

Customer Satisfaction in Online Food Ordering during COVID-19: The Role of Hygiene Factors in Bangladesh

Tama Chowdhury & Tanseer Hossain

Abstract

It has been self-evident that consumers are essential stakeholders in companies, and their satisfaction is management's top concern. In recent years especially during the COVID-19 pandemic, the usage of online food delivery applications has drastically increased along with the embracement of new technologies in almost every corner of Bangladesh. Thus, with increased competition in the market, quality of service has become an essential aspect of customer satisfaction. Considering the hazard of COVID-19, the World Health Organization (WHO) strictly emphasizes on maintenance of hygiene along with other guidelines. The relationship between customer satisfaction with hygiene factors has been confirmed by some researchers, although few studies have been conducted solely on the topic. This descriptive research aims to identify and examine the relationship between customer satisfaction and hygiene factors while ordering food online during COVID-19 in Bangladesh. A combination of simple random sampling under the probability sampling techniques and snowball sampling under the nonprobability sampling techniques has been used to collect quantitative data from customers of Dhaka city. Reliability tests, Multiple regression analyses, and Pearson correlation have been conducted with the help of SPSS to analyze the data. Findings suggest that hygiene factors should be prioritized to ensure customer satisfaction. Quality of food and packaging of food has been found to be two of the most important variables under hygiene factors from this study. It has provided results that could be useful to managers and employees in the online food delivery industry for strategic planning and to achieve a sustainable business model.



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Introduction

Hossain and Kaur (2021) state that Bangladesh is a country that has embraced technology in almost all aspects of its development. According to Rahman et al. (2020) and Akhtaruzzaman et al. (2019), with a population of 167 million people as of 2021, easy access to the internet in urban and remote areas has enabled Bangladesh to move forward and embrace new technologies, making lives easier and more convenient. As a result, there has been significant growth in online food delivery services, which have become increasingly popular among busy consumers (Hossain & Kaur, 2021). Haque et al. (2021) and Rahman et al. (2020) further support this claim. In recent years, Bangladesh has recognized the importance of technological advancement and has been striving to integrate it into all aspects of life (Hossain & Kaur, 2021). Furthermore, the COVID-19 pandemic has increased the demand for online food delivery services due to occasional lockdowns and social distancing measures. As a result, online food delivery has become an essential service in Bangladesh, helping people to access food safely and conveniently during the pandemic (Islam et al., 2021; Kabir & Mahmood, 2021). Online food delivery services have played a significant role in improving the lives of people in Bangladesh, making it easier for them to access their favorite meals and deals on the go (Hossain & Kaur, 2021). The growth of this sector has been a testament to the importance of technology in improving the quality of life in developing countries like Bangladesh (Akter et al., 2021; Hasan et al., 2020). This study examines online food delivery applications in Bangladesh and aims to identify the impact of hygiene factors on customer satisfaction during the COVID-19 pandemic. Specifically, the research focuses on the relationship between hygiene factors and customer satisfaction when ordering food online. The study considers the current circumstances in Bangladesh, where the COVID-19 pandemic has created an urgent need for safe and hygienic food delivery options.

Background of the study

According to Rahman et al. (2020), food delivery services have become very popular in the delivery industry of Bangladesh. Hossain and Sultana (2019) report that although the domestic food delivery industry is almost 8 years old, most food delivery companies are still confined to major cities. Khan et al. (2019) notes, however, that they are gradually moving towards providing services to all the corners of Bangladesh through a sustainable business model. Business of Apps (2021) reports that compared to the top food-tech industries, the food delivery industry of Bangladesh is still in infancy, but there remains tremendous growth potential. Statista (2021) indicates that on the contrary, China resides at the topmost position with a market share of over \$50 billion in the food delivery industry. The US food delivery sector ranks 2nd in the world with a market share of \$26 billion, making it one of the world's well-funded markets. Finally, The Business Standard (2021) reports that the yearly revenue generated by this industry exceeds Tk 2,052 crore, according to Jahangir Alam Shovon, general manager of the Bangladesh e-Commerce Association (e-CAB).

The rising popularity of online food delivery services:

According to Islam et al. (2016), in the beginning, the restaurant sector of Bangladesh used to be dependent on sole proprietary investment, which contributed significantly to the development of the restaurant business in Bangladesh. Currently, Rahman et al. (2020) state that food delivery providers and restaurant aggregator startups continue to boost the development in the restaurant sector due to the increasing number of working people in urban areas, particularly in Dhaka, where traffic congestion has also increased. As a result, people have become increasingly dependent on restaurants and fast food after a long day of work, as reported by Saha and Uddin (2019). Amin (2016) notes that the country's growing restaurant industry has become a place of relief for most people, as there is a lack of recreation centers.

The Financial Express (2021) reports that the market size of the restaurant business in Bangladesh is now more than Tk 4,500 crore, and the fast-food market size is around Tk 450 crore. Taking advantage of this growth in the country's restaurant industry, several restaurant aggregators and food delivery service providers like Hungrynaki and Foodpanda have started their operations, as documented by Hossain and Sultana (2019). Businessofapps.com (2021) indicates that currently, only 11% of the world's population uses food-tech applications, indicating that the growth potential of the global food tech industry is still very high. According to Research and Markets (2020), the overall food delivery sector is expected to grow 5 to 7 times or more in the current decade. Finally, according to a news report published by the Dhaka Tribune in 2019, food delivery companies in Bangladesh were delivering 25000 orders daily (Dhaka Tribune, 2019).

