

## The Impact of Covid-19 on the Food Industry1

### El impacto de Covid-19 en la industria alimentaria

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**Abstract:** COVID has largely affected organizations and individuals. The current study explores the effect of covid on food industries in the Middle East. We have found that during the pandemic, people tend to choose eating home-cooked meals instead of ordering from restaurants as they think it is “unsafe” to do so. This resulted in an improvement in their cooking skills. Additionally, it is clear that the availability of essential foodstuff hasn’t been majorly affected by the outbreak. Our observations strongly support the fact that people are spending more money on groceries than they used to before the outbreak, and the majority prefers to do so through applications and websites that offer delivery of groceries. This study indicates a development of new digital markets that support the integration of multiple food channels and easy food ordering systems.

**Keywords:** COVID, Online delivery system, food industry, Middle East, administration.

**Resumen:** COVID ha afectado en gran medida a organizaciones e individuos. El estudio actual explora el efecto del covid en las industrias alimentarias de Oriente Medio. Hemos descubierto que durante la pandemia, las personas tienden a optar por comer comidas caseras en lugar de pedir en los restaurantes, ya que piensan que no es seguro hacerlo. Esto resultó en una mejora en sus habilidades culinarias. Además, está claro que la disponibilidad de alimentos esenciales no se ha visto muy afectada por el brote. Nuestras observaciones apoyan firmemente el hecho de que las personas están gastando más dinero en comestibles que antes del brote, y la mayoría prefiere hacerlo a través de aplicaciones y sitios web que ofrecen entrega de comestibles. Este estudio indica un desarrollo de nuevos mercados digitales que apoyan la integración de múltiples canales de alimentos y sistemas de pedidos de alimentos fáciles. Palabras clave: COVID, sistema de entrega online, industria alimentaria, Oriente Medio, administración. Introduction

**Palabras clave:** COVID, sistema de entrega online, industria alimentaria, Oriente Medio, administración.

## 1.

During the past twenty years, some viral diseases and epidemics have affected humans and animals in general. These epidemics are caused by many viruses, such as dengue, yellow fever, and many others. These diseases, which are transmitted through food and which pose a threat to human health, have long been considered as a public health concern worldwide.

With the advent of COVID-19, most countries of the world have already closed some restaurants. As for other restaurants, they remain open and are experiencing a state of stagnation due to the failure to retain customers; as customers fear transmission of COVID-19 through foodstuff and through employees of the restaurants that come into contact with people on a daily basis (Gubler 2002).

In this report we will talk about one of these rampant diseases, which is COVID-19, and how this pandemic affects the food industry and how people shop for food supplies.

We chose this topic because it is necessary to know the damages that may occur due to the existence of this pandemic and its effect on individuals and society as a whole. This study is also important for the economy of the United Arab Emirates, as several factors have an effect on the tourism industry, the food industry, as well as the entertainment industry.

Our goal in conducting this research is to increase awareness and knowledge among people and to understand peoples' opinions regarding the safety measures they take towards the food market. COVID-19 is a disease which may be transmitted through contact with surfaces, and it is critical to find out whether people still prefer to buy from restaurants and groceries, or are they altering their shopping habits because of the virus (Popkin, 2001; World Health Organization, 2020; Srey et al., 2013 ).

This report discusses several questions about the impact of the epidemic on the food market. Our aim is to conduct research made up of simple questions that are easy to answer and easy to analyze. The questions we have formed include the following: 1) "Do you think the corona virus has affected how people shop for food supply? If so, how?" We chose this question because it provides us with information and details as to how COVID-19 has affected the grocery shopping habits of people. 2) "How often do you currently shop for groceries in a month, and has it been different before the pandemic?" We chose this question to see how many times people might buy groceries per month, and whether or not they have been buying more/less often since the pandemic occurred. 3) "Do you think the pandemic affected your home-cooking habits? If so, how?" This question helps us find out if people are putting an effort into cooking at home more often as a safety measure.

These are important questions because they give us a lot of information and answers that enable us to know how many people prefer to buy online and the amount of people spending their money on groceries and restaurants and the impact of this epidemic on the prices of necessary foodstuff.

