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EFFECT OF IMAGE & TRUST IN CUSTOMERS' LOYALTY TO MOBILE FOOD DELIVERY APPS (MFDAS): MEDIATING ROLE OF CUSTOMER SATISFACTION

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ABSTRACT

The purpose of this study is to examine the effect of image and trust in customers' loyalty to Mobile Food Delivery Apps (MFDAs). In order to carry out the research, both primary and secondary data were used. In this study, an empirical investigation was conducted using an online questionnaire survey method. A total of 375 responses were collected from users i.e., who have earlier experience with mobile food delivery apps by using purposive sampling technique and analyzed through the PLS-SEM technique. The study found that both trust and image positively contributed to customers' satisfaction with mobile food delivery apps as well as driving a significant relationship with loyalty. Besides, there is a direct significant relationship between trust and image with loyalty. Furthermore, this study identified the partial mediation role of customer satisfaction on the relationship between both trust and image on customers' loyalty to mobile food delivery apps. This study helps policymakers and practitioners to understand the behavioral patterns of MFDAs users that will lead to building inclusive and sustainable strategies to retain customers.

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1. INTRODUCTION

Nowadays, the behavior of consumers and businesses has changed due to the advancements in internet technology which also make e-commerce operations easier (Chang, Chou, & Lo, 2014). In the context of the restaurant business, technology makes it possible for customers to order food from restaurants through their websites or through online food delivery services or mobile food delivery apps (MFDAs) (Kimes, 2011). Mobile food delivery apps (MFDAs) are smartphone-based apps used to communicate with restaurants, search for meals, order meals for delivery, and make payments without physically interacting with the restaurant staff (Alalwan, 2020; Okumus & Bilgihan, 2014; Wang et al., 2019).

The global mobile food delivery apps market has experienced substantial growth over the past few years. According to a report by Research and Markets, the global mobile food delivery apps market was valued at USD 18.7 billion in 2020 and is expected to reach USD 28.4 billion by 2026, growing at a CAGR of 6.8% during the forecast period. The market is dominated by a few key players, including Uber Eats, Grubhub, Door Dash, Just Eat, and Deliveroo (Research and Markets, 2021). According to a report by App Annie, these five players accounted for 75% of the global food delivery app downloads in 2020 (App Annie, 2021).

The Asia-Pacific region is expected to witness the highest growth in the market, owing to the large population and increasing adoption of smartphones in the region. According to the same report by Research and Markets, the Asia-Pacific region is expected to grow at a CAGR of 7.5% during the

forecast period. Furthermore, a report by Statista shows that the number of mobile food delivery app users worldwide is projected to reach 1.6 billion in 2023, up from 967 million in (2020 Statista, 2021). On the other side, the current data revealed that this industry is becoming more popular in Bangladesh. In the year 2019, the average market size was 10 million dollars and the projected online food delivery market worth would be 5 billion dollars by 2025 (Kader, 2020). However, the growth of mobile food delivery apps has been phenomenal in recent years, and Bangladesh is no exception. The convenience and accessibility offered by these apps have revolutionized the food industry, making it easier for consumers to access food options and enjoy food delivery services at their doorstep (Hossain, et al., 2020). In Bangladesh, the rise of mobile food delivery apps has been driven by the increasing availability of smartphones and internet access. The most popular apps in Bangladesh are – Food Panda, Pathao Food, Shohoz Food, Uber Eats, Hungry Naki, etc. A growing number of consumers are choosing to use these apps to order food, due to the convenience and ease of use they offer (Islam, et al., 2019), as well as the increasing demand for healthy and nutritious food options (Ahmed et al., 2020).

Consequently, due to the intense competition, growth brings opportunities as well as challenges for the restaurant industry. Similarly, the growth of the mobile food delivery market in Bangladesh is not without its challenges. One of the main challenges facing the industry is the lack of trust in the quality and safety of food delivered through the apps (Hossain, et al., 2019). To overcome this challenge, companies must focus on building trust with their customers (Al-Ansi & Han, 2019) which

will lead to customer relationship and satisfaction (Kimes, 2011), finally helps to create loyal customers (Pee, Jiang, & Klein, 2018) since customer loyalty is the most vital point for doing online business.

Moreover, the significance of customer loyalty, the building blocks of loyalty, as well as its diversity, is well explored in the literature (Wirtz & Lovelock, 2016). However, despite the fact that several studies on loyalty have been undertaken in various industries, academicians believe that the drivers by which consumer loyalty develops are still not fully understood (Abou-Shouk & Khalifa, 2017; Caruana & Ewing, 2010).

