Evaluating the Relationship of Knowledge, Attitudes, and Practices of Home Delivery Handlers Regarding Avoid COVID-19 in Quick Service Restaurants

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Abstract

Home delivery is one of the most critical steps in the food cycle regarding avoid COVID-19 in quick-service restaurants. The home delivery must meet or exceed food safety and hygienic practices because guest safety is the overall goal of foodservice. Therefore, home delivery is a complex process, but it can be successful when it focuses on guest needs and expectations. This study aims to measure the awareness, knowledge, and practices of food delivery handlers regarding home delivery procedures in order to apply the HACCP steps to protect food delivered from COVID-19 in quick-service restaurants. To achieve that, 600 self-administered questionnaires were distributed to home delivery handlers to ensure that proper hygienic home delivery practices during procedures are applied. The data were analyzed by SPSS program version 20. The result indicated that home delivery handlers know the right knowledge regarding avoiding COVID-19but they did not know how to apply it .As the total score of Attitudes and knowledge of food handlers mean is 4.52and, it is an excellent score, while the score of home delivery practices means is 3.86 and mean 3.32 in-home delivery area and equipment.

Keywords: Home Delivery, COVID-19, Quick Service Restaurants, Food Hygienic Practices, Food Handlers.

Research objectives

1. The research objectives are to:
2. Assessment of food safety and COVID-19 knowledge and attitudes of home delivery food handlers.
3. Assessment of food safety practices of home delivery food handlers' actual application of these procedures.
4. Assessment the role of restaurant management and its policy in entitles home delivery handlers to the importance of the avoid COVID-19.

Introduction

Corona virus COVID-19

It is highly improbable that people can contract COVID-19 from the restaurants' food or food packaging. COVID-19 is a respiratory illness, and the transmission route is from person-to-person contact and through direct contact with an infected person coughs or sneezes.

There is no evidence to date of viruses that cause respiratory illnesses being spread via food or food packaging. COVID-19 viruses need an animal or human host to multiply and cannot multiply in food(World Health Organization (WHO), 2020[a]).

Recent research evaluated the existence of the COVID-19 virus on different surfaces and described that the virus could remain viable for up to 72 hours on stainless steel and plastic, up to four hours on copper, and up to 24 hours on cardboard. This research was directed under laboratory environments (controlled relative humidity and temperature) and should be interpreted with caution in the real-life environment(Fuchs, 2020[a]; World Health Organization (WHO), 2020[a]).

It is imperative for the quick service restaurants industry to reinforce personal hygiene measures and provide training on food hygiene principles to avoid or decrease the risk of food surfaces and home delivery packaging materials becoming contaminated with the virus from food workers.

Personal protective equipment (PPE), such as gloves and masks, can reducing the spread of viruses and disease within the quick service restaurants industry, but only if used accurately(World Health Organization (WHO), 2020[b]).

The coronavirus-disease (COVID-19) is a highly infectious respiratory disease. Common symptoms include fever, shortness of breath, a dry cough, and extreme tiredness. The first patient suffering from the disease was identified on December 2019 in Wuhan (Fuchs, 2020[b]; Zhu et al., 2020). A new respiratory coronavirus is rapidly spreading throughout the world (Fuchs, 2020[a]; Tabish, 2020).

Unlike the most common way of going to a restaurant, for getting take away or ordering delivery. People order food delivery service since they don't like to cook; primarily clients could have food delivered directly to their home or office in less than 60 minutes (Rathore & Chaudhary, 2018).

The benefit of food delivery applications

Easy to use, flexible payments, real-time tracking, loyalty points, and adequate customer support(Gupta, 2019).

1. Easy to use: The food ordering with mobile apps is easier to use and offer high convenience with time, effort saving and more for the customers satisfaction.
2. Flexible payments: mobile apps offer flexible payment options for the customers to be able to pay using various modes of payments, best suitable for them.
3. Real-time tracking: the consumers can track the delivery boy bringing their food, along with helping the delivery handlers to track down the exact address of the customers.
4. Loyalty points: Online food ordering often offers loyalty points for encouraging customers to use the mobile app more.
5. Adequate customer support With 24/7 customer support facilities such as the mobile apps, answering to customers queries, and assisting them in any need or comments (Curtis, 2016; Fuchs, 2020c).

Online ordering has been growing as a requirement have a factor for the restaurants. Online ordering has taken the restaurants by a storm. Technology develops the food delivery service, puts a buried impact on the business industry, technology has changed the entire frame of quick-service restaurants industry. A technically developed online food ordering system has changed the quick service restaurant culture gives a new unique comfort zone to customers across the globe (Curtis, 2016).

With an online food ordering system, a restaurant can be set up, and the customers can easily order. Also, with a quick service restaurant menu online, orders can be easily tracked, it upholds customers' database. The quick-service restaurants can even modify the online restaurant menu and upload images simply. Customers can easily access a restaurant menu on the internet and place orders at their convenience (Singh et al., 2017).

Impact on restaurant

Customer Experience

1. If customers like the service, they will come back and also recommend the restaurant to their world.
2. People do not want to spend 5-6 minutes as they place their order over the phone by looking at the ordering menu and pause whatever work they were doing.
3. One thing online ordering will undoubtedly do is "up your game" when it comes to providing a better service by making the ordering process convenient.
4. When customers pick up their smartphones to use the restaurant online ordering system, they will do it.

5. Customers can order their favorite food by clicking on the screen a few times and they do it from their homes(Hill, 2015; Trejos, 2015).

