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Knowledge and Practice Regarding Safe Food Handling During COVID-19 among General Population in India, A Descriptive Study

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ABSTRACT

Introduction: A novel corona virus (CoV) came into picture as a virus which caused severe outbreak of the illness in the Wuhan, a city of China in late December 2019 and it was officially named as 2019-nCoV by the World Health Organization (WHO, 2020). Food safety was among the four pillars of the food systems affected in the era of the corona virus (COVID-19) pandemic. The aim of the study was to assess the knowledge and practice regarding safety food handling during COVID-19 among general population in India.
Method: A quantitative descriptive research design was used which was conducted among general public in India. Total enumeration sampling technique was used and sample size was 290. Adults more than 18 years of age who were eligible to answer and fill in online basis and those who can access to the internet were included in the study. The tool used was online survey questionnaire.
Results: Total of 54.13 percent participants revealed that corona virus could be transmitted through food and drinks. Out of 290, 84.82 percent expressed that COVID-19 infected person could not handle food for cooking and serving purposes and 80.02 percent soaked vegetables or raw food in warm water before cooking. Out of these, 45 percent preferred egg.
Conclusion: The study concluded that more than half of the participants revealed that corona virus could be transmitted through food and drinks by one or other means.

Key words: Covid-19, Knowledge, Practice, Food handling.

INTRODUCTION

In late December 2019, a novel corona virus (CoV) came into picture as a virus which caused severe outbreak of the illness in the Wuhan, a city of China and it was officially named as 2019-nCoV by the World Health Organization [1]. On 30 January 2020, WHO declared COVID-19 as a six public-health emergency at international level. Food safety is among the four pillars of the food systems affected in the era of the corona virus (COVID-19) pandemic [2]. They summarized the proposed safety measures for the food sector during the pandemic, emphasizing the most critical precautions needed for each stage of the food supply chain from farm to fork. Actions are grouped in workers' medical condition (e.g., stay home if sick), personal hygiene (e.g., wash hands), disinfection of surfaces, keeping working environments clean, food preparation and delivery, and finally social distancing. To ensure food safety and limit the spread of corona virus at food services and retail sector has become a challenge where delicate and fresh food items are served and delivered to the customers, which have passed through a series of operational steps from order taking, food receiving, preparation of food, packing, delivery to customers. At each step, there is a possibility of food handlers to touch the food surface or food directly and if food handler is not following appropriate precautionary measures e.g. hand hygiene, sanitization and disinfection,

social distances, and is touching, then it can be a possible source of corona virus spread [3]. The need of this study was to gather the general information from the general public regarding food handling during COVID 19.

MATERIALS AND METHODS

Research approach: Quantitative Approach

Research Design: Descriptive research design

Setting of the study: India

Population: General public

Sampling technique: Total enumeration

Sample size: 290

Selection criteria: The present study included adults who were eligible to answer and fill in online basis, those who could access to the internet and those who know how to read and write English. This study excluded persons who were not willing to participate and children below 20 years.

Source of data: Data were collected through online Google format from general population.

Tool for data collection: In the study, online survey questionnaires were used for collection of data.

Methods of data collection: After getting formal permission from Institution, sthe data were collected from the general population based on inclusion and exclusion criteria. Data were being collected through online survey questionnaire after obtaining consent from the population. Later data were analyzed using descriptive statistics such as frequency and percentage.

Statistical Methods

Descriptive statistics such as frequency and percentage were used for the present study.

RESULTS

Table 1: Demographic Profile **n=290**

Sr no	Characteristics	Frequency (f)	Percentage (%)
1.	**Are you diagnosed with COVID- 19?**		
	Yes	6	2.06
	No	284	97.9
2.	**Have you traveled to International locations within last 14 days?**		
	Yes	6	2.06
	No	284	97.9
3.	**Age in years**		
	18 -30	55	19
	31 – 50	232	80
	Above 51	3	1
4.	**Gender**		
	Male	63	21.7
	Female	227	78.3
5.	**Educational status**		
	Professional	122	42.06
	Post Graduate	55	19
	Graduate	74	25.5
	12th standard	32	11.03
	Primary	2	0.7
	No formal education	5	1.72
6.	**Occupation**		
	Health care Industry	124	42.75
	Government Job	15	5.2
	Private	38	13.1
	Dependent	36	12.4
	Others	77	26.5
7.	**Religion**		
	Hindu	234	80.7
	Christian	33	11.4
	Sikh	3	1
	Buddhism	1	0.34
	Muslim	19	6.5
8.	**Monthly income**		
	Nil	41	14.1
	Less than 10,000	10	3.45
	10,001 - 50,000	220	75.86
	50,001 – 1 Lakh	16	5.51
	Above 1 Lakh	3	1.03

The total number of samples in the study was 290. Analysis and interpretation were done by using descriptive statistics such as frequency and percentage.

Table 1 showed that 97.9 percent of the participants did not get infected with COVID-19 and had no international travelled history in the last 14 days. The average age group was among 31-35 years of age. Total of 78.3 percent were female. Out of 290 participants, 42.75 percent were working in health care Industry. Total of 80.7 percent were belonged to Hindu.