Furthermore, it will be challenging to generalize the findings from studies in one industry to others because each industry has its own unique individualities. For this reason, researchers suggested to investigate the influential factors of loyalty building in other industries (Gursoy et al., 2014) as well as adding new constructs such as image, trust, and involvement recommended by (Suhartanto et al., 2018). Yet again, studies from the restaurant perspective (Kim et al., 2020; Choi and Kwon, 2020) stated that customer loyalty is significantly influenced by image and trust. In spite of the significance of both factors, literature appears to be comparatively absent in focusing on the combined effect of those factors on customer loyalty, particularly in the mobile food delivery apps (MFDAs) context. This research gap motivates us to examine the direct effect of image and trust on customer satisfaction as well as loyalty to mobile food delivery apps and the indirect effect via customer satisfaction mediation role. Conducting such a study will provide valuable insights for restaurant businesses to develop more effective strategies in order to expand potential

markets and build customers' loyalty and retention from the perspective of MFDA services.

The following portion of this study covers the literature review, theoretical foundation, and hypotheses development. After that, it contains the methodology, followed by the data analysis & results presentation and discussion section. In the final section, the research paper concludes with theoretical contribution, limitations, and further research directions.

2. LITERATURE REVIEW

2.1 Theoretical Foundation

In an empirical study, a hypothesized relationship must be consistent with previous theories or well-known models (Colquit and Zapata-Phelan, 2007). The existing study predicts the effects of image and trust on customer satisfaction which in turn positively i.e., customer loyalty through the S-O-R theory (Mehrabian and Russell, 1974). The S-O-R framework provides an explanation of how organisms facilitate the relationship between stimulation and response through various means that stimulate individuals' cognitive and emotional states, subsequently influencing their behavioral responses, as outlined by Islam and Rahman (2017). In recent years, the SOR model has been used more regularly in the study of consumer behavior. At first, the S-O-R theory is implemented in the context of consumer behavior by Donovan and Rossiter in 1982. In the social commerce industry, Wu and Li (2018) discovered that the marketing mix (as a stimulus) has a noteworthy impact on the perceived value of consumers (as an organism), which leads to a favorable effect on customer loyalty (response). Kim and Lennon (2013) expanded the S-O-R theory

to incorporate both internal sources of information (such as website quality) and external sources of information (such as reputation) as stimuli that impact purchase intention (response) by shaping the cognitive and emotional states of consumers (organisms). The current study planned that image and trust (as a stimuli) in mobile food delivery apps have a significant effect on customer satisfaction (as an organism), which in turn positively influences loyalty (responses).

2.2 Image, Trust and Loyalty

In the earlier study, researchers found that image had a significant positive impact on customer loyalty (Xu and Wang, 2019). Consumers are more likely to remain loyal to a food delivery app if they perceive it to have a strong and positive brand image. In addition, a study by Li et al., (2020) found that when customers' expectations were met through prompt delivery, then customers demonstrated a greater propensity to reuse the app. The literature suggests that image, trust, and customer satisfaction are important factors in determining consumer loyalty to mobile food delivery apps. Companies in this space should focus on building strong and positive brand images, providing high-quality and satisfying user experiences, and ensuring timely and efficient service delivery in order to build customer loyalty and customer retention (Kim et al., 2020; Chen et al., 2019; Alsos et al., 2018). Kim and Lee (2019) found that those who trust a delivery app were more likely to use the app again in the future and recommended it to others (Kim et al., 2018). Deng et al. (2019) found that trust was positively related to customer loyalty. Hence, the following two hypotheses were developed:

H1: Image positively influences the loyalty of MFDAs.

H2: Trust positively influences the loyalty of MFDAs.

2.3 Image, Trust and Customers' Satisfaction

Image refers to the overall perception of a company and its offerings, including its brand, products, and services. In the context of mobile food delivery apps, image refers to the perception of the app and the quality of food and delivery services it provides (Akbari & Amiri, 2020). Customers were more satisfied with the food delivery service when the images of the dishes and the restaurant on the app were visually appealing and accurately represented the dishes and restaurant (Kim et al., 2020; Ye et al., 2018). Customers were more likely to trust and use an app that had a consistent image across all platforms (e.g., website, social media, and app) and had a good reputation (Chen and Hsu, 2019). Sun and Kim (2020) identified that customers are more satisfied with apps that had a professional and attractive image, including a logo and user-friendly interface. Another research by Li et al. (2018) found that images of food items on mobile food delivery apps play a significant role in customer satisfaction. Customers were more likely to be satisfied with their food order if the images of the food items on the app matched the actual food they received (Li et al. 2019). Hsu and Liu (2020) stated that customers are to be satisfied with a restaurant if it had a high rating, good reviews, and high-quality images of the food.

Trust is defined as the belief in the reliability, integrity, and ability of an organization or brand (Mayer et al., 1995). It also refers to the belief in the quality and safety of the food delivered through the app and the reliability of the delivery