Positive and Negative Effects of food delivery app on restaurant

Optimistic: When done right, delivery can help restaurant operators cultivate customer loyalty and enhance profitability: It is just one click away and it's fast, easy and comfortable.

Negative: The outlook for fine dining restaurants is vital because they place a premium on taste, while new ordering and delivery platforms mainly focus on convenience and price, the delivery business is growing so fast, it's giving restaurants cause to rethink their expansion strategies too(Gupta, 2019).

Online food delivery mobile applications have become popular. There are wide varieties of restaurants now delivering online services (Hill, 2015; Priyadharshini, 2017). Many restaurants are witnessing an increase in business, as ordering food online becomes more and more popular. An online food menu is created in each mobile application(Jacob et al., 2019).

Mobile applications like Zomato, Swiggy, and Uber Eats provide the customers countless varieties of dishes from different nearby restaurants and customers can easily place the order; most users favor online apps to get food delivered right at their door instantly. This, in a way, has boosted the restaurant business widely(Priyadharshini, 2017).

These mobile applications provide a tracking system where the customers become more acquainted with each progression of delivery. They place the order in the respective restaurant and customers can track the order. The payment options include either online or by cash-on-delivery (COD) systems (Jacob et al., 2019).

Good staff hygienic practices include:

- Proper hand hygiene – washing with soap and water for more than 20 seconds (follow WHO advice);
- Frequent use of alcohol and hand sanitizers.
- Good respiratory hygiene (cover mouth when coughing or sneezing; dispose of tissues and wash your hands).
- Frequent cleaning of work surfaces and touchpoints.
- Avoiding close contact with anyone showing symptoms of respiratory illness such as coughing and sneezing(World Health Organization (WHO), 2020a).

Cleaning is the removal of foreign material. This includes dust, soil, and organic material that may include blood, secretions and microorganisms. Cleaning reducing the microorganism load on a surface(World Health Organization (WHO), 2020b).

Disinfection is a process used on inanimate objects and surfaces to kill microorganisms. Disinfection will kill most disease-causing microorganisms but may not kill all bacterial spores. Only sterilization will kill all forms of microbial life(World Health Organization (WHO), 2020c).

- Clean first and then disinfect: organic material de-activates disinfectant solutions.
- Proper contact time: different products require varying 'wet' times to kill microorganisms.
- Proper mixture: the concentration is strong enough to clean but not so healthy to be harmful to staff and patients.
- Regular changes in cleaning equipment and tools.
- Use of the accurate Personal Protective Equipment (PPE) to protect healthcare workers (Fuchs, 2020c).

Risk communication uses many communications techniques such as media, mass communications, social media communications, and community engagement. It requires the understanding of concerns and beliefs, knowledge and practices (World Health Organization (WHO), 2020d).

The contamination levels of the disinfectant solution and equipment used for cleaning can be minimized by:

- Starting the cleaning task by wearing disposable gloves and performing hand hygiene
- Ensuring proper disinfectant mixing
- Frequently changing the disinfectant solution
- Frequently changing the cleaning mop heads
- Not dipping a soiled cloth into the disinfectant solution(World Health Organization (WHO), 2020c).

The speedy propagation of the coronavirus, along with its ability to infect most of the countries in the world remarkably fast, has inspired the novel proposed in this work, named Coronavirus Optimization Algorithm (CVOA) (Martínez-Álvarez et al., 2020).

When showing to fast-changing information, be it a new technology or an emerging crisis before acting on disapprovingly about the source of information could think it (Reeves et al., 2020).

Humans avoid face-to-face social relations and use instead of telephone and social media, messenger and video communication software such as WhatsApp, Telegram, Zoom, and Skype. Social distancing is communication and sociality at a distance, not a distancing from the other humans(Fuchs, 2020b).

Communication technologies play an essential role in the restaurants under the exceptional conditions that the coronavirus crisis poses for society and individuals. Primary means of communication are by and large avoided. There is the wide use of mediated communication with the help of secondary, tertiary means of communication (Li et al., 2020). Generally, Quick Service Restaurants should arm themselves with an internal COVID-19 response team, which includes a member from every department critical to the restaurant business. This team should be responsible for keeping a pulse on continually brainstorming adjustments to strategy and presenting to managers to take action (Mangan, 2020).

Research framework and hypothesis

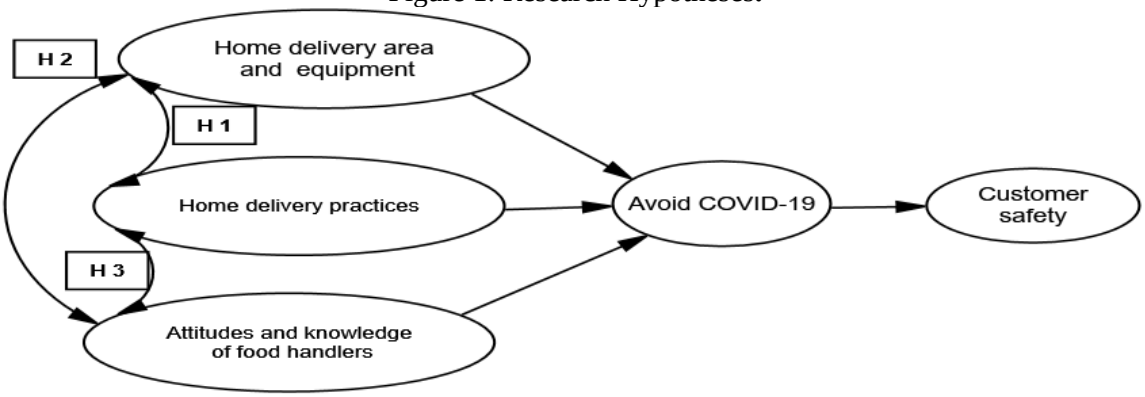
There are statistically significant relationships between home delivery area, home delivery handlers knowledge, attitudes, and practices of food safety against COVID-19 of selected restaurants, as shown in Figure 2.

