sharing services

3. Conceptual Framework

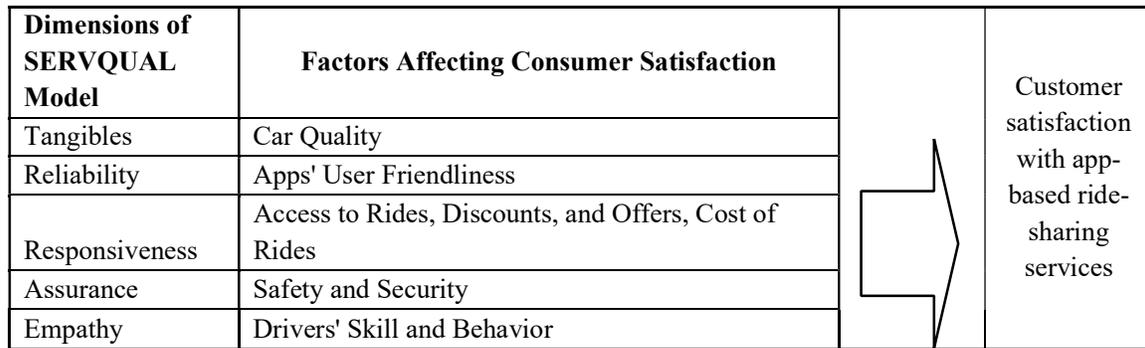| Dimensions of SERVQUAL Model	Factors Affecting Consumer Satisfaction		Customer satisfaction with app-based ride-sharing services
Tangibles	Car Quality		
Reliability	Apps' User Friendliness		
Responsiveness	Access to Rides, Discounts, and Offers, Cost of Rides		
Assurance	Safety and Security		
Empathy	Drivers' Skill and Behavior		

Figure: Authors' Compilation

4. Objective of the Study

The broad objective of the study is to identify the factors that affect consumers' satisfaction with app-based ride-sharing services in Dhaka City.

The other objectives are:

1. To connect the gap between actual behavior and expected behavior toward ride-sharing services.

2. To provide recommendations for service providers, regulators, and other stakeholders for developing policies for ride-sharing services to gain competitive advantage and ensure sustainability in the long run.

5. Methodology of the Study

5.1 Method of Data Collection

This study has used a structured questionnaire to collect primary data to measure customer satisfaction with app-based ride-sharing services. However, secondary data has also been collected, and focus group interviews have been conducted to build a literature review and investigate various factors that passengers consider in taking ABRS. Primary data is collected through a questionnaire by administering an online survey to respondents, while secondary data from books and journals has also been used to develop a literature review. To check the validity and understandability, and to ensure the accuracy of the questionnaire, a pilot study was administered initially. Both the institutional and social networks were utilized to reach respondents for collecting primary data.

5.2 Sampling Technique & Sample Size

Judgment sampling was adopted to bring out potential respondents, as the number of ride-sharing service users is not that large. This sampling technique has made it possible to pick respondents who are frequent users of app-based ride-sharing services. Though this is a non-probability sampling, which obstructs generalizing the study, still, such a technique allows a study to select the best respondent for a particular study. A total of 260 samples were studied, but 222 samples were finally taken and analyzed after conducting a data check on the questionnaire.

5.3 Instrument of Data Collection & Data Analysis
Data was collected through an online survey that asked questions on both independent and dependent factors. Then, the data was scrutinized and clarified. To get accurate data that should be unaffected by outside influences, a structured, closed-ended survey was developed. Exploratory factor analysis is used in this study to assess the measurement's validity, and Regression analysis is used concurrently to determine the impact of the explanatory variable on the dependent variable.

5.4 Limitations of the Study
Data has been collected through judgment sampling, which obstructs a study from generalizing its implications. Therefore, stratified random sampling could be used to make the results of the study more conclusive.

5.5 Potential Bias and Ethical Considerations
An anonymous survey has been conducted to collect data from the participants, which prevents self-reported biases. Informed consent has been obtained for the potential participants, and participants had the right to withdraw at any time from the survey.

