



# A CASE STUDY ON IMPACT OF LOCKDOWN ON THE DIETARY HABIT OF PEOPLE OF DIFFERENT AGE GROUPS OF PUNE MUNICIPAL CORPORATION

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**Abstract:** The Covid-19 pandemic led to lockdowns in all parts of the world and, hence, changed some daily habits, including social interactions, the ability to perform sports, and—possibly—diet. The Indian government established and promulgated lockdown policies on 19 March 2020. We aim at assessing the effects of Covid-19-induced confinement policies on self-reported food consumption of self-selected citizens by means of a questionnaire that was created and diffused by the Google document. Out of 1932, nearly, i.e., 24% of responders did not substantially modify their diet during the lockdown; however, 76% of them reported that they were changed their eating habit during lockdown, and 50% have gained their weight. In particular, there is an increase in “comfort food” consumption, healthy food (72.22%), junk food (5.56%) and salty snacks (22.2%). In addition, 50% people gained their weight 47.33% are not gained their weight. Related to this, 14% of responders reported an increase in bread, chocolate, ice-cream, cakes, etc. consumption, even 44% of them reported decrease. Interestingly, over 83.33% of responders, admitted that Aayurvedik Kadha is very good in lockdown while 88.8% gives the preference to eat C vitamin content fruits. Purchases of ready-made meals were reduced by nearly 50%. Future large-scale similar studies should be undertaken worldwide and will help public health authorities shape their reactions to future, unavoidable pandemics.

**Keywords:** Covid-19; diet; dietary habits; immunity; lockdown; weight gain; food availability

## I. Introduction

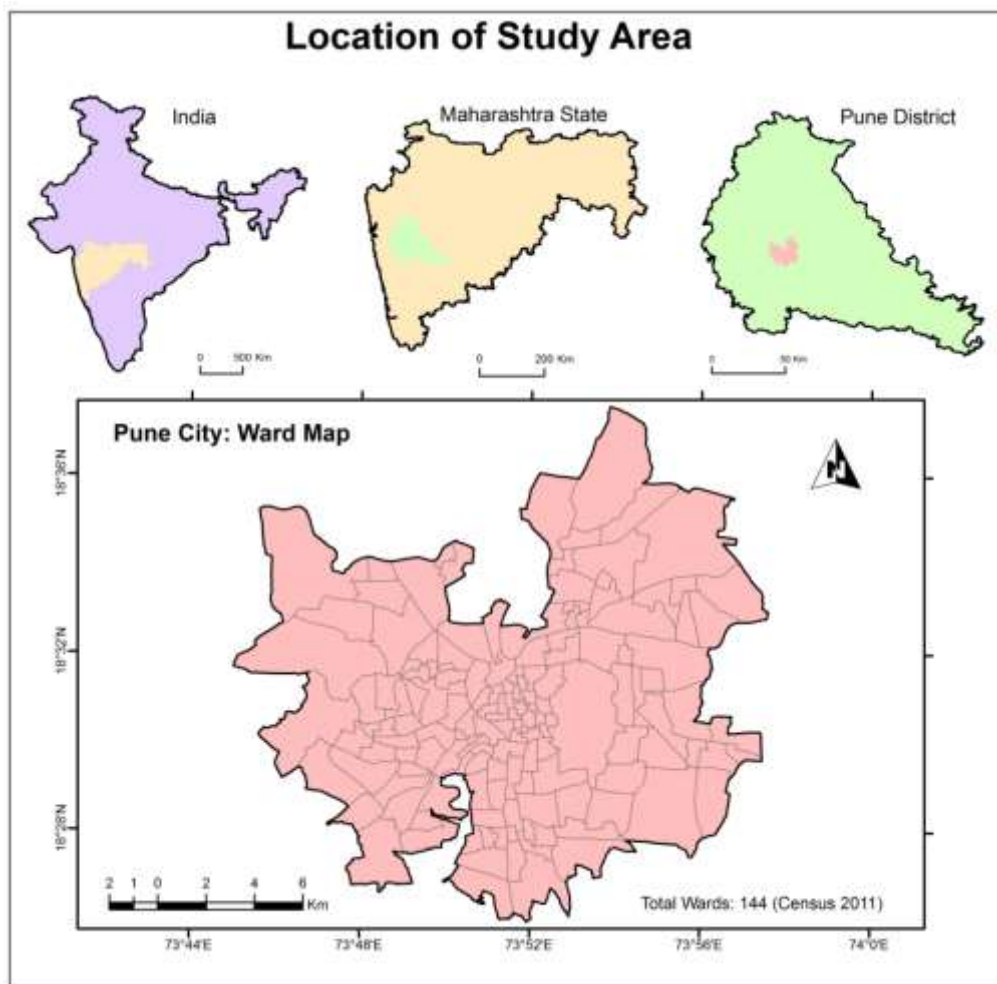
The Covid-19 pandemic led to lockdowns in several parts of the world and, hence, changed several daily habits, including social interactions, the ability to perform sports, and—possibly—diet. Diet being one of the foremost contributors to health, it is conceivable that a situation in which food availability, access to it, and a shift from eating out to mandatory in-house consumption could have changed the dietary profiles of several people. However, to the best of our knowledge, this issue has never been explored. Interesting research is suggesting that the easier it is to purchase healthful foods, the easier it is to follow appropriate diets. Food accessibility may be impaired during lockdown, which could easily impact the overall diet quality. Moreover, the impending possibility of job losses, reduced incomes, and uncertainties regarding the future might speculatively lead some people to reduce their expenditures, including those for food. Finally, lockdowns greatly reduce the amount of physical activity, sport, exercise, creating vicious cycles by which sub-optimal diets increase the noxious health effects of sitting at home. This situation is aggravated by severe restraints, such as anxiety, mental stress or often experience psychological distress. Indeed, some authors are proposing prospective neuropsychiatric monitoring of individuals exposed to SARS-CoV-2 at various points in the life course. Even though the neuropsychiatric burden of this pandemic is currently unknown, it is likely to be significant. Diets are being proposed as having positive effects on mood, possibly because they provide vitamins, proteins, etc. On the other hand, dietary choices are strongly influenced by psychological factors in addition to the environment where we live or our beliefs. In short, it is conceivable that lockdowns bring about dietary changes whose long-term health effects are unknown and also worth investigating. The Indian

