Factors Influencing Online Food Delivery Apps Use During COVID-19 Lockdown among Female College Students in Bangladesh

Nusrat Parvin

Graduate Student, Department of Sociology, University of Dhaka, Bangladesh
E-mail: nusratparvin29@gmail.com

Abstract - The government imposed a lockdown in 2020 and on the second wave of the pandemic in April 2021, which was extended for a few months later, when Bangladesh first confirmed a COVID-19 positive case. Young adults' food intake was greatly impacted by their social isolation, particularly female university students, who began to employ mobile-based Food Delivery Apps (FDAs) and online meal delivery services. This study's goal was to pinpoint the variables that affect consumers' decision to use FDAs during the COVID-19 epidemic. Data were gathered from seven female users in Dhaka, and numerous categories of the elements discovered in the study were thematically evaluated. The findings demonstrated a relationship between behavior and continued desire to use mobile-based FDAs and subjective norms, attitudes, and consumer perceptions of price, delivery time, e-service quality, past experiences, food quality, payment methods, and trust. The study's findings also guarantee that consumers will use FDAs with satisfaction and loyalty. While conducting, the study encountered minor restrictions. Future research should focus on the contributions that FDAs make in various contexts, use comparisons and descriptions, and customer usage intentions throughout time to promote FDAs in the global economy.
Keywords: Lockdown, Female Students, COVID-19 Pandemic, Food Delivery Apps, Consumers' Perception, Satisfaction and Loyalty

I. INTRODUCTION

On March 7, 2020, Bangladesh confirmed the first COVID-19 occurrence; in response, Bangladesh affirmed restricting international flights, implementing thermal scanner checks, and closing schools and offices (Anwar *et al.,* 2020). The government of Bangladesh declared a lockdown on March 26 and extended it until May 30, 2020 (Shammi *et al.,* 2021). The second wave of COVID-19 in Bangladesh, on the other hand, started in mid-March 2021, when the number of positive cases and fatalities started to increase. This led to a rigorous lockdown on April 14, 2021, which was later extended (iMMAP, 2021).

Due to these measures and increased social awareness thanks to the media, people were compelled to stay home and participate in work-from-home models and online student courses. To highlight the lockdown, the governments of Bangladesh closed non-essential establishments like dining establishments, gyms, salons, and other indoor outings. Citizens were also instructed to stay at home, save for necessities and recreational pursuits, and keep a social distance from all non-residents. These actions have had a significant impact on people's lives, careers, income, education, and particularly their consumption habits (Mason *et al.,* 2021). People consider their daily food intake and take the necessary measures as a result of social isolation or self-quarantine. As a result, some people began to prepare their own meals, while others were interested in the prepared foods offered by restaurants (Siddiqui, 2020). Due to the decreased possibility of viral transmission and limited opportunity for social engagement, social distancing may encourage people to adopt smartphone apps for online meal delivery services (Sukumaran, 2020). Users of food delivery services chose to place food orders rather than prepare meals themselves. Because the delivery people or the food could infect the customers, the users of app-based food delivery services are especially concerned about food safety and delivery cleanliness during the COVID-19 epidemic (Faour-Klingbeil, 2020).

However, the service providers marketed their company by promising clients that they adhere to safety and sanitary standards when dealing with, preparing, and delivering food (Kayes, 2020). Additionally, the riders take precautions for their own safety when carrying food, including putting on masks and gloves, using sanitizer, cleaning delivery bags, and using contactless delivery (FDA Report, 2020; Rizou *et al.,* 2020). Customers are urged to take safety precautions including washing their hands before eating, paying for food ahead digitally to avoid physical contact, disinfecting the packages and reusing the bags, and more (FDA Report, 2020; Rizou *et al.,* 2020). Therefore, it is crucial for food delivery service providers to make more use of their resources to ensure food safety and delivery cleanliness, which in turn encourages customers to continue using the services.

Due to its many features, smartphones have drastically altered the way of life for millions of people throughout the world. According to a report by the Global Association of Mobile Operators, there will be more than 5 billion mobile phone users worldwide in 2020 and the internet is accessed by more than 3.7 billion mobile phone users (GSMA, 2020). In an effort to draw clients, a number of businesses have developed smartphone applications, with food delivery apps among the fastest-growing categories (Statistia, 2020). The FDA sector is anticipated to expand at a global annual

growth rate of 11.4% from 2019 to 24. According to Statista (2020), the global market for online meal delivery reached US$107.4 billion in 2019 and is projected to grow to US$182.3 billion by 2024.

