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Original Research

Change in food consumption pattern during Covid-19 Pandemic in Indian Population - A web based descriptive study

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Abstract

Background: Emergence of Corona virus Disease 2019, a global pandemic has changed our lives in all terms rapidly and drastically among which lifestyle changes like food habits, physical activity and sleep pattern have been the prominent ones affecting both mental and physical health of the individuals adversely. The current study aimed to assess one such component of lifestyle behaviour i.e. change in food culture during COVID19 pandemic among Indian population. **Methodology:** A Web based survey was conducted through social media platforms. The pretested validated questionnaire was administered using google forms and consisted of sociodemographic details, self-reported anthropometric parameters and dietary habits of the participants aged 18 years and above. The responses for the questions were recorded for both pre-Covid and ongoing first wave of Covid infection period. The data was summarized in percentages or mean and standard deviation. Chi-square or t- test was used to assess the responses on food habits during the pre Covid and ongoing Covid infection period. **Results:** Among 357 participants, 51.5% were in the age group of 18 to 29 years, 40.3% reported perceived weight gain. 265 (74.2 %) reported change in food consumption pattern during ongoing Covid infection. 40.8% reported fear of infection as the main reason for change in food consumption pattern. **Conclusion:** Concerns related to personal hygiene and safety in such crisis situation had resulted in changing food practices which will have a huge impact on both Communicable and non-communicable disease trend in future.

Keywords: Covid-19, lifestyle, food habits.

Introduction

Emergence of Corona virus Disease 2019, a global pandemic has hit India hard with reporting of 10 million cumulative cases as per WHO(1). The first case of COVID 19 was reported on January 30, 2020 and ever since the number kept increasing exponentially with phases of waxing and waning(2).

Measures such as social distancing, social isolation and wearing masks were being adopted to limit the spread of the disease, however a huge impact on lives was observed with implementation of "Lockdown". Various restrictions and rules set in during Lockdown brought major changes in the lives of people, the most drastically affected ones being in the aspects of health, income and lifestyle(3,4).

Lifestyle changes especially changes in eating habits have been the prominent ones deteriorating both physical and mental health of the individuals adversely. Limited access to fresh foods due to trade restrictions, stress of increased chance of transmission of infection, overeating out of boredom due to home isolation, stockpiling of highly processed food, closure of food outlets and restaurants had huge impact on food consumption pattern(5,6). Very few studies have been carried out in India to assess the impact of COVID 19 on food consumption pattern. Thus this study was undertaken to determine the change in food culture during first wave of COVID 19 pandemic among Indian population.

Materials and Methods

A web based cross sectional descriptive study was conducted during 15th January to 31st July 2021. A pretested validated questionnaire developed by Kumari et al.(7) was administered using Google forms and disseminated through electronic media. The Google form consisted of brief introduction to the study for better understanding and participation of the study population followed by consent and the questionnaire section. Electronic media used for dissemination were WhatsApp, Telegram and Facebook.

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The study details were sent either as an individual message or a group message in order to achieve better representation of the study population. The responses were recorded from all the individuals above 18 years who consented and gave response within the study period. Incomplete responses were excluded (Fig 1).

The questionnaire used consisted of sociodemographic details, self-reported anthropometric parameters and details of dietary practices during COVID 19 pandemic. Data was analyzed using SPSS v20 and summarized as proportions, mean and standard deviation.

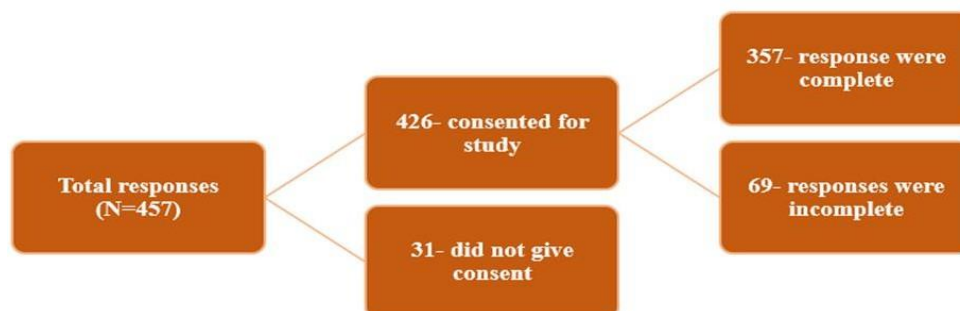


Figure 1: Flowchart showing selection of study participants based on their responses