services (Hossain et al., 2019). Trust is a key factor in determining customer satisfaction with mobile food delivery services. Previous studies recommended that apps' perceived reliability, safety, privacy protection, integrity, and expertise all positively impacted customer trust and satisfaction (Kim et al., 2019; Wang et al., 2019). Alqahtani et al. (2019) viewed trust and customer satisfaction in the context of Saudi Arabia and explored that trust in the app and the delivery driver was positively related to customer satisfaction, but trust in the food itself was not a significant factor. Deng et al. (2019) identified that trust had a significant positive impact on customer satisfaction with mobile food delivery apps. This study also found that the design of the app, the quality of the food, and the speed of delivery were important factors in building trust and satisfaction. Trust may be built through a user-friendly interface, clear policies and procedures, and a secure payment system (Alqahtani, Alqahtani, & Alqahtani, 2020). Trust also plays a vital role in the consumers' decision-making to use mobile food delivery apps. Research has shown that trust is a key factor in consumer decisions to use online platforms for food delivery (Lee et al., 2016). Wang et al. (2019) found that trust in the food delivery platform was positively related to consumer satisfaction with the overall delivery experience. Previous studies have identified various factors that affect consumer trust and satisfaction, including the quality of the food, the accuracy of delivery estimates, and the overall convenience of the app (Zhou et al., 2020). Additionally, trust and satisfaction can be improved by implementing features like real-time tracking of orders, rating and reviews of the delivery service, and food quality in the mobile food delivery apps (Alam et al., 2018). Therefore, the image and trust of a mobile food

delivery app play an important role in establishing satisfaction among customers. A positive image can lead to increased trust, which in turn can lead to greater satisfaction with the service. Hence, the following two hypotheses were developed:

H3: Image positively influences customer satisfaction of MFDAs.

H4: Trust positively influences customer satisfaction of MFDAs.

2.4 Customer Satisfaction and Loyalty

Kim and Lee (2018) found that convenience, speed, and food quality are the most important factors in determining customer satisfaction with mobile food delivery apps which leads to increased loyalty. Li, Chen, and Wang (2020) explained that personalized recommendations and rewards systems can further increase customer satisfaction and loyalty. Integration of online payment methods and the use of coupons and discounts can also positively impact customer satisfaction and loyalty (Zou, Li and Yang, 2021). The uses of social media platforms and online reviews have a positive impact on customer satisfaction and loyalty in mobile food delivery apps (El-Baz et al., 2022). The previous studies explore that those who reported higher levels of satisfaction with the app were more likely to be loyal users. This suggests that providing a high-quality and satisfying user experience is crucial for building and maintaining customer loyalty in the mobile food delivery app market (Jiang et al., 2018). Hence, the following hypothesis was developed:

H5: Customer satisfaction positively influences the loyalty of MFDAs.

2.5 Mediating Role of Customer Satisfaction

Choi and Kwon (2020) explained that image and trust have a positive influence on customer loyalty in the context of MFDAs, but did not examine the potential mediating role of customer satisfaction. Another study by Zhou, Chen, & Li (2020) described that customer satisfaction mediates the relationship between trust and loyalty in the context of MFDAs, but did not investigate the role of image. However, image and trust alone may not be sufficient to fully explain customers' loyalty. The moderating role of customers' satisfaction is also important in understanding customers' loyalty. Satisfaction, which refers to the extent to which customers are pleased with their experience with an organization or brand, can moderate the relationship between image and trust and customers' loyalty (Oliver, 1997).

Furthermore, it is not clear whether the relationship between image and trust and customers' loyalty is moderated by customers' satisfaction with the MFDAs. Earlier researchers have suggested that satisfaction may moderate the relationship between image and trust and customers' loyalty (Wang, et al., 2019), while others have found no such relationship (Gao, et al., 2018). Additionally, research has suggested that customer satisfaction may play a moderating role in the relationship between image and trust and customer loyalty (Kim et al., 2018; Kim & Lee, 2020). Therefore, this study also investigates the moderating role of customer satisfaction in the relationship between image and trust and customers' loyalty. Hence, the following two hypotheses were developed:

H6: Customer satisfaction mediates the relationship between image and loyalty

H7: Customer satisfaction mediates the relationship between trust and loyalty

2.6 Research Framework

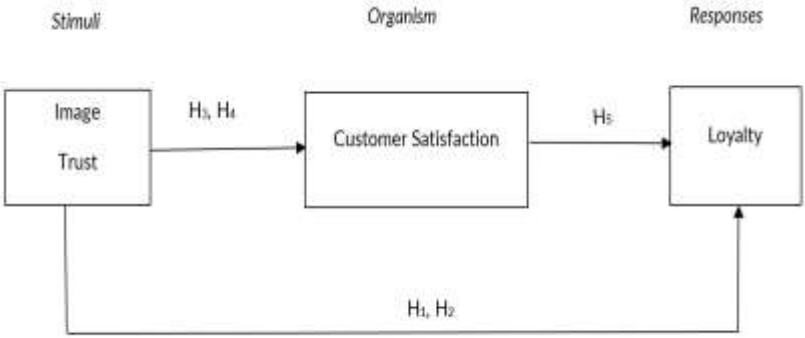

Figure 1. Theoretical Framework

3. METHODOLOGY

3.1 Research Design

This research is carried out in Bangladesh and uses a cross-sectional design and a quantitative technique followed by a Structural Equation Modeling (SEM) method to measure the effect of image and trust on customer loyalty to mobile food delivery apps (MFDAs). According to Sekaran and Bougie (2016), the research which gathered data for a certain objective and within a specific time has to be explained as a cross-sectional analysis. Based on the concept of Sekaran and Bougie (2016), this research is also a cross-sectional study. In this cross-

sectional study, the researcher used a survey questionnaire to obtain quantitative data from the mobile food delivery apps users or customers.

