

Demographic Factors Influencing Consumer Behavior on Online Grocery Shopping During COVID-19: Evidence from Bangladesh

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Abstract:- This study aims to investigate the impact of COVID-19 on the rapid growth of online grocery shopping in Dhaka city. This study measures the replacement of the traditional grocery market by an online market along with a bigger scope of consumers. During this COVID-19 pandemic, the whole world is solely depending on online shopping and no other alternatives are left while trying to stop the dispersal of COVID-19. The data for this research is collected through an online survey. A structured questionnaire with a five-point Likert scale is used and the sample size is 300 online consumers residing in Dhaka city. Data are analyzed using frequency distribution and multiple regression analysis. Results demonstrate that the COVID-19 outbreak has had a significant influence on the expansion of online grocery shopping in Dhaka city, except there is a chance of shifting back to traditional shopping at the end of the pandemic. The impact is significant on consumers' demographic factors in switching online from offline.

Keywords:- Online Grocery Shopping; Consumer Behavior; COVID-19; the Impact of the Pandemic; Demographic Factors.

I. INTRODUCTION

In the last 20 years, technological advancement has increased dramatically. Because of this advancement, the life of consumers became smoother and easier going. Nowadays, consumers have alternative options available rather than going for physical shopping. They can now buy whatever they want from anywhere using digital technology. In recent times, people all around the world faced a vicious pandemic called COVID-19. The Government of Bangladesh had to impose a lockdown across the country to control the dispersion of the virus. During the pandemic, an enormous alteration can be seen in the consumption process in Bangladesh. Buying behavior of people has changed a lot because of the recent focus on online purchases to maintain social distancing. All the stores including the grocery stores were partially obsolete during the lockdown period, leaving no other options apart from procuring groceries online.

To fulfill basic and vital needs like grocery shopping, consumers started using technologies for their consumption activities. From households to services in every sector technological advancement opened an era for people to stay at home and get all the facilities from grocery shopping to medical equipment purchase and from online education to digital communication and entertainment. It has been observed that in earlier times homemakers were not that much concerned about digital consumption compared to recent pandemic times. They have learned how to use digital media as they must maintain social distancing.

Even though the consumers in Bangladesh were buying products online but there were limitations in the case of grocery shopping as in the case of grocery shopping, consumers were more satisfied with the traditional approach. But things are changing recently. The use of digital technologies is now growing in its market due to the recent COVID-19 pandemic. Years ago, it used to take a lot of effort to make customers habituated towards online shopping and the number of consumers buying online was not as much as the current phenomenon of the recent COVID-19 outbreak. Therefore, this study intends to focus on how online shopping for groceries is proliferating during COVID-19. Online shopping and online payment methods are becoming the recent safest mode of transaction. As online business is thriving at a rapid speed, even traditional shops are now offering online product delivery services to reach their customers. In a few months, most businesses have created online platforms and focused on digital economies. Traditional grocery shopping is now available through online platforms and consumers are gradually accepting this online grocery approach. This study aims to investigate how demographic factors influence the rapid growth of online grocery shopping during the COVID-19 pandemic.

II. OVERVIEW OF THE GROCERY INDUSTRY IN BANGLADESH

A grocery store can be defined as a store where food and related items for the household are sold. Most of the grocery shops in Bangladesh predominantly sell basic food items like rice, bread, biscuits, noodles, salt, sugar, edible oil, egg, milk, yogurt, etc. In addition, personal care products like soap, shampoo, toothpaste, and deodorants are also available in these stores. Apart from the local grocery stores, there is a

wide range of super shops available. The grocery industry includes all the daily household items that might be perishable or non-perishable usually people buy for meeting their daily needs. And supermarkets to supply these items are normally self-served shops segmenting the products and services. This industry is one of the fast-growing sectors in Bangladesh. Health safety, COVID-19 outbreaks, economic and social development, urbanization, and lifestyle are the key factors in growing the industry. The first super shop called 'Agora' was opened by Rahimafrooz Superstore Limited to deliver grocery items in 2001. Gemcon Group followed it in 2002 by introducing 'Meena Bazar' and ACI Limited launched 'Shwapno' in 2006. These super shops provide a wide range of products including fruits and vegetables, meat, fish, personal care, home care, and cleaning products. Moreover, a consumer can find baby food and care, loaves of bread, biscuits, cakes, chocolates, candies, milk and dairy products, snacks and instant foods, soft drinks, and juices, personal care as well as home appliances. The overall market share of major super shops in Bangladesh that provide grocery items is as follows.

