

CONSUMPTION CHANGE OF HOUSEHOLD FOOD HABITS PRE AND POST LOCKDOWN DURING COVID 19: A PERSPECTIVE STUDY OF GUJARAT AND MAHARASHTRA

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Abstract

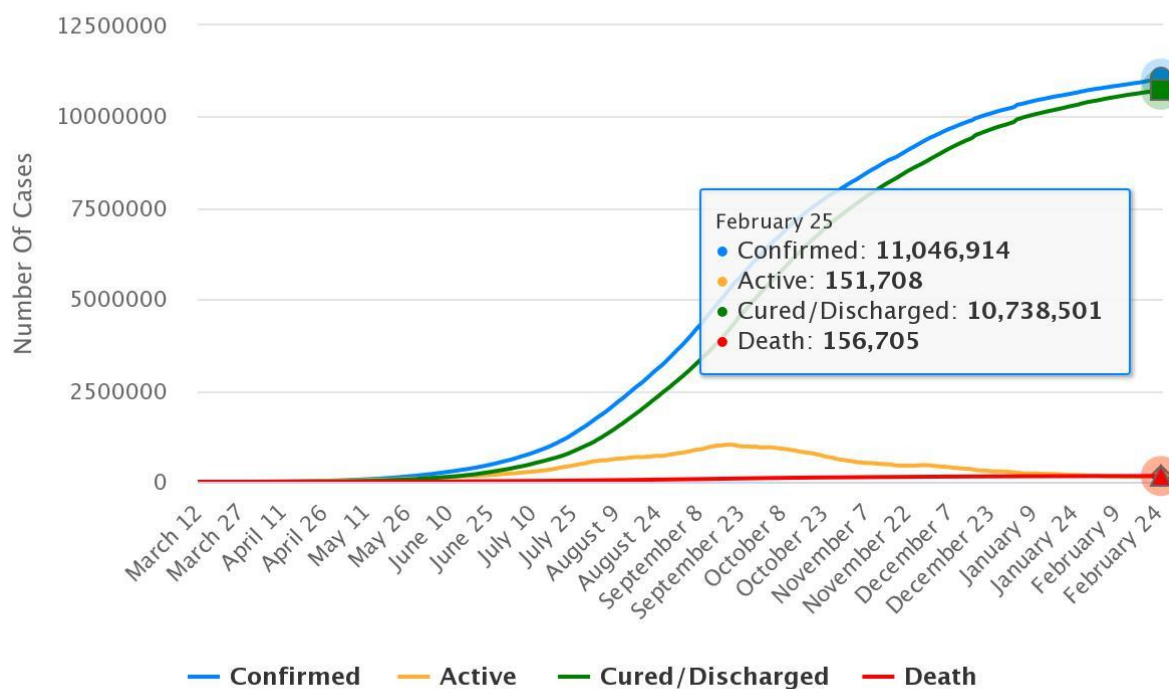
The traditional concept "Health is wealth" is retrieving the position in the discussions of people across the globe in this current state of health emergency. Further, Healthy Food is the primary requirement to maintain healthful living in any situation. Various authors have researched about the change in the food consumption habits with primary and secondary sources and analyzed data with probability and non-probability analysis methods. The socio-demographic profile of the consumers had been compared with food purchasing and consumption patterns during COVID 19 as the immediate effects of the pandemic crisis. The main objective of the research is to study Household food consumption patterns and Buying behaviour of people during pre and post lockdown period crisis with the reasons for the shift in the demand. The data was collected through a structured questionnaire surveyed online with the 265 responses. The data is analyzed with the conventional techniques including Descriptive statistics, ANOVA, Chi Square and T test. The results indicate that there is a paradigm shift of consumption of food items like fast foods, organic foods, veg, and non-veg food products. Most people are relying more on online services to order foods at home rather than consuming outside. The study is conducted to note & record the outlook in change in food habits of households during the pandemic in Gujarat and Maharashtra - States of western India.

