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## **AN ANALYTICAL STUDY OF CHANGES IN EATING HABITS DURING COVID 19**

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### **ABSTRACT**

This study is intended to understand the changes in eating habits prompted during the first and second wave of Covid19. Additionally it will analyze changes in the eating habits included in the study and offer suggestions aimed at strengthening immunity to help fight Covid19 infection through dietary changes.

This study reviews previous literature related to the topic of study. Overall 506 valid data were collected from respondents residing in the state of Maharashtra.

The findings suggest an increase in the consumption of vegetarian food, organic foods, health foods as well as vegan foods while a significant decrease has been noted in the consumption of processed foods, food from restaurants, road side eateries and leftover foods before Covid19.

### **KEYWORDS**

Covid, Pandemic, Health, Eating habits, Immunity



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## INTRODUCTION

At the beginning of 2020, the world was faced with an unprecedented health emergency. On March 11, 2020 WHO (World Health Organization) declared the outbreak of COVID 19 as a pandemic. In response, India enforced a national lockdown for 21 days which was further extended for months to contain the spread of the virus. This resulted in people being forced to stay indoors and also work from home due to restrictions on travel and gatherings. In order to minimize contact with the outside world and to create safety bubble most families and households willingly suspended availing the services such as those rendered by housemaids and cooks. The fear and anxiety of contracting the disease coupled with the heightened interest in taking all necessary precautions to prevent infection affected people in many ways and more importantly had a strong influence on their eating habits.

Eating habit can be understood as the way a person or group eats regularly, expressed in terms of consistent food preferences or choices, number of meals as well as quantity of food consumed etc. Unhealthy eating habits are responsible for major health issues such as heart disease, hypertension, diabetes etc. Individuals with such underlying health problems were reported to have complications in Covid management. While healthy individuals could easily recover from the infection, adverse effects were noticed in those with underlying medical problems like cardiovascular diseases, diabetes, chronic respiratory disease, and cancer.

Suddenly there was this renewed interest and focus on healthy eating habits and enhancing immunity.

Immunity is the ability of an organism to resist a particular infection or toxin by the action of specific antibodies or sensitized white blood cells. One can build immunity by consumption of healthy foods. Food and immunity have been closely associated with each other since ancient times, with various mentions of immunity boosters in the form of food in several ayurvedic texts. And it continues to be associated till date. As the saying goes “To be healthy, one must eat healthy.”

A significant change in the eating habits of the people with regards to food preferences was observed, where in people started developing their love for home cooked meals, turned towards the healthy eating options, students or employed people started cooking the meals independently for the first time. In the literature review we also came across articles of vegan eating options, along with the organic and health foods.



It can certainly be said that people in this pandemic did have a roller-coaster ride with the food, having meals five times a day to intermediate fasting, various age groups were affected differently, like the teenagers or young adults who were into dining out frequently were avoiding dining in the restaurants, employees were not having canteen food for the obvious reason of work from home.

### **STATEMENT OF PROBLEM**

Preventing the spread of the Covid 19 infection has been a global issue. The discussion done in the literature review confirms and highlights the importance of physical and mental wellbeing during Covid19. Many studies brought forward from the literature review indicate that eating habits influence immunity.

Poor eating habits adversely affects the defense mechanism of human body against the infection, weight gain and medical conditions such as diabetes, hypertension, heart diseases etc. People resorted to various herbal concoctions such as warm turmeric water, herbal teas, tulsi drops, giloy juice etc. as well as a shift to healthy food choices as a preventive measure. Through this study, an attempt will be made to gauge the impact of Covid 19 pandemic on the eating preferences of the respondents.

### **LITERATURE REVIEW**

Ahuja Aditi (2020), expressed that Covid-19 has made severe changes to our lifestyle, thereby, changes in our eating habits. This can be concluded in five major points Preference Of Home-Cooked Food, Healthier Eating, Emphasis on Food Safety, Less Exotic Meats and Local Eating Trend.

AHDB (2020) states how Covid-19 lockdown has has an impact on our eating habits without the morning rush. People are spending more time preparing and eating breakfast together as a family. Meals which are simple and hearty as home becomes the restaurant hub for family and that more time will be spent around food preparation or researching new dishes.

Alison (2020) emphasized that witnessing the closure of eating houses many have taken up on healthy cooking and home cooking with the help of various social networking sites. This has

resulted in the change in eating habits of the younger generation such as having leftovers for lunch or dinner being the new common or supporting the local restaurants by ordering online delivery food menus because of the increased benefits of home cooking and cost saving.