H 1: There is a statistically significant relationship between the home delivery area and home delivery practices.

H 2: There is a statistically significant relationship between the home delivery area and attitudes and knowledge of food handlers.

H 3: There is a statistically significant relationship between the home delivery practices and attitudes and knowledge of food handlers figure 1.

Figure 1: Research Hypotheses**.**



Materials and methodology

Questionnaires provide an efficient way of collecting a large amount of data from a sizable population of home delivery workers in a highly economical way. The questionnaire consists of three parts or dimensions: home delivery area and equipment, home delivery practices and attitudes and knowledge of food delivery handlers.

A pilot study was conducted in this study in February 2020. The pilot study aimed to find out where and how could evaluate the relationship of knowledge, attitudes and practices of home delivery handlers regarding avoid COVID-19 in Quick Service Restaurants. Moreover, to ensure that the survey was well designed and easily understood by potential respondents, to examine the reliability and validity of the research tools as well as to develop and refine measure of the questions. Questionnaire was reviewed by some academic scholars to establish their appropriateness, clarity and to ease the understanding. Some amendments were suggested and then were implemented. Questionnaire was then pre-tested in order to investigate the respondent's understanding of scale items and to identify also any issues that was complex or confusing in order to develop appropriate scale items to ensure the validity and reliability of the research. For this purpose, a self-administered questionnaire was distributed to a sample of home delivery handlers and supervisors. A number of 40 forms were distributed to respondents who were asked to complete them. Only, 32 completed forms were valid which represents 80% rate of response.

The field study was accomplished through a survey by phone calls, social media networks, and emails. The target population for this study was Home delivery handlers at Egyptian restaurant from March to May 2020. A cross-sectional study of home delivery handlers in the Quick service restaurants that serve Home delivery was conducted questionnaire forms which distributed on the internet on face book, e–mail and google drive https://docs.google.com/forms/d/1ShBPwCZvH5Pb2UP011wDu4zH8hgrI4ZZTRfsqSCRsdg/edit to evaluate the relationship of knowledge, attitudes and practices of home delivery handlers regarding avoid covid-19 in quick service restaurants.A number of 600 questionnaire forms were received only 434 completed forms were valid (72.33 %valid rate).The collected data were analysed using SPSS version 20. A survey was carried out on quick-service restaurants home delivery handlers in order to evaluate the relationship of knowledge, attitudes and practices of home delivery handlers regarding avoid COVID-19.

Study instrument reliability

For all scales, Cronbach's Alpha, the correlation coefficient was calculated to regulate the internal consistency of the scale; the Reliability coefficient is 0.99; it is over0.70; it is considered "strongly acceptable" in most social science situations. The Cronbach's Alpha reliability was

computed and the tests showed that the reliability coefficients for all the instruments were above 0.99, which indicates that the instrument was reliable for being used. Cronbach alpha for all survey instruments was shown in the following table: 1.

Table 1: Reliability Statistics

Cronbach's Alpha	No. of Items	No of questionnaires
.994	69	434

Results:

This part of the study included the results of the questionnaire forms, which were distributed to evaluate the relationship of knowledge, attitudes and practices of home delivery handlers regarding avoid covid-19 in quick-service restaurants. Statistical package of social sciences (SPSS) version 20.0 for windows was used to analyze and compute the collected data, except for the open question. Frequencies counts and percentage distributions were used to evaluate the relationship of knowledge, attitudes and practices of home delivery handlers regarding avoiding COVID-19 in Quick Service Restaurants.

Table 2: Respondent's Demographic Data Analysis

Personal data		Frequency	Percent (%)
Age	Less than 20 years	192	44.2
	From 20 years to less than 35 years	226	52.1
	From 35 years to less than 45 years	16	3.7
	Total	434	100.0
Qualification	Master or PhD	12	2.8
	High qualified	318	73.3
	Qualification above average	52	12.0
	Middle Certification	36	8.3
	Without a degree	16	3.7
	Total	434	100.0
Function	Manager	12	2.8
	Supervisor	52	12.0
	Team member	370	85.3
	Total	434	100.0

The distribution of the studied delivery handlers according to demographic data (n = 434) indicated that the percentage of studied delivery handlers was 96.30 % at the age of fewer than 35 years. High educated delivery handlers have a great percentage of 73.3% of all food handlers; the lowest percentage was 2.8 % Master or PhD. The most significant percentage was 85.3% of the job team member and the lowest percentage was the manager 2.8% table (2).

The distribution of the Respondent's ordering preferences indicated that customers prefer eating the highest percentage of studied requesting home delivery was 64.1%; while the lowest was take his request from the restaurant outside (take away) by percentage 12.9 %. Regarding how customers prefer to order home delivery by calling directly to your favorite restaurant has a great percentage of 59.4% table (3).

