The effects of COVID - 19 Pandemic Outbreak on Food Consumption Preferences and Their Causes

Bilal Celik¹, Senol Dane²*

¹Department of Economics, Faculty of Art and Social Sciences, Nile University of Nigeria, Abuja, Nigeria

²Department of Physiology, Faculty of Basic Medical Sciences, College of Health Sciences, Nile University of Nigeria, Abuja, Nigeria

ABSTRACT

Introduction: COVID 19 pandemic outbreak increased panic, anxiety and depression level in both young and adult people. In the present study, the attitudes of families in terms of food consumption and shopping preferences towards COVID-19 pandemic outbreak and lockdown was investigated.

Method: Four hundred eleven participants or families were included in this study. All of them accepted to participate in this study voluntarily (303 men and 108 women). An online survey was generated to get the food preferences and their causes before and after COVID 19 pandemic outbreak. The survey was conducted during the lockdown period of COVID-19 when all participants were self-isolated at homes.

Results: Before the outbreak the first and second preferences for food consumption were meat and bakery foods but after the outbreak the first and second preferences were fruits and vegetables. Before the outbreak the first and second causes for preference were cost and health but after the outbreak the first and second causes for preferences were quality and health.

Conclusion: The results of the present study show that COVID 19 pandemic outbreak has a powerful impact on food consumption preferences and their causes of families from various countries.

Key words: COVID 19, Food consumption, Pandemic outbreak, Food preference

INTRODUCTION

COVID-19 disease originated first in China in December 2019. COVID-19 rapidly evolved into a pandemic by late February 2020 [1]. It seriously affected 210 countries and regions around the world and second international conveyances nowadays, meanwhile the overall case mortality rate of COVID-19 is averagely 14% in the world according to the international report about coronavirus disease [2]. The World Health Organization (WHO) declared it as a public health emergency of international discompose on January 30, 2020 and called for collaborative and supportive efforts of all countries to prevent the rapid spread of COVID-19, in response to this serious situation all over the world [3]. Consequently, on March 11, 2020, WHO has declared that COVID-19 disease is a pandemic. The first case of COVID-19 was confirmed on March 10, 2020 in Nigeria. With a continuous increment in numbers, all tertiary educational institutions were closed with an order of the Ministry of Education by March 20, 2020, and the Government of Nigeria, initially has banned some international flights to the countries in which pandemic is severe in 13 country then banned all flights in following days, meanwhile gradually restricted all domestic movement between states, hence the government was declared and started implementation the first lockdown of big cities on March 30, 2020. Eurozone, Italy, Germany, Spain, France, England with Turkey and Russia, was the most severely affected, consequently the epicenter of the pandemic rapidly moved from China to Europe; it has since moved to the USA, with New York State as the most severely affected.

Now COVID-19 is the most common in USA in the world. Mostly via aerosols and fomites people is usually infected. It results in severe higher and lower respiratory infections. Generally, fever, dry cough, and malaise are its symptoms. It causes often rapidly progression to respiratory failure, for this reason needing aggressive respiratory support. Against COVID-19 pandemic, the WHO recommended some priory precautions include using alcohol-based sanitizers, N95 face mask and strict quarantine of patients and contacts [1].

However, the fighting with COVID-19 pandemic is still going on across the world hardly. To access success, people's positive approaches to the control measurements is important, which is largely affected by their psychologies towards COVID-19. The SARS outbreak in 2003 taught us that knowledge and attitudes against viral infectious outbreaks are closely related with the panic emotion level of people, because the panic fear can foreclose the governmental precautions. The epidemic outbreak and lockdown increase the psychological stress on people [4,5]. The constantly spread of the disease, the official hard isolation applications and closings of schools is expected to affect the mental health of all people. There are many studies on the possible bad effects of the infectious epidemics on the general public, patients, medical staff, children, and older adults [6,7]. In a previous study, it has been reported that having relatives infected with COVID-19, its economic and social effects with impacts on daily life, as well as delays in academic activities, enhances anxiety levels among college students [8]. Also, in a previous COVID-19 study, Nigerian university students had high anxiety levels than normal [9]. In another recent study, it has been reported that the low anxiety and depression levels in academic staff against COVID-19 [10]. They suggested that the knowledge levels of people should be increased to decrease their anxiety and depression by means of online distance education systems.

The increased anxiety, depression and psychological stress during pandemic outbreak related to COVID-19 can be cause of a lot of changes in food consumption and shopping preferences. There are some studies related to changes in shopping or consumption preferences during previous pandemic outbreaks [11-13]. The present study is an interdisciplinary between medicine and economics. Unfortunately, however, there is a lack of study regarding the effect of pandemic outbreak on the food consumption and shopping preferences. In the present study, the attitudes of families in terms of food consumption and shopping preferences towards COVID-19 pandemic outbreak and lockdown was investigated.