government established and promulgated lockdown policies from 19 March 2020. We aimed at assessing the effects of Covid-19-induced confinement policies on self-reported food consumption of self-selected citizens by means of a questionnaire that was created and received through google documents.

**II. Location of the study area**

The Pune Municipal Corporation (PMC) administers the city. The Pune Municipal Corporation (PMC) was established on 15th February 1950. The PMC controls the whole administration of Pune. For administrative convenience, the Municipal Corporation of Pune city has been divided into four zones which include 14 Ward Offices (having 144 wards). Each ward office includes more than 9 sub wards. This work measures the food habit of Pune citizens change during lockdown period. I have selected few samples from some selected wards.

Map no. 1- Location of the Study Area



**III. Data Collection**

Data is collected by first primary data like self-selected citizens by means of a questionnaire that was created and received through google documents and the link were circulated through what's up. I have collected online 1932 samples from different age groups from Pune Municipal Jurisdiction. Sample were distributed over 4 age groups (less than 12 years - 215, 12 to 23 years - 215, 24 to 40 years - 536, 40 to 60 years – 644 and above 60 years - 322). Secondary data I have collected from some central government documents on Covid and some documents from central health department.

Table No. 3. 1: Ward Wise Data Collection

Sr. No.	Ward name	No of Respondents
1	Sahakarnagar	58
2	Kothrud	262
3	Vishrantwadi	300

4	Karve nagar	252
5	Kondhwa budruk	58
6	Sinhagad road	108
7	Sadashiv peth	100
8	Kasaba peth	88
9	Dhanakawadi	107
10	Lohagoan	157
11	Dhayri	40
12	Hadapasar	187
13	Aundh	110
14	Dhanori	105
	<b>Total =</b>	<b>1932</b>

(Source: Household Survey Data)

#### IV. Research Methodology

That aimed at assessing the most popular eating habits of Pune citizens. We closed the survey and stopped collecting data on 15 April, when 1932 surveys were filled out. We then translated all questions and have provided them as Supplementary Materials. We analysed data immediately thereafter. I have used some statistical methods like mean, mode and some graphical techniques.

#### V. Result and Discussion

The entire dataset can be found in the survey. Here, I would like to focus on the most relevant results. I have focus on the how the Covid 19 effect on the changing food habit of the Pune citizens during the lockdown period. Overall observation is showing, that is 76% people are saying they modified their food habit due to Covid 19 (Figure 5.1). I am focusing on some specific parameters here, like the reason behind the changing food patterns, Nearly 30.55%, because of Greater difficulty to find certain product, 8.33% because of Increase price of certain product, 33.33% because of Increase stress to go out to buy and 30.55% people just change their diet because to increase immunity (Figure 5.2). During the lockdown the outside situation was terrible due to Covid 19 hence 72.22% people go with the Healthy Food may be just because to increase their immunity, then 5.56% prefer junk food which is the less people prefer this type of food as the 22.22% people go with the both healthy plus junk food (Figure 5.3). So I elaborated the citizens type of food consumption briefly like which type of food they have prefer mostly in the bread, chocolate, ice-cream, cakes, etc. so almost people says, 14%, Yes, I have increase it, while 44% resonance saying, Yes, it is decrease (Figure 5.4). As the pandemic situation is going on outside so maximum people gave preference to take some Ayurvedic Kadha (83.33%), Arsenic Album (55.55%), Tab. Vitamin C (16.66%) and C- Vitamin Contain fruits (88.87%) in increase their immunity (Figure 5.5). When the observation is going on regarding to change in food habits then most of the citizens are also gave the maximum preference to drinking beverages, like, tea, coffee, buttermilk, alcohol, juice, etc. then the result like almost half of the responders saying, Yes, I have increase it (52.77%), while 13.88% responders saying it is decreasing and 33.33% responders saying No, it is as usual. (Figure 5.6).