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## 2. LITERATURE REVIEW

Many types of viruses have appeared throughout the world since life began. We encounter many viruses that are new or just a modified version of previous viruses. Viruses are considered living creatures that can evolve through their life span and they spread very easily across borders. Every now and then, a new and complex virus appears without any warning, and several countries across the globe get affected by it. Preparation, time and resources are critical factors that affect how we tackle those pandemics. If a country is not well prepared then they will suffer a major setback due to this, and their economy will suffer. It is important that we study such pandemics and collect sufficient data to help prepare us for what is yet to come.

There are several countries that prepare for such virus pandemics, due to their sufficient resources. On the other hand, some countries are poor, or their economy isn't as strong as the others, and they are more prone to the outbreak of the viruses. Nevertheless, a virus outbreak can affect any country's economy if not fully prepared for such a crisis. As mentioned before, some viruses are new and complex and need time and patience to be handled correctly. The industrial and commercial industry suffered a huge setback due to the virus and this led to an economic crisis. An example of this might be having enough hospital rooms to hold and treat patients. Some countries have very large populations, and the hospitals can't contain that many people. This could lead to several cases such as the building of new facility/Hospitals to occupy the ones in need of treatment and that affects the country's economy. Additionally, some countries' economies are highly dependent on trades, and with the virus spreading rapidly, trade between countries have been placed on hold for a certain period of time to reduce the spread of the virus. This could lead to a huge drawback on the economy from the trades point of view because many resources of a certain country are dependent on the supply provided by these trades. This could lead to an economic loss as the demand remains high but the supply is significantly low. The main parties affected by this are stores, restaurants as well as factories (Adegun, 2014).

We have seen some countries that were unprepared and not well organized; that is why they got affected a lot by this virus. The majority of companies will go bankrupt and some governments may take several measures to help those countries in need, as witnessed in the current pandemic outbreak.

In short, when any virus appears in any country it will cause a lot of hindrance to its economy and financial markets. The urge to be prepared and fully aware of the ecosystem of the virus is a huge step towards the future in-terms of handling new upcoming viruses and pandemics. Having a clear mindset and the resources needed to tackle any obstacle could indeed help maintain the economy of a country (Khan & Faisal, 2020; Ayittey et al., 2020).

There are several studies that show that people that suffer the most from food insecurity are the ones that are at higher risk for viruses and diseases. For example, it has been found that food insecurity is very likely associated with higher risk of procuring the following diseases; HIV, malaria, as well as sexually transmitted diseases. In West Africa, the Ebola outbreak has had a very negative effect on its people due to insufficient resources. This issue is very severe and it is only poorly understood by many. Our aim for this research is to spread knowledge and increase awareness. Not only does it affect the population's health, but also their mental stability and behavior. Both the government, the people and owners of businesses will benefit from this research (Kelly et al., 2020).

The pandemic first approached around January 2020 and, ever since, the food industry and the medical industry have been put under pressure to provide for those in need. There are several restaurants and food markets that have chosen to provide help for people that cannot afford to eat. Although some might consider this action a good deed, the reality is that some fast-food chain restaurants are only taking advantage of the situation, to gain a good reputation. The food they are providing for patients in need are not always prepared in a hygienic manner; in fact, they might be doing more harm than good as the fast-food meals are very poor in nutrition.

People that are more educated are depending on home cooked and traditional meals that help increase their immune system. They are incorporating more fruit and vegetables into their meals and they are avoiding eating out during this crisis. Many people are focusing on improving their cooking skill during this time to provide for their family, and some might say that they have been spending more and more money on grocery shopping and food essentials during this crisis than ever.

In this study, the questions we have chosen shed light on the behavior of people during the crisis. The sample we are interviewing will give us an insight on their opinions and how their habits have changed during this time. We will be able to find out the safety measures they are taking when it comes to grocery shopping, and how that affects the global food industry. In other words, people that have the purchasing power during this pandemic will act in one of two ways; they will either depend solely on home-cooked meals, or they will continue their regular lifestyle without taking into consideration the effect it might have on their health. In both situations, the food industry will certainly be affected.