Table 1 Market Share of Major Super Shops in Bangladesh

| Company | Market share (%) |
|-------------|------------------|
| Shwapno | 45 |
| Agora | 22 |
| Meena Bazar | 18 |
| Others | 15 |

Source: Market share of Leading Super shops in Bangladesh

III. HYPOTHESES, CONCEPTUAL ISSUES, AND VARIABLES

The consumers of Dhaka city are familiarized and satisfied with traditional physical grocery shopping. Yet, consumers were shifting their focus to online grocery shopping due to maintaining social distance during the COVID-19 pandemic. Though in a pandemic situation, the switching tendency of shopping was temporary for most consumers, the total number of people who had adopted the online shopping platform during COVID-19 is enormous.

- *H₁: The outbreak of COVID-19 plays significant changes in the intention level of consumers in online grocery shopping.*

Both males and females of any age, any educational background, having penny savings or mountains, and maintaining a small family or large tried to cope with this pandemic by switching their intention from offline to online. Therefore, this study uses consumer behavior on various demographic factors to analyze the variation in switching from traditional to online shopping.

- *H₂: Demographic factors play significant changes in the rapid growth of online grocery shopping.*

Amid the fear of infections extending, this disease now became a conception of social and economic impermanence by its periodic eruption. As the Bangladesh government initiated social distancing in March 2020 to enclose the first

outbreak of COVID-19, quarantine is affecting the economic growth of all the countries in the world [2]. People had to discover an alternative to the traditional approach for buying their daily necessities and other purchases. The quarantine shifted the focus of traditional physical shopping into online shopping which ended up creating a new feature in the digital economy.

- *H₃: There is a positive relationship between a current online purchase and a post-pandemic online purchase.*

The intensification of Coronavirus is currently having an enormous lengthy impact and caused significant changes in the living standard of people worldwide [3]. Even though the outbreak was initially in China, the critical effect of Coronavirus is on the virus spreading from China to 210 countries and territories around the globe [4]. The economic condition of each country is likely to worsen if the supply support system for producers, as well as consumers, cannot be executed judiciously [5].

In recent years, Bangladesh has observed rapid growth in mobile phone penetration and internet access. Moreover, digital computing technology has opened a significant entrance for the potential entrepreneurs of Bangladesh. Technological enhancement and digital shopping had introduced innovativeness in the service industry and boosted job opportunities, which enabled faster economic growth [6]. The advancement of the internet transforms consumers' preferences and their online shopping depends on the use of the internet. Consumers who are users of smartphones are now familiarized with digital payment methods, internet banking, and e-wallets [7]. The hassles of visiting places physically are now decreased as online shopping has swiftly shifted people's attention. Consumers are gradually accepting this modern selling mode of purchase.

Virtual social interactions during COVID-19 have increased the use of social media, which also increased consumers' social learning and knowledge. Consumers are now changing their buying habits as the traditional shopping approach was not able to provide health safety during COVID-19 [8]. Using the social networking site many are opening small online shops and these local businesses are getting decent responses for their uniqueness. Even though consumers were buying products online, in the case of grocery shopping, they were more comfortable with the traditional physical shopping approach.