6. Findings and Discussions

Source: Primary Data (Online Survey)

Specific app used for the ride sharing service (N = 222)
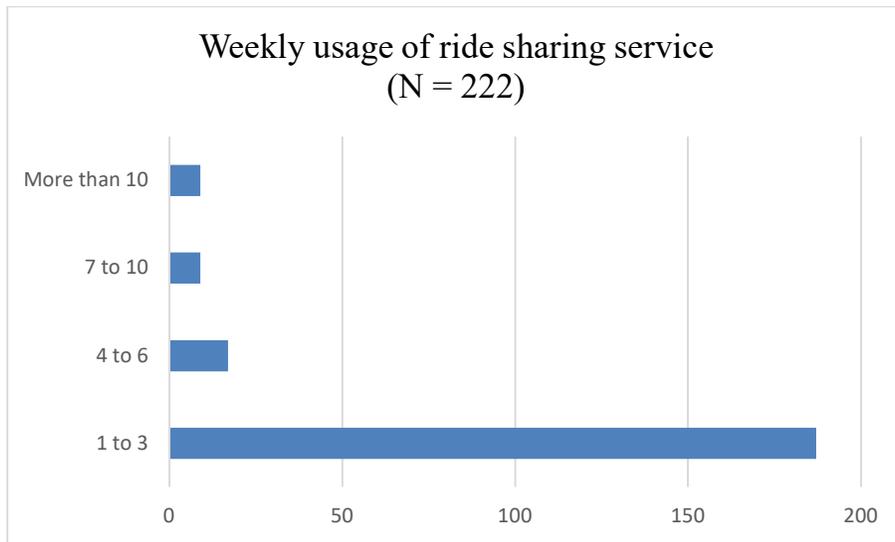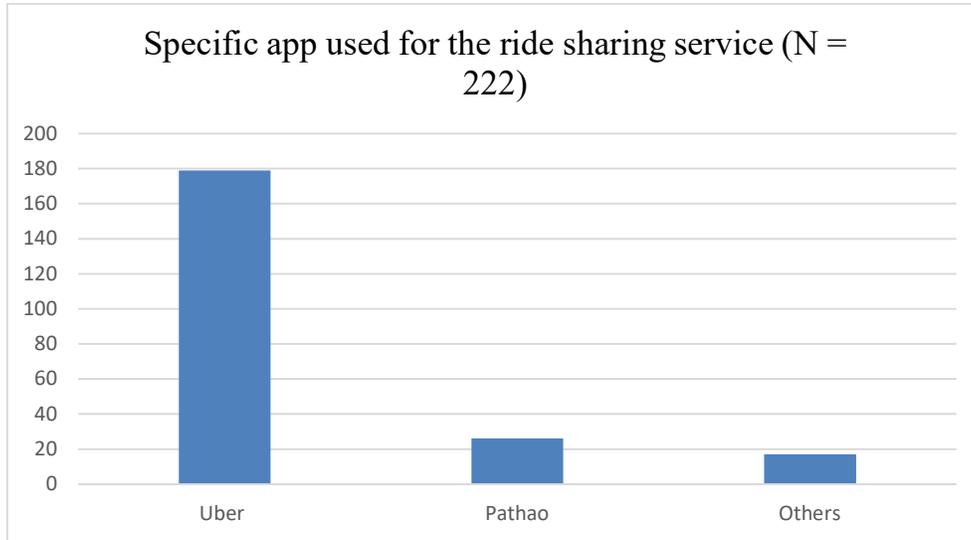
Source: Primary Data (Online Survey)

Table 1: Demographic Profiling

Description	Range/ Status	N	%	Total
Age	25-35	119	54%	222
	36-45	74	33%	
	46-55	20	9%	
	Above 55	9	4%	
Occupation	Student	26	12%	222
	Job holder	187	84%	
	Unemployed	9	4%	
Income	Less than 20000	34	15%	222
	20000 to below 40000	35	16%	
	40000 to below 60000	95	43%	
	60000 to below 80000	26	12%	
	Above or equal to 80000	32	14%	

Source: Primary Data (Online Survey)

People aged between 25 to 35 years of age participated with a percentage of 54% of the total samples. Considering the occupation, job holders contributed with a notable percentage of 84%. While 43% of the respondents had an income range between forty thousand (40,000) and below sixty thousand (60,000).