The pioneers of online food delivery services in Bangladesh

Islam (2021) reports that currently, four major industry players – Foodpanda, Hungrynaki, Pathao Food, and Shohoz Food - account for 90% of the online food delivery industry. According to Hasan et al. (2020), the market size of the food delivery industry in Bangladesh is around 30 to 50 million dollars. Bashir et al. (2019) argue that urban-oriented people are one of the factors behind the success of such food delivery services. Sarkar et al. (2021) note that due to heavy traffic, there remains little to no opportunity for many people in Bangladesh to come home and cook. Consequently, food delivery service providers have positioned themselves by bringing convenience factor into the lives of these working people, as noted by Alam et al. (2018).

COVID-19 and its impact on online food delivery services in Bangladesh

Li et al. (2020) report that the novel coronavirus pneumonia (COVID-19) was first reported in Wuhan, China and is spreading throughout the world. The World Health Organization (WHO) identified it as a Public Health Emergency of International Concern on January 31, 2020 (WHO, 2020). Alam et al. (2020) demonstrate the severity and complexity of the outbreak given the lack of effective medication available. Liu et al. (2021) argue that preventive measures, such as controlling the source of infection, early detection of patients, breaking the chain of transmission, and protecting susceptible populations are paramount. Ahmed et al. (2020) observe that COVID-19 has created severe health and economic concerns in Bangladesh, prompting the government to take numerous steps, including detecting suspected cases, quarantining suspected patients and isolating infected patients, imposing local or regional lockdowns, boosting public awareness, and promoting social distancing to fight COVID-19. Farooque and Hassan (2020) note that cloud kitchens in Dhaka emerge as a lifesaver to fill the need for food during the nationwide lockdown. Hossain et al. (2021) highlight how traditional food and beverage establishments have embraced the internet to expand their businesses online and participate in the digital economy. Mohiuddin et al. (2020) report that while COVID-19 has brought both opportunities and challenges for online food delivery applications, usage has increased to a greater extent.

Online food delivery and its relationship with hygiene factors during COVID-19

Mamun and Griffiths (2020) state that the initial days of the COVID-19 outbreak brought about fear and panic worldwide, especially in densely populated countries like Bangladesh. According to Rahman et al. (2020), online food delivery applications were already a popular option for enjoying a meal before the pandemic and lockdown. However, the Centers for Disease Control and Prevention (2021) stress the importance of proper food storage due to the potentially harmful nature of COVID-19. The World Health Organization (2020) also recommends storing food in sealed containers at the correct temperature to prevent bacterial

contamination and cross-contamination between ingredients. The European Food Safety Authority (2020) adds that proper food storage can also prevent foreign objects from falling into containers. Maintaining hygiene is crucial for reducing the risk of COVID-19 contamination during online food delivery, as noted by Chen et al. (2020) and Luo et al. (2020). Contactless delivery, cleanliness of delivery personnel, and food quality are essential hygiene factors, according to these sources. Siddique and Faroque (2021) report that Foodpanda collaborated with the government to ensure compliance with COVID-19 preventative policies among restaurant partners and riders throughout the pandemic. Islam et al. (2021) note Pathao's decision to allow contactless delivery and digital payment while instructing delivery agents to remain at least three feet away from delivery points. HungryNaki aims to keep families safe by remaining home while fulfilling customers' food requirements, as stated by (Saha et al., 2020). They further mention that HungryNaki prepares its riders to follow health regulations, and restaurants continue to serve customers during this challenging time. Finally, Siddique and Faroque (2021) report on Shohoz's development of the Corona Tracer BD app to help users determine their proximity to COVID-positive individuals. As of December 2021, the app had more than a million downloads.

Significance of the study

According to Islam et al. (2021), COVID-19 is causing numerous changes worldwide, but it is undeniable that Bangladesh is genuinely embracing digital technologies during this pandemic. According to The Daily Star (2020), during the COVID-19 pandemic in Bangladesh, people have turned to online food delivery applications to maintain social distancing and avoid crowded restaurants. Wan (2021) states that ordering food online allows people contactless delivery, which reduces the transmission of the virus. Khan (2020), mentions that, with the imposition of strict lockdown measures by the government, it has become challenging for people to access food, particularly those who are unable to leave their homes. Therefore, online food delivery services have provided a solution by allowing individuals to order food from the comfort of their homes. Wan (2021) further states that the use of online food delivery applications during COVID-19 in Bangladesh highlights the importance of adapting to new technologies and changing consumer habits during times of crisis and demonstrates the resilience of the Bangladeshi people in finding innovative solutions to challenges posed by the pandemic. According to the findings of Perera & Guruge, (2021), although previous research explores the impact of hygiene factors on customer satisfaction in various industries, there is limited research on this topic specifically in the online food delivery industry in Bangladesh. As emphasized further by the authors, this research contributes to the area of research on hygiene factors and customer satisfaction in the online food delivery industry during COVID-19 in Bangladesh. This research is necessary as it addresses the gaps in the literature on hygiene factors and customer satisfaction in the online food delivery industry in Bangladesh while considering the impact of COVID-19. It also offers statistical evidence for the relationship between hygiene factors and customer satisfaction (Ahmed et al., 2022), identifies the most important variables for customers amid the pandemic, and offers practical applications for managers and employees.