Results

SOCIODEMOGRAPHIC DETAILS:

Among 357 participants, mean age was found to be 30.5 ± 7.9 years and 51.5% were in the age group of 18 to 29 years, 54.6% were females, 38.7% went to work as before, 29.4% were students, 17.1% worked from home, 50.1% were married. Majority (93.6%) had qualification of graduation and above, 77.3% were from nuclear family while 84% were from class I socioeconomic class⁽⁸⁾.

Mean BMI was found to be 25 ± 4.4 kg/m². Perceived change in weight as per participants was that 40.3% reported gain while 16.5% reported weight loss. (Table 1)

Table 1: Socio-demographic characteristics of the study population (N=357)

Sociodemographic characteristics	Categories	N (%)
Age in years	18 to 29	184(51.5)
	30-59	170(47.6)
	≥ 60	3(0.9)
Gender	Male	162 (45.4)
	Female	195(54.6)
Place of residence	Rural	45 (12.6)
	Urban	312 (87.4)
Employment during pandemic	Homemaker	15 (4.2)
	Resigned from job during pandemic	11 (3.1)
	Self employment/ business	19 (5.3)
	Student	105 (29.4)
	Unemployed	8 (2.2)
	Working as usual/ like before	138 (38.7)
Marital status	Married	175 (49)
	Single	179 (50.1)
	Widowed or divorced	3 (0.8)
Educational status	Lower primary (1 to 5 th standard)	1 (0.3)
	Upper primary (6 th to 8 th standard)	3 (0.8)
	Senior/higher secondary (11 th and 12 th standard)	19 (5.3)
	Graduation and above	334 (93.6)
Type of family	Joint	81 (22.7)
	Nuclear	276(77.3)
Socioeconomic status	Class I	300 (84)
	Class II	26 (7.3)
	Class III	18 (5)
	Class IV	3(0.9)
	Class V	10 (2.8)
BMI in Kg/m ²	≤ 18.49	16 (4.5)
	18.5-22.99	93(26.1)
	23- 24.99	67(18.8)
	25-29.99	119(33.3)
	≥ 30	41 (11.5)
	Did not report weight/ height	21 (5.8)
Perceived change in weight	Do not know	18(5.1)
	Gained	144 (40.3)
	Lost	59 (16.5)
	Remained same	136 (38.1)
Total		357 (100)

CHANGE IN FOOD CONSUMPTION PATTERN:

Out of 357 participants, 265 (74.2 %) reported change in food consumption pattern during ongoing Covid infection in one or the other way (Fig 2).

Among participants reporting change in their food pattern (Table 2), snacking habit was increased in 157 (78.5%) individuals (n=200), meal quantity was increased in 155 (74.5%) individuals (n=208), intake of balanced diet increased in 146 (78.9%) individuals (n=185), intake of junk food decreased in 149 (63.1%) individuals (n=236), emotional eating of unhealthy food increased in 110 (60.1%) individuals (n=183), immunity boosting food consumption significantly increased in 224 (96.5%) individuals (n=232)