6.1 Reliability test: Cronbach's Alpha

Variables must have a corrected item-total correlation of at least 0.3 and a Cronbach's Alpha of at least 0.7 (if an item is deleted) in order to be acceptable. According to Hoang and Chu (2008), in the event that an item is eliminated, fresh research can presume that Cronbach's Alpha is equal to or greater than 0.6. Consequently, these items may be used to investigate the exploratory factor because they satisfy the condition.

Table 2: Questionnaire items

Construct	No. of items	Statements	Source
Access to rides	5	Have access to rides for any distance	Acheampong and Siiba (2020)
		Have access to rides round the clock (24/7)	
		Drivers never reject my requested rides	
		Drivers arrive on time to pick me up	
		Can easily find a ride during peak hours	
Car quality	4	Find the interior of cars neat and clean	Litman (2008). Adapted and modified from Cronin and Taylor (1992)
		Always find the car bad smell free	
		Find cars good for traveling (do not shake or vibrate unnecessarily while running, etc.)	
		Find the air conditioning of cars functioning properly	
Driver's skill and behavior	5	Drivers always behave well	Wireko-Gyebi et al. (2024)
		Drivers always address me with dignity	
		Drivers always follow traffic rules	
		Drivers always follow the routes shown in the app	
		Drivers never disagree with receiving digital payments	
Cost of Rides	3	Fares for rides are reasonable	Zhou and Zhang (2019)
		Ride-sharing service does not charge an extra fee for waiting time	
		Fares of rides never significantly increase after arriving at my destination (compared to the fare shown in the app while requesting)	
Discount	3	I frequently receive offers or discount codes	Bappy and Haque (2018)
		Offers or discounts are easy-going (without complex conditions)	
		The amount or percentage of discount or offer motivates me to take the next ride	
Safety and security	5	Drivers are concerned about my safety	Wireko-Gyebi et al. (2024)
		Drivers never harass me	
		Feel safe while traveling with ride-sharing cars	
		My luggage is secured in ride-sharing cars	
		Overall, I can rely on ride-sharing services as a mode of secure transport around the clock	
App's user friendliness	3	Can easily download and install ride-sharing apps	Anderson et al. (2013)
		Find all relevant information regarding a trip with the App (Distance, Fare, Route, etc.)	
		The app always directs the best alternative route to my destination	
Customer satisfaction	3	Using a ride-sharing app is convenient in many ways	Adapted and modified from Rust and Oliver (1994).
		I don't have to put a second thought into using ride ride-sharing app	
		While using public transport, the ride-sharing service comes to my mind	

Table 3: Variables, corrected item–total correlation, and Cronbach's Alpha

Items	Variables	Corrected Item - Total Correlation	Cronbach's Alpha if Item Deleted
Access to rides - Cronbach's Alpha = 0.797			
ATR 1	Have access to rides for any distance	0.649	0.771
ATR 2	Have access to rides round the clock (24/7)	0.670	0.775
ATR 3	Drivers never reject my requested rides	0.648	0.734
ATR 4	Drivers arrive on time to pick me up	0.655	0.698
ATR 5	Can easily find a ride during peak hours	0.640	0.655
Car quality - Cronbach's Alpha = 0.813			
CQ 1	Find the interior of cars neat and clean	0.642	0.660
CQ 2	Always find the car bad smell free	0.687	0.729
CQ 3	Find the cars good for traveling (do not shake or vibrate unnecessarily while running, etc.)	0.576	0.724
CQ 4	Find the air conditioning of cars functioning properly	0.589	0.629
Driver's skill and behavior - Cronbach's Alpha = 0.747			
DSB 1	Drivers always behave well	0.596	0.673
DSB 2	Drivers always address me with dignity	0.575	0.674
DSB 3	Drivers always follow traffic rules	0.588	0.667
DSB 4	Drivers always follow the routes shown in app	0.454	0.515
DSB 5	Drivers never disagree with receiving digital payments	0.487	0.528
Cost of rides - Cronbach's Alpha = 0.871			
COR 1	Fares for rides are reasonable	0.625	0.751
COR 2	Ride-sharing service does not charge an extra fee for waiting time	0.648	0.661
COR 3	Fares of rides never significantly increase after arriving at my destination (compared to the fare shown in the app while requesting)	0.513	0.453
Discount or offer - Cronbach's Alpha = 0.859			
DO 1	I frequently receive offers or discount codes	0.711	0.821
DO 2	Offers or discounts are easy-going (without complex conditions)	0.687	0.786
DO 3	The amount or percentage of discount or offer motivates me to take the next ride	0.652	0.732
Safety and security - Cronbach's Alpha = 0.724			
SAS 1	Drivers are concerned about my safety	0.590	0.632
SAS 2	Drivers never harass me	0.574	0.646
SAS 3	Feel safe while traveling with ride-sharing cars	0.484	0.588
SAS 4	My luggage is secured in ride-sharing cars	0.479	0.513
SAS 5	Overall, I can rely on ride-sharing services as a mode of secure transport around the clock	0.456	0.555
App's user friendliness - Cronbach's Alpha = 0.834			
AUF 1	Can easily download and install ride-sharing apps	0.570	0.638
AUF 2	Find all relevant information regarding a trip with the App (Distance, Fare, Route etc.)	0.564	0.648
AUF 3	The app always directs the best alternative route to my destination	0.475	0.578
Customer satisfaction - Cronbach's Alpha = 0.713			
CS 1	Using a ride-sharing app is convenient in many ways	0.545	0.654
CS 2	I don't have to put a second thought into using ride ride-sharing app	0.442	0.512
CS 3	While using public transport, ride-sharing services come to my mind	0.456	0.576