Table 3: Respondent's ordering preferences

Ordering preference		Frequency	Percent (%)
How customers prefer eating	Eat it at the restaurant	100	23.0
	Take his request from the restaurant outside (take away)	56	12.9
	Requesting home delivery	278	64.1
	Total	434	100.0
How customers	The web browser is used to purchase food	20	4.6
	Food delivery applications	140	32.3

Ordering preference		Frequency	Percent (%)
prefer to order home delivery	By calling directly to your favorite restaurant	258	59.4
	Others	16	3.7
	Total	434	100.0

According to the first dimension: Home Delivery Area and Equipment table (3) showed that (92.63%) of studied samples of home delivery handlers indicated that in accordance to the 1st acceptance average level was the restaurant have a delivery area, with a mean (4.63) and Std (0.64). In the 2nd position with (83.41%) indicate that the uniform is uniformly clean and antiseptic, with a mean (4.17) and Std (0.93). About the 3rdpriority (80.41%) of them indicated that the floors are always clean and dry, and dirt and debris are removed and chlorinated efficiently, with a mean (4.02) and Std (0.87). Followed in the 4th importance (73.27 %) of them indicated that the delivery motorcycle and box is clean and continuously cleansed, with a mean (3.66) and Std(0.81). Concerning the 5th agree level with (73.04 %) of them indicated that the delivery bag is clean and continually sanitized, with a mean (1.87) and Std (0.88).

On the other hand, in the last position, there is a health supervisor or doctor to follow by percentage (37.42), with a mean (1.87) and Std (0.88). Is there no smoking in the delivery service area is the16th efficiency average by the percentage of (50.78%), with a mean (2.53) and Std (0.65). Regarding the 15nd agree position where is a thermometer available to measure temperature by a percentage of (56.91%) with a mean (2.84) and Std (1.40).In the 14th position is the restaurant having an internal COVID-19 response team, by a percentage of (58.57%) as agree average, with a mean (2.84) and Std (1.40). Concerning the 13thlevel, the agrees average was (59.26%) regarding agree with that is the delivery handlers assured personal distance, with a mean (3.14) and Std (0.70).

Regarding the second dimension: home delivery practices table (4) showed that in accordance with the 1st acceptance average level was do the drivers encourage the guest to buy meals through online delivery service. With (96.31%) average, mean (4.81) and Std (0.38). In the 2ndposition were that isolation and immediate analysis of those who show symptoms of corona infection, by a percentage of (94.1%) as agree average, with a mean (4.70) and Std (0.64). The application of food safety programs allows for a positive impact on the knowledge, attitudes, and practices of QS staff coming in the 3rdpriority to the respondents with agree average level (90.78%), mean (4.53) and Std (0.65). Followed in the 4th importance with (90.41%) as an acceptance average, do delivery handlers feel anxious while trading cash, with a mean (4.52) and Std (0.67). Concerning the 5th agree level was smoking in designated areas only and not during food handling by average (87.65%), with Std (0.73) and mean (4.38).

On the other side, the last position was that develop a Prevention Plan through having medical exams measured continuously, by percentage (56.31), with a mean (2.81) and Std (0.49). The temperature of the workers is measured continuously is in the 30th efficiency average by the percentage of (56.96%), with a mean (2.84) and Std (0.75).Regarding 29th agree position where that medical survey of all employees is done regularly by a percentage of (60.65%) with a mean (3.03) and Std (0.63).In the 28thpositionis the money being cleaned and disinfected continuously in the case of not dealing with electronic payment by a percentage of (65.25 %) as agree average, with a mean (3.26) and Std (1.55). Concerning the 27th level, agrees average was (65.99%) regarding agree with that is the shoe thoroughly disinfected with chlorine to avoid the transmission of the virus, with mean (3.30) and Std (0.85).

According to the third dimension: Attitudes and knowledge of food handlers the results in a table (5) showed that in accordance with the 1st acceptance average level was that have delivery handlers been educated about coronavirus and how to avoid it, with (98.16 %) average, mean

(4.90) and Std (0.29). In the 2nd position was that did delivery handlers know that spray should be avoided, by a percentage of (97.24 %) as agree average, with a mean (4.86) and Std (0.34).coming in the 3rd priority to the respondents both of that when sneezing, it is preferred in a tissue used once. In the absence of it, the elbow is used and the hand is not used, and when sneezing, delivery handlers should not sneeze on food surfaces, with agree average level (96.50%), mean was (4.82) and Std (0.38).Followed in the 4th importance with (96.31%) as an acceptance average for both of did delivery handlers know that hands should be washed, dried, and cleaned well after washing them while handling cash, and Did delivery handlers know that hands should be cleaned well with alcohol after circulation of cash in the absence of soap and water, with a mean (4.81) and Std (0.38).Concerning the 5th agree level were both of did the delivery handlers know that hands should be cleaned well with alcohol after circulation of cash in the absence of soap and water, and did delivery handlers know that hands should be thoroughly cleansed with alcohol after the bell rings or touch any door handles in case, water and soap are not available by average (94.47 %), with Std (0.44) and mean (4.72).

On the other side, the last position was that do delivery handlers know the importance and how to use chlorine, alcohol and antiseptics by percentage (77.42), with a mean (3.87) and Std (0.77). Do delivery handlers food safety training programs or courses such as communication and the Prevention Plan was in the 12th efficiency average by percentage of (82.03%), with a mean (4.10) and Std (0.74). Regarding 11th agree position where that did delivery handlers know that the shoes should be thoroughly disinfected with chlorine to avoid the transmission of the virus by a percentage of (83.59%) with a mean (4.18) and Std (0.89). In the 10th position is did delivery handlers know that wearing gloves should be worn while handling food by a percentage of (82.67%) as agree average, with a mean (4.13) and Std (0.87). Concerning the 9th level agrees average was (85.25%) regarding agreeing with that both of was food safety and hygiene awareness assured and did delivery handlers know that the face should be covered with a mask while handling food. With mean (4.26) and Std (0.86).