METHODS

Participants

Four hundred eleven participants or families were included in this study. All of them accepted to participate in this study voluntarily (303 men and 108 women) (Table 1). Their ages were ranging from 20 to 65. An online survey (questionnaire) was generated and shared only with participants, the people experiencing pandemic lockdown. The survey was conducted during the lockdown period of COVID-19 when all participants were self-isolated at homes. The aim was to ensure the results obtained from the probing were valid and reliable. In the survey, the questionnaires for the shopping and consumption preferences towards COVID-19 disease were posted online for volunteers to fill out. To keep the confidentiality and privacy of the survey, a secured internet link for the survey was produced and shared only with participants to fill out. All subjects completed the study voluntarily.

Inclusion criteria

Willingness to participate.

Only one person for each family could participate.

Exclusion criteria

The study excluded participants that were not willing to be involved.

Subjects with psychiatric or neurological disease that might affect the food consumption or shopping preferences were not involved.

Table 1: Sociodemographic features of the participants (Number and percentage of participants).

	Gender		Men: 303 (73.7%)	Women: 108 (16.3%)
Country	Nigeria: 207 (50.4%)	Turkey: 129 (31.4%)	USA: 21 (5.1%)	Europa: 54 (13.1%)
Income Level		Low: 102 (24.8%)	Middle: 280 (68.1%)	High: 29 (7.1%)

Procedure

The experimental protocol was by following international ethical standards. The study was performed per under the Helsinki Declaration (1975, revised in 1996-2013) [14]. It was a descriptive cross-sectional study. The aims and objectives of the study were explicitly explained to the participants before the commencement of the study. All participants voluntarily gave written informed consent to participate in the study. The study was anonymous. The study was made between April 25 and May 05, 2020.

Statistical analyses

Measured values are given as a mean +/- standard deviation (SD). Statistical analysis was performed using SPSS for Windows version 18. The McNemar-Bowker test was used to compare the food consumption preferences and their causes between before and after pandemic outbreak. A p-value of less than 0.05 was considered statistically significant.

RESULT

There was a statistically significant difference in terms of the preference causes in food consumption or shopping between before and after COVID 19 pandemic outbreak (McNemar-Bowker test value=92.434, p=0.00). Before the outbreak the first and second causes for preference were cost and health but after the outbreak the first and second causes for preferences were quality and health, respectively (Table 2 and Figure 1).

There was a statistically significant difference in terms of the food preferences for consumption between before and after COVID 19 pandemic outbreak (McNemar-Bowker test value=43.493, p=0.00). Before the outbreak the first and second preferences for food consumption were meat and bakery foods but after the outbreak the first and second preferences were fruits and vegetables, respectively (Table 3 and Figure 2).There were no statistically significant differences in both

Table 2: The preference causes for food consumption or shopping before and after COVID 19 pandemic outbreak.

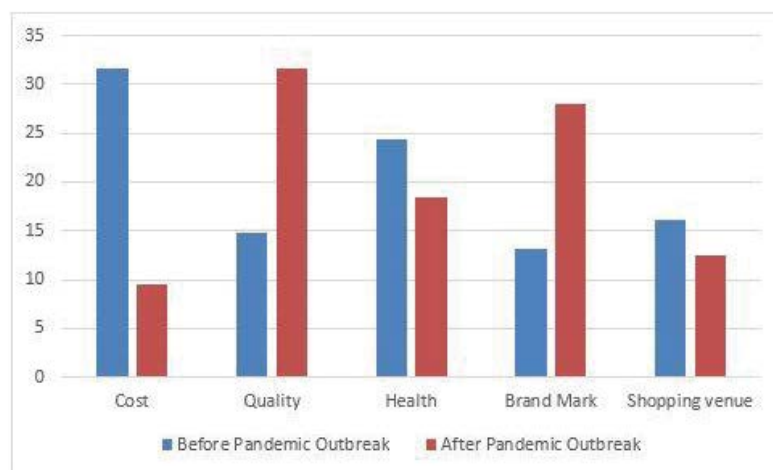|	Before (N%)	After (N%)
Cost	130 (31.6%)	39 (9.5%)
Quality	61 (14.8 %)	130 (31.6%)
Health	100 (24.3%)	76 (18.5%)
Brand Mark	54 (13.1%)	115 (28%)
Shopping Venue	66 (16.1%)	51 (12.4%)

Figure 1: The preference causes for food consumption and shopping before and after COVID 19 pandemic outbreak

Table 3: The preferences for food consumption before and after COVID 19 pandemic outbreak.