3.2 Research Instrument

The items representing image, trust, customer satisfaction, and loyalty were adapted (see Appendix - A). Constructs image, trust, customer satisfaction, and loyalty have respectively 3 indicators, 5 indicators, 5 indicators, and 6 indicators. Appendix-A shows all the items used in this study.

3.3 Questionnaire Design

In order to meet the research objectives, both types of data i.e., primary and secondary data were used. Primary data was collected through an online questionnaire survey which is consisting of a set of close-ended questions. There were 26 questions in the questionnaire which is divided into 2 sections. Part – 1, consists of the personal profile of the respondents such as – gender, age, education level, occupation, income and the respondents' experience with the use of mobile food delivery apps. Part 2 – comprises of the questions related to constructs. The items of the questionnaire were assessed through 5-point Likert scale where 1 indicates – strongly disagree and 5 – denotes strongly agree.

3.4 Sample Size

Loehlin and Beaujean (2016) stated that a minimum sample size should be used to lessen the bias in SEM estimates and that a desirable sample size should reflect the entire population. Hair et al., (2010) suggested that when the population is unknown, the minimum sample is determined – the number of items

multiplied by 10 times; in this study, the total items is 19, so, the total minimum required sample 190. Also, the sample size is calculated by using G*power 3.1.9.7 (Faul et al., 2007) and recommended setting by Gefen et al., (2011) [f2 = 0.15, power = 0.80, alpha = 0.05 and predictors = 3] the minimum sample size is 77 recommended by G* power to test the model. Thus, we collected 375 responses from the users of MFDAs in this study which is a satisfactory sample for generalizing the population.

3.5 Sampling and Data Collection

A purposive sampling technique was used to collect data from the users of mobile food delivery apps. The purposive sampling technique is a type of non-probability sampling method. In this respect, Malhotra and Dash (2016) recommended that in the case of unlisted populations 'a non-probability' sampling technique can be utilized. A questionnaire was prepared using Google forms and the link was shared through email, Facebook groups, WhatsApp groups and author other networks. Data were collected from a total of 392 users; of which 375 responses were able to fill-up the questionnaire correctly. The remaining 17 were not included in the analysis due to the invalid answer and the non-completion of the questionnaire. Finally, after preliminary screening 375 is the final sample size to carry out the research. Data was collected from January 5 to January 20, 2023, among Bangladeshi MFDAs users.

3.6 Participants and more Demographic Data

The analysis in this study is based on 375 completed questionnaires. The demographic breakdown of respondents is illustrated in Table 1. Most of the respondents i.e., 60.53% are

male (n = 227) while 39.47% were females (n = 148). 74.67% of respondents were aged from 23 to 37. Among them, most of the users (43.73%) used food panda (n=164). The users of MFDAs are from different levels of income groups and they are from different professions. The respondents (175) used MFDAs on an average 6-10 times in monthly.

Table 1. Respondent's profile (N=375)

Variables	Groups	Frequency	Percentages (%)
Gender	Male	227	60.53%
	Female	148	39.47%
Respondents Age	18 – 22	50	13.33%
	23 – 27	120	32.00%
	28 – 32	98	26.13%
	33 – 37	62	16.54%
	38 – 42	25	6.67%
	More than 42	20	5.33%
Education	SSC	22	5.87%
	HSC	55	14.67%
	Under Graduation	168	44.80%

	Graduation	122	32.53%
	PhD	8	2.13%
	Students	69	18.40%
Occupation	Private Job	108	28.80%
	Governme nt Job	53	14.13%
	Businessm en	88	23.47%
	Housewife	45	12.00%
	Others	12	3.20%
Income	Less than BDT.1000 0	50	13.33%
	10,000 – 25,000	75	20.00%
	25000 – 50000	120	32.00%
	50000 – 75,000	88	23.47%
	More than BDT. 75000	42	11.20%

Which Food Delivery Apps have you used?	Food Panda	164	43.73%
	Pathao Food	62	16.53%
	Uber Eats	15	4.00%
	Hungrinaki	91	24.27%
	Shohoz Food	35	9.33%
	Others	8	2.13%
On average, how often have you used food delivery apps in every month?	1– 5 times	97	25.87%
	6 – 10 times	170	45.33%
	11 – 15	68	18.13%
	More than 15 times	40	10.67%

Source: Authors' own calculation based on the survey

3.7 Data Analysis

For data analysis, two types of software methods have been applied. For coding and compiling the data, and for descriptive statistics, SPSS version 20 was utilized. On the other hand, based on the recommendation of Hair et al. (2014) partial least square, i.e., SMART–PLS is used to investigate the confirmatory factor analysis (CFA), composite reliability, validity of items,

discriminant validity for the constructs, and also the hypothesis test to get the result.