Table (3): Distribution of the studied handlers according to home delivery area and equipment(n = 434)

		Never		Rarely		Sometimes		Usually		Always		Mean	SD	Av%	Rank
		No.	%	No.	%	No.	%	No.	%	No.	%				
	The first dimension: home delivery area and equipment														
1.	Does your restaurant have a delivery area?	0	0.0	0	0.0	40	9.2	80	18.4	314	72.4	4.631	0.647	92.63	1
2.	Is the uniform uniformly clean and antiseptic	0	0.0	0	0.0	160	36.9	40	9.2	234	53.9	4.171	0.939	83.41	2
3.	Are the floors always clean and dry, and dirt and debris are removed and chlorinated efficiently?	0	0.0	0	0.0	160	36.9	105	24.2	169	38.9	4.021	0.871	80.41	3
4.	Are the delivery motorcycle and box clean and frequently cleansed?	0	0.0	0	0.0	240	55.3	100	23.0	94	21.7	3.664	0.811	73.27	4
5.	Is the delivery bag clean and continually sanitized?	0	0.0	0	0.0	220	50.7	145	33.4	69	15.9	3.652	0.739	73.04	5
6.	Is the floor area of the delivery service suitable and compliant with the health specifications and in good condition without drilling and smooth?	0	0.0	40	9.2	176	40.6	174	40.1	44	10.1	3.512	0.799	70.23	6
7.	Are the tools and devices in proper and safe condition usable?	0	0.0	0	0.0	290	66.8	100	23.0	44	10.1	3.433	0.670	68.66	7
8.	Are there any maintenance issues with delivery service tools?	0	0.0	80	18.4	160	36.9	194	44.7	0	0.0	3.263	0.751	65.25	8
9.	Is the first aid box available in the delivery service area?	0	0.0	120	27.6	120	27.6	194	44.7	0	0.0	3.171	0.834	63.41	9
10.	Is the delivery service area adequately designed to prevent infection from spreading?	160	36.9	0	0.0	80	18.4	0	0.0	194	44.7	3.157	1.802	63.13	10
11.	Are there any written instructions to prevent the spread of infection with the Coronavirus?	160	36.9	60	13.8	0	0.0	0	0.0	214	49.3	3.111	1.892	62.21	11
12.	Are disinfection and sterilization devices available in the delivery service area?	0	0.0	100	23.0	190	43.8	144	33.2	0	0.0	3.433	1.172	62.03	12
13.	Is the delivery handlers assured personal distance?	80	18.4	0	0.0	210	48.4	144	33.2	0	0.0	3.148	0.704	59.26	13
14.	Is the restaurant having an internal COVID-19 response team?	0	0.0	100	23.0	265	61.1	69	15.9	0	0.0	2.929	0.621	58.57	14
15.	Is a thermometer available to measure temperature?	140	32.3			125	28.8	125	28.8	44	10.1	2.846	1.402	56.91	15
16.	Is there no smoking in the delivery service area?	40	9.2	120	27.6	274	63.1	0	0.0	0	0.0	2.539	0.659	50.78	16
17.	Is there a health supervisor or doctor to follow?	200	46.1	90	20.7	144	33.2	0	0.0	0	0.0	1.871	0.882	37.42	17

Table (4): Distribution of the studied handlers according to home delivery practices (n = 434)

		Never		Rarely		Sometimes		Usually		Always		Mean	SD	Av %	Rank
		No.	%	No.	%	No.	%	No.	%	No.	%				
	The second dimension: home delivery practices														
1	Do the drivers encourage the guest to buy meals through an online delivery service?	0	0.0	0	0.0			80	18.4	354	81.6	4.816	0.388	96.31	1
2	Isolation and immediate analysis of those who show symptoms of corona infection	0	0.0	0	0.0	44	10.1	40	9.2	350	80.6	4.705	0.642	94.10	2
3	The application of food safety programs allows for a positive impact on the knowledge, attitudes, and practices of QS staff.	0	0.0	0	0.0	40	9.2	120	27.6	274	63.1	4.539	0.659	90.78	3
4	Do delivery handlers feel anxious while trading cash	0	0.0	0	0.0	44	10.1	120	27.6	270	62.2	4.521	0.673	90.41	4
5	Smoking in designated areas only and not during food handling.	0	0.0	0	0.0	64	14.7	140	32.3	230	53.0	4.383	0.730	87.65	5
6	Is a glove worn while handling food?	0	0.0	20	4.6	40	9.2	140	32.3	234	53.9	4.355	0.831	87.10	6