Agriculture is a major sector in Bangladesh and lately, the most alarming problem was providing food to the entire country when there was almost no trade and an inadequate supply of food. This sector was going through a major crisis due to the distraction of the entire supply chain and a decline in the mobility of labor for social distancing which in turn created confusion for their future employment due to this pandemic and mechanization. The reduction of transportation was also causing wastage of already harvested vegetables. In addition, a reduction in the purchasing power of people has caused a demand reduction. However, even in the COVID-19

pandemic, groceries are one of the basic human necessities and online shopping for groceries rises at tremendous speed. The insatiable demand for groceries, which in the early stages of the COVID-19 outbreak began as panic buying, has evolved into a need to consume essentials to survive throughout the lockdown. Consumers who were doubtful of buying online in normal times are now changing their buying habits during the lockdown. In a middle-income country like Bangladesh, a huge demand for super shops and online grocery platforms is noticeable since the lockdown. While most consumers were comfortable with the traditional approach of grocery shopping, supermarkets emerged as a safer substitute for necessary grocery shopping. The supermarket industry consists of more than 300 outlets across the country and reported around 50 percent increase in sales after the Government declared lockdown. Even Unimart had verified its 40 percent higher sales even after being the new entrant in the Bangladesh market [9].

A visible rise in the online grocery delivery platform can be marked after March 2020 [10]. Even though Chaldal was already a recognized online grocery delivery platform before the pandemic, its sales got higher amidst the lockdown. As the number of customers was increasing, to ensure equal allocation, Chaldal restricted the number of orders of rice, potato, eggs, and hand sanitizers. Khaas Food also experienced a rise in their number of orders. Other big e-commerce platforms like Biand kroy.com, and Sheba.XYZ, Ajker Deal, Daraz, Priyoshop, and Delivery Hobe added their new department in grocery products [11]. In addition, the largest e-courier service in Bangladesh had restarted its ‘Tong’ and grocery delivery service during this pandemic situation. Swapno had partnered with Foodpanda and Pathao to deliver their products while starting their delivery service as well [12]. Meena bazaar also collaborated with Shohoz to reach their customers [13]. Another innovative application is known as K-bazar by Kotha, which started to deliver grocery items directly from the farmers [14].

The reference group is playing a positive role in encouraging consumers to continue online grocery shopping. A certain group of consumers are now purchasing their groceries online and are encouraging their family members, friends, and close relatives by sharing their online shopping experiences and spreading positive word of mouth.

A review of the literature suggests that several studies have been carried out to study the rapid development of online shopping during the COVID pandemic. In addition, with a change in consumers’ traditional grocery shopping and shifting to online shopping platforms, a need arises to study the impact of COVID-19 on online grocery shopping. Moreover, no direct or very few relatable studies are available on online grocery shopping during this pandemic.

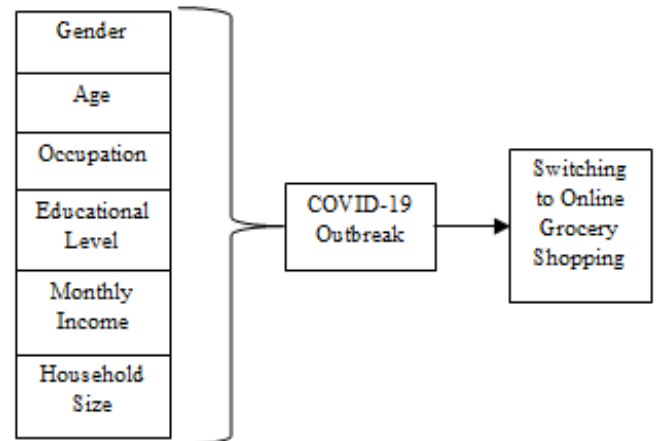


Fig 1 Demographic Factors Affecting Online Shopping Behavior

Table 2 List of Dependent Variable(s)

| Sl. | Variable Name | Acronym |
|-----|------------------------------|---------|
| 1. | Switching to Online Shopping | SOS |

Table 3 List of Independent Variables

| Sl. | Variable Name | Acronym |
|-----|-------------------|---------|
| 1. | Gender | GND |
| 2. | Age | AGE |
| 3. | Educational Level | EDU |
| 4. | Occupation | OCP |
| 5. | Monthly Income | MNI |
| 6. | Household Size | HHS |

IV. METHODOLOGY

When developing this research, only that information was selected that is compatible with the research and can help to fulfill the research objectives. Any data that are not consistent with the research's objectives have been debarred. However, as COVID-19 is a recent pandemic faced by the whole world, the amount of available data was not huge in number.