Platform-to-consumer delivery sales, according to Statista, would have reached $70.7 billion in 2020, up to 32%. Within the next three years, this amount is anticipated to increase to nearly $97 billion. The number of users in the platform-to-consumer (ordering through third-party platforms such as online mobile applications, rather than directly on a restaurant's website) category climbed by 30% during the coronavirus pandemic, from 539 million in 2019 to 704.7 million in 2020, according to statistics. By 2021, 791 million people were projected to be living in this region (Frederick & Bhat, 2021).

With 166 million internet users in Bangladesh (Ecomeye, 2021) and urban households who need assistance with domestic tasks because both the husband and wife work full-time, convenience is what they desire. Where there are more women working, it might be challenging to find the time to prepare meals and manage food while working. All of these adjustments are causing a rise in the popularity of takeout and ready-made meals. Despite intermittent reductions in food items and delivery fees, the expansion of food delivery services is still inadequate in Bangladesh (Ruhul Kader, 2020). Foodpanda, Shohoz Food, Hungry Naki, Khaas Foods, Sheba Foods, Cookups, Foodmart, Food Fex, Shopway, Pathao Food, and Kludio Asia are the top food delivery applications (Ana Maria, 2022; Nafiz Tahmid, 2021). Several industry sources claim that in 2019, the average number of orders delivered each day was 25,000. According to estimations, the industry for meal delivery is currently worth $10 million and has the potential to reach $5 billion by 2025.

Mobile-based food delivery apps (FDAs) services refer to smartphone-based applications that allow users to contact restaurants, look up menus, place delivery orders, and make payments all without having to deal with them in person (Alalwan, 2020). People utilize FDA services for a variety of reasons, including fun, perceived usefulness, the convenience of use, self-efficacy, and social norms impact (Al Amin *et al.,* 2021). A study has shown the critical roles that information quality, habit, and social impact play in users' intent to continue using a product (Kumar & Shah, 2021). Additionally, customer intentions to use FDAs are influenced by awareness and impulse buying inclinations (Gunden *et al.,* 2020). A study discovered that prior experience, hedonic incentive, cost and time savings, convenience, and behavioral goals all reinforce one another (Kumar & Shah, 2021).

According to a study, factors such as customer experience, usability, listing, peer pressure, social pressure, quality control, delivery experience, and restaurant search affect users' intent to use FDAs in future (Ray, 2019). According to Alalwan (2020), online reviews and ratings along with

tracking capabilities have a big impact on users' intent to stick around (Alalwan, 2020). Additionally, it was discovered that users' intentions to utilize FDA are influenced by their performance expectations, effort expectations, social influence, facilitating conditions, and personal inventiveness. Additionally, Yeo *et al.,* (2017) discovered that attitudes, price and time-saving orientation, hedonic incentive, convenience motivation, and post-usage usefulness all affect behavioral intention toward FDAs. Moreover, customers who exhibit high levels of perceived threat during COVID-19, low levels of product involvement, low levels of perceived benefit from food delivery, and low levels of online food order frequency are less likely to use FDAs to place their food orders (Mehrolia *et al.,* 2021).

In this current study, several different factors such as. Bodily motives (hunger, appetite), visual and attitude-related motives (pleasure, desire, & visual appeal), behavioural intention or consumer perception (price, time of delivery, e-service quality, past experience, and social influence), food quality, special promotion (discounts, coupons, and promotional offer, social media promotion, cashless payment), emotional purchase (excitement and enjoyment, trust) that are related to the usage of FDAs services which ensures the customers' satisfaction and loyalty to the further FDAs use have been discussed from the female university students' perspectives in Dhaka, Bangladesh.

II. METHODOLOGY

A. Study Design and Study Site

The study was conducted in the Dhaka Azimpur area of Bangladesh, where at the time of the lockdown when many female university students were at home. Only qualitative data regarding FDA use was gathered. The study, which used purposeful sampling, was finished in May 2021.

B. Participants and Procedure

The invitation to participate was delivered at random to Facebook groups with members from the Azimpur region. Only seven participants gave their permission for the interview. Using the literature reviews and field data, an appropriate open-ended study guideline was created. The participants were given the researcher's WhatsApp contact information due to the lockout so they could understand and feel at peace with the researcher. They were also encouraged to ask any questions they had concerning the interview. The interviewees were reached at their convenience via a WhatsApp call.

C. Data Collection

Online interviews were used because it was simpler and more enjoyable for participants. The results of the females who weren't sampled were used to further refine the pre-

tested advice. The typical interview lasted 40 to 45 minutes. Since every interviewee gave their full agreement, no field notes were taken throughout the interviews. In addition to receiving a sneak peek of the questionnaire they will fill out, participants also learned about the researcher's objectives and areas of interest.