		Never		Rarely		Sometimes		Usually		Always		Mean	SD	Av %	Rank
		No.	%	No.	%	No.	%	No.	%	No.	%				
7	Is the uniform cleaned and disinfected continuously	0	0.0	0	0.0	112	25.8	116	26.7	206	47.5	4.217	0.829	84.33	7
8	Are fresh and safe food raw materials chosen when handling food?	0	0.0	0	0.0	92	21.2	163	37.6	179	41.2	3.613	1.220	84.01	8
9	Is a unique and clean uniform worn during food handling?	0	0.0	0	0.0	116	26.7	120	27.6	198	45.6	4.189	0.830	83.78	9*
1	Do delivery handlers make sure to leave the safe distance during trading and dealing more than a meter according to the WHO Bulletin 2020	0	0.0	0	0.0	116	26.7	120	27.6	198	45.6	4.189	0.830	83.78	9*
1	Are delivery handlers encouraging customers to serve the delivery service in particular these days in the presence of corona	0	0.0	0	0.0	160	36.9	64	14.7	210	48.4	4.115	0.917	82.30	10
1	Do you observe following the health rules to prevent the spread of infection?	0	0.0	0	0.0	100	23.0	180	41.5	154	35.5	4.124	0.756	82.49	11
1	Is the delivery bag cleaned and disinfected continuously	0	0.0	0	0.0	120	27.6	170	39.2	144	33.2	4.055	0.779	81.11	12
1	Is clean and safe water used?	0	0.0	0	0.0	80	18.4	260	59.9	94	21.7	4.032	0.633	80.65	13
1	It is concerned with applying the appropriate system for the effectiveness of food safety programs positively to avoid corona.	0	0.0	0	0.0	200	46.1	40	9.2	194	44.7	3.986	0.954	79.72	14
1	Eating only in designated areas, not while handling food.	0	0.0	0	0.0	160	36.9	130	30.0	144	33.2	3.963	0.837	79.26	15
1	Are tools and devices disinfected and sterilized in the delivery service area?	0	0.0	0	0.0	200	46.1	65	15.0	169	38.9	3.929	0.920	78.57	16
1	Are food safety programs supported to avoid corona	0	0.0	0	0.0	184	42.4	131	30.2	119	27.4	3.850	0.823	77.00	17
1	Are the hands thoroughly washed with water and soap for not less than 20 seconds and continuously cleansed?	0	0.0	0	0.0	200	46.1	110	25.3	124	28.6	3.825	0.847	76.50	18
2	Is the motorcycle cleaned and disinfected continuously?	0	0.0	0	0.0	184	42.4	166	38.2	84	19.4	3.770	0.752	75.39	19
2	Is the junction box cleaned and disinfected continuously	0	0.0	0	0.0	200	46.1	140	32.3	94	21.7	3.756	0.787	75.12	20
2	Is electronic payment being used to reduce money circulation?	0	0.0	0	0.0	212	48.8	143	32.9	79	18.2	3.694	0.760	73.87	21
2	Will the glove be changed after every cash transaction?	0	0.0	92	21.2	104	24.0	94	21.7	144	33.2	3.668	1.146	73.36	22
2	Is disinfection and sterilization in the delivery service area frequently?	0	0.0	60	13.8	180	41.5	75	17.3	119	27.4	3.583	1.035	71.66	23
2	Are floors always cleaned and dried, and dirt and debris removed and chlorinated efficiently?	0	0.0	0	0.0	290	66.8	50	11.5	94	21.7	3.548	0.826	70.97	24
2	Is a schedule for cleaning, disinfection and sterilization of machines, visions, boxes, helmets, and tools periodically followed and its implementation followed up?	0	0.0	80	18.4	210	48.4	0	0.0	144	33.2	3.479	1.133	69.59	25
2	Do clean and disinfect surfaces and tools before and after circulation.	0	0.0	0	0.0	340	78.3	0	0.0	94	21.7	3.433	0.825	68.66	26
2	Is the shoe thoroughly disinfected with chlorine to avoid the transmission of the virus?	0	0.0	112	25.8	80	18.4	242	55.8	0	0.0	3.300	0.853	65.99	27
2	Is the money being cleaned and disinfected continuously in the case of not dealing with electronic payment	112	25.8	0	0.0	128	29.5	50	11.5	144	33.2	3.263	1.553	65.25	28
3	A medical survey of all employees is done regularly	0	0.0	80	18.4	260	59.9	94	21.7	0	0.0	3.032	0.633	60.65	29
3	The temperature of the workers is constantly measured	0	0.0	160	36.9	180	41.5	94	21.7	0	0.0	2.848	0.751	56.96	30
3	Develop a Prevention Plan through have medical exams measured continuously?	0	0.0	100	23.0	314	72.4	20	4.6	0	0.0	2.816	0.493	56.31	31

Table (5): Distribution of the studied handlers according to attitudes and knowledge of food handlers (n = 434)