Keywords: COVID 19 & Second wave, Food Demand Patterns, Buying Behavior, Food Consumption

1.1 INTRODUCTION:

(1)Saxena, Swati(March 2018) A Study of Factors Affecting Brand Switching for Processed and Packed Ready-to-Cook Food Packs concluded that ' Majority of the respondents don't see any sort of health related concerns with the consumption of ready to cook food packs India's share in world trade in respect of processed food is about 1.6%. A large number of players in this industry are small-sized companies, and are largely concentrated in the unorganized segment. This segment accounts for more than 70% of the output in volume terms and 50% in value terms. The year 2020 was a special year. It came along with a huge wave of pandemic for all across the globe. It was early months of 2020 that saw a huge surge of Coronavirus infection across various countries including India. India was put under strict lockdown from 25th March 2020 for the first phase of complete lockdown. The population did not have any clue about the infection, its spread, fatality and the next course of action. As the virus was novel & medication was unknown: exploration for medication began at various levels. People turned to all the possible sources of information to search for the contagious fatal infection and its precautionary measures. Added to this was the government machinery & messaging applications that had added to home remedies & methods to improve immunity.

Day Wise Cases: India



Source: PRS Legislative Research (Data upto 25th Feb, 2021)

The daily number of active cases are now declining as a corresponding effect of safety & social distancing measures and vaccination. At the stage of recovery, the pandemic crisis has left people thinking about the new and healthy way of living even after the pandemic ends. The demand for healthful products is completely rejuvenating the Food Industry. A lot of people have started giving a try to the healthy alternatives to regular life consumptions such as fresh Fruits and vegetables, Organic Foods, Home Cooked meals etc. and thereby giving the chance to reform and improve the list of products that Food companies and Hotels are offering. Eating healthy would definitely be the major concern for the people around the world. India too has witnessed the major change in the dietary habits in the sphere of Pandemic and corresponding lockdowns. According to a survey by the International Food Information Council (IFIC), around 60% of American consumers reported cooking at home more and around 20% said they were eating healthier than usual. Even at the recovering stage of widespread crisis people have started paying attention to maintain a healthy lifestyle and have found the alternative of fast food junk to homemade meals leaving positive effects of the Pandemic Crisis to the world apart from all the devastating effects left to the human being.

1.2 RATIONALE FOR STUDY

Corona pandemic has had a devastating effect on the economy, psychology & physical state of the human race. Several studies have focused on different aspects of the pandemic. Since the pandemic spread through various timelines across the globe, people in different geographical regions have learned and unearthed strategies of maintaining health & immunity level to combat corona infection. The consumption patterns of Food Products and buying behaviour of the people is not the same as pre pandemic not only in India but all over the world and therefore transforming the Food Industry from the rear end. The study is an attempt to enumerate household food consumption and buying behaviour alteration during the pandemic in Gujarat and Maharashtra - States of India.

1.3 LITERATURE REVIEW:

Trishla Cahuhan(May, 2020) conducted a study on "COVID-19 Pandemic: The Changes in Household food consumption behavior" about behaviour change in Household food consumption due to COVID 19 pandemic and how retailers and manufacturers need to adopt the new normal. It was found that the majority of consumers are shifting from offline to online mode of purchasing.

Tarek Ben and Mohammad (Aug, 2020) conducted a research on "Impact of COVID-19 on Food Behavior and

Consumption in Qatar” to know how the behavior of Household food consumption has been changed in pandemic. The findings revealed that there was more consumption of fresh fruits and vegetables during lockdown and the consumption of unhealthy foods has been significantly decreased. Variables such as citizenship, age, and gender had a significant effect on food behaviors and habits.

Gautam and Ranju (July, 2020) conducted a research on “IMPACT OF COVID-19 SITUATION ON FOOD CONSUMPTION” with the objective to know change in the perception of Household food consumption during COVID 19. The results of the study reveals that COVID 19 caused consumption changes irrespective of Gender, age, education and no. of family members.