The primary and significant step of primary data collection is the variety of samples from which data were collected. According to the research problem, the population for this research is the inhabitants of Dhaka city. However, generally, it is not feasible to include the entire population, and therefore, 300 consumers were chosen who used online grocery platforms during this pandemic. The quantitative data with the assistance of statistical analysis provided a satisfactory research outcome.

The data collection technique used for this research is an online survey with a structured questionnaire of a five-point Likert scale. Once the final measurement scales and the survey questionnaire had been developed, the survey package, including a cover letter and survey questionnaire, was distributed to the selected subjects online.

After using a structured questionnaire, the quantitative questionnaire was gathered for statistical analysis. Statistical software was used for frequency distribution, analyzing the

demographic profile of respondents, and regression analysis to understand the relationship among selective variables.

➤ *Data*

The online survey was conducted to have the primary data in this study. People who used online grocery shopping further during the COVID-19 pandemic in Dhaka city are tare population for this study. 300 respondents who used the leading online super shops to buy grocery items were chosen randomly to complete the survey between June and August, 221. Demographic factors like gender, age, educational level, occupation, income, household size, and their frequency are shown below in the tail. The table contains the descriptive statistics of the demographic characteristics of respondents. The sample consists of 57.7 percent males and 42.3 percent females. The majority of our respondents are between 20 and 30 years old (58.7 percent) and 66.7 percent completed undergraduate or postgraduate. The household size of the respondents mostly consists of 3 to 4 members (64.3 percent).

Table 4 Descriptive Statistics of Demographic Characteristics

| Demographics | Particulars | n = 300 | Percentage |
|----------------------|-----------------------|---------|------------|
| Gender | Male | 173 | 57.7 |
| | Female | 127 | 42.3 |
| Age | Below 20 | 37 | 12.3 |
| | 20 to 30 | 176 | 58.7 |
| | Above 30 | 87 | 29.0 |
| Educational Level | Below SSC | 15 | 5.0 |
| | SSC | 40 | 13.3 |
| | HSC | 45 | 15 |
| | Honors and above | 200 | 66.7 |
| Occupation | Student | 50 | 16.7 |
| | Business | 50 | 16.7 |
| | Private Employee | 170 | 56.6 |
| | Government Employee | 30 | 10 |
| Monthly Income (BDT) | Below 15,000 | 40 | 13.3 |
| | 15,000 to 25,000 | 45 | 15 |
| | 25,000 to 40,000 | 161 | 53.7 |
| | 40,000 to 50,000 | 35 | 11.7 |
| | Above 50,000 | 19 | 6.3 |
| Household Size | 1 to 2 | 89 | 29.7 |
| | 3 to 4 | 193 | 64.3 |
| | Above 5 | 18 | 6 |
| Usage Frequency | Everyday | 67 | 22.3 |
| | 3 to 4 times a week | 98 | 32.7 |
| | 1 to 2 times a week | 110 | 36.7 |
| | Less than once a week | 25 | 8.3 |

➤ *Model Equation of the Study*

We attempted to measure the impact of demographic factors on online grocery shopping during COVID-19 by the following equation that established a relationship between the

independent variables and with the dependent variable. The general model of the study is estimated by the following equation.

$$SOS_t = \delta_0 + \delta_1 (GND_t) + \delta_2 (AGE_t) + \delta_3 (EDU_t) + \delta_4 (OCP_t) + \delta_5 (MNI_t) + \delta_6 (HHS_t) + E_t$$

In the above equation, SOS is the measure of identifying the impact of demographic factors, δ_0 is the intercept or constant of the model, δ_k ($k = 1, 2, \dots, 6$) are the coefficients to be estimated, and E is the error term of the equation. All variables are measured at an individual time t.

➤ *Methods for Data Analysis*

The study adapted tools from earlier studies to match the context of the impact of demographic factors on switching online from offline shopping habits during COVID-19. The scale items are scored on a 5-point Likert scale, with 1 indicating strongly disagree and 5 indicating strongly agree. The research method is multiple regression analysis. Before running the regression, internal consistency is measured by Cronbach's alpha. This study uses IBM SPSS Statistics 25 to run the equations and related tests. All the hypotheses have been checked at a significance level of 0.05.