### 3. METHODOLOGY

In our research, we used qualitative methods to interview our sample that consisted of 9 people. The interviewing questions we have proposed are semi-structured, meaning the questions contain key points that allows the interviewee to understand the sections to be explored, and clarifies the purpose of the interview. The interviewee is guided by the questions and thus carefully chooses how to answer. The data that is collected can be easily analyzed when compared to structured questions, as structured questions do not enable us to find “hidden” data that the research team might have not thought of. Structured interviews have a narrow limit of answers and the sample does not have the freedom to express their opinions, so the hidden data remains hidden.

We have selected a total of 9 individuals to interview, that all fall under the age group of 18-25. All subjects are females that come from slightly different backgrounds, for example 2 of our subjects live abroad and are aged 19 and 21. Whereas the remaining 7 subjects are UAE locals, two of which are married and have children and the remaining 5 are unmarried and live with their parents.

All subjects are acquaintances, friends and family members. We have placed specific criteria for choosing the subjects. For example, we ensured that all individuals are in no way related to each other and do not live in the same house, to avoid bias and any similarity in their results. As two sisters who live together would most likely have the same answers to all questions regarding their behavior.

#### Interview outline

Interview outline

The questions chosen focus on grocery shopping habits, opinions of the effect of COVID-19 on food supply, their cooking habits and their opinion on restaurants.

The main interview questions include the following:

1. Do you think the corona virus has affected how people shop for food supply? If so, how?
2. How often do you currently shop for groceries in a month, and has it been different before the pandemic?
3. How much do you currently spend on your monthly groceries?
4. Do you think the pandemic affected your home-cooking habits? If so, how?
5. How often do you eat home cooked food in a week?
6. Do you think it is unsafe and unhygienic to order from restaurants during this pandemic? If so, how?

7. Do you believe that the pandemic has affected the prices of essential foodstuffs such as flour, oil and rice? If so, how?
8. When grocery shopping, how would you describe the availability of essential foodstuffs?
9. Since the corona virus outbreak, have you been depending on online grocery shopping? If so, how?

Most questions are concluded by “if so, how?”, giving the subjects the freedom to elaborate on their response. We have refrained from asking structured (Yes/No) questions, as we aim to cast light on the subject’s judgement and reason for their response.

## Data collection

We have communicated and reached out to our selected subjects using several methods, which include texting, mobile phone calls and last but not least, VoIP (Voice over internet protocol) using the application Zoom.

The interviews were conducted one on one. Our research team includes 3 people, and each person has interviewed 3 different individuals respectively. We ensured that there wasn’t any form of interruption during the interview and each person was interviewed separately. Before starting the interview, we described briefly to each interviewee the purpose of this research to give them an idea of what the questions might revolve around. Due to the difficulty in physical communication during the lockdown, we were only able to record 2 interviews. Each interview took place within 5-15 minutes as the questions are very short and clear. We purposely chose simple language to avoid any confusion.

## 4. DATA ANALYSIS AND RESULTS

We analyzed the data collected on our own. We did not depend on any third party to do so. Initially, we reviewed the results individually and then we proceeded by conducting several VoIP meetings to discuss the data, state our opinions and summarize what we have found.