Table 2: Knowledge Based Questionnaire **n=290**

Sr.no.	Questionnaire	Frequency(f)	Percentage (%)
1.	**Corona virus can be transmitted through food and drinks.**		
	Yes	157	54.13
	No	133	45.86
2.	**COVID-19 infected person can handle food for cooking and serving purposes?**		
	Yes	44	15.17
	No	246	84.82
3.	**Can an infected person transmit the virus to food and drinks?**		
	Yes	246	84.82
	No	44	15.17
4.	**Is there any risk of transmission from food products or ingredients which are imported from an affected country or region?**		
	Yes	223	76.89
	No	67	30.68
5.	**When should hand washing be strictly necessary? (You can choose more than one option)**		
	✓ Before washing food bought from market	155	53.44
	✓ Before cooking food	194	66.89
	✓ Before handling cooked or ready to eat	205	70.68
	✓ After coughing, sneezing or blowing nose	247	85.17
	✓ After handling or preparing raw food	144	49.65
	✓ After eating, drinking and smoking	140	48.27
6.	**Is it necessary to wear masks and gloves while handling raw food materials?**		
	Yes	214	73.79
	No	76	26.20
7.	**Is it important to wash hands after handling money and right before handling food?**		
	Yes	283	97.58
	No	7	2.41
8.	**Is it safe to buy or eat open food from outside/ street food?**		
	Yes	21	7.24
	No	269	92.75
9.	**Should shoppers disinfect food packaging after bringing it from market/store?**		
	Yes	221	76.20
	No	69	2379
10.	**Should an infected person share same dishes/utensils while eating food?**		
	Yes	28	9.65
	No	262	90.34

Table 2 depicts regarding the knowledge of the participants in terms of safety food handling practices. Total of 54.13 percent participants revealed that corona virus can be transmitted through food and drinks. Out of 290 participants, 84.82 percent expressed that COVID-19 infected person cannot handle food for cooking and serving purposes. A total of 73.79 percent participants said that wearing masks and gloves were necessary while handling raw food materials. Ninety percent of the participants thought that a CsOVID - 19 infected person should not share same dishes or utensils while eating food.

Table 3 explained regarding food handling practices followed by the participants. Half of the participants (57.24 %) were non-vegetarian. A total of 80.02 percent soaked vegetables or raw food in warm water before cooking. Out of these, 45 percent preferred egg. During COVID-19 outbreak, a total of 61.03 percent participants avoided eating chicken and preferred more on packaging food. Out of 290 participants, 88.28 percent took immunity booster or nutritional supplements during corona outbreak (Vitamin C, Fruits, Milk, Turmeric, Garlic, Ginger, Chawanprash, Tulsi and High protein diet).

Table 3: Practice Based Questionnaire **n=290**

Sr no	Questionnaire	Frequency (f)	Percentage (%)
1.	**Do you soak vegetables/raw food in warm water before cooking?**		
	Yes	238	80.02
	No	52	17.93
2.	**How do you consume raw vegetables after washing?**		
	Directly after washing in tap water	70	24.13
	After soaking in warm water	104	35.86
	After soaking in salt water	37	12.75
	After boiling	69	23.79
	Others	10	3.44
3.	**Are you pure vegetarian?**		
	Yes	124	42.75
	No	166	57.24
4.	**If no what is your food preferences? (You can choose more than one option)**		
	✓ Fish	85	29.31
	✓ Chicken	117	40.34
	✓ Egg	132	45.51
	✓ Pork	24	8.27
	✓ Mutton	54	18.62
	✓ Sea foods	38	13.10
	✓ Others	122	42.06
5.	**During COVID-19 outbreak, which food do you avoid? (You can choose more than one option)**		
	✓ Vegetables	15	5.17
	✓ Fish	148	51.03
	✓ Chicken	177	61.03
	✓ Egg	102	35.17
	✓ Pork	167	57.58
	✓ Mutton	166	57.24
	✓ Sea foods	175	60.34
	✓ Others	67	23.10
6.	**Do you prefer more on packaging food during COVID-19 outbreak?**		
	Yes	177	61.03
	No	113	38.97
7.	**Do you take open/street food during COVID-19 outbreak?**		
	Yes	20	6.90
	No	270	93.10
8.	**Do you take any of the following items to protect from COVID-19? (You can choose more than one option)**		
	✓ Turmeric	150	51.72
	✓ Ginger	161	55.51
	✓ Garlic	136	46.89
	✓ Onion	108	37.24
	✓ Tulsi	132	45.51
	✓ Aloe vera	67	23.10
	✓ Fruits	182	62.75
	✓ Others	61	21.03
9.	**What immunity booster / nutritional supplements do you take during corona outbreak?**		
	No Yes (Fruits, Vitamin C, Chawanprash, Turmeric milk, Ginger, Garlic, High Protein Diet, Warm water, Dry fruits	34 256	11.72 88.28
10.	**Do you take any vitamin supplements or others to protect from COVID-19? if yes, mention**		
	No Yes (Vitamin C) (Vitamin B) (Multivitamin)	35 244 6 5	12 84.1 02 01

DISCUSSION

In the study, it was found that the average age group was among 31 – 35 years of age. Total of 54.13 percent participants revealed that corona virus can be transmitted through food and drinks. A total of 80.02 percent soaked vegetables or raw food in warm water before cooking. Whereas in a study showed that the level of knowledge of food safety practices varies amongst the residents based upon their gender, age, place of residence, education level, and marital status [4]. Another study found that one hundred and eighty-eight (49.0%) had good food handling practice out of three hundred and eighty four food handlers [5]. However, only 29 percent of the hospital food handlers have attended a food safety-training course. Many food handlers were not knowledgeable on the correct temperature for handling foods, and on the

correct minimum internal cooking temperature for poultry, seafood and egg [6].

CONCLUSION

In the present study, the researchers concluded that more than half of the participants revealed that corona virus can be transmitted through food and drinks. Ninety percent of the participants thought that a COVID -19 infected person should not share same dishes or utensils while eating food. They practiced soaked vegetables or raw food in warm water before cooking. Participants avoided eating chicken and preferred more on packaging food. More than eighty percent took immunity booster or nutritional supplements during corona outbreak (Vitamin c, Fruits, Milk, Turmeric, Garlic, Ginger, Chawanprash, Tulsi and High protein diet).

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