D. Data Analysis

Every interview conducted in Bengali was digitally recorded. They were verbatim translated into English, and then their subjects and facts were more thoroughly explained through thematic analysis. After the interview, each participant got a debriefing and had access to other materials. Participants were not provided access to the transcripts for modifications or comments because the study

had a deadline. For each topic, the data was coded and extracted. Numerous researchers' findings were contrasted and evaluated in order to achieve triangulation. After checking the transcription of the data for accuracy, the theme and sub-theme were finished.

III. RESULTS

A. Demographic Information

The participants in the study were all females between the ages of 20 and 24. The majority of participants shared rooms in women's hostels with roommates, but two participants shared a room with their sister. The participants, who came from several universities in Dhaka, came from a variety of educational backgrounds.

TABLE I DEMOGRAPHIC INFORMATION OF THE PARTICIPANTS

Participants Name*	Age	Gender	Education	Living Situations	Location	Educational Background
Asha	24	Female	4th year	Roommates	Azimpur, Dhaka	Business St.
Tina	23	Female	3rd year	Roommates	Azimpur, Dhaka	Social Science
Rasha	22	Female	2nd year	Roommates	Azimpur, Dhaka	Medical
Beena	21	Female	2nd year	Roommates	Azimpur, Dhaka	Social Science
Eli	21	Female	2nd year	Roommates	Azimpur, Dhaka	Engineering
Sumu	22	Female	2nd year	Sister	Azimpur, Dhaka	Science
Bubli	20	Female	1st year	Sister	Azimpur, Dhaka	Liberal Arts

*Pseudonyms were used for all participants

The result of the study has been analysed under several themes and sub-themes. The researcher found that different types of motives such as, huger, appetite, visual, presentation; consumer perception, better food quality,

promotional offers, emotional purchase could lead to the consumers' satisfaction and loyalty. Loyalty and satisfaction of the consumption lead to the FDAs further usage.
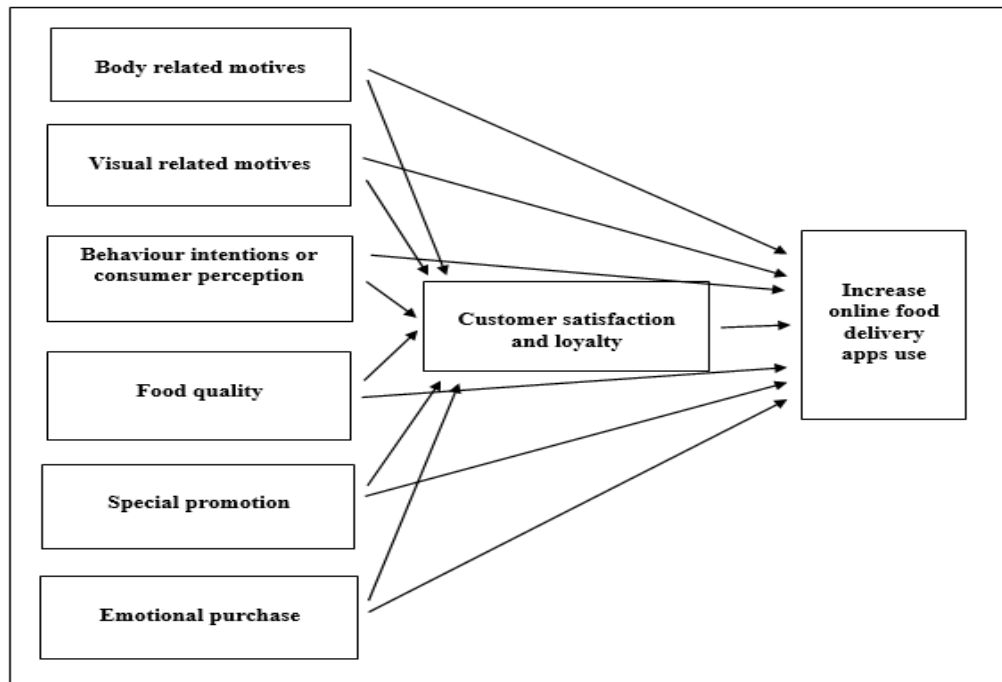

Fig. 1 Thematic framework of the current research

B. Body-Related Motives

1. Hunger and Appetite: This study discovered that when participants are hungry or have a yearning for fast food from various restaurants, they use FDA services.

"My everyday routine has been disrupted by the lockdown. I frequently miss my breakfast hour and occasionally lunch these days. I get out of bed because I'm hungry, don't feel like cooking, and thus use delivery apps to order meals. I find it to be far more convenient than the alternatives." (Asha)

C. Visual and Attitude Related Motives

1. Pleasure, Desire, &Visual Appeal: A person's motivation for using FDA services may be influenced by eating factors such like, a food's attractiveness or aesthetic appeal, and desire. It could lead to the customer satisfaction and loyalty.

