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Evaluation of ride sharing service based on customers opinion for Dhaka city

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Abstract

Ride sharing is recognized as special transportation services with more flexibility and availability in selected routes operated by private companies and individuals. This study was aimed to explore user's perception of ride sharing in Dhaka city, Bangladesh. A questionnaire survey was conducted at twelve different locations in Dhaka city to 700 respondents. Result shows that majority of the respondents have information about ridesharing service. They would consider ride sharing because of financial savings through shared commuting while half of them considered it as a safe mode. The respondents believe if safety is ensured, they will commute more by ridesharing. Respondents perceive that ridesharing is important because it provides improved access to public transit routes, business and services with limited parking. Majority of them perceive that the service quality of rideshare is good and its major limitation is safety concern of own and belongings. A factor analysis model was developed with 21 variables to explore users' perception about rideshare services. Results indicate that frequency to prefer rideshare, distance for meeting a rideshare partner, trip purpose, interest level about ridesharing and comfort during rideshare are significant variables for rideshare service quality. Among the variables monthly household income and schedule of trip appear to be most substantial. In order to improve rideshare services respondents suggest establishing ridesharing with vehicles of different agency, providing parking for it, and offering guaranteed ride home. The research results will assist in recommending measures to improve the existing rideshare system and to implement effective rideshare with necessary modifications.

1. Introduction

Public transportation largely contributes to the mobility needs of people which are increasing across the world due to rapid urbanization. Dhaka, the capital city of Bangladesh is one of the densely populated cities in the world having density of 122,700 people per square mile (Demographia, 2018). As a result the transportation needs of

Dhaka city is more than ever. The transportation system inside Dhaka city is primarily road based. Most of the daily trips in the city are accomplished by public transportation and non-motorized transportation system (NMT) or by paratransit as a considerable number of people do not have the financial ability to afford private cars (Rahman et al., 2017). Moreover most of the people in developing cities depend on public transports, such as bus service due to its low travel cost (Rahman et al., 2017). Hence bus service plays a vital role in the overall transportation system.

Although travel cost of public transportation is cheaper, it provides with less convenience compared to private vehicles. As owning a car gives the freedom to travel, not being limited to fixed routes and timetables, comfort and secure privacy as well as many other conveniences, people who have the financial ability to afford car are often encouraged to buy private vehicles for their personal transportation needs. On the other hand private vehicles leads to more traffic congestion and environmental pollution as consuming huge amounts of fuel generating massive extent of greenhouse gas. Fossil fuel deficiency such as limited supplies of oil across the world, increasing prices of gas, traffic congestion and environmental concerns have recently increased the interest in services that acknowledges people to use private cars more sensibly (Agatz et al., 2012) such as sharing ride. Ride sharing is recognized as special transportation services with more flexibility and availability in selected routes operated by private companies and individuals. The demand for ridesharing as a transportation service has increased rapidly in recent years having the goal to bring together commuters with similar routes and time schedules (Saranow, 2006). Ridesharing is advantageous to the society as it reduces congestion, greenhouse gas (GHG) emission and increased social equity. In a properly applied ride share scheme, drivers and passengers can save travel cost and time along with increased travel options. Ride sharing is not very popular transportation service in developing cities like Dhaka as it is not attained to a formal level yet. Generally these vehicles are acknowledged as private car and micro bus. User demands and expectations for various service features can help authorities to implement specific development to the current state of that service. This paper studies overall condition of ridesharing along with its opportunities and drawbacks that passengers are coming upon in Dhaka city based on their experience and perception.

2. Literature review

Ridesharing (sometimes referred to as carpooling or van pooling) is a mode of transportation in which individual travelers share a vehicle to reach a destination as long as it has the same travel plan and time schedule. It has been suggested that ridesharing is a feasible alternative of conventional modes of transportation (Morency, 2007) and its features that provide better degree of convenience than general public transportation while reduced congestion and level of air pollution (Chan & Shaheen, 2012). The ridesharing adoption as an alternative travel mode differs and still it is on low stage of participation (DeLoach and Tiemann, 2012; Ozanne and Mollenkopf, 1999). The payment within the ridesharing arrangement is not for profit gain but only to cover the cost of the drivers such as gas, toll, and parking fees. The concept combines the flexibility and speed of private vehicles while reducing the cost per-trip in exchange of convenience that a car provides in a private trip (Chan & Shaheen, 2012; Ferguson, 1997). Chan & Shaheen (2012) proposed classification based on how ridesharing appears and the relationship among its participants. Based on the relationship, ridesharing could be firstly acquaintance-based which is formed among family members and friends as well as among coworkers, and secondly organization based, which is required its participants to join the service through membership or simply visiting an internet platform (social media, or website), where relationship among participants is not required and no membership is needed in order to access the ridesharing arrangement.