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Bethan Grylls (2020) opined that, Consumers will want to maximise their health in order to boost their immunity and reduce vulnerability to disease and illness, while a research from FMCG has found that a total of 76 present of consumers across the globe say that they are concerned about the corona virus, whilst 59 present say that they have become more conscious about their overall health and 57 present about their immunity. As a result of this, 73 present of consumers say that they plan to eat and drink healthier.

Murphy John (2020) stated that 85% of Americans have changed their eating habits due to COVID-19, buy cooking healthy meals at home and avoiding the restaurant visit or takeout's. While the articles also stated that heavy snacking is also a major change in eating habits due to COVID-19.

Askew C (2020), stated that most of the population in America is getting more and more into the organic and plant based (vegan) food trend due to the risk of covid 19, sticking to their lifelong habits by continuing their diet as it is even before the pandemic strike and some indulging into bad eating habits of eating high sugar and less nutritious meals.

Danley Sam (2020) highlighted that 80% of consumer changed eating habits due to covid-19 the biggest change was 60% of consumers reported cooking at home, more people prefer healthy food instead of junk food. Both dieters and non-Dieters perceived plant based food as healthier options.

Bahadur S (2020) revealed corona virus has given Indian foodies a chance to become a genuine food lover. As the pandemic made us homebound we began buying cooking and eating very differently. We realized the importance of food sovereignty and a building resilience into local food supply chain.

DeBroff Stacy (2020) said that, with the closing of the eateries, lowering trips to the restaurants to panic buying and only necessary trips to the grocery stores the public has eventually changed the eating habits with taking up the organic options or less processed foods which led to a major loss to the food manufacturing brands, as more and more people start cooking in the home and to gradual drop in take outs.

UNICEF (2020) stated that to maintain nutritious diet one should keep up with fruit and vegetable intake regularly, swapping in for healthy dried and canned alternatives when fresh produce is unavailable, building up stocks of healthy snack, limiting highly processed foods, make cooking and eating a healthy fun daily routine.



Hence with the referred literature review the research study found a direction to move forward with the topic of **An Analytical Study of Changes in Eating Habits during COVID 19.**

## **RESEARCH METHODOLOGY**

Secondary Data gathered for the study includes published data from newspapers, magazines, journals as well as official website references. Survey approach was used for gathering primary data.

A representative sample of 500 residents of Maharashtra who are 16 years of age and above was decided. Overall 504 valid responses were collected using Convenience Sampling method. A structured questionnaire made using Google forms was presented to all the respondents to obtain relevant information. In some cases casual interactions by the researchers with the respondents were carried out. Since Google forms was used, data was auto tabulated and analyzed.

## **OBJECTIVES OF THE STUDY**

- i) To study the changes in eating habits during COVID19 pandemic among the respondents.
- ii) To analyze the gathered responses regarding changes in eating habits during the COVID19.
- iii) To offer suitable suggestions for changes in eating habits to improve immunity.

## **SCOPE OF THE STUDY**

Considerable research work has been carried out globally on the aspects of changes in eating habits during Covid19 pandemic. However, very little research has been focused on the changes in eating habits during Covid in Maharashtra. Thus this study intends to fill the research gap. The study is restricted to respondents from the state of Maharashtra.

Responses were collected during the time frame of March 2021 to June 2021

The study will cover changes in eating habits related to food preferences only.

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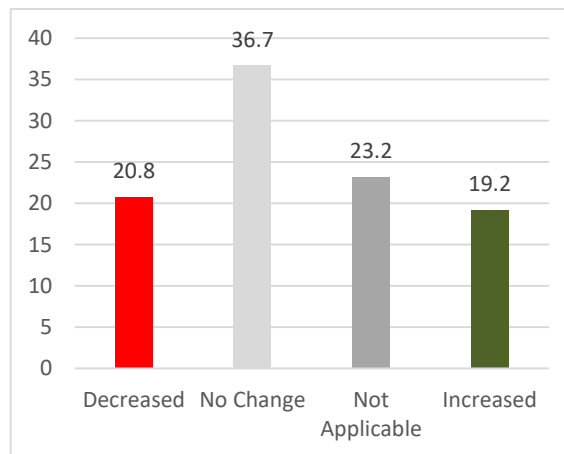


## DATA ANALYSIS

Changes in eating habits of the respondents during the Covid 19 with reference to consumption of non-vegetarian, vegetarian, vegan, health, organic, processed / convenience, leftover foods as well as changes such dining at restaurants, online ordering of food are presented below.