"The visual appeal of a food item is a key consideration. I get the urge to take a picture of food when I see it in a food blog or on a food delivery app. It encourages me to at least give it a shot once. When I try a dish like that and enjoy it, I start recommending it to my friends." (Rasha)

D. Behavioural Intention or Consumer Perception

1. Perceived Usefulness and Ease of Use: The FDAs' value increases the effectiveness and efficiency of clients using delivery apps. The operations or features of the delivery apps also influence a person's satisfaction and decision to use them repeatedly in the future.

"Food delivery platform improves my ability to order food effectively and efficiently." (Eli)

"The online meal delivery platform is simple and straightforward to use, which makes it easy for me to learn how to use the food delivery platform." (Rasha)

2. Price: Online meal delivery services are expanding quickly because of their many benefits, which include providing food right to clients' doorsteps and having affordable prices. Customers may browse the delivery applications and find the best deals on the options they want. Customers' contentment, decisions regarding pricing and value, and the quality of the product and service all have an impact on customers' loyalty. Participants acknowledged that they compare prices to select items with the best deals.

3. Time of Delivery: Delivery time is crucial for retaining customers, and time-saving features and customers' time-consciousness are positively associated with the use of online food ordering. Customer satisfaction may suffer if delivery takes longer than anticipated. Customers emphasized how important it is to be aware of all routes in order to guarantee delivery on time. Due to how quickly,

easily, and precisely orders are processed, customers typically favor FDA services.

4. E-Service Quality: To improve customer happiness in the service sector, service quality is crucial. Customers are turned off by the FDAs due to subpar food quality, flawed packaging, delayed or incorrect deliveries, etc. Enhancing client happiness and loyalty is a crucial factor.

5. Past Experience: Users who have made purchases online will be less uncertain, and difficulty will increase the likelihood that they will make additional purchases. Additionally, due to the trust that has already been built, past internet shoppers are more likely to do so again. Expectations from prior profitable online purchases will have an impact on repurchase intentions. The user interacts directly with the product during the direct product experience. The convenience of internet buying, especially if customers are pleased with the variety composition, can also encourage customers to stick with FDAs. Therefore, the prior experience encourages customers to make more purchases.

"Whenever I ordered food using delivery apps, I always had a smooth time and never ran into any problems. I therefore continue to utilize the delivery applications because of my prior experience. Their offerings are reliable. My friends likewise said they never encountered any issues using the apps." (Beena)

6. Social Influence: The majority of individuals claimed that effects on people's use of FDA mainly come from their families, friends, peers, and housemates.

"When my friends suggest that I sample a meal, they encourage me to use the food delivery service. Additionally, when I recommend some items that I preferred, I want my friends and roommates to use the delivery apps. My preference for using meal delivery apps is actually influenced by my friends and the folks I live with." (Sumu)

E. Food Quality

1. Taste, Presentation, Variety, Availability, and Proper Packaging: Customers' online ordering experiences are greatly influenced by the product's quality and features. Food presentation, variety, healthy substitutions, flavors, freshness, accessibility, and temperature are highlighted in the definition of food quality. For customers using FDA services and online meal delivery services, food quality is a key consideration. Additionally, it is crucial for ensuring client happiness through appropriate packing. It is crucial to package food goods appropriately for delivery since it grabs customers' attention and creates a favorable impression. Food is kept clean, at the right temperature, and free from contamination thanks to the packaging. The client experience is enhanced, and the food's quality is preserved with proper packaging.

F. Special Promotion

1. Discounts, Coupons, And Promotional Offer: By establishing an online brochure, offering discounts, exclusive deals, and free delivery on buy three get one purchases, the FDAs and food firms leveraged social media to market and sell their products. It encouraged customers to utilize FDAs.

"Since the cost of fast food is high and using discounts or coupons makes it simple to purchase the items, I use delivery apps to receive the special offers. They occasionally also provide free delivery, which is another benefit in my book. The buy 3 get 1 deal also makes it practical to use delivery apps more frequently in the future." (Tina)

2. Social Media Promotion: The customer behavior during the COVID-19 pandemic is influenced by the promotion of the food and beverage industry on social media sites like Facebook, Twitter, Whatsapp, Instagram, food blogs, YouTube, etc.

"I use Facebook and Instagram, where I first came across adverts for food applications or promotional offers from food firms. I initially placed the lunch order using the delivery apps out of curiosity. I'm pleased I gave it a shot. I did, after all, influence my tastes in cuisine during the pandemic lockdown." (Asha)

3. Cashless Payment: The usage of FDAs by female young people is influenced by some cashless payment or online payment systems.