Food delivery companies have taken various steps to reach out to customers with confidence and maintain different aspects of hygiene because practicing good hygiene has become one of the critical aspects of fighting this virus, as stated by Haque et al. (2021). The WHO has indicated the importance of maintaining proper hygiene and social distancing, as mentioned by Haque et al. (2021). Due to the advice to avoid social gatherings, shopping in usual stores for groceries and daily necessities has turned out to be an issue for people. Additionally, online food delivery applications are being relied on more or less by service holders since canteens

and cafeterias may turn out to be COVID-19 hotspots (Ahmed et al., 2022). Perera & Guruge (2021) emphasize that customer satisfaction is an inevitable part of marketing, which acts as a measurement that evaluates consumers' happiness with a company's goods, services, and capabilities. Data from customer satisfaction questionnaires and ratings assist businesses in identifying how to enhance their goods and services. As noted by Kaur et al. (2021), online food delivery has seen significant growth during this pandemic; however, customer satisfaction is shifting in different directions as customers have become more aware and are adopting new rules and regulations, including hygienic practices to fight COVID-19. To identify the relationship between customer satisfaction and hygiene factors while ordering food online during COVID-19 in Bangladesh, Ahmed et al. (2022) further emphasize the necessity of scrutinizing several aspects that lead to customer satisfaction. In this study, a survey questionnaire tailored to the objective of establishing and identifying the relationship between hygiene factors and customer satisfaction has been thoroughly prepared. Although very few studies have been conducted specifically on how hygiene factors impact customer satisfaction, this study has taken directions from newspaper articles, pilot studies, and official government websites where health guidelines are mentioned, as emphasized by Perera & Guruge (2021). To ensure a thorough collection of survey data, both online and in-person surveys have been conducted, as highlighted by Ahmed et al. (2022) and Islam et al. (2021). To ensure that participants feel comfortable and face no issues in understanding the language, both English and Bengali translations have been included in the survey questionnaire. This study has also identified five essential hygienic factors based on past literature that act as independent variables, which proved helpful in establishing a relationship with customer satisfaction regarding ordering food online during COVID-19, as highlighted by Ahmed et al. (2022). It thoroughly discusses and showcases the relationship between customer satisfaction and hygiene factors while ordering food online during COVID-19. Additionally, it describes which online food delivery applications are most preferred by customers and their age group, level of education, and employment status (Ahmed et al., 2022). Furthermore, using the regression equation, the study describes how the quality of food, cleanliness of the deliveryman, delivery of food, review, and packaging of food affect customer satisfaction. The study also aims to contribute to the area of research on hygiene factors, which could play a significant role in helping current and future online food delivery services understand what customers prefer and what leads to satisfaction. This could also help companies achieve a sustainable business model (Perera & Guruge, 2021).

Literature review

The procedure by which food is bought online and delivered to consumers is known as online food delivery (OFD) (Li et al., 2020, p. 3). When a consumer uses an OFD service platform on a mobile app or website to make an order from a variety of restaurant alternatives and pays for it, the restaurant gets the order and eventually, the food is cooked. (Singh and Kundu, 2019, p. 87). The order is then delivered to the consumer by a delivery driver. (Kim and Lee, 2020, p. 56). Customers use the app in order to follow the progress of respective orders and communicate with their drivers. (Wang et al., 2021, p. 112). Customers who use OFD services enjoy a variety of perks, including not having to wait in line, not having to travel for pick-up, not having to deal with order misunderstandings, which occur regularly in restaurants or when ordering over the phone, and discounts from daily deals. (Mallapragada and Chintagunta, 2019, p. 257). Customer demand for online food delivery services has risen dramatically in recent years and is likely to continue to rise consistently. (Chen et al., 2021, p. 12). The worldwide OFD service market's total revenue was anticipated to be over \$107.4 billion in the year 2019 and is expected to approach \$182.3 billion by 2024. (Statista, 2020). Furthermore, since the outbreak of Coronavirus (COVID-19), the OFD market attracted even more worldwide interest