A number of researches had been done regarding ridesharing revealing the importance of this transportation mode that need to be implemented. Ridesharing saves a major portion of travel cost (Agatz et al., 2011; Tao & Wu, 2008) due to shared commuting while it also may save travel time of the participants by offering access to high occupancy lanes in developed cities. Furthermore, ridesharing may assist to decrease traffic congestion and thereby reduce system-wide travel times (Agatz et al., 2011) and CO_2 emissions from transport (Caulfield, 2009). Thus the importance of raising awareness about public education of ridesharing by marketing its potential to reduce climate change and traffic congestion is needed, although the complete potential of ridesharing is unclear (Chan & Shaheen, 2012). A research conducted in Taipei city by Tao & Wu (2008) showed that approximately 70% of the ridesharing participants were women and about 90% of the total participants' age was within 20 to 40 years as young office going women were the maximum portion of the participants. Approximately over 70% participants are willing to

pay for rideshare if maximum waiting time is guaranteed within 10 minutes and number of acceptable ridesharing passengers is limited to three as most of the participants were satisfied with rapid response of reservation, arrival on-time, attitude of drivers, easiness of getting on and off the vehicle for ridesharing as stated by Tao & Wu (2008). According to Furuhata et al., (2013) privacy is a major concern for individuals who were most likely to use rideshare. These concerns involve the risk of exchanging private information such as travel information and time schedules with unknown persons (Chaube et al., 2010) and also the loss of privacy due to the systematic data collection of their private information by agencies (Amey et al., 2011). Another issue is the insecurity around the legal liability of ridesharing services (Furuhata et. al., 2013).

3. Methodology

A comprehensive questionnaire survey was conducted in Dhaka city to know the actual scenario of ridesharing services. The four page questionnaire had six main sections namely demography, trip characteristic, ridesharing service, safety and comfort, service quality and measures necessary for improvement containing 21 questions. The survey locations were selected where rideshare services are available. Total twelve major locations are selected based on the priority of ride demand in Dhaka city. The survey was conducted in peak hours so that ample number respondents could be found. The 12 locations were: Dhanmondi road no 7, New market (opposite 2nd gate), Motijheel (Shaapla Chattar), Shainik Club Morr, Gulshan 2, Mirpur 10, Kochukhet, Badda notunbaazar, Kawran bazar, Kalshi, Old DOHS (Banani) & New DOHS (mohakhali). Person to person interview survey was conducted in each location to take users' opinion about the ridesharing service. Usually, respondents were very busy at office time so sometimes surveyors had to make a trip with them to complete the survey. Finally, 700 questionnaire data sheets were completed from all the selected locations. Table 1 shows general information of respondents.

From table 1 it can be depicted that most of the respondents (79%) are male and majority (78%) of them are from 20 to 39 years old. About 67% of the users have graduate or post-graduate level of education. Half (53%) of the users are full time and part time government/private job holders. Most (79%) of the users don't own any private vehicles. About 29% of the respondent's monthly income is within 20000 BDT - 40,000 BDT but half (51%) of the respondents' monthly travel expenditure is between 1000 BDT – 5000 BDT.

Table 1. General information of respondents.

Characteristics	Statistics	Percentage
Gender	Male	79%
	Female	21%
Age	< 20 years old	2%
	20-29 years old	43%
	30-39 years old	35%
	40-49 years old	14%
	> 59 years old	6%
Education qualification	Un-Educated	2%
	Primary (J.S.C)	3%
	S.S.C	3%
	H.S.C	25%
	Graduates	56%
	Post Graduates	11%
Occupation	Government/Private Job (Full Time)	44%
	Government/Private Job (Part Time)	9%
	Business	17%
	Student	24%
	Other	6%
Monthly income	Less than 5000 BDT	21%
	5000 BDT - 10,000 BDT	11%
	10,000 BDT - 20,000 BDT	20%
	20,000 BDT - 40,000 BDT	29%
	More than 40,000 BDT	19%

Vehicle owner	Yes	21%
	No	79%
Monthly travel expenditure	Less than 1000 BDT	21%
	1000 BDT - 5000 BDT	51%
	5000 BDT - 10,000 BDT	19%
	10,000 BDT - 20,000 BDT	6%
	Above 20,000 BDT	3%