Res1	Res2	Res3	Res4	Res5	Res6	Res7	Res 8	Res 9
Q1 Yes, people are shopping more often as they are worried about the food supply.	Definitely, it made us shop more often.	No, I don't think it affected how people shop as all food supply remains available.	Yes, it affected it in a positive way and that's because people started shopping more often than before.	Yes, it did, having the fear of getting infected by the virus from various sources made people more worried about hygiene and how to shop from public markets.	Yes, people are now more into online shopping instead of going out to the grocery stores.	Certainly, it affected people because some people are afraid to go out to buy food because of the ease of transmission of the virus, by coming in contact with the material they need and also by breathing.	Yes, because Corona will threaten and affect food security, and the lack of fulfillment of the demand of individuals.	Yes, because we don't know where they go or what kind of people, they meet.
Q2 Before the pandemic, we used to shop more (3 times a month). But now we only shop once a month as we are avoiding going out.	Yes, I now shop 2-3 times a month and it has increased during the pandemic.	I've done a month, but before the pandemic I used to shop once a month.	I shop twice a month. No, in fact I shopped online even before the pandemic, it's easier and faster.	Not much, once every week but with more care and hygiene. It is always a priority to have in mind when doing so.	We shop twice a month and we buy a bigger amount of groceries than is sufficient for us throughout the month. The difference after the pandemic is that we buy more groceries to avoid visiting the market.	I've done a month, because the cases of corona are increasing and we should avoid going to crowded places, but before the pandemic we more than twice a month.	Before the epidemic, I used to shop at any time, but now once a week and also when necessary.	We shop from groceries 4 times a month, and before it was less than that.
Q3 3000 DHS	200-250 USD as I live alone, equivalent to 750-850 AED	3000-4000 LE, I live alone so I don't spend much, equivalent to 700-900 AED	Approximately 2000 DHS.	I spend almost 2500 DHS and it hasn't changed.	It depends but approximately 2500 DHS	Around 2000 DHS.	Around 1500 DHS.	We spend more than 2000 DHS in a month
Q4 Yes, we cook more often at home than we used to and we spend less on restaurants	Certainly, I have worked more on my cooking skills and it has improved.	Yes, for sure. In the past, I never even knew how to cook the most basic meals, but since the pandemic I have been cooking most of my meals.	Yes, a lot. I never knew that I had cooking skills.	Yes, it did. I now cook more than I used to.	Yes, we are spending more time cooking at home.	Yes, it greatly affected my cooking habits. I learned how to cook that we many kinds of food and cakes that my family liked, and I also searched on social media for some recipes.	It affected me a lot, I added various foods into our meals that we haven't tried before.	Yes, because I started to cook a lot during that time.
Q5 We eat all three meals at home, so all our meals are home cooked.	I eat all my meals at home as I avoid eating out at all costs.	Almost daily, I avoid ordering from restaurants.	Week days only.	Almost every day on every meal since the pandemic.	6 days a week.	Every day we cook meals that my mother makes, because it is safer than buying from restaurants.	We eat food at home daily because it is reliable.	I always eat from home, I stopped eating from restaurants.
Q6 Yes, it was very risky during the beginning of the pandemic but now restaurants are taking more precautions and we might start ordering from restaurants but not like we used to in the past.	Yes, for sure. We shouldn't order from restaurants as the food or the delivery man might be infected.	Not really. I think it's safe. It really depends on the precautions taken by the restaurant's management.	I don't think that it's unhygienic, because our government made sure that every restaurant/grocery store are fully sterilized and hygienic.	Yes, because you can't ever know what is the process it went through (hygiene wise) and the places it has been before getting to your doorstep.	Yes, because we don't know whether the people working on restaurants are carriers or not.	Yes, of course, because we do not know whether the restaurant staff or the delivery men have corona or not, this is considered risky.	Yes, because many restaurants are frequented by different people, which makes them more vulnerable to the epidemic.	Yes, I don't know why, but for my safety I don't order from restaurants.
Q7 No, I don't think prices of essentials have been affected.	Yes, in the Ukraine some stores are taking advantage of COVID-19 and they are increasing the price of essentials.	No, the prices are pretty much the same.	Yes, because the economies were down, so they increased the prices.	Not really. It just raised the unemployment rate since people started to stock essential food items to avoid going back and forth.	Yes, there's an increase in the price because of the scarcity of these products.	Yes, significantly. For food items, it has become much cheaper as the government wants everyone to be able to afford it.	Yes, because this food is one of the basic things which led to an increased demand for it and the costs increased.	Yes, because some grocery stores illegally increased the price.
Q8 All foodstuff isn't available and everything changed.	The availability isn't affected, everything is always available.	Essentials are always available at any grocery store.	Everything is available. Our country provides everything we need and that makes us feel safe.	Sometimes, but if you don't find it in one store you definitely will in another one.	Everything is available.	The lack of some of these food items because people buy them frequently.	There are a few quantities of some of the items that we need, because they are basic food items for many people.	All essential foodstuffs are available there.
Q9 Yes, we depend on ordering groceries online as it's easier.	No, although it's popular here. I never shopped online for groceries. Some might think it's safer but I worry the delivery man might be infected.	No.	Yes, I was because it makes you less prone to be facing someone or handing them money.	Yes, mostly because it's safer and you could simply disinfect the product that you receive.	Yes, because it's much more practical.	Yes, sometimes because it is easy to use the Internet to buy, but sometimes I worry about the quality of the food as it might be rotten.	No, because it is difficult and impractical to order food online, and it is best and easy to go to the grocery store.	Yes, because it's safer for me and I will not interact with anyone.