**Table and Graph 1.1 Proportion of changes in the consumption of non-vegetarian foods**

Consumption of non-vegetarian foods		
	Frequency	Percent
Decrease	97	20.8%
No Change	105	36.7%
Not Applicable	185	23.2%
Increased	117	19.2%
Total	504	100%



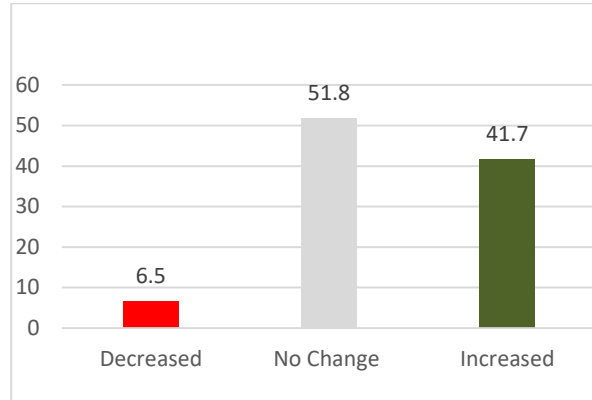
### Interpretation

The bar graph above depicts the consumption of non-vegetarian foods. Many respondents at 37% have reported no major change in the consumption of non-vegetarian foods.

23% respondents are vegetarian and do not consume non vegetarian food. Many respondents reported it is either same or decreased. Almost 20 % increase may be due to belief that consuming non vegetarian food enhances or boosts immunity. Slight increase is offset by decrease.

**Table and Graph 1.2: Proportion of changes in the consumption of vegetarian foods**

Consumption of vegetarian foods		
	Frequency	Percent
Decrease	210	6.5%
No Change	33	51.8%
Increased	261	41.7%
Total	504	100%

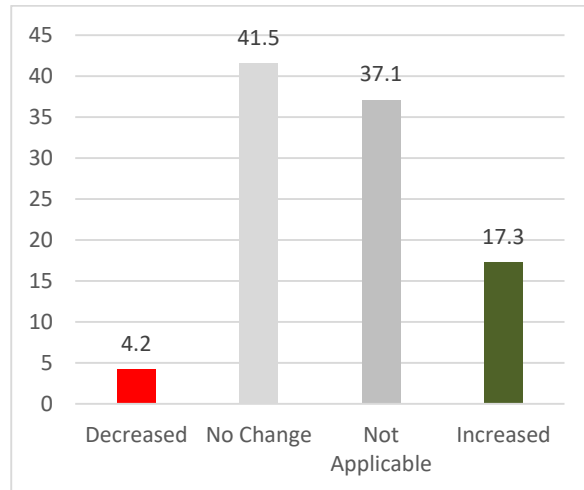


**Interpretation**

The above graph shows the consumption of vegetarian foods, a considerable increase in the consumption of vegetarian foods (42%) could be attributed to the slight hesitance of people to consume meats as possibly meat markets weren't considered hygienic, also the emergence of virus outbreak from meat markets. Dr. Fauci stated that the pandemic will continue to happen as long as we continue to consume meats.

**Table and Graph 1.3: Proportion of changes in the consumption of vegan foods**

Consumption of vegan foods		
	Frequency	Percent
Decrease	21	4.2%
No Change	209	41.5%
Not applicable	187	37.7%
Increased	87	17.3%
Total	504	100%



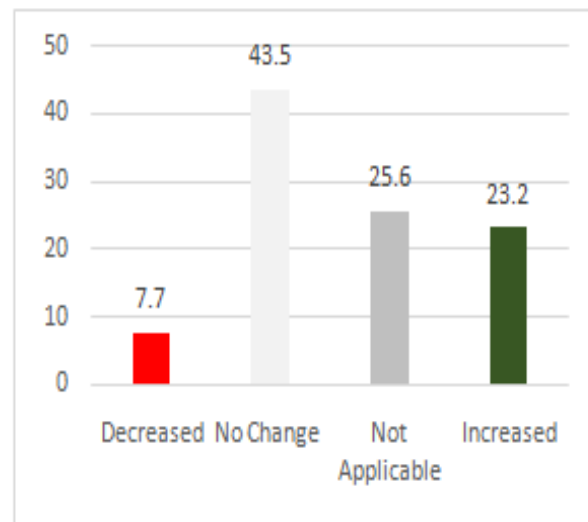


## Interpretation

The above bar graph depicts consumption of vegan foods. It can be inferred that almost 37% of respondents did not consume vegan food. An increase of 17% in the intake of vegan foods could be due to the publicized health benefits, awareness and sudden health concern among people due to the outbreak of COVID -19. A slight decrease may have been prompted by unavailability / shortage of vegan ingredients and high cost of vegan ingredients. People having lost jobs, salary cuts or reduced income could be responsible for the decrease.