4. DATA ANALYSIS & RESULTS

4.1 Assessment of Measurement Model

To assess the research model, the structural equation modeling technique was applied, and the measurement and structural models were examined by the partial least squares (PLS) technique. The measurement model was evaluated by examining the convergent validity and discriminant validity of four constructs. The convergent validity is measured by considering the factor loading, average variances extract (AVE), and composite reliability (CR), recommended by Hair et al. (2017).

Table 2. Assessment of measurement model

Constructs	Initial Node	Factor Loading	Cronbachs' alpha	Composite Reliability	AVE
Trust	TRU_1:	0.807			
	TRU_2:	0.843	0.738	0.741	0.656
	TRU_3:	0.780			
Image	IMG_1:	0.733			
	IMG_2:	0.799			
	IMG_3:	0.837	0.775	0.811	0.589
	IMG_4:	0.693			
	IMG_5:	0.543			

Customer Satisfaction	SAT_1:	0.564			
	SAT_2:	0.664			
	SAT_3:	0.792			
	SAT_4:	0.787	0.760	0.786	0.510
	SAT_5	0.739			
Loyalty	LOY_1:	0.777			
	LOY_2:	0.835	0.713	0.741	0.542
	LOY_3:	0.568			
	LOY_4:	0.729			
	LOY_5:	0.580			
	LOY_6:	0.510			

Table 2 illustrated the results of confirmatory factor analysis (CFA), showing that all benchmarks were satisfactory. After running the PLS algorithm in the SMART PLS 4.0 software, it is necessary to check whether the outer loadings of the constructs are above 0.708; conversely, values between 0.40–0.70 should be considered for detection from the scale when removing items or indicators increases the composite reliability and AVE by more than the suggested cut-off value (Hair et al. 2011). As per the initial measurement model results, three (3) items (IMG_5, LOY_3 & LOY_6) were detected due to weak factor loading, a remaining total of 16 items for the final analysis (Table 2). The author retains a few items although weaker factor loading due to their contribution. However, all the remaining

items exceeded the benchmark value of 0.7. The latent constructs' CR values were more than 0.7 (Hair et al., 2017). Also, the AVE values of all constructs were above the suggested (Hair et al., 2019) cut-off point of 0.5. Therefore, all the assessment criteria of convergent validity are established.

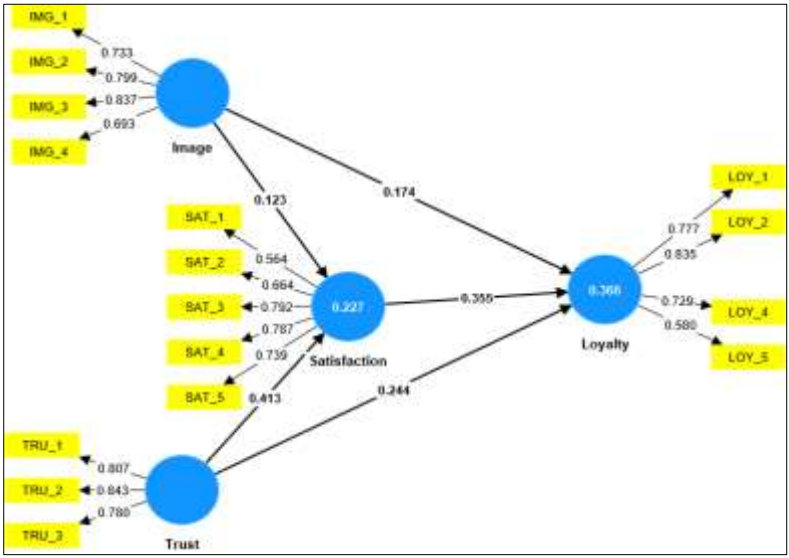

Figure 1. Measurement model (after trimming)

After the check of the discriminant validity, it was evaluated by using Fornell and Larcker criterion and Heterotrait-Monotrait (HTMT) ratio. According to the Fornell and Larcker criterion (1981), "the square root of the AVE for each construct must be greater than the relevant correlation coefficients".

Table 3. Fornell-Larcker Criterion

	Image	Loyalty	Satisfaction	Trust
Image	0.768			
Loyalty	0.375	0.737		
Satisfaction	0.290	0.518	0.714	
Trust	0.403	0.478	0.463	0.810

Under certain situations, the Fornell-Larcker approach is not suitable to check the discriminant validity. Recently, the HTMT ratio is used for measuring the discriminant validity suggested by Henseler et al. (2015) the values of the HTMT ratio for each latent construct should be below 0.85 to establish discriminant validity. Hence, Tables 3 and 4 showed the results of discriminant validity which have been established.

Table 4. Heterotrait-Monotrait Ratio (HTMT)

	Image	Loyalty	Satisfaction	Trust
Image				
Loyalty	0.470			
Satisfaction	0.337	0.667		
Trust	0.530	0.650	0.614	

4.2 Structural Model Assessment

The proposed relationships between the constructs have been evaluated using the structural model. The author assessed the

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structural model, by examining the VIF, R2 value, standard beta, and t-values through a bootstrapping process with a resample of 5,000, and the effect sizes (f2) recommended Hair et al., (2017). Table 5 illustrated the outputs of the structural model. This research has proposed five (5) hypotheses.