1 US $ = 84 BDT.

3.1. Data analysis and results

Result shows that about half of the respondents (51%) schedule of trip is between 7:00 a.m. to 9:00 a.m. while 34% of their trip schedule is from 9:00 a.m. to 11:00 a.m. as shown in figure 1. About 35% of the respondents mentioned that their trip distance is within 5 km – 10 km and 33% mentioned it within 10 km – 20 km. About 25% and 7% of the respondents said that their trip distance is less than 5km and more than 20 km respectively as shown in figure 2.
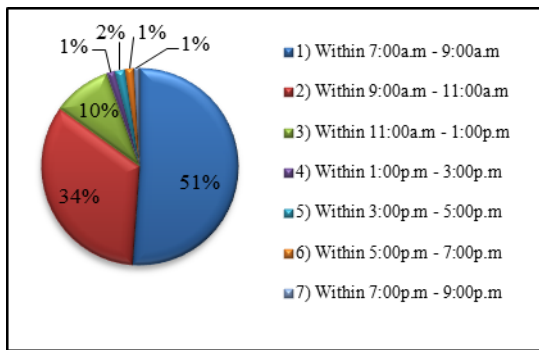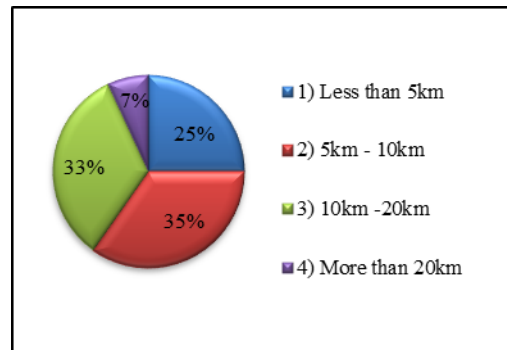

Fig. 1. schedule of trip

Fig. 2. trip distance

Majority (67%) of the respondents answered that their trip purpose is office or business as shown in Figure 3. On the other hand 24% and 5% of the respondents' trip purpose is education, and recreation/shopping/medical respectively. About half of the respondents' (56%) main mode of travel is bus/train/tempo (tempo is a type of motorized paratransit in Bangladesh) while 21% of their main mode of travel is private car as shown in figure 4.
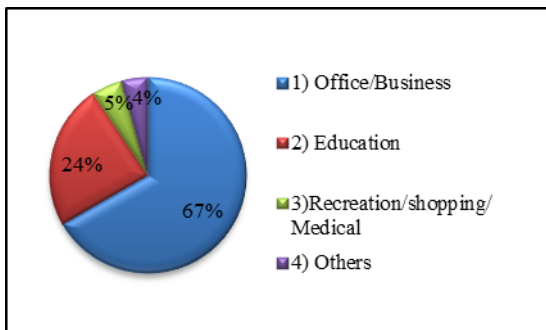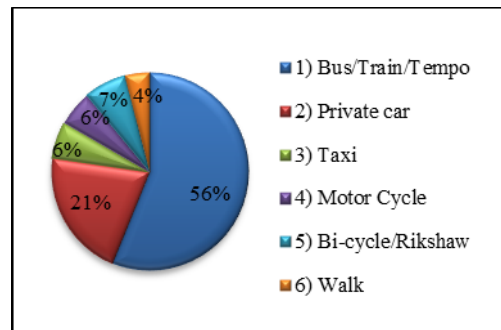

Fig. 3. trip purpose

Fig. 4. main mode of trip

Table 2 shows whether respondents have information about ridesharing or not. More than half of the respondent (59%) knows about ridesharing while 41% of the respondents' do not have information about the service. About half of the respondents' (48%) consider the trip should be prescheduled while 30% of them are not interested for

prescheduled trip. Only 22% of the respondents replied that the trip should be sometimes prescheduled as shown in table 2. About half of the respondents (48%) agreed that ridesharing is a safe transportation system. On the other hand only 14% of the respondents oppose that ridesharing is a safe transportation system but 38% said that it is moderately safe as shown in table 2.

Table 2. Users' perception about information of ridesharing, type of ridesharing trip and safety

Answers	Information about ridesharing	Type of trip	Safety of ridesharing transportation
Yes	59%	48%	48%
No	41%	30%	14%
Sometimes	-	22%	38%

More than half (60%) of the respondents are willing to wait less than 10 minutes for a ride, while 34% of them are willing to wait 10-20 minutes as shown Figure 5. Figure 6 shows the respondents willingness to pay for rideshare within Dhaka city. About half of the respondents (56%) replied that they are willing to pay less than 50 BDT for rideshare trip while 34% of them are willing to pay 50 BDT – 100 BDT. Only 2% of them expressed that they are willing to pay more than 100 BDT for a shared ride.
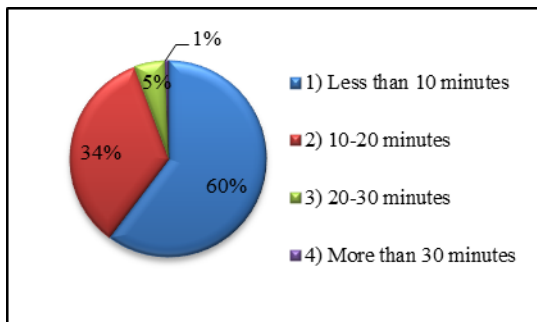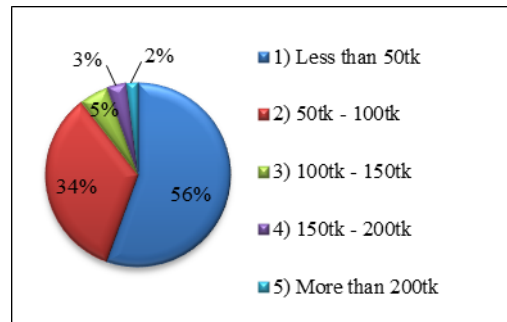