The statistical results in Table 3 show that Cronbach's Alpha coefficients are greater than 0.7 for all the constructs: Access to rides, Car quality, Driver's skill and behavior, Cost of rides, Discount or offer, Safety and security, App's user friendliness, and Customer satisfaction. Furthermore, the combined coefficients of correlation for all the constructs' measurement variables are greater than 0.3, suggesting that the factors are legitimate and trustworthy. Because all the variables in the scale meet the requirements, exploratory factor analysis and regression analysis may be used.

Table 4: Rotated Matrix

Variables	Items	Component						
		1	2	3	4	5	6	7
Access to rides	ATR 1	0.776						
	ATR 2	0.765						
	ATR 3	0.751						
	ATR 4	0.753						
	ATR 5	0.676						
Car quality	CQ 1		0.674					
	CQ 2		0.717					
	CQ 3		0.773					
	CQ 4		0.666					
Driver's skill and behavior	DSB 1			0.776				
	DSB 2			0.625				
	DSB 3			0.689				
	DSB 4			0.655				
	DSB 5			0.523				
Cost of rides	COR 1				0.892			
	COR 2				0.766			
	COR 3				0.646			
Discount or offer	DO 1					0.898		
	DO 2					0.764		
	DO 3					0.550		
Safety and security	SAS 1						0.735	
	SAS 2						0.752	
	SAS 3						0.737	
	SAS 4						0.791	
	SAS 5						0.724	
App's user friendliness	AUF 1							0.730
	AUF 2							0.798
	AUF 3							0.714
KMO		0.755 (*p value* = 0.000)						
Bartlett's test		4076.112						
Total Variance Explained		53.58%						

KMO yielded a value of 0.755, meeting the required threshold of a result over 0.5. Every variable shows multiparty correlation in every component, with a Bartlett of 4076.112 and a p-value of less than 0.05. The total variance explained meets the variance explained condition since it is greater than 50% (53.58%). Based on this one, researchers conclude that 53.58% of

the variation in factors may be attributed to variables. According to the following table, there are seven distinct components that make up the loading factor in the rotational matrix of EFA, is more than 0.50.

Table 5: Regression results

Model	Beta	Sd. Error	Beta	t	P-value
(Constant)	0.048	0.246		0.18	0.891
ATR	0.151	0.032	0.188	3.66	0.000
CQ	0.120	0.028	0.183	2.49	0.000
DSB	0.177	0.025	0.209	4.65	0.000
COR	0.147	0.024	0.134	3.48	0.009
DO	-0.067	0.025	-0.081	-1.53	0.073
SAS	0.473	0.035	0.486	9.84	0.000
AUF	0.139	0.021	0.143	3.41	0.002
R²				**0.5067**	
Adjusted R²				**0.3912**	
F				**48.31**	
p-value				**0.000**	

The results show that the model is commonly accepted because F is 48.31 and the *p-value* is 0.000, both of which are less than 0.05.