		Never		Rarely		Sometimes		Usually		Always		Mean	SD	Av %	Rank
		No.	%	No.	%	No.	%	No.	%	No.	%				
	The third dimension: Attitudes and knowledge of food handlers														
1.	Have you been educated about coronavirus and how to avoid it?	0	0.0	0	0.0	0	0.0	40	9.2	394	90.8	4.908	0.290	98.16	1
2.	Did you know that spray should be avoided?	0	0.0	0	0.0	0	0.0	60	13.8	374	86.2	4.862	0.346	97.24	2
3.	When sneezing, it is preferred in a tissue used once. In the absence of it, the elbow is used and the hand is not used	0	0.0	0	0.0	0	0.0	76	17.5	358	82.5	4.825	0.381	96.50	3*
4.	When sneezing, you should not sneeze on food surfaces	0	0.0	0	0.0	0	0.0	76	17.5	358	82.5	4.825	0.381	96.50	3*
5.	Did you know that unhealthy handling of food makes people more susceptible to diseases and viruses such as corona?	0	0.0	0	0.0	0	0.0	80	18.4	354	81.6	4.816	0.388	96.31	4*
6.	Did you know that hands should be washed, dried, and cleaned well after washing them while handling cash?	0	0.0	0	0.0	0	0.0	80	18.4	354	81.6	4.816	0.388	96.31	4*
7.	Did you know that hands should be cleansed well with alcohol after circulation of cash in the absence of soap and water?	0	0.0	0	0.0	0	0.0	120	27.6	314	72.4	4.724	0.448	94.47	5*
8.	Did you know that hands should be thoroughly cleansed with alcohol after the bell rings or touch any door handles in case water and soap are not available?	0	0.0	0	0.0	0	0.0	120	27.6	314	72.4	4.724	0.448	94.47	5*
9.	Did you know that the helmet, box, and tools used must be disinfected in order to reduce the possibility of transmission of the virus infection?	0	0.0	0	0.0	0	0.0	200	46.1	234	53.9	4.539	0.499	90.78	6
10.	Did you know that you should not touch the nose, ear or eyes without washing the hand well while handling food?	0	0.0	0	0.0	80	18.4	76	17.5	278	64.1	4.456	0.786	89.12	7*
11.	Did you know that you should not touch the nose, ear or eyes without washing the hand well while handling food?	0	0.0	0	0.0	80	18.4	76	17.5	278	64.1	4.456	0.786	89.12	7*
12.	Did you know that pets should be kept out of the food preparation area?	0	0.0	0	0.0	96	22.1	60	13.8	278	64.1	4.419	0.829	88.39	8
13.	Did you know that the face should be covered with a mask while handling food?	0	0.0	0	0.0	120	27.6	80	18.4	234	53.9	4.263	0.865	85.25	9*
14.	Were food safety and hygiene awarenessassured?	0	0.0	0	0.0	80	18.4	160	36.9	194	44.7	4.263	0.751	85.25	9*
15.	Did you know that wearing gloves should be worn while handling food?	0	0.0	0	0.0	140	32.3	96	22.1	198	45.6	4.134	0.873	82.67	10
16.	Did you know that the shoes should be thoroughly disinfected with chlorine to avoid the transmission of the virus	0	0.0	0	0.0	140	32.3	76	17.5	218	50.2	4.180	0.891	83.59	11
17.	Do you receive food safety training programs or courses such as communication and the Prevention Plan?	0	0.0	0	0.0	100	23.0	190	43.8	144	33.2	4.101	0.744	82.03	12
18.	Do you know the importance and how to use chlorine, alcohol and antiseptics	0	0.0	0	0.0	160	36.9	170	39.2	104	24.0	3.871	0.770	77.42	13

Table (6) showed that the mean scores of studied delivery handlers were in the first rank Attitudes and knowledge of food handlers by mean4.52andSD 0.53; followed in the next position by home delivery practices,with a mean 3.86and SD 0.74; finally in the third position Home delivery area andequipmentbymean 3.32and SD 0.86.This agrees with withH1: There is an effect of home delivery handlers' knowledge, attitudes and practices regarding food safety and COVID-19 on the customer safety to avoid COVID-19 of selected restaurants.

Table (6): Descriptive analysis of the studied delivery handlers according to scores (n = 434)

		Range	Minimum	Maximum	Sum	Mean		Std. Deviation	Variance	Rank
		Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic	
hs1	Home delivery area and equipment	2.47	2.06	4.53	1443.65	3.3264	.04172	.86915	.755	3
hs2	Home delivery practices	2.19	2.69	4.88	1676.25	3.8623	.03593	.74854	.560	2
hs3	Attitudes and knowledge of food handlers	1.50	3.50	5.00	1961.78	4.5202	.02546	.53043	.281	1

Nonparametric tests regarding Independent samples comparing the (hs1) home delivery area and equipment vs. (hs2) home delivery practices and Attitudes and knowledge of food handlers. As well as (hs1) home delivery area and equipment vs (hs3) Attitudes and knowledge of food handlers. Furthermore, (hs2) home delivery practices vs (hs3) home delivery area and equipment. Results showed that T-test value was significant at (0.00) in each dimension. This means that is revealed a statistically significant difference between the dimensions.

Table 7: Paired Samples T- Test of the variables compared to each other (N: 434)

Paired Samples Statistics								Paired Samples Correlations	
		Mean	Std. Deviation	Std. Error Mean	t	df	Sig. (2-tailed)	Correlation	Sig.
Pair 1	hs1	3.3264	.86915	.04172	-68.569-	433	.000	.991	.000
	hs2	3.8623	.74854	.03593					
Pair 2	hs1	3.3264	.86915	.04172	-58.519-	433	.000	.929	.000
	hs3	4.5202	.53043	.02546					
Pair 3	hs2	3.8623	.74854	.03593	-44.505-	433	.000	.940	.000
	hs3	4.5202	.53043	.02546					

Moreover. Friedman Test as shown in table (8) show that the attitudes and knowledge of food handlers have the higher main rank and agree with H1: There is an effect of home delivery handler's knowledge, attitudes and practices regarding food safety and COVID-19 on the customer safety to avoid COVID-19 of selected restaurants.

Table (8): a. Friedman Test(N. 434).

Ranks		a. Friedman Test (N. 434).		
	Mean Rank	Chi-Square	df	Asymp. Sig.
hs1Home delivery area andequipment	1.00	868.000	2	.000
hs2Home delivery practices	2.00			
hs3 Attitudes and knowledge of food handlers	3.00			

Regarding the research hypothesis test, there are statistically significant relationships between home delivery area, home delivery handlers knowledge, attitudes and practices of food safety against COVID-19 of selected restaurants, as shown in table 9 and Figure1. Results showed that there is a significant correlation between the food preparation area and practice, there is a significant positive correlation between home delivery area and equipment and home delivery

practices and Attitudes and knowledge of home delivery handlers. With (r) values ranging from (0.929) to (0.991) (p<.01) **. Correlation was significant at the 0.01 level (2-tailed).