Fig. 5. waiting time for a ride

Fig. 6. willingness to pay for rideshare within Dhaka city

Figure 7 shows the importance of ridesharing based on users' perception. About 25% of the respondents perceive that the ridesharing service is important since it provides access to public transit routes, businesses and services with limited parking while 24% of the respondents replied that rideshare fills the service area gaps by existing transit services and also lowers some environmental concerns like emission of greenhouse gas. 20% of the respondents said that rideshare contributes to the excessive market demand from customers for transport.
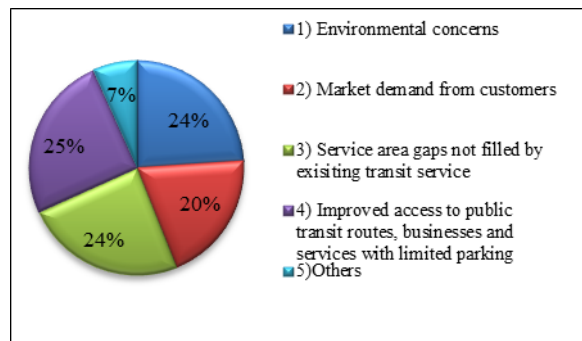

Fig. 7. importance of ridesharing

Figure 8 shows respondents' views towards ridesharing. 40% of them replied that if safety is ensured they will use this commute while rest 60% replied that rideshare with unknown person is uncomfortable (20%), it's a matter

of mindset/habit (20%), if drivers are professional with good background and car can be monitored by GPS it will be comfortable (20%).
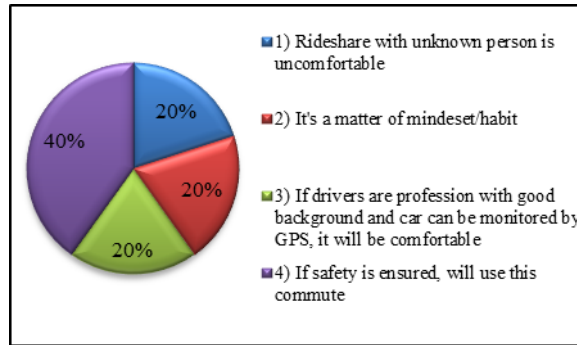

Fig. 8. respondents' views towards ridesharing

Figure 9 shows the reasons for considering rideshare. About 41% of the respondents' consider ridesharing for financial savings due to shared commuting. On the other hand 28%, 16% and 11% respondents replied that they do not have own car/for comfortable trip, for safe trip and for reduced personal vehicle maintenance respectively they would consider rideshare. More than half of the respondents (56%) replied that rideshare is comfortable while 22% replied that it is very comfortable. About 16% and 6% of them consider it uncomfortable and not so comfortable respectively. Figure 10 shows respondents opinion about comfort level during rideshare.
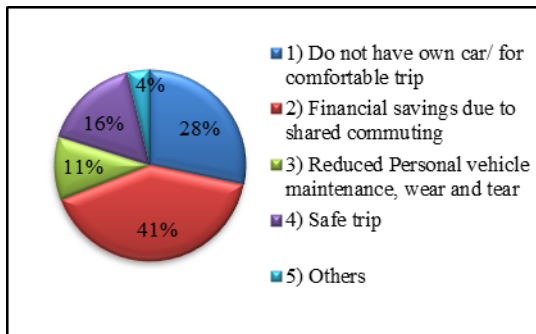

Fig. 9. the reason for considering rideshare
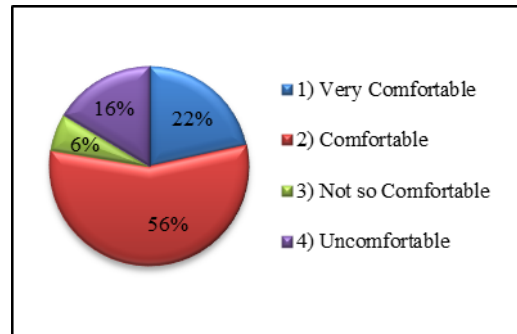
Fig. 10. comfort during rideshare

About half of the respondents (52%) are somewhat interested in ridesharing as shown in figure 11. On the other hand 38% of them are very interested in ridesharing. Only 10% of them are not interested at all. Figure 12 shows whether the respondents are willing to change their work schedule to join rideshare. About 44% of the users are willing to change their schedule but not able to change because of their fixed work schedule. Conversely 32% of them are willing and able to change their work schedule to join rideshare. Only 24% of the users said that they do not have any interest in changing their work schedule to join rideshare.