People are sitting at their home and can't go outside as well not go to their offices so I asked whether they are eating more as they fulltime at the home so the result is, 47.22% responders are in favour of a bit more they are eating while 8.33% people eating much more. (Figure 5.7). As the food habit of the citizens changed a lot and people are eating more while sitting at home hence the next observation is on the basis of their weight, hence 50% responders gained their weight while 47.33% people not changing their weight. (Figure 5.8). During lockdown almost all people as well as kids are at home and also closing of all the restaurants and outside food, so the women have to cook maximum time and in a huge amount with variety in a food also some women get some time to learn new dishes so on the basis of this trend women increase their cooking skill so the findings are 68% people are saying yes while 32% are saying it is as usual. (Figure 5.9). Below graphical presentations are showing how the lockdown have bring the huge change in the food habits of the Pune citizens.

Table no. 5.1. Food Habit Changed During Covid 19

Sr. No.	Yes (in percentage)	No (in percentage)
1.	76	24

(Source: Household Survey Data)

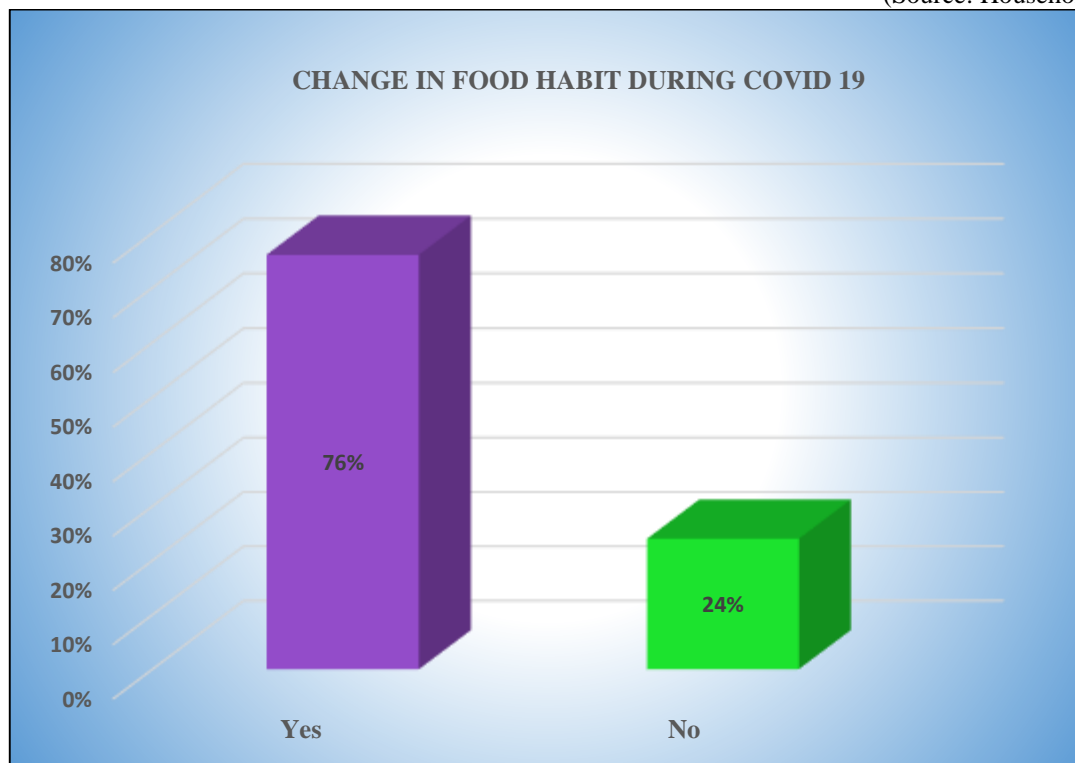


Figure 5.1. Food Habit Changed During Covid 19

## 2. The Main Reasons for Changing the Diet Pattern

Table no. 5.2 – Reason for changing diet during lockdown

Sr.no.	Reason for changing diet during lockdown	In Percentage
1.	To increase immunity	30.55
2.	Greater difficulty to find certain product	30.55
3.	Increase price of certain product	8.33
4.	Increase stress to go out to buy	33.33

(Source: Household Survey Data)