owing to its contactless ordering and delivery method (Fernandes et al., 2020). It is projected to continue to spark the interest of potential customers (Maida, 2020). Customer satisfaction refers to satisfying customers' expectations as a consequence of product or service performance (Oliver, 1980). As a result, it is mostly a comparison of expectations before purchase with the actual performance that is received (Oliver, 1980). Customer satisfaction for e-services is described as "the degree to which customers' perception of the online buying experience reflects their expectations" (Li & Zhang, 2002, p.514). (Cheung and Lee, 2005, p. 78) state that customers remain happy if the performance of online services meets or surpasses their expectations. According to (Homburg et al., 2009, p. 6), customer satisfaction is an important prerequisite for developing long-term relationships. According to Byambaa & Chang (2012), it is observed that customers who are happy also repurchase frequently, promote strong and pleasant word of mouth & become loyal. Thus, it is critical to comprehend which factors impact the satisfaction of customers in various service scenarios (Kuo, Li, & Liang, 2020, p. 2). Consumers have embraced new digital technology in their daily lives, and this has drastically changed their behavior (Bucko, Luká, & Martina, 2018). Technology may be described as a collection of skills and information that can be used for a variety of tasks and issues (The Editors of Encyclopaedia Britannica, n.d.). Technology heavily influences and even shapes today's marketplace and global economy, which may provide both hurdles and possibilities for consumers and sellers (Fullerton, Bisschoff, & Neale, 2016). Furthermore, technology both emotionally and transnationally alters (i.e. enhances or worsens) client interactions with companies or services (Schiffman, Wisenblit, & Kumar, 2018). Because of the complexity of current economies and digital technology, marketers place a greater emphasis on offering additional value to customers via quick online service (Sheth & Sharma, 2020), and as a consequence, food delivery applications attract more attention from a socioeconomic standpoint (Iyer et al., 2020). OFD services are business platforms that are not responsible for food preparation but offer order services, payment, and monitor the processing (Luo et al., 2021). The changing and fast-paced lives of urban people, convenience, numerous payment choices, and compelling promotional offers are the key reasons for the increased appeal of OFD services. (Negreti, & Machado, 2017). OFD services greatly influence customers' experiences (Irani et al., 2019). Many variables influence consumer satisfaction, including food availability, customer evaluations or ratings, payment options, and human connection (Kwong & Shiun-Yi, 2017). It has been found in research that, to achieve maximum customer satisfaction, service providers must concentrate on service quality, with the ultimate goal of food delivery services being maximum satisfaction rather than profit (Nicolaidis, 2008).

According to the research of Kusumaningsih et al. (2019), online purchasing intents are motivated by a desire to maintain the improvement of one's health. The study by Chen et al. (2016) has found that health consciousness significantly impacts intentions toward buying organic food. The structural equation model used in this study has analyzed a population of respondents of 150 people who intended to purchase organic food (Chen et al., 2016). The outcome portrays that health consciousness and environmental attitudes affect intentions toward buying organic foods, whereas subjective norms barely affect organic food purchases (Chen et al., 2016). The study offers guidance by improving customer awareness of the advantages of organic food for their health and the environment, resulting in increased organic food consumption (Chen et al., 2016). Furthermore, according to Xiao et al. (2019), online purchase intents arise due to the relationship between food and beverage quality and customer purchasing interest. App-based food delivery services began in Bangladesh in mid-2013 with a local company called HungryNaki, with Foodpanda entering the market in late 2013. (Ahmed & Ahmed, 2018; Muntasir, 2019). In the following years, numerous local and foreign businesses, such as Pathao Food, and Shohoz Food joined the online food delivery sector

(Haque, 2020). All of these companies were booming until the coronavirus pandemic restricted everyone's ability to travel across the country (BBC News, 2020). Now, consumer behavior has changed as they are forced to remain inside and keep control over their home cleanliness by restricting what passes house boundaries (Pollard & O'Neill, 2020). Customers' perceived food safety issues are related to their degree of concern about packaged food safety, food safety protocols, and food cleanliness (Al Amin et al., 2021). According to Hsu (Hsu et al., 2016), "food safety concern" refers to "consumer concern about the quality of packaged foods, food ingredients, and environmental pollutants that may risk their physical health." Additionally, he demonstrates that consumers are becoming more worried about food safety, placing a premium on the production process, the quality of food processing, and food ingredients (Hsu et al., 2016). As a consequence, consumers' need for knowledge about food safety and production procedures continues to expand (Urea et al., 2007). Additionally, Worsfold (Worsfold D, 2006) says that a Kimberley Clark Professional customer survey discovered that around 84 percent of respondents prefer food safety above meal quality and pricing and that they will not return to an unhygienic restaurant. As a result, due to strict food safety standards, food safety has been a national issue, affecting consumers' physical and psychological health; food delivery apps may be able to aid companies in adhering to food safety measures (Al Amin et al., 2021). Consumer concerns regarding food safety should be addressed by food service providers since they have the ability to influence how their services are used (Worsfold D, 2006). Customers' evolving habits in response to the COVID-19 outbreak have pushed the food delivery business into a new race where health and cleanliness take priority (Singh and Mishra, 2021). Thus, customers need assurance that food delivery applications provide safe and sanitary food (Al Amin et al., 2021). Al Amin (Al Amin et al., 2021) defines "food delivery hygiene" as the capacity of the deliveryman to maintain food delivery services safe and clean. According to research by Chandrasekhar (Chandrasekhar et al., 2019) the most prevalent issue is not only a lack of hygiene in the kitchen, but also throughout the delivery stage. To address the problem in the kitchen restaurants need to evaluate the quality of food supplied and whether or not sufficient cleanliness and sanitation are being maintained (Al Amin et al., 2021). Concerning deliverymen, quality managers understand that preserving the hygiene of their deliverymen is critical for their daily orders (Hwang et al., 2020). As a consequence, consumers who are excited about food delivery businesses' hygiene practices are more likely to use online delivery applications (Singh & Mishra, 2021).