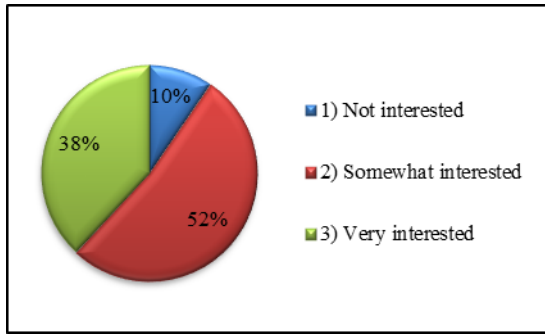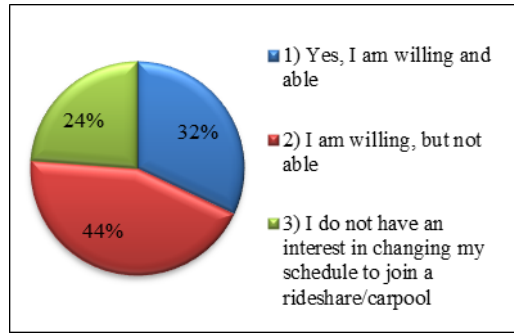Fig. 11. interest level about ridesharing

Fig. 12. willingness to change work schedule to join rideshare

Table 3 shows the frequency of respondents' preference to avail rideshare and its limitation. Half of the respondents (49%) said that as frequently as possible (every day) while 22%, 10%, 9% and 5% of the respondents said 3-4 times per week, only occasionally, 1-2 times per week and 2-3 times every 2 weeks respectively they would prefer to avail rideshare. On the other hand 5% of the respondents said that they are not interested in ridesharing. 42% of the respondents said that they are concerned with the safety of their own and also their belongings while 30% of the respondents mentioned that there is no specific information regarding the service and there is no fixed price for ridesharing are the main limitations of the services. Respondents were also mentioned that lack of connectivity with other mode (8%), and rideshare being not always prescheduled (4%) are the limitations of ridesharing.

Table 3. Users' perception about frequency of sharing ride and its limitation

Frequency to prefer rideshare	Percentage	Limitation of rideshare	Percentage
As frequently as possible (every day)	49%	Safety concern of own and belongings	42%
3-4 times per week	22%	Connectivity with other mode	8%
1-2 times per week	9%	No fixed price assessment	30%
2-3 times every 2 weeks	5%	No specific information about the service	30%
Only occasionally	10%	It is not prescheduled	4%
I am not interested in ridesharing	5%	Others	1%

Half of the respondents (49%) replied that they are willing to travel less than 1 kilometer for meeting a rideshare partner as shown in Figure 13. 1-2 kilometers, more than 3 kilometers and 2-3 kilometers are mentioned by 21%, 20% and 10% of the respondents respectively for meeting a rideshare partner. About 41% of the respondents said that the service quality of rideshare is good while 29% mentioned it is satisfactory as shown in Figure 14. 13% and 11% of the respondents mentioned that the service quality of rideshare is excellent and very good respectively. Only 7% of them expressed it as poor.
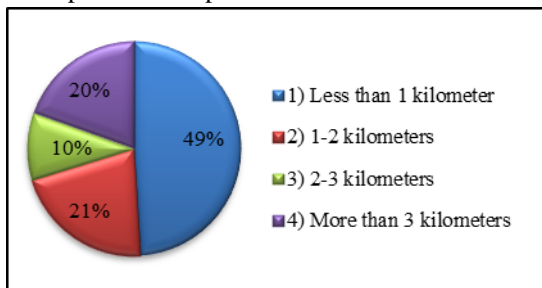

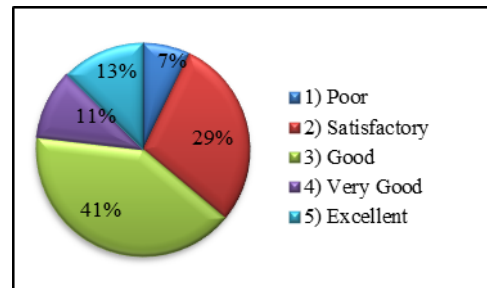Fig. 13. distance for meeting a rideshare partner