**Table and Graph 1.4: Proportion of changes in the consumption of organic foods**

Consumption of vegan foods		
	Frequency	Percent
Decrease	39	7.7%
No Change	219	43.5%
Not applicable	129	25.6%
Increased	117	23.2%
Total	504	100%



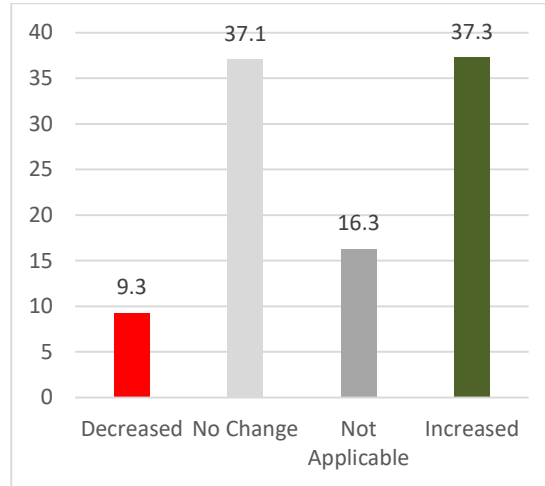
## Interpretation

The above table and graph on consumption on organic foods shows a proper story. A 23% increase is noted with regards to organic foods.



**Table and Graph 1.5: Proportion of changes in the consumption of health foods**

Consumption of health foods		
	Frequency	Percent
Decrease	47	9.3%
No Change	187	37.1%
Not applicable	82	16.3%
Increased	188	37.3%
Total	504	100%

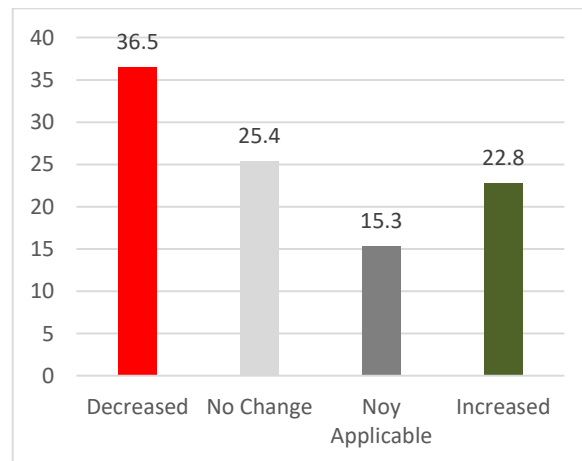


### Interpretation

The above bar graph depicts 37.3% increase in consumption of health foods. This shows that people are cooking at home and are more cautious on meal preparation preferring healthy choices. One can see a nice chunk of respondents at 37 % shifting to healthy foods, while the decrease is very small at 9.3%.

**Table and Graph 1.6: Proportion of changes in the consumption ready to eat foods**

Consumption of ready to eat foods		
	Frequency	Percent
Decrease	184	36.5%
No Change	128	25.4%
Not applicable	77	15.3%
Increased	115	22.8%
Total	504	100%





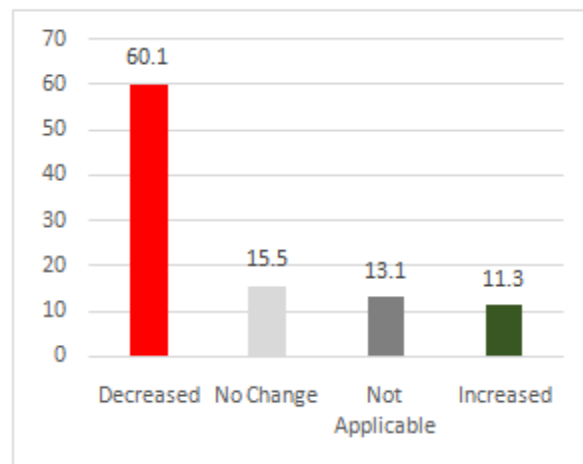
## Interpretation

The bar graph above depicts the consumption of ready to eat foods during covid -19. A decrease of 36.5% was seen in the consumption of ready to eat foods, presuming that the respondents know the adverse effects of processed foods and preservatives on the health.