Pal et al. (2021) investigated additional factors affecting customer loyalty and satisfaction while ordering meals through online food delivery applications during the pandemic. They indicate that, in addition to satisfaction, the most significant indicators of loyalty are contentment, followed by food quality (Pal D et al., 2021). Al Amin et al. discovered that delivery cleanliness, normative beliefs, behaviors, and behavioral control are all linked to behavior and continued intent to use mobile food delivery apps, but that perceived food safety is linked to behavior intent, and disconnectedness to facilitating conditions (Al Amin et al., 2021). However, since this research has been done amid social distancing, the importance of each food delivery app's safety concerns affected the usage of certain food delivery apps (Singh & Mishra, 2021). It is also primarily focused on younger people's behavior intention regarding food delivery applications, rather than elderly people (Brouthers, 2020). Although several research findings have investigated the impacts of COVID-19 on people's lives (Heleem, Javaid, & Vaishya, 2020), food safety (Dev & Kabir, 2020; Kinsey, Kinsey, & Rundle, 2020; Rizoua, Galanakisa, Aldawoudb, & Galanakis, 2020), and overall delivery service during the global crisis (Dishman, 2020), except for a few journal and newspaper articles (Amit, 2020; Hussy, 2020; Nguyen & Vu, 2020; Pollard & O'Neill, 2020; Wardad, 2020; Zaman, 2020) that came to no definitive conclusion, no research has been done to determine how hygiene factors affect customer

satisfaction when ordering food online during the pandemic, particularly from the perspective of Bangladesh. Practicing good hygiene is a must, considering the current circumstances. (World Health Organization [WHO], 2020). Practicing good hygiene is a must, considering the current circumstances. (World Health Organization, 2021). Even though the demand for online food delivery has increased at a significant rate, factual research on the relationship between customer satisfaction and hygiene factors is missing. (Islam et al., 2021). Only a few studies have been conducted that only explore consumer behavior towards app-based food delivery in Bangladesh during COVID-19 and the factors which affect OFD service in Bangladesh. (Haque et al., 2021). Newspaper articles and columns written by different authors have been a source of understanding of the current stage of online food delivery in Bangladesh during COVID-19, but none of those specifically identified how customer satisfaction depends on hygienic factors while ordering food online. (Hossain et al., 2021). Thus, it is crucial to analyze the relationship between customer satisfaction and hygiene factors while ordering food online during COVID-19 in Bangladesh. Only then, online food delivery services will be able to identify areas where their services could be significantly improved (based on hygiene) and customer satisfaction could be ensured to achieve sustainable traction in their businesses. (Islam et al., 2021).

Research questions

The provided research questions serve as a roadmap for this study, shaping the research objective, design, and implementation. Furthermore, they act as a guide to make informed decisions throughout the research process. These questions have been formulated to provide a clear structure and direction to the study, ensuring its successful execution. They are - Does *quality of food* have an impact on customer satisfaction while ordering food online during COVID-19 in Bangladesh? Does *cleanliness of deliveryman* have an impact on customer satisfaction while ordering food online during COVID-19 in Bangladesh? Does *delivery of food* have an impact on customer satisfaction while ordering food online during COVID-19 in Bangladesh? Does *review of food* have an impact on customer satisfaction while ordering food online during COVID-19 in Bangladesh? Does *packaging of food* have an impact on customer satisfaction while ordering food online during COVID-19 in Bangladesh?

The research questions have been determined based on 5 constructs of the independent variable "Hygiene Factors". The first construct, "Quality of food" contains 4 statements. Participants in the survey have been asked to choose between statements they think best express their opinion. "Getting well-presented food", "Getting chemical free food", "Ensuring right temperature of food", "Receiving fresh food" –these statements helped determine the relationship between customer satisfaction and quality of food. Similarly, determining statements for "Delivery of Food" included "Arrival of food within the promised delivery time", "Receiving exactly what I order through the app", "It is important to me the food I order is delivered as it appears on the app". For "Review of Food", statements included "Checking positive ratings", "Checking food reviews", "Reading comments from other users on social media". For "Packaging of Food", statements included "Receiving food in protected packaging", "Leakproof and spill proof packaging" and "Recyclable and environmentally friendly packaging", all being portrayed as important to them. Several articles and research papers were thoroughly studied to answer the research questions. A questionnaire through the help of google forms was administered among the customers where a 5-Point Likert scale (1= Strongly Disagree, 2= Disagree, 3= Neutral, 4=Agree, 5= Strongly Agree) was used. The research questions above helped determine what aspects of hygiene factors customers considered the most important. Input and analysis of primary data were discussed in the methodology section. The results of the primary data analysis and the interpretation and explanation of the results were discussed in the discussion section.