"The meal delivery applications allow for online payment using the bKash and Nagad platforms, making it incredibly simple to pay without cash. I occasionally pay in cash on delivery, though, if my bKash account is short on funds." (Bubli)

G. Emotional Purchase

1. Excitement and Enjoyment: The operations increase user excitement and make the platform more pleasurable.
I adore ordering food online through the site, which is incredibly thrilling, engaging, and interesting." (Sumu)

2. Trust: Another important factor that influences customers' adoption of FDAs is trust. The vast majority of participants claimed that they have confidence in delivery applications since they keep their promises and deliver as promised.

"The food delivery service is reliable, and they honor their pledges and promises regarding the requested dishes. Because of this, I utilize them more now than ever before during the pandemic." (Beena)

3. Satisfaction and Loyalty: The majority of participants stated that they are more likely to use the FDA in the future as a result of the satisfaction they have after making food purchases using delivery apps when they use it more frequently. Utilizing the FDA more leads to the development of trust and loyalty toward the services, which encourages further usage of the FDA.

IV. DISCUSSION

We don't have time for our families, friends, fitness, or events because we live in a fast-paced, money-focused environment. Due to the fast-paced modern lifestyle and the chance to explore new eateries that meal delivery provides, consumers are using these services more frequently these days. This is probably the main cause of the recent rise of FDAs users during pandemics. According to the results of the current study, the use of FDAs among female college students is influenced by a number of factors, including hunger, visual appeal, affordability, delivery time, desire and food quality, special promotions, and cashless payment, prior experience, and social influence. These factors also have an impact on the customers' satisfaction and loyalty to the use of FDAs.

The epidemic forced the students into social isolation or lockdown while they proceeded through the e-learning phase. Studies have shown that social isolation is the main reason why students drop out of web-based courses (Al Amin *et al.,* 2021). This stage may result in FDAs using this time to socially connect while under lockdown (Al Amin *et al.,* 2021). During the COVID-19 epidemic, mobile applications are a popular and effective instrument that is influencing customer happiness and loyalty in cases of online meal delivery. FDAs had two goals during the lockdown: the advantages of restricting human contact and business profits by keeping the companies open to generate revenue that enables the owners to generate greater profits (Muangmee *et al.,* 2021). By making an order and having food delivered to their location, consumers have their first engagement with the FDAs, which has a big impact on how they perceive the FDAs' services. Online meal ordering can help the restaurant business survive in tough times (Al Amin *et al.,* 2021).

According to the findings of the current study, hunger, aesthetic appeal, and pleasure, which may lead to FDA usage. Stress and anxiety can also cause poor eating habits, where meals high in energy have a momentary antidepressant effect by releasing serotonin (Di Renzo *et al.,* 2020). The usage of FDAs may result from all these emotional effects which may cause satisfaction and loyalty to use FDA in future. This study also showed that cost and product quality could have a more significant impact on how well the FDA is used. A study revealed that in addition to service quality, product quality and price can influence consumer preferences and satisfaction (Saad, 2020). When choosing food items from the FDAs, the customer's budget is a crucial consideration. A study found that consumers

check prices when browsing various websites and choose goods with lesser pricing to be satisfied with their purchase (Frederick & Bhat, 2021). One of the key factors to keep clients, besides pricing, is delivery time. Customers are influenced to choose FDA services by the order's speed, simplicity, and accuracy (Ling *et al.,* 2021). Any delivery delay longer than expected will lower customer satisfaction, regardless of the road or the weather (Frederick & Bhat, 2021). Additionally, it was found in a study that knowing the routes is crucial for prompt delivery, which results in customer satisfaction when using FDAs (Jaroenwanit *et al.,* 2022).

Desire serves as a powerful motivator. The willingness and intention of consumers to use Online Food Delivery (OFD) services are influenced by the risk of developing COVID-19. By physically going to a restaurant or ordering meals online, customers would not endanger themselves or risk exposure to pathogens. According to a study, autonomous last-mile deliveries, pick-ups, and contactless deliveries would make it more pleasant for the customers and lower the danger of transmission (Frederick & Bhat, 2021). Customers' interactions with the company's website, features, and product quality greatly affect the ordering experience when they order food online (Frederick & Bhat, 2021). Food presentation, visual appeal, diversity, taste, flavor, freshness, packaging, and temperature are all considered aspects of food quality (Frederick & Bhat, 2021). Customer happiness, satisfaction, and restaurant choice both affect the quality of the meal (Annaraud & Berezina, 2020). A study found that customers are more inclined to buy and recommend a product to their friends if it is high-quality and meets their expectations (Pal *et al.,* 2021).