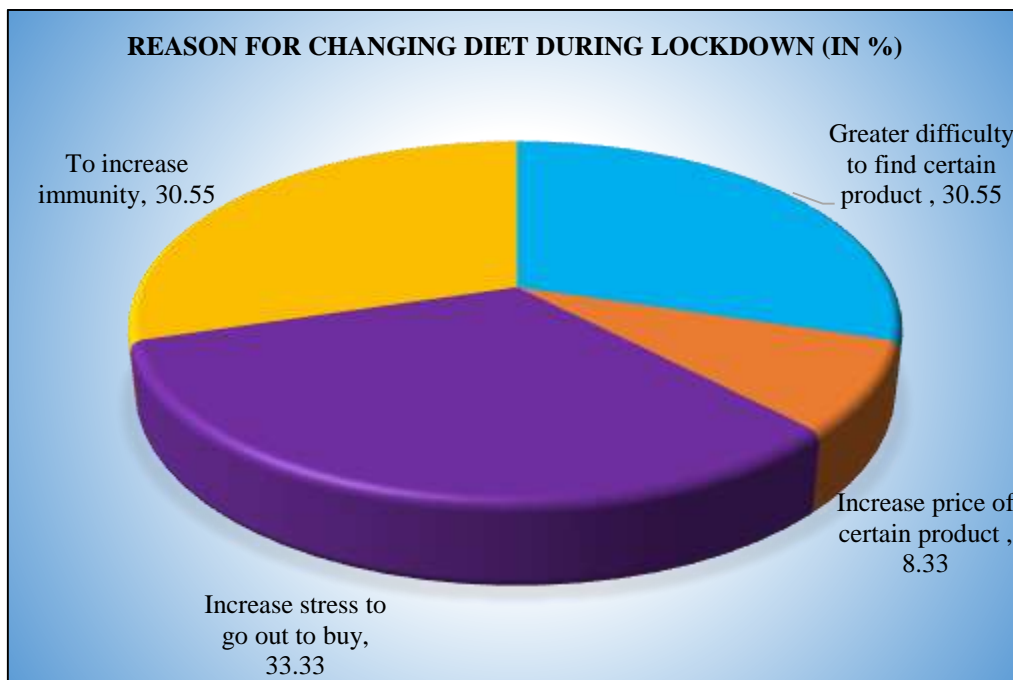


Figure no. 5.2 – Reason for changing diet during lockdown

### 3. Preferences of Food Eating During the Lockdown

Table no. 5.3 – Changed Food Habit during lockdown

Sr. No.	Preferences of Food Eating During the Lockdown	In Percentage
1.	Mixed	22.22
2.	Healthy Food	72.22
3.	Junk Food	5.56

(Source: Household Survey Data)

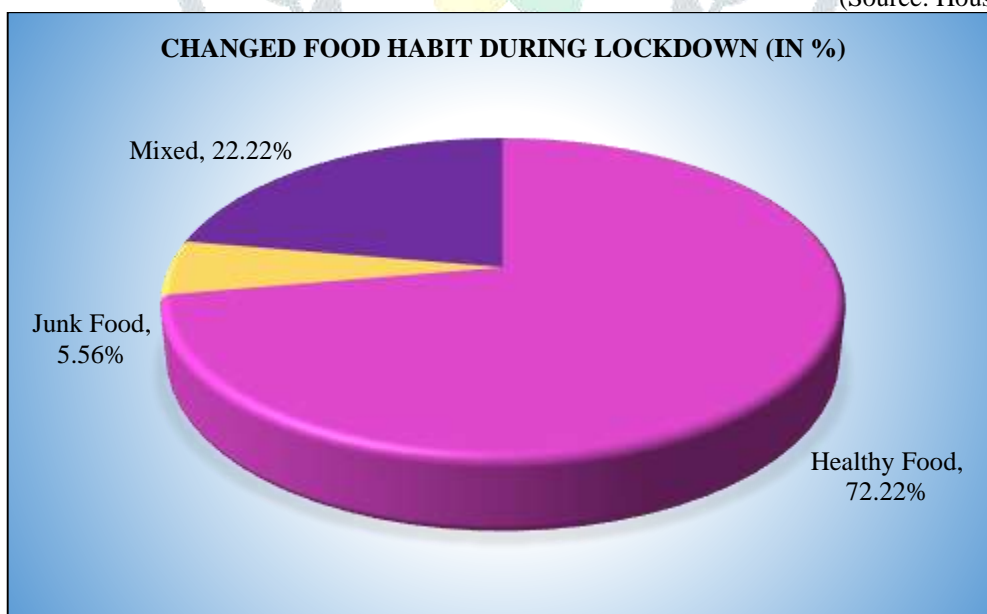


Figure 5.3 – Changed Food Habit during lockdown

#### 4. Change in Other Type of Food Consumption (Bread, Chocolate, Ice-Cream, Cakes, Etc.)

Table no. 5.4 - Change in an Other Types of Food Consumption

Sr. No.	Preferences of Fast Food Eating During the Lockdown	In Percentage
1.	Yes, I decrease	44
2.	Yes, I have increase it	14
3.	No, it is as usual,	42

(Source: Household Survey Data)