Fig. 14. service quality of rideshare

Figure 15 shows the measures necessary for improvement of rideshare as perceived by the respondents. 22%, 21%, 18% and 14% of the respondents expressed to provide guaranteed ride home, help to establish ridesharing with vehicles of different agency, provide parking for ridesharing, and to provide rideshare matching for improvement of
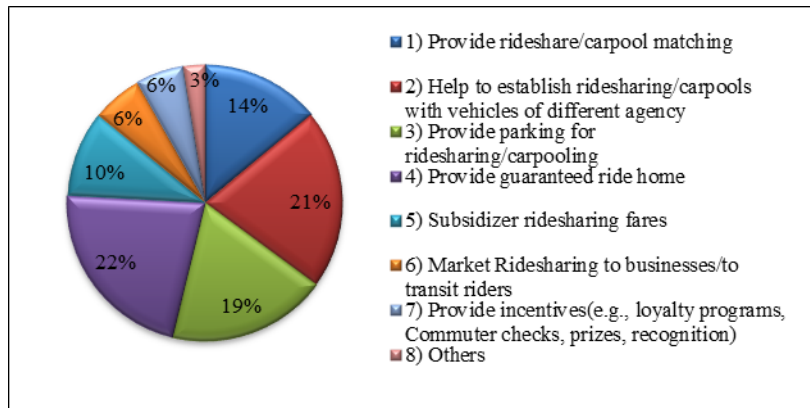

Fig. 15. measures necessary for improvement of rideshare

rideshare. Whereas 10%, 6%, 6% and 3% of the respondents indicated to subsidize ridesharing fares, market ridesharing to businesses or transit riders, provide incentives (e.g., loyalty programs, commuter checks, prizes, recognition) and other measures respectively for improving the services.

4. Empirical model analysis and results
4.1 Measurement model (factor analysis)

Factor analysis (FA) model is employed in order to understand the organization of relationship between attributes and to clearly comprehend how the service quality attributes influence the quality of ridesharing services. Factor Analysis (FA) is a method that is applied for dimensionality reduction and finding the association between variables. By using Principal Component Analysis (PCA) this method detects a reduced set of components which summarized the original data from a large set of variables. The common factor model assumes that the observed variance in variables is attributed to a small number of common factors and a single specific factor. Ultimately the objective is to identify the common factors and to identify the relationship with observed data. Let ξ_1, ξ_2, ξ_i be a set of common factors and δ_i be the specific factor. Let X is set of observed variables. All the specific factors are mutually uncorrelated. In general, a factor model can be represented as follows:

$$X_1 = \lambda_{11}\xi_1 + \lambda_{12}\xi_1 + \dots + \lambda_{1c} + \delta_1$$
$$X_2 = \lambda_{21}\xi_1 + \lambda_{22}\xi_1 + \dots + \lambda_{2c} + \delta_1$$
$$X_3 = \lambda_{31}\xi_1 + \lambda_{32}\xi_1 + \dots + \lambda_{3c} + \delta_1$$
$$X_n = \lambda_{n1}\xi_1 + \lambda_{n2}\xi_1 + \dots + \lambda_{nc} + \delta_1$$

Where λ represents the extent to which each measure X reflects the underlying common factor ξ. Hence the variance of X_i is:

$$\text{var}(X_i) = \text{var}(\boldsymbol{\lambda_{12}}\xi_1 + + \delta_i) = \lambda i^2 + \text{var}(\delta_i) = 1$$

Here λi^2 is called the communality of Xi. The association between the observed variables and the factors is termed as factor loadings.

4.2 Reliability

Cronbach's alpha is a measure of internal consistency, which means how closely the variables are related to each other in a group of variables. The theoretical value of Cronbach's alpha varies in between 0 to 1. According to the thumb rule for describing the internal consistency of variables the alpha value greater than 0.9 is termed as having

excellent internal consistency between variables. Furthermore, Cronbach's alpha values between 0.9 and 0.8 is good, values between 0.8 and 0.7 is acceptable, values between 0.7 and 0.6 is questionable, values between 0.6 and 0.5 is poor and values less than 0.5 is unacceptable. Table 4 shows that the value of Cronbach's alpha is 0.820 that falls in the range of being good suggesting that the variables have relatively high internal consistency. Table 4 also shows the Kaiser-Meyer-Olkin measure of sampling adequacy and Bartlett's test of sphericity. The value of KMO statistic varies between 0 and 1. Kaiser (1974) recommends that values more than 0.5 are considered as reliable, values less than 0.5 indicates to either collect more data or re-evaluate which variables to include in the factor analysis. Moreover, values between 0.5 ~ 0.7, 0.7 ~ 0.8, 0.8 ~ 0.9 and values above 0.9 are considered as average, good, great and excellent respectively. For this dataset, the value of KMO is 0.671, which falls into the range of being average and Bartlett's test of sphericity is found to have an Approx. Chi-Square of 1561.901. So it can be said that factor analysis is suitable for this dataset.