Federico and Francesco (April, 2020) studied on “Covid-19 and the Subsequent Lockdown Modified Dietary Habits of Almost Half the Population in an Italian Sample” about Assessment of dietary patterns of Italian people during pandemic. The 52.4% respondents revealed more consumption of food; especially fruits and vegetables during pandemic.

Laura Di Renzo et al. (June, 2020) researched on “Eating habits and lifestyle changes during COVID-19 lockdown: an Italian survey” with the aim to know the changes in the eating behavior and lifestyle among the Italian people. The data was analysed with Shapiro–Wilk test, Chi square test, Mann–Whitney U and Kruskal–Wallis tests. The results revealed that 15% of respondents turned to Organic fruits and vegetables and the smoking consumption rate has been decreased by 3%.

Rajesh Kumar R. et al. (November, 2020) had conducted a study on “Impacts on dietary habits and health of Indian population during COVID-19 lockdown” with the objective to assess the impact of lockdown on daily activities including Food habits. The data was analyzed through descriptive statistics and concluded that there has been a drastic change in dietary habits as well as mental & physical conditions lockdown.

The literature review has helped in identifying the number of research gaps. Current literature covers the food that can improve immunity. Studies have concentrated on alternatives to medical immunity boosters. The focus has been on various geographical areas wherein according to the culture and rate of corona infection food intake in terms of quality as well as quantity has come into spotlight. The gap of change in food habits during the pandemic will throw open people's understanding of nutrition & value addition that food does in sustainable living in times of crisis.

Research question pertinent after review is ‘Has there been change in Household food consumption during lockdown in India?’

1.4 OBJECTIVES:

- 1) To identify the difference in the food consumption behavior in accordance with the Sociodemographic Characteristics of consumers.
- 2) To identify the reason of change in Household food consumption during pre and post lockdown 2020
- 3) To identify the Buying Behavior of food items of consumers during pre and post lockdown 2020

1.5 DATA & METHODOLOGY:

The study is based on Secondary data collected from open source published papers and Primary data collected through an Structured online questionnaire. Convenience purposive sampling method was implemented to collect data from the population of Gujarat & Maharashtra.(population sample). The online questionnaire was surveyed from 15th Dec, 2020 till 28th Feb, 2021. The instrument consisted of the 18 Likert scale questions and 5 Open ended questions. The questionnaire was divided into main 5 parts according to objectives: 1) Sociodemographic characteristics of Consumers 2) Change in Food consumption patterns 3) Reasons of Food consumption change 5) Buying behavior of people. The respondents were asked about the change in their diet patterns with reasons as well as buying behavior from March 2020 to December 2020. The collected data was sorted & edited for incomplete responses. After editing the effective sample size was 265 .The data was put to test through Descriptive statistics, T test, ANOVA & Chi square in statistical software SPSS 21.0.

1.6 VARIABLE UNDER STUDY:

The study is conceptualised by social & demographic factors as independent factors while various food categories like salted food, processed, frozen etc. whose household consumption was affected during the lockdown in India.

1.7 HYPOTHESIS:

- 1) There is a significant difference in the household food consumption across Demographic profiles of consumers (Education, Occupation, Income) during lockdown
- 2) Gender has no effect on Household food consumption during lockdown.
- 3) There is a significant difference in state (geographical location) & household food consumption during lockdown.