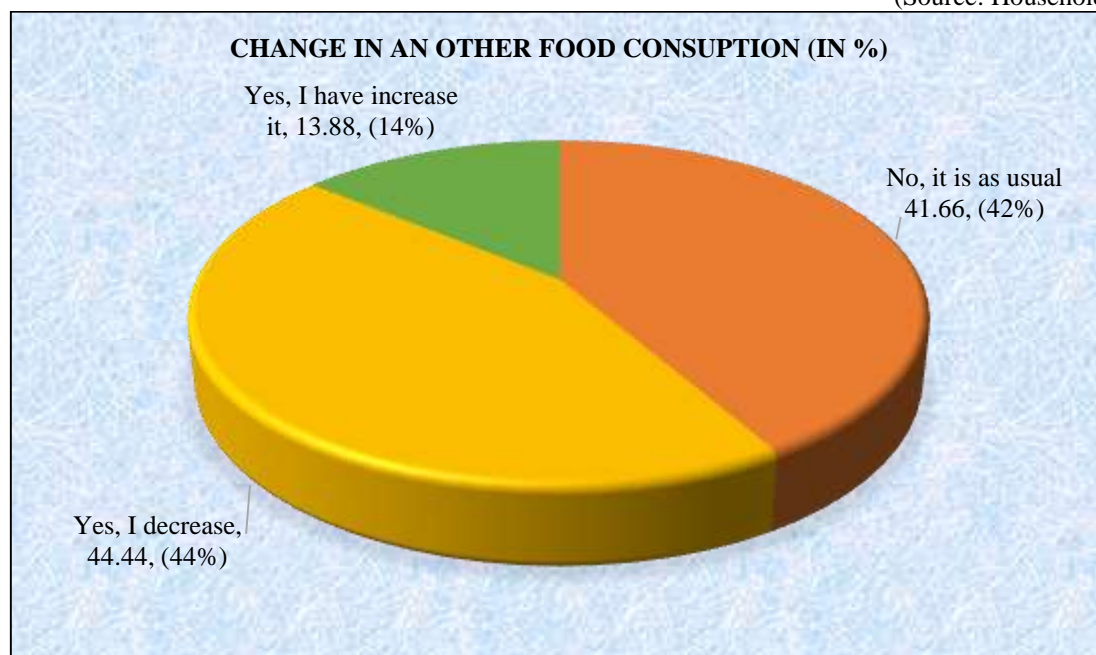


Figure 5.4 – Change in an Other Food Consumption

#### 5. Food for Increase the Immunity (Ayurvedik Kadha, Arsenic Album Homeopathic Tablets, Tab. Vitamin C, Vitamin C - Contain Fruits)

Table No. 5.5 - Preferences of Food for Increase Immunity

Sr. No.	Preferences of Food for Increase Immunity	In Percentage
1.	Ayurvedik Kadha	83.33
2.	Arsenic Album Homeopathic Tablets	55.55
3.	Tab. Vitamin C	16.66
4.	Vitamin C - Contain Fruits	88.87

(Source: Household Survey Data)