Research methodology

Firstly, Desk Research has been conducted based on secondary data for this research to form a strong baseline principle. By going through several articles, journals, and research papers, a thorough idea has been obtained, which has helped further establish the relationship between customer satisfaction and hygiene factors while ordering food online during COVID-19 in Bangladesh. Furthermore, a better understanding of the research topic has been obtained from the insights. Also, to develop a thorough understanding, a Pilot Study has been conducted as a part of Exploratory Research which helped gain a qualitative understanding of the underlying reasons and motivations as well as the feasibility of the research. Initially, 22 people were reached out in the Pilot Study but among them, 9 responded. As regular customers of online food delivery, (one of them is an executive of an MNC who orders food online on a daily basis) they provided thorough opinions. Afterward, Descriptive Research (part of Conclusive Research) has been conducted through a structured questionnaire via Google Forms. To evaluate the hygiene factors and how it relates to customer satisfaction while ordering food online, people who regularly order food online have been reached out. Furthermore, the findings have been used as inputs to make decisions quantitatively, which is to establish the relationship between customer satisfaction and hygiene factors while ordering food online during COVID-19 in Bangladesh. A structured survey has been conducted through an online questionnaire, with the help of google forms. The participants in this research are mainly from Dhaka, Bangladesh. Moreover, this questionnaire has provided results that helped establish a relationship between customer satisfaction and hygiene factors. Sample design has also helped structure all the different aspects of collecting and refining data in this research. Through the sampling frame, it became possible to understand the customers of online food delivery. Consumers who are familiar with the online food delivery and who also ordered during this COVID-19 pandemic have been chosen. In this case, assessing their provided data helped tremendously. Here, 4 names of online food delivery applications have been provided as options and they are Foodpanda, Hungrynaki, Pathao Food, and Shohoz Food. Simple Random Sampling (where each element in the population has a known and equal probability of selection) under the Probability Sampling Techniques has been used to select people who actively participated in the survey. Snowball sampling under the Nonprobability Sampling Techniques has also been used since it helped reach more customers familiar with online food delivery services and orders during COVID-19. To achieve this, some of our respondents were also asked to reach out to others (family, friends, etc.) who order food online during the pandemic and are also familiar with online food delivery applications. The benefits of choosing Simple Random Sampling were its representation accuracy and it has been easy to implement. Besides, Snowball Sampling has helped estimate rare characteristics which would not be possible to obtain generally. The total sample size for the survey is 405. Among the participants, there are 338 students, 39 have private jobs, 10 have businesses, 5 are government job holders and 13 were in other occupations.

Data analysis & Findings

Firstly, with the help of IBM SPSS Statistics software, data imported from Microsoft Excel Spreadsheet software have been transformed. Because, sometimes, a variable requires to be changed before the SPSS software can use it. To achieve it, the "Transform" option at the top of SPSS has been clicked, and from the drop-down menu, "Compute Variable" has been chosen. This research includes 5 constructs under the independent variable "Hygiene factors," which are- Quality of Food, Cleanliness of Deliveryman, Delivery of Food, Review of Food, and Packaging of Food. Under "Quality of Food", 4 statements have been provided to users who have participated in both online and in-person surveys. Similarly, "Cleanliness of Deliveryman", "Delivery of Food," "Review of Food," and "Packaging of Food" include 3 statements each. In

Google Forms and the in-person survey, participants have chosen the option which reflected their genuine opinion using the 5-Point Likert Scale (1= Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree).

Reliability test

Cronbach's alpha indicates overall reliability for a set of variables, and it is also the most commonly used internal consistency metric ("reliability"). Cronbach's alpha is often used when many Likert questions create a scale in a survey and are necessary to verify the scale's reliability. The standard value of Cronbach's alpha is 0.70. In this study, the value of Cronbach's alpha is 0.813, which illustrates a high level of internal consistency for the scale of this sample.

Reliability Statistics

Cronbach's Alpha	N of Items
.813	6

Multiple Regression Analysis

Through Multiple Regression Analysis, 2 tables have been obtained.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.879 ^a	.773	.745	.48937

a. Predictors: (Constant), Quality of Food, Cleanliness of Deliveryman, Delivery of Food, Review of Food, Packaging of Food

Here, in the case of Model Summary, the rule of thumb is that the value of R Square must be either 0.5 or greater than 0.5. In Model Summary, it is checked whether the variables are correct or not. That is, whether the independent variables are all right for the dependent variable or not. Moreover, if it is more than 0.5, it can explain up to 50%. Now, in the table above, the value of R Square has been found to be .773. So, it can be said that the independent variables can explain .773 or 77.3% changes occurring in the dependent variable. Since the relationship between the dependent and independent variables is all right, it can also be said that this model is a fit. To further elaborate, from the above table, it can be understood that the 5 independent variables under "Hygiene factors," which are –Quality of food, Cleanliness of deliveryman, Delivery of food, Review of food, and Packaging of food can explain .773 or 77.3% of changes occurred in the dependent variable "Customer Satisfaction" ensuring the fitness of this model.

Coefficients

Through coefficients, it is found which independent variable has more impact than the other. Now, if the value of "B" in this table (except the dependent variable) for the independent variables is negative, it has an effect. However, if it is positive, it can be said that there is a positive relationship between the independent and dependent variables. That is, if the dependent variable is increased, the independent variables will increase too.