Table 5. Results of the Structural Model

H	Path Relationships	Std.Beta	Std.Error	t-values	P-values	BCI-LL	BCI UL	f^2	VIF	Decision
H_1	Image -> Loyalty	0.174	0.058	2.997	0.003	0.06	0.287	0.039	1.214	Accepted
H_2	Trust -> Loyalty	0.244	0.065	3.727	0	0.109	0.368	0.66	1.414	Accepted
H_3	Image -> Satisfaction	0.123	0.052	2.38	0.017	0.018	0.222	0.222	1.194	Accepted
H_4	Trust -> Satisfaction	0.355	0.056	6.332	0	0.242	0.462	0.185	1.194	Accepted
H_5	Satisfaction -> Loyalty	0.413	0.056	7.355	0	0.298	0.516	0.154	1.129	Accepted

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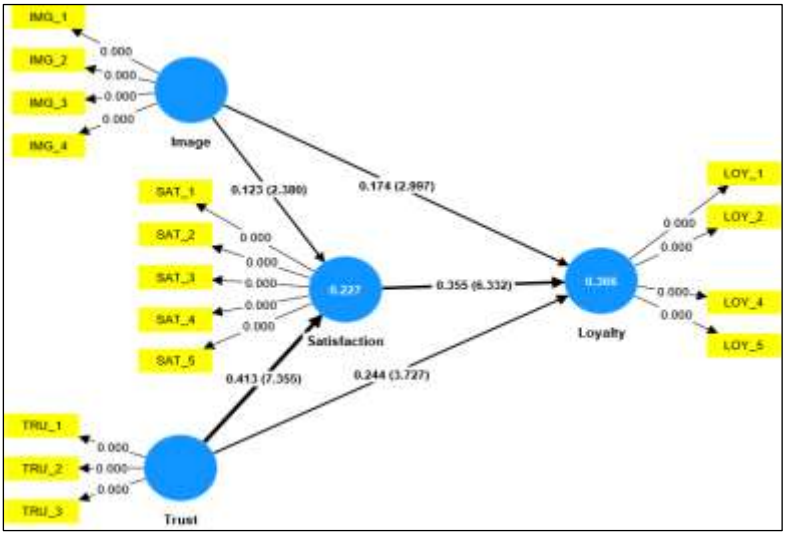

Figure 2. Structural Model Assessment

At first check, the multicollinearity issues by using the variance inflation factor (VIF) and identified that all the VIF values for paths were below 3.30, recommended by Petter et al., (2007). The result signifies that there are no multi-collinearity problems. The authors found that the R2 value for endogenous variables such as loyalty is 0.366 which demonstrates a satisfactory level of in-sample explanatory power (Hair et al., 2017; Rasoolimanesh et al., 2019). The effect sizes of 0.02, 0.15, and 0.35, respectively, denote small, medium, and large effects according to Cohen's (1988) guidelines. The f2 results show that the accepted hypotheses have permissible effect sizes (see Table 5).

The result of the statistical analysis shows that all hypotheses were accepted. The standardized path co-efficient of image is β

= 0.174, t = 2.997, and with a p < 0.003, the standardized path co-efficient of trust is β = 0.244, t = 3.727 and with a p < 0.000, has a significant positive relationship with loyalty and the standardized path co-efficient of satisfaction is β = 0.355, t = 6.332 and with a p < 0.00, has significant positive relationship with loyalty. However, the standardized path co-efficient of image is β = 0.123, t = 2.380 and with a p < 0.017, the standardized path co-efficient of trust is β = 0.413, t = 7.355 and with a p < 0.000, both have significant positive relationship with satisfaction. Thus, all the five hypotheses (H1, H2, H3, H4, and H5) were accepted in this study. From the value of the coefficients, it can be presumed that trust is the factor that mostly influences customer satisfaction. Also, from the value of the coefficients, it can be apparent that satisfaction is the factor that mostly influences customer loyalty, followed by trust and image. The structural model has moderate explanatory power for the variance of loyalty i.e., 36.6%.

4.3 Mediating Effect Analysis

Mediation analysis was performed to assess the mediating role of customer satisfaction between image and loyalty. The results (see Table 6) revealed a significant indirect effect of image on loyalty through customer satisfaction (H6: β = 0.044, t = 2.112, p < 0.035). The total effect of image on loyalty was significant (β = 0.219, t = 3.383, p < 0.001), with the inclusion of the mediator the effect of image on loyalty was still significant (β = 0.173, t = 3.079, p < 0.000). This shows a complementary partial mediating role of customer satisfaction in the relationship between image and loyalty. Hence, H6 was supported.