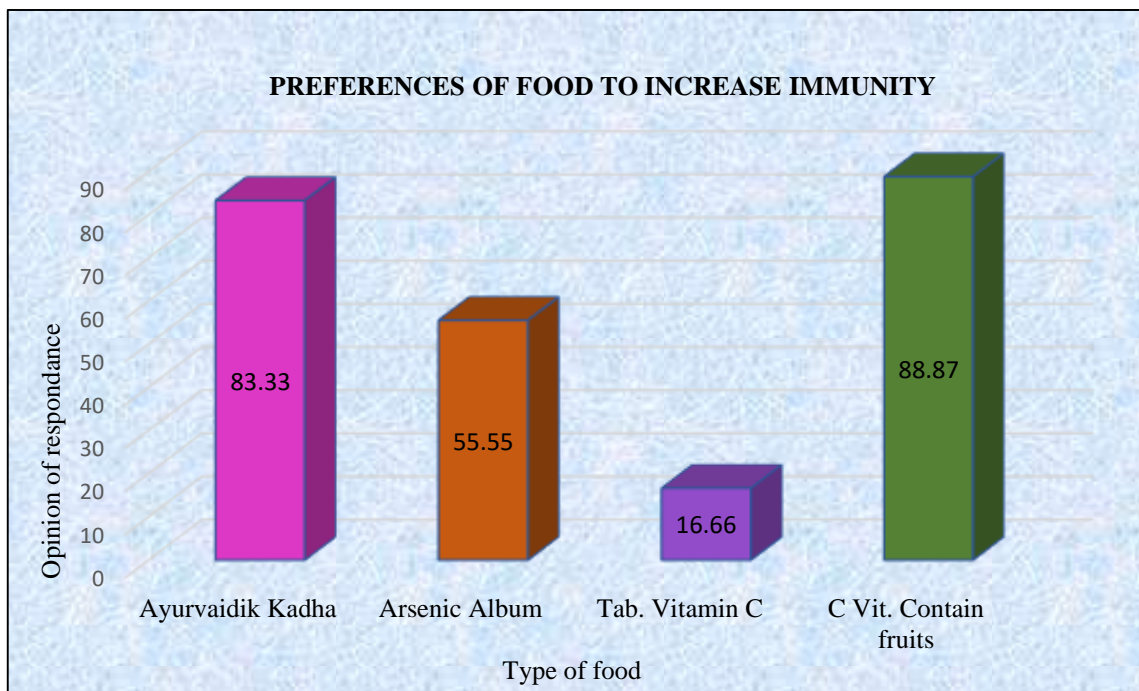


Figure No. 5.5 - Food for Increase Immunity

### 6. Change in the Beverage Drinking Pattern (Tea, Coffee, Buttermilk, Alcohol, Juice, Etc.)

Table no. 5.6 - Change in the Beverage Pattern

Sr. No.	Change in the Beverage Pattern	In Percentage
1.	Yes, I decrease	13.88
2.	Yes, I have increase it	52.77
3.	No, it is as usual,	33.33

(Source: Household Survey Data)



Figure 5.6 - Change in the Beverage Pattern

## 7. Eating more or less during Lockdown

Table no. 5.7 - Eating More during Lockdown

Sr.no.	Eating More during Lockdown	In Percentage
1.	Yes, much more	8.33
2.	Yes, a bit more	47.22
3.	No	44.44

(Source: Household Survey Data)

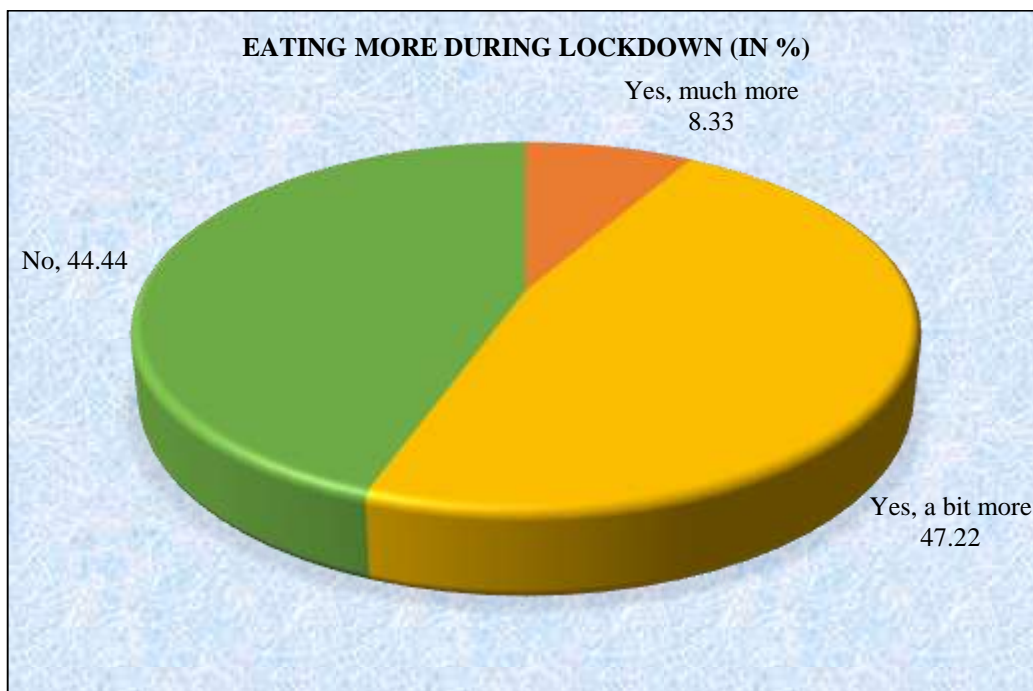


Figure 5.7- Eating More during Lockdown

## 8. Weight gained during lockdown

Table no. 5.8- Weight Gained During Lockdown

Sr.no.	Eating More during Lockdown	In Percentage
1.	Yes	50
2.	No	47.33
3.	Don't know	2.77

(Source: Household Survey Data)