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	-.167	.475		-.352	.691
Quality of Food	.707	.080	.205	8.838	.002
Cleanliness of Deliveryman	.373	.060	.137	6.217	.025
Delivery of Food	.513	.070	.230	7.329	.016
Review of Food	.197	.052	.198	3.788	.031
Packaging of Food	.645	.069	.163	3.478	.008

a. Dependent Variable: Customer Satisfaction

From the table above, it has been found that the (Sig.) significance levels of the independent variables are less than .05; thus, they have a positive relationship with the dependent variable. This indicates that all the independent variables have a positive relationship with "Customer Satisfaction". So, for example, if "Quality of Food" is increased, Customer Satisfaction will be increased as well. From the Coefficients table, it is also possible to develop the regression equation.

The Regression Equation

Customer Satisfaction = $-.167 + (.707 * \text{Quality of Food}) + (.373 * \text{Cleanliness of Deliveryman}) + (.513 * \text{Delivery of Food}) + (.197 * \text{Review of Food}) + (.645 * \text{Packaging of Food})$

Here, "1" unit increase in the Quality of Food corresponds to a ".707" unit increase in Customer Satisfaction. "1" unit increase in the Cleanliness of the Deliveryman corresponds to ".373" unit increase in Customer Satisfaction. "1" unit increase in Delivery of Food corresponds to ".513" unit increase in Customer Satisfaction. "1" unit increase in Review of Food corresponds to ".197" unit increase in Customer Satisfaction. "1" unit increase in Packaging of Food corresponds to ".645" unit increase in Customer Satisfaction. Now, from the above, it can be said that the most important variable is the "Quality of Food." Because the change in "Quality of Food" has brought the most change to Customer Satisfaction. Moreover, the least important variable, in this case, is "Review of Food" because the change in "Review of Food" did not bring a significant change when compared to the other variables.

Conclusion

The objective of this study has been to identify and examine the relationship between customer satisfaction and hygiene factors while ordering food online during COVID-19 in Bangladesh. And the research questions are, "Does quality of food have an impact on customer satisfaction while ordering food online during COVID-19 in Bangladesh?", "Does cleanliness of deliveryman have an impact on customer satisfaction while ordering food online during COVID-19 in Bangladesh?" "Does delivery of food have an impact on customer satisfaction while ordering food online during COVID-19 in Bangladesh?", "Does review of food have an impact on customer satisfaction while ordering food online during COVID-19 in Bangladesh?", "Does packaging of food have an impact on customer satisfaction while ordering food online during COVID-19 in Bangladesh?". The results obtained for 2 ways of analysis (Multiple Regression Analysis, and Pearson Correlation) appears slightly different based on customers' opinions who have ordered food online during COVID-19. People who participated in the survey answered differently as "customer satisfaction" is subjective and everyone has their point of view. The purpose of this study has been to establish a relationship between customer satisfaction and hygiene factors. From previous studies and literature reviews, it is evident that researchers mentioned some of the variables chosen in this research under hygiene factors to play a significant role in online food delivery, which also ensures customer satisfaction. Based on the multiple regression analysis in this research, it has been found that, while ordering food

online, customers consider “Quality of Food” and “Packaging of Food” to be the most important variables amid this pandemic, and it leads to satisfaction. Here, all of the 5 constructs mentioned in this research questions have a significant impact on customer satisfaction. It has been confirmed as the significance level of coefficients is $<.05$. Also, $p<.05$ means that the correlation coefficient exceeds the critical value found in the table, and it can be said with 95% confidence that a relationship exists between Quality of Food and Customer Satisfaction, Cleanliness of Deliveryman and Customer Satisfaction, Delivery of Food and Customer Satisfaction, Review of Food and Customer Satisfaction and Packaging of Food and Customer Satisfaction. But not every person considers all of the 5 constructs of the independent variable “Hygiene factors” equally as important. From the multiple correlation analysis, it can also be said that most people consider “Quality of Food” the most important and afterward, “Packaging of Food”. On the other hand, though “Review of Food” and “Cleanliness of Deliveryman” also have an impact on customer satisfaction, though their value in the “B” column of “Coefficients” is lesser than that of Quality of Food and Packaging of Food. On the other hand, from “Pearson Correlation”, it has been found that Quality of Food has a perfect correlation, Cleanliness of the Deliveryman has a moderate correlation, Delivery of Food has a high correlation, Review of Food has a low correlation and Packaging of Food has a high correlation with Customer Satisfaction. After collecting data through the questionnaire, it has been combined with the secondary data. So, it can be said that, with regards to online food delivery, “Quality of Food (QF)”, “Cleanliness of Deliveryman (CD)”, “Delivery of Food (DF)”, “Review of Food (RF)” and “Packaging of Food (PF)” – all the 5 constructs of Hygiene Factors (HF) have a significant relationship with Customer Satisfaction (CS). However, among these 5 constructs of Hygiene Factors (HF), people who order food online during COVID-19 in Bangladesh prioritize “Quality of Food (QF)” and “Packaging of Food (PF)” the most. Thus, from this research, it is evident that Customer Satisfaction (CS) has a relationship with Hygiene Factors (HF).