Online purchases comprise the exchange of time, effort, and money over the internet (Frederick & Bhat, 2021). They can refer to the act of obtaining things online. Previous online shoppers are more likely to shop online again since there is already a level of trust there. Online buying experiences come in two varieties. The first is direct product experience or working with the product directly (Frederick & Bhat, 2021). The second kind of online interaction is an indirect one in which the customer has only interacted with the product's advertisements (Frederick & Bhat, 2021).

When clients are satisfied with the diverse composition, the online buying experience can also increase their loyalty to particular online merchants (Frederick & Bhat, 2021). Customers that have less confusion when shopping online will make more purchases in the future. Additionally, due to the built-up trust, past online shoppers are more likely to return(Frederick & Bhat, 2021). Customers that want to order online look for sensory stimulation, symbolism, or enjoyment during the ordering process in addition to the previous online experience, which could result in an emotional purchase. Such emotional arousal, which is produced during the ordering procedure, serves as a key inducement for consumption and purchase.

The consumers would have a range of payment alternatives, including using online payments through various payment apps, discounts, coupons, or even cash on delivery, if the app is efficient and appropriately developed. According to a survey, using food services was encouraged by special discount coupons (20.5%), discounts (22.4%), and extra benefits like two for the price of one (33.3%) ((Czarniecka-Skubina *et al.,* 2021). Another study showed that offering customers a variety of payment alternatives will help them use the FDA more frequently (Tounekti *et al.,* 2021; Tounekti *et al.,* 2022).

Additionally, the FDA is user-friendly and offers order monitoring from order to delivery to guarantee service quality and could increase customer satisfaction and loyalty (Saad, 2020; Tandon *et al.*, 2021). Social media sites like Facebook, WhatsApp, Instagram, various food blogs, and YouTube have all played a significant role in promoting food and beverage businesses (Hidayah *et al.,* 2021).

Food and beverage firms are using digital media platforms as one of their marketing methods to spread awareness of the pandemic (Hidayah *et al.,* 2021). Different kinds of discounts and promotions on foods or food delivery services via social media platforms can encourage people to use FDAs as another type of marketing tactic in the future (Frederick & Bhat, 2021).

Self-efficacy, customer service, service ease, and service fulfillment are the four main issues with e-service quality (Frederick & Bhat, 2021). One of the most essential tools for business growth is good customer service. Previous research has looked into the relationship between customer satisfaction and e-service quality and food delivery systems (Frederick & Bhat, 2021). However, issues with food delivery such as poor food quality, flawed packing, incorrect delivery, and delayed delivery may have a negative impact on client loyalty and happiness.

According to a study, e-service quality not only improves food quality but also customer pleasure and perceived value, which in turn fosters online loyalty (Leo *et al.,* 2022). According to a US survey, domestic dinners account for 53 percent of total household food spending, whereas restaurant meals account for 47 percent (Frederick & Bhat, 2021). Because of this, the popularity of meal delivery services like Uber Eats in the US has skyrocketed since its 2014 inception (Lin, 2021).

However, if the vaccines become available nationwide, there may be a decline in the demand for online meal delivery services from both consumers and eateries (Lin, 2021). This raises the potential of declining industry-wide income. With time, the effects will become more pronounced. It is still feasible that people will keep up the consumption habits they developed during the epidemic, but this will only serve to retain market share at the very most and not grow it.

V. LIMITATIONS OF THE STUDY

This study has a few restrictions. Because the study was initially restricted to a small number of university students who resided in Azimpur, its findings could not be generalized to all female college students in the nation. As with all study that relies on self-reported data, our results are prone to response and recollection bias. Because only loyal FDA consumers were chosen, it may be difficult to extrapolate the findings, and different reasons may have influenced the adoption of different FDAs. Additionally, the study was conducted during the COVID-19 quarantine, and the influences on FDA users prior to and following quarantine were disregarded. The results of this study may not be generalizable to other cultures, regions, or nations because it primarily focuses on FDA users in Dhaka. This study ignored the use of the restaurant's website, apps, and own delivery service in favor of focusing solely on mobile-based FDAs. To further our understanding, future research may concentrate on offline and internet food delivery services during times of disaster.

VI. CONCLUSION

The results of the current study showed that the COVID-19 pandemic's restrictions on travel made female college students in Bangladesh more motivated to use the FDA's services. The FDA's service has emerged as a new industry as people's lifestyles and internet usage have changed. Due to the ease, availability of information about a wide range of products, and affordability, consumers are motivated to buy food. This report offers a thorough analysis of the parameters influencing FDA consumption during the Dhaka lockdown. As it was conducted in a unique circumstance, future studies should take into account the dynamics of an individual's behavior, a longitudinal research design to study before and after quarantine, when restaurants were open and serving at a certain percentage of capacity, and to explore perceptions about the attributes of FDAs in different situations. They should also look into customers' usage intention over time and make comparisons to more fully understand why customers continue to use the product.