In the study that we have done about how corona virus affected the food industry's supply and demand, we have created a list of nine questions to ask our sample. We used a qualitative method in our project so it can be easier for us to collect the answers and analyze the results. We also specifically chose a set of questions that are relatively easy to answer, avoiding biases at all costs.

The sample that we have chosen to interview are our friends and relatives. The interviewing process took place within 4-7 days. We have interviewed the sample size of 9 people, all of which are females. 2 individuals (22% of the sample) are married and have children and the remaining 7 (77% of the sample) are not. The age group we have chosen is 18 to 25, the reason being that there is a higher risk of older people getting infected. Thus, when interviewing teenagers/ young adults, their answers will not be biased.

Due to the lockdown and the restrictions that the government has placed, we were obliged to conduct the interview using several methods. Two of our unmarried individuals are living abroad, one of them lives in Ukraine (alone) and the other one lives in Egypt (with her brother). Thus, we had to interview them through video calls using an application known as Zoom. 5 people were interviewed by phone call, and 2 were interviewed face to face. The interviews conducted with the sample portion that lives abroad were recorded to be used as referential data.

There was a difference in answers when comparing the portion that lives abroad with UAE locals. There was a similarity in some of the responses, but some answers were completely contradicting to one another when comparing the sample that lives abroad with the UAE locals. In Questions 1, 2, 3, 7 and 8, our questions were generally talking about shopping for food. Some of them answered that they spend somewhere between 700-900 DHS because they live alone and because they don't live in the same country, thus food supply might be cheaper in comparison.

Some of them spend more than 1500 DHS in grocery shopping. In Ukraine, there are places that increased the prices of the food but in the United Arab Emirates only a few are doing so. But it is considered illegal to increase the price without the approval of the ministry here in the UAE.

In Questions 4, 5 and 6, we asked them about their food habits and if they order food from restaurants or rather cook and eat at home. All of them answered differently with some of them agreeing and others feeling that ordering food from restaurants is not a good idea because of the coronavirus and because they think that cooking at home is safer for them. Question 9 was about how people shop online instead of going to supermarkets during the pandemic. In the United Arab Emirates, people above 60 cannot go to the supermarket to shop for their groceries so they have started using online shopping because it has many advantages. Online shopping has helped a lot of people. Even people under 60 started shopping online and there are also people that prefer going to the supermarket and shops. For example, 7 of the sample we have chosen preferred shopping online and 3 of them preferred going to the supermarket. There are many super markets and hypermarkets that created an application for their customers to shop online; some even offer free delivery to encourage their customers to order.

## 5. DISCUSSION

In this study, my colleagues and I explored the experience of many people in the COVID-19 pandemic and how it affected how often they go grocery shopping, their cooking skills and their eating habits. Our goal in conducting this research is to increase awareness and information among people and to reduce infection with COVID-19, which may be transmitted through contact with surfaces, and to find out whether people still prefer to buy from restaurants and grocery stores, and if they are taking precautions and avoiding going out.

The interviewing questions we have chosen revolve around the effect of COVID-19 on the food industry. We interviewed several people, some of whom are our acquaintances, others are our friends, and some are family members. Not all of our sample resides in the UAE and we have extended our research by interviewing people that live abroad to hear what they have to say about the effects of COVID-19 on their food intake.

We interviewed two people from outside the country like, Clara Gaddalah who lives alone in Ukraine and Mena Taha who lives with her brother in Egypt.

We have presented some of the questions to a group of people to know how they choose to buy food supplies since the spread of this pandemic, and we have obtained several results that provide us with the opinions of people about their influence on what they eat and buy and how much they spend on food supplies.