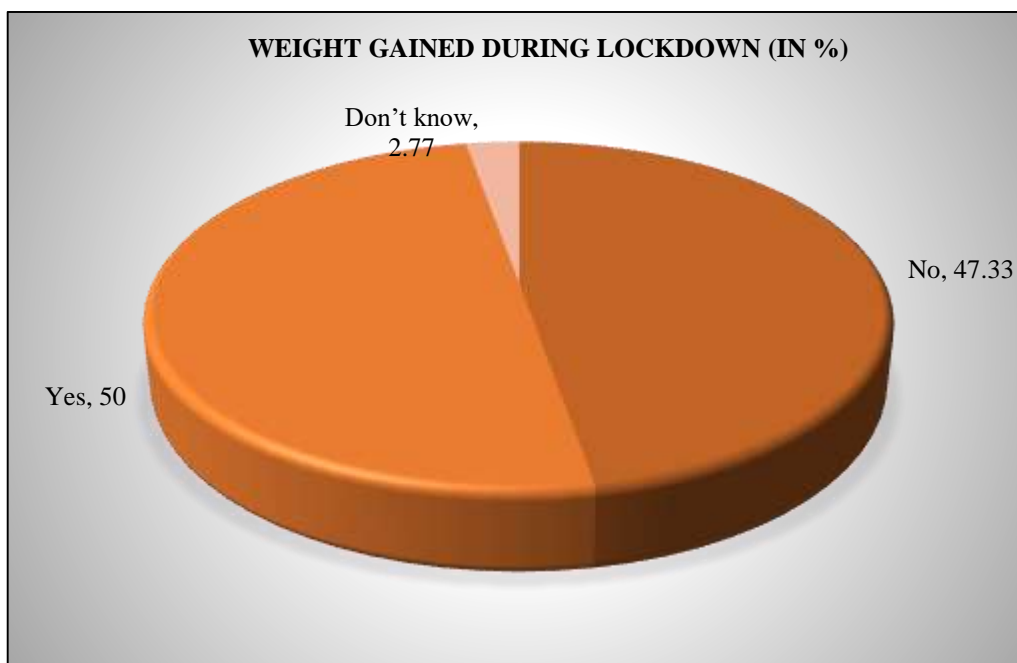


Figure 5.8- Weight Gained During Lockdown

### 9. Improve the Cooking Skill during the Lockdown

Table no. 5.9 - Improve the Cooking Skill during the Lockdown

Sr.no.	Improve the Cooking Skill during the Lockdown	In Percentage
1.	Yes	68
2.	No	32

(Source: Household Survey Data)

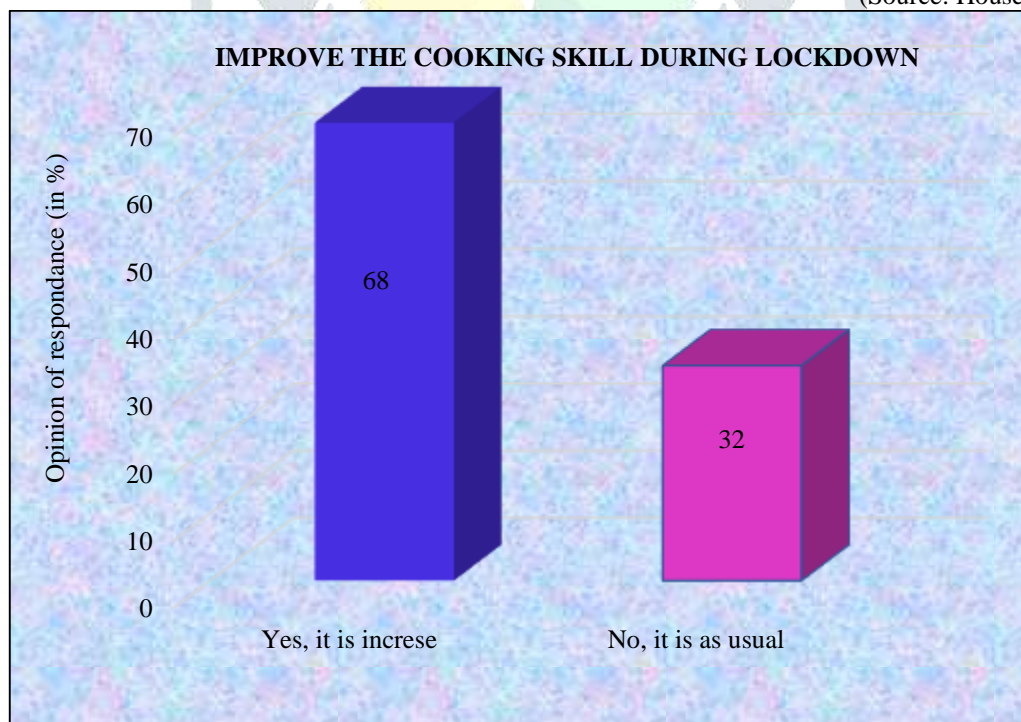


Figure 5.9 - Improve the Cooking Skill during the Lockdown

## Conclusion

Covid-19 has begun to impact our lives, more than any other event in recent memory. The impact on our behaviour will be on a scale never seen before. There are two major influences on our behaviour – staying at home and stockpiling.

In this paper, I will look at how Covid-19 has changed our eating habits, using estimates from World panel that look at the potential rise per week of meals consumed during lockdown. This research has analysed this data to give a thorough overview of the impact across key sectors so far and the possible ramifications going forward. It looks at what the impact would be each week while the PMC is in a hard lockdown and which sectors are likely to see an impact as the home becomes the ‘restaurant hub’ for all the family. These predictions relate to the current hard lockdown scenario faced by consumers, depending on how stringently lockdown measures are enforced, we can expect to see a range of changes for a prolonged period.