Moreover, $R^2 = 0.5067$ shows that all the independent variables can account for 50.67% of the consumer satisfaction with ride-sharing services. Six factors show statistical significance at a 99% confidence level: accessibility to rides (ATR), car quality (CQ), driver's skill and behavior (DSB), cost of rides (COR), safety and security (SAS), and user-friendliness of the app (AUF). This is because the *p-value* is less than 0.01.

Thus, the consumer satisfaction with ride-sharing services is positively affected by ATR, CQ, DSB, COR, SAS, and AUF. The *p-value* of 0.073 indicates that the Discount or offer (DO) is statistically significant at a 90% confidence level.

Table 6: Hypothesis testing results

Hypothesis	Description	Result
H_1	Access to rides significantly affects consumers' satisfaction with ride-sharing services	Accepted
H_2	Car quality significantly affects consumers' satisfaction with ride-sharing services	Accepted
H_3	Drivers' skills and behavior significantly affect consumers' satisfaction with ride-sharing services	Accepted
H_4	The cost of rides significantly affects consumers' satisfaction with ride-sharing services	Accepted
H_5	Discounts or offers significantly affect consumers' satisfaction with ride-sharing services	Accepted

Hypothesis	Description	Result
H_6	Safety and security significantly affect consumers' satisfaction with ride-sharing services	Accepted
H_7	App's user-friendliness significantly affects consumers' satisfaction with ride-sharing services	Accepted

The hypothesis that "Discount or offer significantly affects consumer satisfaction toward ride-sharing services" is accepted at a weaker level of significance. From Table 5. (Regression result), The *p-value* of 0.073 indicates that the effect of Discount or Offer (DO) on consumer satisfaction is statistically significant at the 10% significance level with 90% confidence level, although it does not meet the conventional 5% threshold. This specifies that although Discount or Offer (DO) appears to influence consumer satisfaction, the statistical backing for this relationship is marginal or weak, as it is significant only at the 10% level.

7. Findings and Recommendations

Taking the value of the standardized beta coefficients into considerations, it has been found that safety and security (SAS), driver's skill and behavior (DSB), accessibility to rides (ATR), car quality (CQ), user-friendliness of the app (AUF) and cost of rides (COR) are respectively important considerations for meeting the expectations of consumers to get matched with the actual experience of ABRS.

Safety and security (SAS) are a major concern for the consumers of ride-sharing services. Considering the theft and kidnapping issue, consumers rely on ride-sharing services. The safety features include detailed information regarding bikers and riders, GPS tracking, two-way feedback, trip details sharing, etc. (Chaudhry et al., 2018). Consumers, while traveling through ride-sharing services, feel relaxed as the chance of missing their belongings is almost none. Even if something is left in the transport, there is a clear opportunity to retrieve those items left behind. Every transport running through the app is enlisted, while passengers and drivers also get registered at the time of riding a particular app-based ride, so the chance of abduction or kidnapping is almost none. However, ride-sharing service providers should focus on monitoring the driver properly so that the driver can provide a completely safe driving experience to their consumers without harassing the consumer in any way. Though the rating system is a good example to monitor and evaluate the performance of the drivers, a more rigorous system, like evaluating ratings every 24 hours, would give better monitoring of the drivers.

Driver's Skill and Behavior (DSB) refers to the driver's capability to serve consumers by complying with traffic regulations, adhering to app-based navigation routes, processing digital payments, and demonstrating courteous behavior. Drivers of ride-sharing services who are not welcoming might end up with low ratings, consequently, might get fewer consumers. Few passengers are sensitive as they find violations of traffic rules unacceptable and punishable crimes (Kibria, 2019). So, providing a particular service requires showing a good attitude to the service receivers. Therefore, ride-sharing service providers should focus on improving the behavior of the driver by providing adequate training. Besides, drivers should not be reluctant to receive payment digitally. Consumers should have the freedom to choose their way of payment after riding a particular transport, where service providers can play a role to make drivers bound to receive payment in cash or a digital way, and make drivers follow the routes shown in the app (Mogaji & Nguyen, 2024).