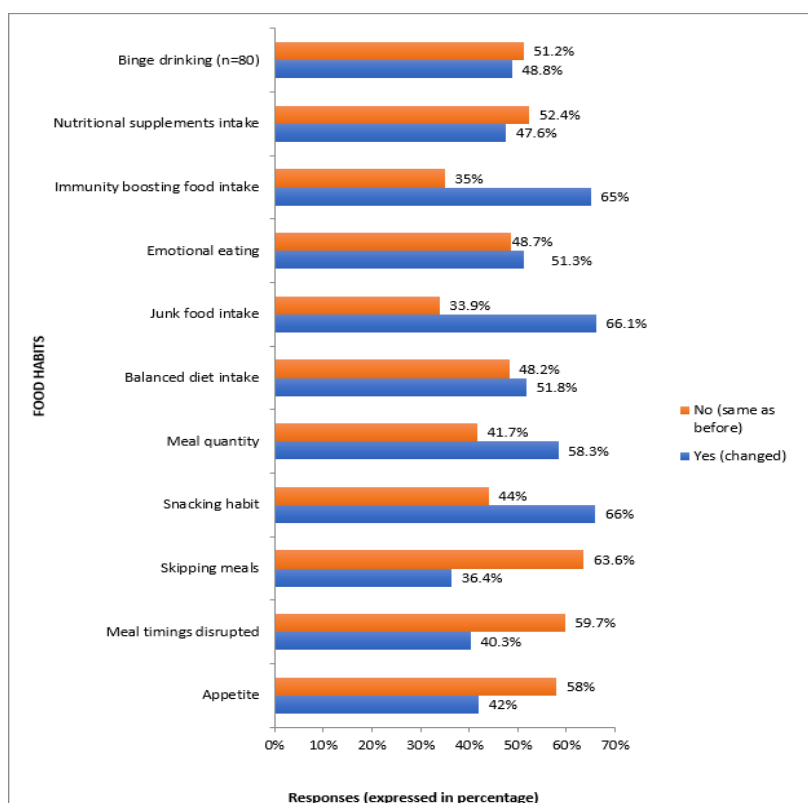


Figure 2: Responses of the study participants on change in their food consumption pattern during COVID 19 Pandemic (N=357)

Among 357 participants, participation in cooking new/ traditional recipes were reported by 234 (65.5%) individuals, support by family members in eating healthy was reported by 231 (64.7%), preference of consuming cooked food over raw food was seen in 251 (70.3%), use of handwashing practices (correct technique) while dealing with food stuffs increased in 352 (98.6%) individuals, adopting healthy eating habits tips from media was increased in 197 (55.2%) individuals.

Table 2: Direction (increased/ decreased) of change in food habits among study participants:

Food habits changed	No of Study participants reporting change (N=357)	Intake	
		Increased n (%)	Decreased n (%)
Snacking habit	200	157 (78.5)	43(21.5)
Meal quantity	208	155(74.5)	53 (25.5)
Balanced diet	185	146 (78.9)	39 (21.1)
Junk food	236	87(36.9)	149(63.1)
Emotional eating of unhealthy food	183	110(60.1)	73(39.9)
Immunity boosting food items intake	232	224 (96.5)	8(3.5)

REASONS FOR CHANGE IN FOOD HABITS DURING COVID 19 PANDEMIC :

Majority (40.8%) reported fear of infection as the main reason for change in food consumption pattern followed by other reasons (Fig 3)

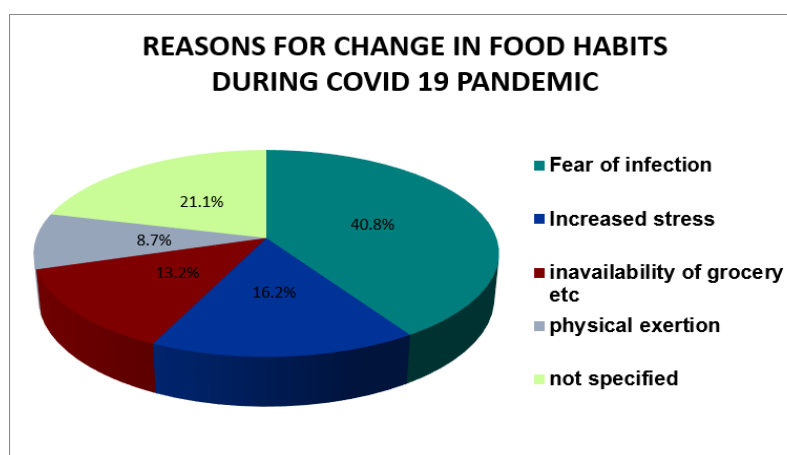


Figure 3: Reasons for change in food pattern among study participants during COVID pandemic (n=265)

Table 3: Other reasons under non-specified category for change in food pattern by study participants (N=56)

Other (non-specified) reasons	N(%)*
Staying at home, eating more with less physical activity	17(6.4%)
Availability of more free time	16(6%)
Overeating out of boredom	14(5.3%)
Exploring new food items and shifting to healthy diet	7 (2.6%)
No helper	2 (0.8%)
Total	56 (21.1%)

*Percentage calculated for 265 responses

Discussion

Covid pandemic had major impact on the health of the individuals. Of all the aspects affected, life style changes had been the predominant ones. The eating habits of the individuals are highly influenced by the pandemic due to Lockdown. Studies revealed that lockdown affected health adversely (9)

In our study, out of 357 participants, 265 (74.2 %) reported change in food consumption pattern during ongoing Covid infection. However the change observed is not unidirectional. Change in eating habits and other practices related to food consumption had been observed to be both health promoting as well as health deteriorating type in certain aspects.