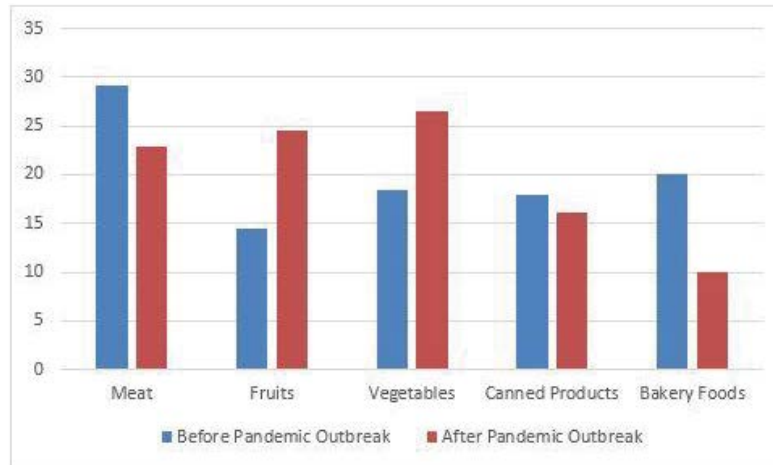|	Before (N%)	After (N%)
Meat	120 (29.2%)	94 (22.9%)
Vegetables	59 (14.4 %)	101 (24.6%)
Fruits	76 (18.5%)	109 (26.5%)
Canned Products	74 (18%)	66 (16.1%)
Bakery Foods	80 (20%)	41 (10%)

Figure 2: The preferences for food consumption before and after COVID 19 pandemic outbreak.

the preference causes in food consumption or shopping and the food preferences for consumption according to countries of families before and after pandemic outbreak. There were no statistically significant differences in both the preference causes in food consumption or shopping and the food preferences for consumption according to income levels of families before and after pandemic outbreak.

DISCUSSION

The human history has many viral pandemics and many people have dead for this reason. It has been known that virus depended epidemics such as Lassa Fever (1969), Ebola (1976), HIV (1981), SARS (2003), MERS (2012) have threatened human life in last five decades. However, human being has founded out remedies for them. But in this new case, it should be accepted that the COVID-19 is more dangerous and fatal than others.

The scientists are hardworking to discover the vaccine and drug. Many people are in the either voluntary or compulsory isolation. Governments stopped international and domestic flights and restricted all human outdoor activities with lockdown implementation. All this situation may affect the national and international economy, and shopping and consumption preferences.

In MERS pandemic, sales in both online and offline grocery markets did not change considerably due to the MERS intervention. It seems that, by their nature, groceries are a necessity rather than an option for life; hence, an unexpected event like the MERS epidemic cannot dramatically reduce grocery consumption [11]. However, the time-series graphs of online and offline sales tell a different story. The offline sales of groceries experienced a greater decline as compared to the before outbreak, while the online transactions for groceries rose after outbreak. They predicted that some people avoided crowded places like big shopping malls or markets for buying groceries and instead moved to online markets.

When infectious diseases such as MERS, Severe Acute Respiratory Syndrome (SARS), and H1N1 (subtype of influenza A virus) spread, people worry about possible infections that can affect their outdoor activities [15,16], and thus consumer behavior [12,13].

In the present study, there was a significant difference in terms of the preference causes related to food consumption between before and after COVID 19 pandemic outbreak. Before the outbreak the first and second causes for preference were cost and health but after the outbreak the first and second causes for preferences were quality and health, respectively. It can be stated that they have changed their preference causes in food consumption from cost to quality. This change may be due to the fear of death of COVID 19 [8-10, 17]. Because this pandemic outbreak increased panic, anxiety and depression level in both young and adult people [8-10,17]. During the SARS outbreak, many studies investigated the psychological impact on the non-infected community, revealing significant psychiatric morbidities [18-20]. It can be suggested that the increased fear and anxiety enforced this positive change in the preference causes for food consumption because they believe that quality food is related to good health and increased immune system of the body.

Additionally, there was a significant difference in terms of the food preferences for consumption between before and after COVID 19 pandemic outbreak. Before the outbreak the first and second preferences for food consumption were meat and bakery foods but after the outbreak the first and second preferences were fruits and vegetables, respectively. The cause of this change may be the knowledge and belief which fruits and vegetables have more vitamins to fight viruses.

CONCLUSION

The results of the present study show that COVID 19 pandemic outbreak has a powerful impact on food consumption preferences and their causes of families from various countries. Before the outbreak the first and second preferences for food consumption was meat and bakery foods but after the outbreak the first and second preferences were fruits and vegetables. Before the outbreak the first and second causes for preference was cost and health but after the outbreak the first and second causes for preferences were quality and health.

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