Access to rides (ATR) ensures travelling to any distance round the clock by picking up consumers without causing intentional delays (Fielbaum et al., 2021). Whereas rejection of rides and services at peak hours is also included as a measure of access to rides (Ashkrof et al., 2022). Consumers may travel any distance using the ride-sharing service throughout the day. Service providers should take care of the issue of rejecting rides and services at peak hours. A better management of these issues can create more consumer satisfaction with ride-sharing services. Service providers can make drivers aware of picking ride requests sensibly to avoid cancelling the ride and ensure better consumer satisfaction. During peak hours, it becomes difficult to avail a ride, so service providers should think about finding a way out to manage services during peak hours. Sharing a ride with multiple passengers directed toward the same route can be a way to manage passengers during peak hours (Yao & Bekhor, 2023).

Car quality (CQ) involves transport with fresh air that rides properly to the destination, along with a neat and clean interior of the car. Consumers should get a transport that doesn't get into trouble during the ride. However, ride-sharing service providers should ensure the cleanliness of the transport with fresh air circulation within the interior of a four-wheeler. To ensure proper functionality of the car, transport should be evaluated on a regular basis to check the fitness of the vehicle. At the same time, service providers can train and monitor drivers to ensure cleanliness and fresh air circulation within the transport (Cha et al., 2018).

Available apps used in providing ride-sharing services are easy to download and install as well. Therefore, consumer satisfaction with the app used for the ride-sharing service is positive. Consumers also get detailed information about the whole ride, like distance in kilometers, fare of the ride, and available routes to the destination. So, the available apps are user-friendly in terms of usage during the ride. However, customer satisfaction with the fare of the ride is not in a good state. Therefore, service providers should focus on fair pricing of rides, while special attention should be given to matching the beginning and ending ride cost in the app (Yan et al., 2019).

8. Conclusion

A growing city like Dhaka is running at a decent pace to keep the lives of the city dwellers lively; therefore, transportation is one of the major concerns of the city dwellers during peak office hours as roads become much busier during the start of the office hour and at the end of the office hour as well (Khan et al., 2018). ABRS provides a solution for city dwellers to avoid traffic congestion through using motorbikes, three or four-wheelers that run on ride-sharing apps (Islam et al., 2022). This study has identified that safety and security (SAS), driver's skill and behavior (DSB), accessibility to rides (ATR), car quality (CQ), user-friendliness of the app (AUF), and cost of rides (COR) are significant considerations for measuring the consumer behavior and preferences toward using ABRS. The Research has recognized safety and security (SAS) as the key factor in using ABRS, while research in the context of Bangladesh has also addressed the safety and security issue (Bappy & Haque, 2018; Iqbal et al., 2024; Islam et al., 2022; Islam et al., 2019; Jahan et al., 2019; Karim et al., 2020; Noor, 2019; Rahman & Nahrin, 2012; Saadat et al., 2018). Thus, safety and security might be taken into consideration as an extra dimension in extending the SERVQUAL model in the context of ABRS in Bangladesh to close the gap between customer expectations and customer experience, given the constant emphasis on these topics in both the current study and earlier research conducted in Bangladesh. Simultaneously, the findings confirm the applicability of the SERVQUAL model, as the extracted factors align with its established dimensions in assessing service quality within the context of app-based ride-sharing services in Bangladesh. The study also indicates that car quality (CQ) is critical to providing a better consumer experience; however, this factor has

received limited attention in prior research, except for the study by Bappy and Haque (2018) in Bangladesh.

9. Areas for Further Research

This study focuses on people who use ride-sharing services in Dhaka city. The findings of the study might be different if studies were conducted in other major cities where this service is available, as consumer behavior varies due to environment, geographical location, age, gender, price, etc.

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1. Md. Khairul Alam Rasel: Data curation, Methodology, Writing – original draft, Writing – review & editing.
2. Md. Ibrahim Khalil: Conceptualization, Supervision, Validation, Writing – review & editing.
3. Mst Khadijatul Kobra: Conceptualization, Resources, Software, Supervision, Validation.

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Corresponding author contact info:

Md. Khairul Alam Rasel, Email: khairul.alam@nu.ac.bd