V. EMPIRICAL ANALYSIS AND FINDINGS

Table 5 Reliability Statistics

| Cronbach's Alpha | Number of Items |
|------------------|-----------------|
| 0.807 | 6 |

Table 6 Model Summary

| R | R squared | Adjusted R squared | SE of the estimate | Durbin-Watson | F statistics |
|-------|-----------|--------------------|--------------------|---------------|--------------|
| 0.842 | 0.825 | 0.803 | 0.296 | 1.915 | 342.642 |

Predictors: (Constant), GND, AGE, EDU, OCP, MNI, HHS
 Dependent Variable: SOS

Cronbach's alpha shows a value of 0.807 which indicates a high acceptance level of reliability. In other words, the value specifies that response values for each participant across the set of questions are consistent. In addition, the model has an R-squared value of 0.825 indicating that 82.5 percent of the variance in switching to online grocery shopping is explained by the explanatory variables. Moreover, the Durbin-Watson value is in the range of 1.50 to 2.50 (1.915) which indicates that there is no autocorrelation in the residuals of the statistical regression analysis.

Table 7 Coefficients

| Variable | Beta | Std. Error | t stat. | Sig. |
|------------|--------|------------|---------|-------|
| (Constant) | -0.616 | 0.012 | -6.021 | 0.000 |
| GND | 0.024 | 0.037 | 11.512 | 0.000 |
| AGE | 0.234 | 0.049 | 7.425 | 0.000 |
| EDU | 0.478 | 0.051 | 9.871 | 0.000 |
| OCP | 0.547 | 0.068 | 8.952 | 0.000 |
| MNI | 0.347 | 0.084 | 9.354 | 0.000 |
| HHS | 0.345 | 0.067 | 8.974 | 0.000 |

Dependent variable: SOS

The table above (table VII) shows that gender, age, educational level, occupation, monthly income, and household size have statistically significant positive impacts on switching to online grocery shopping. Occupation and educational level have the strongest impact on switching to online grocery shopping, followed by monthly income, household size, age, and gender.

The findings suggest that consumer preferences towards online grocery shopping show significant growth due to the pandemic and lockdown. In addition, as consumers are spending more time on the internet due to the lockdown, they used to buy regular products like bags, dresses, and cosmetics online as well as gradually getting comfortable buying groceries online. Moreover, reference groups are also influencing people to buy groceries by sharing their satisfactory experiences with their family, friends, and colleagues.

Despite the clear evidence that consumers are switching to the online grocery platform, retailers must be ensured enough to make their customers stick to the online platform after the pandemic. They can provide the highest convenience to keep their customers attached to this platform. In addition, super malls and retail shops that are still not into online platforms can emphasize strengthening their online delivery service by adopting technology and training a larger workforce to stay in the competition during this pandemic as well as in the post-pandemic.

VI. CONCLUSION

The recent outbreak of COVID-19 has triggered a change in the buying platform of consumers. Consumers are shifting their buying platform from traditional physical shopping to online shopping while staying at home during the lockdown and maintaining social distancing. In addition, consumers are slowly shifting their focus to buying basic grocery shopping online as well. Following this trend, many super shops have already started to deliver online or collaborate with online delivery services. It is shown that demographic factors demonstrate a significant relationship to influence this online buying trend as people were forced to buy online during their stay at home. Moreover, they are shifting back to traditional physical shopping after the pandemic ends. Therefore, marketers need to come up with attractive propositions to help consumers stay active in online grocery shopping.

The sample size used for this research was comparably small. Thus, the outcome here might not be highly appropriate to finalize a result perfectly. The result would be more reliable if the sample size was large. This might lead to deeper insights into the relationships among the demographic factors that were in the conceptual framework.

Several studies are available that focused on online shopping due to the pandemic, but there have been rarely any studies that focused on only grocery shopping in this country. This research can help retailers to know the current situation on online shopping platforms and can also help them to build

strategies to continue this new platform of selling groceries. The study can be resourceful as a guideline for further studies. Here regression analysis was conducted in search of the relationship between demographic factors and rapid growth in online grocery shopping. Further statistical methods can be conducted for in-depth results.

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