A surprising growth or increase of 22.8% could be due to wfh, time concerns, no cooks – tired of cooking every day, reluctance to order from restaurants etc.

**Table and Graph 1.7: Proportion of changes in the consumption of food in the restaurant (dine in)**

Consumption of food in the restaurant		
	Frequency	Percent
Decrease	303	60.1%
No Change	78	15.5%
Not applicable	66	13.1%
Increased	57	11.3%
Total	504	100%

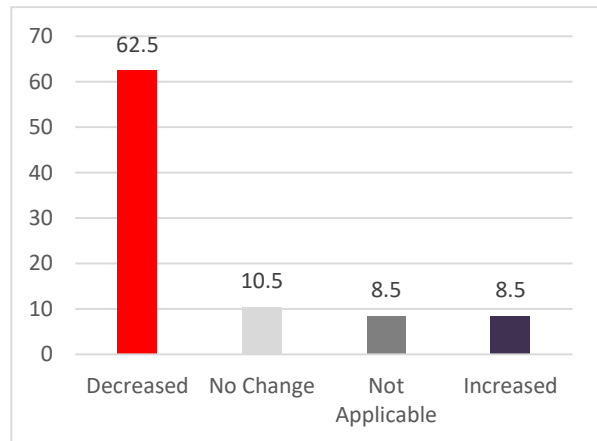


## Interpretation

The above bar graph depicts the consumption of food from restaurant. The lockdown forced restaurants to stay shut thus the big decrease of 60.1% in consumption of food from restaurants. The no change segment which is 15.5% refers to the population who always avoided to restaurant.

**Table and Graph 1.8: Proportion of changes in the consumption of food from road side eateries**

Consumption of food from road side eateries		
	Frequency	Percent
Decrease	315	62%
No Change	53	10.5%
Not applicable	39	8.5%
Increased	43	8.5%
Total	504	100%

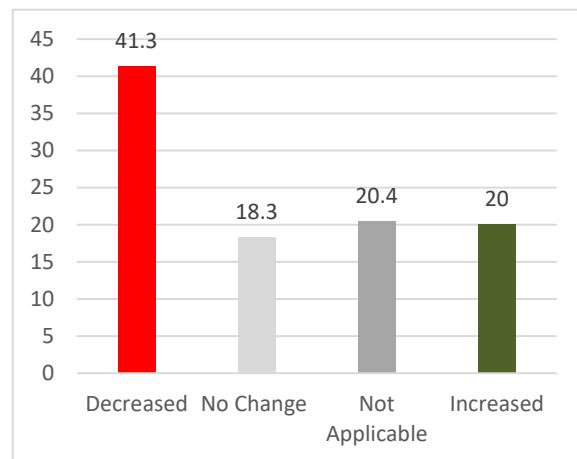


### Interpretation

The above bar graph depicts the consumption of food from road side eateries. The lockdown forced roadside eateries to stay shut. Thus, the big decrease of 62.5% in consumption of food from road side eateries. The no change segment which is 10.5% refers to the population who always avoided to eat at roadside eateries.

**Table and Graph 1.9: Proportion of changes in the consumption of food from online portal**

Consumption of food from online portal		
	Frequency	Percent
Decrease	101	41.3%
No Change	208	18.3%
Not applicable	92	20.4%
Increased	103	20%
Total	504	100%



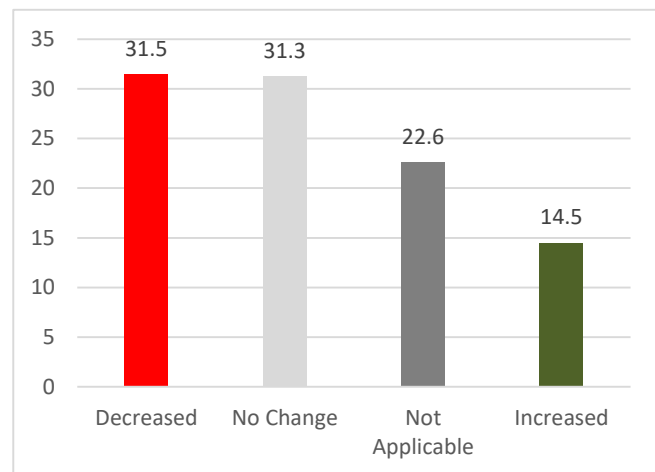


## Interpretation

The above bar graph depicts consumption of foods ordered from an online portal. Due to the lockdown many restaurants were closed. Also the fear of contracting the virus from delivery person or the packaging explain the major decrease of 41.3% in the consumption of foods ordered from online portals. This lockdown also encouraged emerging cloud kitchens in booming their business, which tells us why the increase in consumption of food from online portal by 20%.