REFERENCES

[1] Al Amin, M., Arefin, M. S., Alam, M. R., Ahammad, T., & Hoque, M. R. (2021). Using mobile food delivery applications during COVID-19 pandemic: An extended model of planned behavior. *Journal of Food Products Marketing*, *27*(2), 105-126.

[2] Alalwan, A. A. (2020). Mobile food ordering apps: An empirical study of the factors affecting customer e-satisfaction and continued intention to reuse. *International Journal of Information Management*, *50*, 28-44.

[3] Ana Maria. (2022, February 21st). Top 10 Food Delivery Services in Bangladesh in 2022, *MybBangla24.Com*. Retrieved from https://mybangla24.com/food-delivery-services-bangladesh

[4] Annaraud, K., & Berezina, K. (2020). Predicting satisfaction and intentions to use online food delivery: What really makes a difference? *Journal of Foodservice Business Research*, *23*(4), 305-323.

[5] Anwar, S., Nasrullah, M., & Hosen, M. J. (2020). COVID-19 and Bangladesh: challenges and how to address them. *Frontiers in public health*, *8*, 154.

[6] Czarniecka-Skubina, E., Pielak, M., Sałek, P., Głuchowski, A., Kobus-Cisowska, J., & Owczarek, T. (2021). Use of food services by consumers in the SARS-CoV-2 pandemic. How the eating habits of consumers changed in view of the new disease risk factors? *Nutrients*, *13*(8), 2760.

[7] Di Renzo, L., Gualtieri, P., Pivari, F., Soldati, L., Attinà, A., Cinelli, G., Leggeri, C., Caparello, G., Barrea, L., & Scerbo, F. (2020). Eating habits and lifestyle changes during COVID-19 lockdown: an Italian survey. *Journal of translational medicine*, *18*(1), 1-15.

[8] Ecomeye. (2021). Top 10 food & grocery delivery apps in Bangladesh. Retrieved from https://ecomeye.com/top-food-delivery-apps-bangladesh/.

[9] Faour-Klingbeil, D., Osaili, T. M., Al-Nabulsi, A. A., Jemni, M., & Todd, E. C., . (2020). The public perception of food and non-food related risks of infection and trust in the risk communication during COVID-19 crisis: A study on selected countries from the Arab region, *Food Control, 121(2021) 107617.* Retrieved from https://doi.org/https://doi.org/10.1016/j.foodcont.2020.107617.

[10] FDA Report. (2020). Best practices for retail food stores, restaurants, and food pick-up/delivery services during the COVID-19 Pandemic. *U.F.A.D. Administration*. Retrieved from https://www.fda.gov/media/136811/download.

[11] Frederick, D. P., & Bhat, G. (2021). Review on Customer Perception Towards Online Food Delivery Services.

[12] GSMA. (2020). *The mobile economy 2020.* Retrieved from https://www.gsma.com/mobileeconomy.

[13] Gunden, N., Morosan, C., & DeFranco, A. (2020). Consumers' intentions to use online food delivery systems in the USA. *International Journal of Contemporary Hospitality Management*, *32*(3), 1325-1345.

[14] Hidayah, I. N., Rohmah, N. F., & Saifuddin, M. (2021). Effectiveness of digital platforms as food and beverage marketing media during the covid-19 pandemic. *Airlangga Journal of Innovation Management*, *2*(2), 122-130.

[15] iMMAP. (2021). Bangladesh: iMMAP/DFS COVID-19 Situation Analysis - Part One: Sectoral Analysis (May 2020 - July 2021). *reliefweb*. Retrieved from https://reliefweb.int/report/bangladesh/bangladesh-immapdfs-covid-19-situation-analysis-part-one-sectoral-analysis-may

[16] Jaroenwanit, P., Abbasi, A., & Hongthong, P. (2022). Determinants of customers' intention to use online food delivery platforms in Thailand. *Uncertain Supply Chain Management*, *10*(3), 747-758.

[17] Kayes, K. (2020). Ordering food during Covid-19: Crave or cave?, *Dhaka Tribune.* Retrieved from https://www.dhakatribune.com/magazine/avenue-t/2020/07/02/ordering-food-during-covid-19-crave-or-cave

[18] Kumar, S., & Shah, A. (2021). Revisiting food delivery apps during COVID-19 pandemic? Investigating the role of emotions. *Journal of Retailing and Consumer Services*, *62*, 102595.