In this study, I have studied for the first time data on the Pune population lifestyle, eating habits and diet pattern during the COVID-19 lockdown. The perception of weight gain was observed in 50% of the population, whereas a slight increased healthy food has been reported in 72.22% of respondents, especially for leaf vegetables and fruits. Interestingly, the population group aged 24 - 40 years resulted to have a higher adherence to the hot beverage when compared to the younger and the elder population. Moreover, 83% of respondents turned to drink A.yurvaidik Kadha, especially in the North and Centre of Pune. Another positive result is the percentage reduction in smokers by 3%. However, as the COVID-19 pandemic is still ongoing, our data need to be confirmed and investigated in future larger population studies.

## Recommendation

Covid 19 and, social distancing, bang on gathering, mass communication, etc. are unprecedented times. One thing is for sure— with the widespread acceptance that coronavirus originated in an exotic meat market in China, there has been a massive consumer rethink around food. This shift is impacting the type of food that is consumed, where it is obtained, how and where it is prepared and how it is produced and stored. The overarching theme? Fear of contagion and oftentimes human contact.



A self-driving food delivery robot might appear in a post-pandemic world in which consumers want to home delivery in safe environment.

Here are some recommendations in the surrounding circumstances:

### 1. Home Cooking Will Make a Resurgence

The corona virus report reveals that consumers want food with minimal human touch points. A recent survey by Economic confirms that 32 per cent of adults plan to eat at restaurants less often due to COVID-19 concerns. With many restaurants closed and supermarket shelves bare, and with heightened concerns around food safety, home cooking is making a comeback. This trend is likely to continue for some time, post pandemic, due to hesitation around public gathering as revealed in the results of a survey conducted by Variety in which 47 per cent of respondents agreed that the idea of going to a major public event “will scare me for a long time.” This transition to home cooking could also result in an increase in sales of cooking staples, meal kits and accompaniments to meals.

## 2. Healthy and Organic Eating Will Become Increasingly Important

There is likely to be an increase in demand for agricultural food, vegetarian food and other healthy foods as a result of the pandemic. Coronavirus leads a significant risk to those with present health conditions such as diabetes and heart disease as well as those who are overweight and obese. The value of healthy foods such as fresh fruits and fresh vegetables in the management of these conditions is well documented. The food companies providing of organic food such as high protein organics veggies, which experienced an increase in sales of approximately 32% per cent and the surge in demand for organic vegetable box delivery in the United Kingdom are evidence of this trend.

## 3. Food Safety Will Come Under a Tighter Lens

There is currently no evidence that coronavirus is transmitted via food, yet this has not been reflected in consumers' dining and shopping decisions. According to a recent survey by **The Packer**, grocery shoppers have changed their shopping habits due to fears of catching coronavirus from food. Survey respondents indicated that they are buying less fresh produce in grocery stores and more canned foods due to fears around food safety. Studies have also shown that consumers want food that is pre-packaged. Even among those who understand that they cannot catch coronavirus from food, there is an elevated fear around food safety that has even extended to home kitchens.

## 4. There will be reduced demand for exotic, risqué foods

The Wuhan seafood market, where coronavirus is thought to have originated was a popular centre for wildlife such as snakes, porcupines, deer and racoon dogs, many of which were slaughtered in front of customers, according to WHO reports. Since the onset of the coronavirus in 2019 almost 20,000 wildlife farms in China have been shut down or quarantined and a strict ban is being implemented on the farming and consumption of exotic animals. Although there is some disagreement around which animal transferred the virus to humans, it is an accepted fact that outbreaks are more likely when exotic animals from different environments, with viruses that are specific to those environments, are kept in close proximity. This will most certainly translate in decreased demand for exotic animals. Which is a good policy of china.

## 5. There will be greater focus on eating local

"Yelp's Coronavirus Impact Report" says that the consumers are more likely to want to know the source of their food, making them increasingly desirous of food from community-supported agriculture (increase in demand of 400% per cent) and farms (increase in demand of 159% per cent). A heightened awareness around food safety and a desire for more nutritious food will also increase demand for eating local. On the supply side, the interruption of global supply chains and closure of borders due to COVID-19 will impact foreign food production and reduce imports. Other trends? Until the mayhem dies down, there might continue to be some hoarding and stockpiling of items such as fruit snacks, energy drinks, dried beans, pretzels and frozen fruit. Consumers will also want to limit their exposure to crowds for quite some time, which will increase the demand for online purchasing of food, curb side pick – up and take - out and delivery. According to Yelp, the demand for delivery has increased 149 times with coronavirus, but this will be tempered by food safety concerns and the relaxation of shelter in place orders. With all these changes, it appears at least for the time being, that the biggest losers in the food business will be restaurants, food stands and vendors, unless they are able to pivot and offer meals with minimal human touch points. Business owners will have to make a conscious effort to meet the needs of the new pandemic mind-set.

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