Table (9): Correlation between knowledge, practice and attitude of home delivery handlers

	r	p	H
home delivery area andequipmentvs home delivery practices	0.991**	0.000	Supported correlation
home delivery area and equipment vs Attitudes and knowledge of food handlers	0.929**	0.000	Supported correlation
home delivery practices vs Attitudes and knowledge of food handlers	0.940**	0.000	Supported correlation

r: Pearson coefficient **. Correlation is significant at the 0.01 level (2-tailed) (p<.01).

Table (10): Hypothesis test summary**.**

Null Hypothesis	Test	Sig.	Decision
The distribution of ha, h2 and h3 are the same	related samples Friedman's two-way analysis of variance by ranks	0.000	reject the null hypothesis

Asymptotic significances are displayed. The significance level is 0.05.

Discussion and Conclusion

The Cronbach's Alpha reliability was computed, and the tests showed that the reliability coefficients for all the instruments were above 0.99, which indicates that the instrument was reliable for being used.

According to The first dimension: Home Delivery Area and Equipment, the last position there is a health supervisor or doctor to follow by percentage (37.42); Is there no smoking in the delivery service area is the 16th efficiency average; Regarding 15th agree position where is a thermometer available to measure temperature; In the 14th position is the restaurant having internal COVID-19 response team; concerning the 13th level agrees average was that is the delivery handlers assured personal distance. Generally, Quick Service Restaurants should arm themselves with an internal COVID-19 response team to take action this agree with Mangan (2020); and World Health Organization (WHO) (2020c).

Rendering the second dimension: home delivery practices results showed that in accordance to the last position was that develop a Prevention Plan through have medical exams measured continuously, by percentage (56.31); The temperature of the workers is measured continuously is in the 30th efficiency average; Regarding 29th agree with the position where that medical survey of all employees is done regularly; In the 28thpositionis the money being cleaned and disinfected continuously in the case of not dealing; Concerning the 27th level agrees that is the shoe thoroughly disinfected with chlorine to avoid the transmission of the virus this agree with World Health Organization (WHO) (2020a); andWorld Health Organization (WHO) (2020d).

According to the third dimension: Attitudes and knowledge of food handlers, the results showed that in accordance to the last position was that do delivery handlers know the importance and how to use chlorine, alcohol and antiseptics by percentage (77.42); Do delivery handlers food safety training programs or courses such as communication and the Prevention Plan was in the 12th efficiency average; Regarding 11th agree with the position where that did delivery handlers know that the shoes should be thoroughly disinfected with chlorine to avoid the transmission of the virus;In the 10thposition is did delivery handlers know that wearing gloves should be worn while handling food;Concerning the 9th level agrees with that both of was food safety and hygiene awareness assured, and did delivery handlers know that the face should be covered with a mask while handling food this agreed with Reeves et al. (2020);World Health Organization (WHO) (2020d).

Results showed that the mean scores of studied delivery handlers were in the first rank Attitudes and knowledge of food handlers; followed in the next position by home delivery practices;

finallyinthe third position Home delivery area and equipment. This agrees with withH1: There is an effect of home delivery handlers knowledge, attitudes and practices regarding food safety and COVID-19 on the customer safety to avoid COVID-19 of selected restaurants.
There are statistically significant relationships between Home Delivery Handlers Knowledge, Attitudes and Practices of food safety against COVID-19 of selected restaurants. Results showed that there is a significant correlation between food preparation area and practice, there is a significant positive correlation between home delivery area and equipment; home delivery practices; attitudes and knowledge of home delivery handlers. With (r) values ranging from (0.929) to (0.991) ($p<.01$) Correlation was significant at the 0.01 level (2-tailed).

Recommendations

These recommendations might help managers to improve better knowledge, attitudes and practices of home delivery handlers regarding avoid COVID-19 in Quick Service Restaurants. These recommendations were as follows:

1. Home Delivery Area and Equipment need more care about**:**
   - A health supervisor or doctor should be available.
   - There should no smoking in the delivery service area.
   - A thermometer should be available to measure temperature.
   - The restaurant should have an internal COVID-19 response team.
   - Develop personalization and delivery handlers should assure personalization.
   - Quick Service Restaurants should arm themselves with an internal COVID-19 response team.
2. Quick Service Restaurants should more care regarding home delivery practices such as:
   - Develop a Prevention Plan.
   - Have medical exams measured continuously.
   - Regularly measured the home delivery handlers' temperature.
   - Medical survey of all employees should be done regularly.
   - the money being cleaned and disinfected continuously in the case of not dealing.
   - the shoe thoroughly disinfected with chlorine to avoid the transmission of the virus
3. Quick Service Restaurants should more care about the Attitudes and knowledge of food handlers
   - Delivery handlers should know the importance and how to use chlorine, alcohol and antiseptics.
   - Delivery handlers' food safety training programs or courses such as communication and the Prevention Plan are required frequently.
   - Delivery handlers should know that the shoes should be thoroughly disinfected with chlorine to avoid the transmission of the virus.
   - Delivery handlers know that wearing gloves should be worn while handling food;
   - Improve food safety and hygiene awareness;
   - Delivery handlers know that the face should be covered with a mask while handling food.
4. Assess the impact of COVID-19 on the restaurant business.
5. Consider the direct advantages and disadvantages.
6. Reevaluate the markets that remain strong.
7. Market to loyalty members.

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