Here are some of the results that we reached from these interviews. As shown in the questionnaire that we conducted, the majority agreed that COVID-19 has influenced the purchase of food supplies, because they believed that the virus could be transmitted easily across food surfaces. Some started shopping more often in order to “stock” supplies to avoid going out as often. On the other hand, some are choosing to shop for groceries online to avoid contact with the public. However, one individual (Result 3) believes that the pandemic hasn’t affected how people obtain food, as they don’t worry about the availability.

As for the number of times people purchase food supplies every month, it has changed a little, because before the epidemic, some people were shopping more than three times a month. After the pandemic, it appears that they are shopping just once or twice a month and only when necessary to avoid going out.

We also see that the UAE locals spend an average of 2214 DHS per month on food supplies.

$$\text{Average} = (3000 + 2000 + 2500 + 2500 + 2000 + 1500 + 2000) / (7) \\ = 15500 / 7 = 2214.2 \text{ DHS}$$

The epidemic greatly affected peoples' habits because they believed that they didn't have any cooking skills, but now their cooking skills have improved because they have a lot of free time as they are not going out as often as they used to, and this has led them to learn home cooking, either with the help of their parents or via the Internet.

When we compare each other's answers to the number of times they eat at home in a week, we have seen that most of them prefer to eat every day at home because they think it is healthier and safer to stay at home. Additionally, they do not know if the people they will come into contact with will have the infection or not.

When we asked the sample if they believe it is unhygienic to order from restaurants, most of them agreed. They agree that it is unsafe as most restaurants are crowded and the process of ordering food and eating it involves many people; the chef at the restaurant, the waitress, the customers or even the delivery man might be infected. However, Maitha al Shamsi (Result 4) said that she doesn't think that it's unhygienic because the UAE government made sure that every restaurant/grocery store are fully sterilized and hygienic, and they also placed several laws regarding this and any restaurant that doesn't abide by the law will be fined or even closed temporarily.

Health officials said that there are several ways to reduce the spread of the disease, the most important of which is avoiding public gatherings, staying at home, and staying away from others. So, when people are restricted from meeting with each other, it reduces the spread of the virus. This is the main reason behind the majority of the answers; people prefer to protect themselves and their loved ones by simply avoiding going out. This greatly affects the food industry in more ways than one. Briefly, we can say that the food industry has several sectors, two of which included supermarkets (wholesale and retailers) and restaurants. While most restaurants are negatively affected, grocery stores are positively affected. For example, one might avoid ordering from a restaurant, this results in a reduction of profits for restaurant owners. But food is essential so they compensate that action by shopping for groceries more than they used to; thus, an increase in profits for grocery stores and retailers.

## 6. CONCLUSIONS

We conclude that this research has given us a detailed insight into the behavioral change of people as the pandemic occurred, and how that change has affected the food industry. We have found that during the



pandemic, people tend to choose eating home-cooked meals instead of ordering from restaurants as they think it is “unsafe” to do so. This resulted in an improvement in their cooking skills. They are making a greater effort to provide healthy and nutrient home-cooked meals to their family members; not only to avoid going out but as well to improve their immune system and keep them healthy. Additionally, it is clear that the availability of essential foodstuffs hasn't been majorly affected by the outbreak. Our observations strongly support the fact that people are spending more money on groceries than they used to before the outbreak, and the majority prefer to do so through applications and websites that offer delivery of groceries.

We conducted a lot of interviews in this study, which established a good relationship for consultation, and it also provided us with many people's experiences and opinions on how they were affected by COVID-19. This led to us reaching useful conclusions as it is considered a primary research method, which means we collected the data first hand rather than using previously collected data. We discovered that some people avoided negative experiences or opinions and resorted to positivity when we initially discussed the effect of COVID-19 on people in terms of the food industry.

Since our study included qualitative research, this study was limited. We conducted interviews for 9 people, including 2 teachers and one nurse, who participated in this study. Because of this pervasive pandemic, we were forced to conduct these interviews over the phone or the Internet such as video calling to avoid physical contact with people.

This study is considered to be a short-term study, which means that people's views and opinions might differ in the different stages of this pandemic. How they reacted in the very beginning of the pandemic might be very contradicting to how they react towards the end of it.

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## NOTES

- 1 Research article