Table 6. Results of Mediation Analysis

Mediated Path	Path co-efficient	Standard error	T - statistics	P - values	Type of mediation path
Image -> Satisfaction -> Loyalty (H_6)	0.044	0.021	2.112	0.035	Partial mediation
Trust -> Satisfaction -> Loyalty (H_7)	0.147	0.034	4.292	0.000	Partial mediation

Table 7. Results of Mediating Effects

Hypotheses	Path	Direct Effect	Indirect effect	Total effect
H_1	Image -> Loyalty	0.174	0.044	0.218
H_2	Trust -> Loyalty	0.244	0.147	0.391
H_3	Image -> Satisfaction	0.123	-	0.123
H_4	Trust -> Satisfaction	0.355	-	0.355
H_5	Satisfaction -> Loyalty	0.413	-	0.413
H_6	Image -> Satisfaction -> Loyalty	-	0.044	0.044
H_7	Trust -> Satisfaction -> Loyalty	-	0.147	0.147

Furthermore, the results (see Table 6) revealed a significant indirect effect of trust on loyalty through customer satisfaction

(H7: β = 0.147, t = 4.292, p < 0.000). The total effect of trust on loyalty was significant (β = 0.392, t = 6.031, p < 0.000), with the inclusion of the mediator the effect of trust on loyalty was still significant (β = 0.245, t = 3.796, p < 0.000). This shows a complementary partial mediating role of customer satisfaction in the relationship between trust and loyalty. Hence, H7 was supported.

4.4 Results of Importance-Performance Matrix Analysis (IPMA)

These quadrants are defined with the average of performance and the average of importance that are stated in the table of IPMA results. It was first proposed and introduced by Martilla and James (1977). Furthermore, According to Ringle and Sarstedt (2016), Importance-Performance Map Analysis (IPMA) can be used to facilitate the interpretation of PLS-SEM results by generating a visual representation, as depicted in Figure 4.

In the Importance-Performance Map Analysis (IPMA) shown in the figure, the degree of performance of each element is indicated on the vertical axis, ranging from poor performance to good performance, while the perceived importance of the attributes is depicted on the horizontal axis, varying from not very important to very important. In this study, IPMA was used to detect the importance and performance of image, trust, and customer satisfaction. Accordingly, trust is the most important and performing construct for building and maintaining loyalty among mobile food delivery apps' users. This represents high performance, secured & maintains privacy, and service qualities are the important issues for loyalty. It is also a best-performing

construct means that strong trust may be possible to form loyalty.

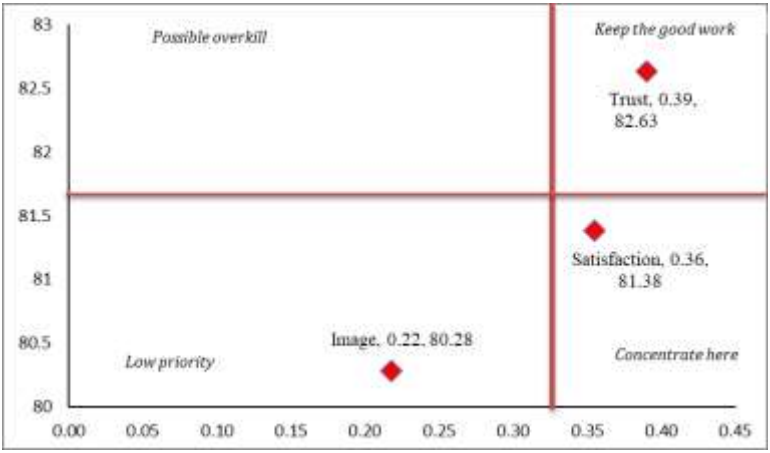

Figure 3. Important Performance Matrix Analysis

Table 8. Categorization of Loyalty factors in IPA quadrant

IFEFM factor	IPA quadrant
Image	Low priority
Satisfaction	Concentrate here
Trust	Keep the good work

Therefore, trust regarding the loyalty of MFDAs is a good construct. Management and policymakers should keep up the good work by implementing effective strategies. However, in our study, the low priority of the constructs indicates that the variables are important but they are currently performing low. In this study, the image of MFDAs is an important construct but currently, it performing below average. It indicates that image

is a significant issue for customer satisfaction as well as loyalty but recently users may require more features in MFDAs including the quality of the app's interface and design, customer service, and advertising, which can create a positive attitude towards the service provider. On the other side, customer satisfaction is another important and well-performing construct. Therefore, management and policymakers should concentrate on how customer satisfaction will increase for building loyalty among the MFDAs users.