Table 4. KMO, Bartlett's and Reliability Test.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.671
Bartlett's Test of Sphericity	Approx. Chi-Square	1561.901
	df	210
	Sig.	.000
Cronbach's Alpha		.820

4.3 Factor analysis output

Factor analysis was employed to extract dimensions of rideshare service quality for Dhaka city. 21 variables described in table 5 are employed in the factor analysis. Several trials were made with the variables.

Table 5. List of variables

1. Monthly household income
2. Schedule of trip
3. Trip Distance
4. Trip purpose
5. Main mode of trip
6. Having information about ridesharing
7. Waiting time for a ride
8. Prescheduled trip
9. Willingness to pay for rideshare within Dhaka city
10. The reason for considering rideshare
11. Safety of ridesharing transportation
12. Respondents' views towards ridesharing
13. Importance of ridesharing
14. Comfort during rideshare
15. Interest level about ridesharing
16. Willingness to change work schedule to join rideshare
17. Frequency to prefer rideshare
18. Distance for meeting a rideshare partner
19. Service quality of Rideshare
20. Limitation of Rideshare
21. Measures necessary for improvement of rideshare

The results of factor analysis are reported in Table 6 up to Table 7. The highest loading value can be explicated as the most significant feature. By using extraction method of principal component analysis, two factors with eigenvalues greater than 1 were extracted. Rotation plays an important role in optimizing the factor structure and as a consequence the relative importance of the eight factors in this dataset is equalized. From the rotated solution of factor analysis, it is identified that factor 1 explains 11.68% of total variance. The first few factors of the analysis explain comparatively large amount of variance (particularly factor 1) whereas following factors describe only minor amounts of variance. Then all factors with eigenvalues greater than 1 are extracted using VARIMAX rotation and accounted for 57.103% of the total variance, resulting eight factors. They are monthly household income, schedule of trip, trip distance, trip purpose, main mode of trip, having information about ridesharing, waiting time for a ride and prescheduled trip. It indicates the total variance can be explained by the common factors and is considered as reasonable (Field, 2005). Before rotation, factor 1 accounted for considerably larger variance than the remaining seven factors (13.50% compared to 7.828%, 7.43%, 6.55%, 5.78%, 5.60%, 5.38% and 5.02%) however after extraction it accounts for only 11.68% of variance compared to 7.06%, 6.77%, 6.65%, 6.64%, 6.60%, 6.27% and 5.44% respectively.

Table 6. Rotated Component Matrix

	Component							
	1	2	3	4	5	6	7	8
Interest level about ridesharing	.763							
Frequency to prefer rideshare	.691							
Comfort during rideshare	.658							
Service quality of rideshare	.566							
Willingness to change work schedule to join rideshare	.512							
Trip purpose		.488						
Distance for meeting a rideshare partner		.456						
Importance of ridesharing		.386						
Willingness to pay for rideshare within Dhaka city			.670					
Trip distance			.650					
Monthly household income			.407					
The reason for considering rideshare				.581				
Measures necessary for improvement of rideshare				.438				
Prescheduled trip					.393			
Waiting time for a ride						.451		
Having information about ridesharing						.448		
Limitation of rideshare						.444		
Safety of ridesharing transportation						-.360		
Main mode of trip							.462	
Respondents' views towards ridesharing								.548
Schedule of trip								.462
Variance explained (%)	**11.68**	**7.06**	**6.77**	**6.65**	**6.64**	**6.60**	**6.27**	**5.44**
Cumulative variance (%)	**11.68**	**18.73**	**25.50**	**32.15**	**38.80**	**45.40**	**51.67**	**57.10**
Eigenvalue	**2.45**	**1.48**	**1.42**	**1.40**	**1.39**	**1.38**	**1.32**	**1.14**

Table 7 shows revised factor loadings where two factors namely monthly household income and schedule of trip appear to be most important as the majority of the variables load very highly onto these two. The cut-off point for the factor analysis was set to 0.400 as factor loading above 0.600 is considered as high while factor loading greater than or equal to 0.3 is considered moderately high (Klien, 2005). Result shows that frequency to prefer rideshare, distance for meeting a rideshare partner, trip purpose, interest level about ridesharing and comfort during rideshare are the most significant variables which are strongly correlated with the two-factor solution.

Table 7. Rotated Component Matrix (Revised).