**Table and Graph 1.10: Proportion of changes in the consumption of leftover food**

Consumption of leftover food		
	Frequency	Percent
Decrease	159	31.5%
No Change	158	31.3%
Not applicable	114	22.6%
Increased	73	14.5%
Total	504	100%



## Interpretation

The above bar graph depicts the consumption of leftover foods, there is a large amount of decrease in the consumption of leftover foods by 31.5% as during lockdown people shifted from 3 meals a day to 2 meals a day, and preparing only as much quantity of food as is required. 14.5% responded increase in consumption of leftover foods.



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## FINDINGS

- 36.7 % respondents do not consume non vegetarian foods. 20.8% of the respondents reported a decrease, while 19.2% acknowledged an increase in consumption of non-vegetarian food.
- More than half of the respondents did not report any change in consumption of vegetarian food. An increase in consumption of vegetarian food was noted among 41.7% participants.
- Interestingly,17.3% of the respondents increased the consumption of vegan foods
- 23.2% and 37.3% participants responded positively to the increase in consumption of organic foods and health foods respectively.
- A notable decrease of 36.5% has been reported in the consumption of processed /ready to cook and eat foods.
- A significant decrease of 60.1% and 62.5 % has been noted in the consumption of food in restaurants and food from road-side eateries respectively.
- 41.3% respondents have decreased ordering food from online portal while an increase of 20% can be seen as well.
- Consumption of leftover foods has decreased for 31.5 % of the respondents and increased for 14.5% respondents.

## SUGGESTIONS

Based on the observations, responses of the respondents and findings arrived at, the researchers have the following suggestions to offer:

- The role of protein in maintaining a healthy immune system is well known. Non vegetarian foods are a high source of proteins which build immunity and can also help fight viral and bacterial infections. Increased intake of non-vegetarian foods among non -vegetarians is suggested.
- Vegetarians can increase vegetable protein intake since scientific evidence supports higher protein intake to higher immunity which is a necessity for all in Covid times.
- Hotel and restaurant business can view increase in people consuming vegan foods as an opportunity to open specialty vegan restaurants or offer a few dishes on the menu to cater to this growing segment.



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- Animal friendly organisations can promote veganism as being good for the environment, healthy and also the reduced risk of food borne illness.
  - People must consume more organic and health foods to enjoy its benefits.  
Marketers of such products can use social media platforms to reach tech savvy millennials who are generally believed to have poor eating habits. They must encourage increased consumption by ensuring easy availability of such foods.
  - Reduce consumption of processed foods which tend to be high in salt, sugar and fats leading to health issues like obesity, diabetes, high BP, heart diseases. If at all consumed, must use processed foods only from FDA/ FSSAI approved manufacturers using minimal additives within control limits  
Home Chefs and entrepreneurs can provide nutritious, wholesome foods as an alternative to processed foods to cater to the needs of bachelors, working couples and the elderly.
  - Avoid foods from roadside eateries with poor hygiene.
  - Food Safety Department must create awareness among roadside food stall owners and workers regarding hygiene. Licences and FoSTAC programme of FSSAI should be made compulsory. Awareness drives and raids by Food Safety department will improve hygiene and enhance confidence among people to consume from roadside food stalls.
  - Dining at restaurants has taken a big hit during Covid times. Restaurant owners can adopt several practices to increase dine in such as:
    - i) operating at half capacity to ensure social distancing
    - ii) having well ventilated restaurants
    - iii) adopting new trends of safe plastic bubble, outdoor dining
    - iv) ensuring fully sanitized cutlery, crockery, seats and other surfaces and
    - v) use of contactless menus and payments to minimize contact
  - Though eating out is still considered as a super risky activity, people can minimize the risk by dining at restaurants which do not break covid norms and rules, pick a table that's spaced out, wear masks, frequently wash sanitize hands, avoid visits to bathrooms and washrooms or at least limit their use to emergency only.
  - Since there is no evidence of spread of covid infection through food delivery, online ordering of food is considered safe.  
However, it is necessary to order from Covid compliant restaurants only which provide details of rider temperature and vaccination status.
  - Reduced consumption of leftover foods by the respondents is actually a good sign. But if leftovers are to be consumed they should be promptly refrigerated and reheated well before consuming again.
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