Health promoting habits:

As reported by the participants, some individuals took social isolation as an opportunity to improve their eating habits which were not being able to follow by them due to their hectic daily routines in pre-covid period.

The major positive health promoting habits adopted were increased intake of balanced diet and immunity boosting food items, strictly following hand washing practices while cooking and eating, avoiding junk food, preferring cooked homemade food. Majority preferred and opted for consuming Balanced diet i.e. 146 (78.9%) in our study. In a study by Martinez-Steele et al. (2020), the consumption of vegetables, fruits and legumes increased on daily diet which is a health promoting habit.(10) Munasinghe et al. (2020) in his study found there were declines in fast food consumption following implementation of physical distancing but no substantial changes in fruit and vegetable consumption.(11) Jyothi S et al. in their study found that during COVID-19, there was a slight improvement in the consumption of foods and drinks that increase immunity, such as turmeric milk, lemon water, ginger, and garlic.(12) The emphasis and increased awareness through social media on consumption of food items which boosted the body immunity as an effective measure against Covid 19 infection was very much predominant during pandemic and was also reported in our study. A similar finding was reported in a study wherein about 71.8% of participants were consuming Kadha, a herbal concoction during COVID-19 as they considered it helpful in boosting immunity and effective in combating the viral infection specifically.(13)

Health deteriorating habits:

Snacking habits, emotional eating of unhealthy food, binge drinking and skipping meals were the health deteriorating habits observed in our study.

The rise in frequency of snacks and junk food intake may be due to stress as these products increase serotonin release, which reduces depression and anxiety. Pellegrini et al. (2020) revealed in their study that there was an increased consumption of snacks, cereals, and sweets which is similar to our study findings where snacking habit was increased in 78.5% of study participants. This can be because of stress which induces dietary alterations.(14) In contrast to this, the study by Kumar RR et al. (15) revealed that the individuals consumed fewer sugar-containing items in order to stay fit and also in the study conducted by Jyothi S et al.(12) adolescents' habits of consuming junk food and meat items were decreased during COVID 19 which can be due to health conscious study population. According to a study by Kumar RR(15) in India, the majority of participants lost weight during the pandemic. Cereal consumption has increased since it is easier to stock up on at home, whilst the consumption of bakery products like bread has fallen. However in present study, perceived weight gain (40.3%) was reported by study participants.

Meal quantity was increased in 75 % of the individuals in our study whereas the consumption pattern of cereals such as wheat, rice, maize, oats remained same during COVID-19 in a study by Jyothi S et al.(12) Fear of infection being the most common reason for change in food consumption pattern during the pandemic followed by increased stress and unavailability of grocery. Similar findings were reported by other studies (5,6). The fear of getting exposed to infection did not let the people follow their routine like grocery shopping from a market or getting food from the restaurants or outlets etc which led to the deviation from their routine food habits.

The authenticity of the responses from the participants cannot be assured as it was an online survey and many answers reported by them may be subjective.

Conclusion

Change in food habits was reported during the Covid pandemic by the study participants and this change observed was both in positive and negative ways (bidirectional).

Positive changes included increased intake of balanced diet and immunity boosting food items, strictly following hand washing practices while cooking and eating, avoiding junk food, preferring cooked food. On the other hand, negative changes being increased snacking habit, increase in main meal quantity and stress induced over eating of junk food, majority gained weight due to sedentary life.

These changes observed were due to multiple factors and were mainly influenced by concerns related to personal hygiene and safety from transmission of infection in such crisis situation. Further studies revealing population at risk for developing unhealthy eating habits and having a targeted health interventions planned for such individuals will be effective in case of emergence of new waves of Covid infections in future.

Conflict of interest: None

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