	Component	
	1	2
Frequency to prefer rideshare	**.629**	
Trip purpose	**.562**	
Interest level about ridesharing	**.558**	
Comfort during rideshare	**.527**	
Trip distance	.510	
Respondents' views towards ridesharing	-.390	
Main mode of trip	.363	
Schedule of trip	.346	
Distance for meeting a rideshare partner		**.587**
Prescheduled trip		.484
Safety of ridesharing transportation		.461
Having information about ridesharing		.417
Willingness to change work schedule to join rideshare		.404

Importance of ridesharing	-.336
Waiting time for a ride	-.310

5. Summary

Result shows that most of the respondents (79%) are male age range between 20 to 39 years. About 67% of the users are graduates and post-graduates. Half of the users are full time government/private job holders while most of the users (79%) don't have own vehicles whose main mode of trip is bus/train/tempo. About half (51%) of the respondents spent thousand taka to five thousand taka per month as travel expenditure based on their trip distance which is mostly ranges from 5 kilometers to 20 kilometers. The schedules of trip of the passengers are mostly during office hour which is within 7:00 a.m. - 9:00 a.m. According to the result majority (59%) of the respondents know about ridesharing while half (48%) of them agree that rideshare is a safe transportation system. Result indicates that majority (48%) of the respondents expect rideshare trip to be prescheduled while most (60%) of them are willing to wait for less than 10 minute for a ride. About half of the respondents want to share ride as often as possible and willing to pay less than 50 BDT for a shared ride. Respondents perceive that ridesharing service is important since it provides access to public transit routes, work places with limited parking and fills the service area gaps of existing transit services and also lowers environmental concerns.

Majority of the respondents' perceive that if safety is ensured, they will use this commute more frequently. The reason for considering rideshare is for financial savings due to shared commuting (41%). 56% of the respondents agree that rideshare is comfortable while half (52%) of them are somewhat interested in ridesharing. 44% of the respondents are willing but would not be able to change their work schedule to join rideshare. Half (49%) of the respondents would like to travel less than 1 kilometer for meeting a rideshare partner. Owing to completely unknown ridesharing partners, majority (42%) of the respondents are concerned about safety of their own and belongings. The respondents rated service quality of ridesharing as good and suggested to have guaranteed ride home for improvement of rideshare services.

6. Conclusion

This research evaluated passengers' opinion about the service offered by ridesharing in Dhaka city. Though ridesharing is not well-recognized public transportation system in Dhaka city, it is still familiar to many citizens. Those citizens whom already experienced ridesharing felt that ridesharing is fairly safe as well as comfortable transportation system. From the result it was identified that most of the ridesharing participants are aging from 20 to 39 years that is similar to the findings of Tao & Wu (2008) which revealed that 90% of the total participants' age range was from 20 to 40 years. Majority of the ride share users of Dhaka city are male which contradicts the result of Tao & Wu (2008) which found that 70% of the ridesharing participants were women. As ridesharing is comparatively expensive than other public transportation services, office going people are the key customers for the service which is similar to the findings of Tao & Wu (2008) and Caulfield (2009); which shows that ridesharing participants were mainly office going people and skilled or non-skilled workers. Respondents prefer prescheduled ridesharing and they are willing to wait for less than 10 minutes for a ride which supports the result of Tao & Wu (2008) as approximately 70% participants are willing to pay for rideshare if maximum waiting time is guaranteed within 10 minutes. Citizens of Dhaka city are willing to pay less than 50 taka likewise they also want to use rideshare as frequently as possible. The passengers would like to travel less than 1 kilometer for meeting a rideshare partner. Since the ridesharing partners are completely unknown to each other, passengers are always concerned with the safety of their own self and belongings which is identical to the findings of other studies (Furuhata et al., 2013; Chaube et al., 2010; Amey et al., 2011), which found that privacy is a major concern for individuals who are most likely to use rideshare. Because of shared commuting, ridesharing can save a lot of travel expenses which support the findings of other studies (Agatz et al., 2011; Tao and Wu, 2008). If the passengers get the privilege to guaranteed ride home through ridesharing then it may be considered as a great improvement of this service as perceived by the respondents. Considering the current state of ridesharing service in Dhaka city, citizens think that the service quality of ridesharing is good enough.

From the factor analysis, eight factors were obtained which are more significant and strongly correlate with others. They are monthly household income, schedule of trip, trip distance, trip purpose, main mode of trip, having information about ridesharing, waiting time for a ride and prescheduled trip. Monthly household income and schedule of trip appear to be most attribute regarding the service quality o rideshare. Result shows that frequency to prefer rideshare, distance for meeting a rideshare partner, trip purpose and comfort during rideshare show the most significant correlations with the two factor solution.

The outcomes of this research offer significant understandings for improving the ridesharing service quality currently being provided and the attributes on which greater attention may be needed. Although outcomes of this research offers motivating direction in evaluating service quality of rideshare some limitations are also recognized. The survey data had a gender bias. This could be due to the fact that female are less passionate in answering the questionnaire. More variation in survey data is needed by including added survey locations that may help to obtain more accurate conclusion of the service quality of ridesharing. Future research should explore constructs that could explain more variance in personal practices to more accurately represent the ridesharing services.

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