5. DISCUSSION

The aim of the study is to explore the effect of image and trust on customers' loyalty to mobile food delivery apps (MFDAs) and also find the mediating role of customer satisfaction. This study's findings confirmed that both image and trust have positive and significant effect of customer loyalty (H1 & H2). This finding verifies with the findings of Teng et al. (2019) & Kim et al., (2018). The result indicates that users are more likely to exhibit loyalty towards an app if they perceive it as trustworthy and having a positive image and high levels of trust. Customer satisfaction has a positive and significant relationship with loyalty (H5), indicating that when customers are satisfied with their experience using MFDAs, they are more likely to use the app again and recommend it to others, leading to higher levels of loyalty. Otherwise, customers may even switch to a competitor, resulting in decreased loyalty. So, the management of MFDAs can prioritize customer satisfaction by offering personalized recommendations and providing feedback mechanisms to improve the service quality. Through these efforts, MFDAs can increase customer satisfaction, which can further enhance customers' loyalty to the brand. The result

shows that image is also found to have a positive and significant influence on customer satisfaction, indicating that hypothesis (H3) is also accepted, since the presence of high-quality images on food items on the menu, by providing customers with a clear understanding of the food they are ordering, by improving customers' perception of the food being delivered, significantly increased customers' motivation to order food through MFDAs. However, trust also exhibits a positive and significant effect on the satisfaction of mobile food delivery apps users, indicating that hypothesis (H4) is also accepted, which means that trust is the belief that the service provider will deliver on its promises, and it plays a crucial role in building long-term relationships with customers.

Therefore, the growth of mobile food delivery apps in Bangladesh has had a significant impact on the food industry, offering consumers greater convenience and accessibility to food options. However, the industry faces challenges such as a lack of trust in the quality and safety of food delivered through these apps, and the need for regulation and standardization. To overcome these challenges, companies operating in this market must focus on building trust with their customers and ensuring the quality and safety of their offerings. Furthermore, image and trust are important factors in building customer loyalty for MFDAs. Companies that can create a positive image and establish trust with customers are more likely to retain their business and gain new customers through word-of-mouth recommendations. In this regard, need investment in design, branding, and customer service, a food delivery app can create a positive user experience and establish a strong relationship with its customers.

6. CONTRIBUTIONS

The study pointed out that there is a dearth of studies that examined the relationship between image, trust and customer satisfaction with loyalty in the mobile food delivery apps particularly from a lesser digitally literate populated country like Bangladesh. The study has two theoretical contributions: firstly, the author proves that the new constructs (image, trust) are a determinant of loyalty in the context of mobile food delivery apps. Secondly, the study confirmed that customers' satisfaction (organism) plays a mediating role that significantly affects the relationship between image, trust (stimuli), and loyalty (responses). The study also investigates customer satisfaction as the mediating role between image, trust and loyalty.

7. CONCLUSION, LIMITATIONS & FUTURE RESEARCH DIRECTIONS

In conclusion, the study has shown that the image and trust of mobile food delivery apps (MFDAs) significantly impact loyalty. A positive and reputable image increases customer trust and satisfaction, leading to higher levels of loyalty. Conversely, a negative image can erode trust and loyalty. Trust, on its own, is also a crucial determinant of loyalty, as customers who perceive an app as reliable and secure are more likely to exhibit higher levels of loyalty. Importantly, customer satisfaction plays a mediating role in the relationship between image, trust, and loyalty. When customers are satisfied with the overall service experience, their loyalty to the app increases. To foster loyalty, MFDAs should focus on building a positive brand image, establishing trust through transparent and reliable operations,

and consistently delivering high-quality service. Overall, the insights gained from this study can assist MFDAs in developing effective strategies to enhance customer loyalty and gain a competitive advantage in the market. Yet, the study has few limitations, like all participants of this study reside in Dhaka city. Also, data were collected online. Therefore, future studies may include additional constructs like customer involvement, and commitment to the existing model to enrich its predictive power. Future studies also might investigate the nonlinear effect for detecting the robustness of PLS-SEM results.

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Appendix A

Constructs	Initial Node	Statements	Adapted from
Trust	TRU_1:	I think using MFD apps is safe	Hung et al., (2006)
	TRU_2:	I think using MFD apps is reliable	
	TRU_3:	I trust the mobile food delivery app	
Image	IMG_1:	The MFD apps image is trendy	Konuk (2018), Naehyun et ai., (2012)
	IMG_2:	This MFD apps provides attractive ordering experience	
	IMG_3:	This MFD apps provides good overall services	
	IMG_4:	I can easily recall the MFD apps	
	IMG_5:	Overall, I have a favorable view of the MFD apps	
Customer Satisfaction	SAT_1:	This MFD apps has high performance	Anderson and Srinivasan (2003); Wang, Tseng et al., (2019); Lee and Chung (2009),
	SAT_2:	I believe I have made a right decision to choose MFD apps	
	SAT_3:	I am satisfied with the way that MFD apps have carried out the transactions	
	SAT_4:	I am happy with mobile food order apps	

	SAT_5	Overall, I was satisfied with the MFD apps services	Alalwan (2020)
Loyalty	LOY_1:	I always subscribe to MFD app promotion	Suhartanto et al., (2018), Liu et al., (2017), Nguyen-Phuoc et al., (2020). Zhao, Y.; Bacao, F. (2020)
	LOY_2:	I will use the MFD app again in future	
	LOY_3:	I will recommend the MFD app to other people	
	LOY_4:	I will say or share the positive things to other people about using MFD app	
	LOY_5:	The user friendliness of the MFD app makes me feel good	
	LOY_6:	I consider this MFD app to be my first choice when I order food	