Implication

This research contributes to establishing a relationship between customer satisfaction and hygiene factors in the context of Bangladesh while ordering food online during the COVID-19 pandemic. One of the objectives of this study has been to quantitatively describe which hygiene factors customers emphasize the most while ordering food. Therefore, theoretical foundations have been placed to further research customer satisfaction and hygiene factors. The independent variable (hygiene factors) has 5 constructs ranging from “Quality of Food”, “Cleanliness of Deliveryman”, “Delivery of Food”, “Review of Food”, and “Packaging of Food”. Moreover, according to the results of this research, by using the 5 constructs of the hygiene factors, online food delivery companies will be able to satisfy customers, especially in the current pandemic situation, and maintain a sustainable business model. On the other hand, this research has tested the relationship between customer satisfaction and hygiene factors, and it has been found that both have significant relationships. Most of the independent variables considered under hygiene factors have been significantly relevant to customer satisfaction, although they have a perfect to moderate correlation. Thus, the outcomes of this research suggest that to ensure customer satisfaction while ordering food online during the pandemic, online food delivery companies should focus on hygiene factors and emphasize most on “Quality of Food” and “Packaging of Food.” Hence, the results of this research can prove to be helpful to managers and employees of online food delivery companies concerning which hygiene factors should be emphasized most to ensure customer satisfaction. It will eventually help retain customers and helps companies provide better service amid this pandemic and in the future. Furthermore, online food delivery companies will be able to adjust the other factors to provide customers with the best values. They could also implement the other significant hygiene factors this research addresses and emphasizes, ensuring hygienic food delivery and

customer satisfaction. From this research, online food delivery companies will also benefit since customers would order online even more, replacing the need to eat at restaurants. In the COVID-19 pandemic, ensuring personal hygiene has become necessary, and maintaining social distance is the norm as new variants are discovered that pose an immense threat to human lives. The findings from this research are also relevant to academic categories of consumer and marketing research. With the embracement of new technologies, additional knowledge on consumer research focused on satisfaction has become more significant and relevant due to tough competition in the market. Furthermore, the importance of retaining customers and gaining new ones has become crucial. Moreover, based on this research, such could be achieved by online food delivery companies by providing values that customers desire, eventually ensuring their satisfaction. This research also contributes to this area by establishing a relationship between customer satisfaction and hygiene factors with 5 relevant constructs. Moreover, it also finds a basis to assume that customer satisfaction is closely related to hygiene factors and plays a significant role while ordering food online during COVID-19 in Bangladesh.

Limitations & Suggestions for future research

Although this research aims to be as thorough as possible within a limited time, several barriers have been faced. And some of the limitations are as follows: Due to limited time, only Dhaka, the capital city of Bangladesh, has been considered while collecting in-person data with the help of the survey questionnaire. 10 places in Dhaka have been visited, primarily educational institutions and restaurants. While the support from students and the general public has been cordial, they also had time constraints. From literature reviews, news articles, and previous studies conducted on online food delivery applications, it has been found that 4 online food delivery companies have a significant share in the online food delivery sector of Bangladesh. Though the above 4 online food delivery applications hold the major share in the industry, people also order food online using social media applications such as Facebook, which is widely popular in Bangladesh. This research only considers the perspective and opinion of customers who order food online during COVID-19 in Bangladesh. Although satisfaction involves employees, their viewpoint and thought and how they perceive the hygiene factors have not been considered.

Suggestions for future research

This research focuses on establishing a relationship between customer satisfaction and hygiene factors while ordering food online during the COVID-19 pandemic. Although we have considered and narrowed down many aspects, further research is necessary due to the limitations mentioned above. Furthermore, some of the suggestions for future research are as follows: The sample size in this research is 405, where most participants are students within the age range of 16-25. Due to time constraints, it has not been possible to reach out to people from other occupations, as many have become busier with their jobs after the COVID-19 lockdown. Thus, in future research, the sample size can be increased to get a diverse opinion from people to explore other areas of this topic. Most of the survey participants are from Dhaka, Bangladesh, since time constraints made it challenging to visit all the other divisions and gather data to make the research more diverse and compare people's opinions to reach a further solid conclusion. Most online food delivery companies now operate in all corners of Bangladesh, and user experience might differ. Thus, branching out to other districts and considering the opinion of users would also help future research to gather further insights. This research establishes a relationship between customer satisfaction and hygiene factors by only considering customers who order food online during COVID-19. No relationship has been established considering employees related to online food delivery. Thus, one of the suggestions for future research is to consider employees of online food delivery companies and evaluate their opinions besides

customers. That would provide solid quantitative evidence, and further statistical data could be produced. 5 constructs under the independent variable hygiene factor have been selected, which helped narrow down the research to establish a relationship. They are “Quality of Food,” “Cleanliness of Deliveryman,” “Delivery of Food,” “Review of Food,” and “Packaging of Food.” With the emergence of new variants of COVID-19, it could be possible that the WHO (World Health Organization) would impose new rules and regulations, making hygiene a mandatory aspect to be followed. Thus, further research conducted on this topic could consider identifying more relevant variables that would help establish a distinctive relationship and ensure diversity.

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