[19] Leo, G., Hurriyati, R., & Hendrayati, H. (2022). Online Food Delivery Service: The Role of e-Service Quality and Food Quality on Customer Loyalty. *6th Global Conference on Business, Management, and Entrepreneurship (GCBME 2021).*

[20] Lin, R. (2021). The Effects of Covid-19 on the Online Food Delivery Industry. *2021 3rd International Conference on Economic Management and Cultural Industry (ICEMCI 2021).*

[21] Ling, G. M., Tiep, H. S., & Er, N. Z. (2021). Customer Satisfaction towards Mobile Food Delivery Apps during COVID-19 Pandemic. *Reference to this paper should be made as follows: Ling, GM*, 191-201.

[22] Mason, T. B., Barrington-Trimis, J., & Leventhal, A. M. (2021). Eating to cope with the COVID-19 pandemic and body weight change in young adults. *Journal of Adolescent Health*, *68*(2), 277-283.

[23] Mehrolia, S., Alagarsamy, S., & Solaikutty, V. M. (2021). Customers response to online food delivery services during COVID-19 outbreak using binary logistic regression. *International journal of consumer studies*, *45*(3), 396-408.

[24] Muangmee, C., Kot, S., Meekaewkunchorn, N., Kassakorn, N., & Khalid, B. (2021). Factors determining the behavioral intention of using food delivery apps during COVID-19 pandemics. *Journal of Theoretical and Applied Electronic Commerce Research*, *16*(5), 1297-1310.

[25] Nafiz Tahmid. (2021, Marh 16, 2021). Best Food Delivery Apps in Bangladesh in 2021: Top Bangldeshi apps to order food online in Dhaka and other parts of the country.*UNB News.* Retrieved from https://unb.com.bd/category/Business/best-food-delivery-apps-in-bangladesh-in-2021/66107

[26] Pal, D., Funilkul, S., Eamsinvattana, W., & Siyal, S. (2021). Using online food delivery applications during the COVID-19 lockdown period: What drives University Students' satisfaction and loyalty? *Journal of Foodservice Business Research*, 1-45.

[27] Ray, A., Dhir, A., Bala, P.K., Kaur, P. (2019). Why do people use food delivery apps (FDA)? A uses and gratification theory perspective. *J. Retailing Consum. Serv. 51, 221–230.* Retrieved from https://doi.org/https://doi.org/10.1016/j.jretconser.2019.05.025.

[28] Rizou, M., Galanakis, I. M., Aldawoud, T. M., & Galanakis, C. M. (2020). Safety of foods, food supply chain and environment within the COVID-19 pandemic. *Trends in food science & technology*, *102*, 293-299.

[29] Ruhul Kader. (2020, Feb 4, 2020). The State of Online Food Delivery in Bangladesh at The Beginning of 2020: Subsidies Make True Demand Hard To Gauge. Retrieved from https://futurestartup.com/2020/02/04/online-food-delivery-in-bangladesh-subsidies-make-true-demand-hard-to-gauge/

[30] Saad, A. T. (2020). Factors affecting online food delivery service in Bangladesh: an empirical study. *British Food Journal*.

[31] Shammi, M., Bodrud-Doza, M., Islam, A. R. M., & Rahman, M. (2021). Strategic assessment of COVID-19 pandemic in Bangladesh: comparative lockdown scenario analysis, public perception, and management for sustainability. *Environment, Development and Sustainability*, *23*(4), 6148-6191.

[32] Siddiqui, K. (2020, 23 September 2020). Is it safe to order food home amid pandemic? Mostly yes. Retrieved from https://tbsnews.net/bangladesh/health/it-safe-order-food-home-amid-pandemic-mostly-yes-120031

[33] Statistia. (2020). eServices report 2019 - online food delivery. Retrieved from https://www.statista.com/study/40457/food-delivery/.

[34] Sukumaran, T. (2020). Coronavirus: Malaysia's food delivery workers help nation stay connected amid lockdown, *South China Morning Post.* Retrieved from https://www.scmp.com/week-asia/health-environment/article/3077719/coronavirus-delivery-workers-keep-malaysia-connected

[35] Tandon, A., Kaur, P., Bhatt, Y., Mäntymäki, M., & Dhir, A. (2021). Why do people purchase from food delivery apps? A consumer value perspective. *Journal of Retailing and Consumer Services*, *63*, 102667.

[36] Tounekti, O., Ruiz-Martínez, A., & Skarmeta-Gómez, A. F. (2021). Users' evaluation of a new web browser payment interface for facilitating the use of multiple payment systems. *Sustainability*, *13*(9), 4711.

[37] Tounekti, O., Ruiz-Martínez, A., & Skarmeta Gomez, A. F. (2022). Research in Electronic and Mobile Payment Systems: A Bibliometric Analysis. *Sustainability*, *14*(13), 7661.