1.8 RESULTS:

The present research addresses certain questions to ascertain the relationship between Household food consumption behavior as per the sociodemographic profile of consumers during COVID 19 Pandemic. The data was collected through a primary data collection method and analyzed with the computer software SPSS 21.0. The data were analyzed with Table 1 brings out the descriptive statistics of the sample under study

Table 1: Sociodemographic characteristics of respondents

Variable	Parameter	Frequency	Percentage
State	Maharashtra	176	68.2
	Gujarat	82	31.8

Variable	Parameter	Frequency	Percentage
Education	Higher Secondary	7	2.7
	Graduation	108	41.9
	Post Graduation	127	49.2
	Professional Courses	16	6.2

Variable	Parameter	Frequency	Percentage
Gender	Male	148	57.4
	Female	110	42.6

Variable	Parameter	Frequency	Percentage
Occupation	Student	52	20.2
	Service - Government	13	5.0
	Service - Private	155	60.1
	Business	14	5.4
	Professional Practice	18	7.0
	Retired	1	0.4
	Housewife	5	1.9

Variable	Parameter	Frequency	Percentage
Annual Family Income	Below 5 lac	92	35.7

	5 lac - 10 lac	99	38.4
	10 lac - 15 lac	32	12.4
	15 lac - 20 lac	19	7.4
	Above 20 lac	16	6.2

The respondents from Gujarat and Maharashtra consists of 41.5% of female and 58.5% of male out of survey conducted through online survey platform of Google forms where major respondents are from Maharashtra State pursuing higher education and professional courses. Out of all respondents 60% people are private working class people and aged between 20 to 30. Moreover, among the total respondents 35% are from the average lower middle class category while 37% are from higher middle class backgrounds. The survey was shared through online social media platforms like Facebook, LinkedIn and Whatsapp to friends and relatives in the states.

Table 2 : ANOVA

H1: There is a significant difference in the household food consumption across Demographic profiles of consumers (Education, Occupation, Income) during lockdown

H1.1: There is a significant difference between household Food consumption across Education groups

H1.2: There is a significant difference between household food consumption across Income groups

H1.3: There is a significant difference between household food consumption across occupation groups

Particulars	Education	Income	Occupation
Salted snacks	0.250	0.002*	0.502
Fast foods	0.399	0.204	0.286
Dressing sauces/ Jam	0.204	0.195	0.887
Packaged sweets	0.597	0.080*	0.703
Milk and Their Products	0.317	0.424	0.473
Fresh Fruits and vegetables	0.923	0.438	0.214
Nuts	0.311	0.052*	0.003*
Red/white meat	0.108	0.571	0.857
frozen fruits and vegetables	0.520	0.593	0.165
Eggs	0.003*	0.423	0.124
Sweet Beverages	0.959	0.165	0.445
Hot beverages	0.431	0.001*	0.006*
Wine and beer	0.857	0.032*	0.259
Spirits	0.980	0.009*	0.523
Organic cereals and pulses	0.960	0.132	0.279
Organic Tea and Coffee	0.743	0.698	0.142
Organic spices	0.373	0.249	0.057*

Using ready to cook products	0.451	0.104	0.873
Using ready to cook masalas	0.662	0.062*	0.756
Candy, cookies, cakes, and pastries	0.400	0.492	0.097*
Packaged baked products	0.578	0.512	0.379
Fresh bread	0.653	0.027*	0.026*

5 % Significance level*

Multiple Comparisons							
Tukey HSD							
Dependent Variable	(I)	(J)	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
salted snacks	1	2	.557	.220	.087	-.05	1.16
		3	1.020*	.312	.011	.16	1.88
		4	.476	.383	.726	-.58	1.53
		5	1.239*	.412	.024	.11	2.37
	2	1	-.557	.220	.087	-1.16	.05
		3	.463	.309	.565	-.39	1.31
		4	-.081	.381	1.000	-1.13	.96
		5	.682	.410	.458	-.44	1.81
	3	1	-1.020*	.312	.011	-1.88	-.16
		2	-.463	.309	.565	-1.31	.39
		4	-.544	.440	.730	-1.75	.67
		5	.219	.465	.990	-1.06	1.50
	4	1	-.476	.383	.726	-1.53	.58
		2	.081	.381	1.000	-.96	1.13
		3	.544	.440	.730	-.67	1.75
		5	.763	.516	.577	-.65	2.18
	5	1	-1.239*	.412	.024	-2.37	-.11
		2	-.682	.410	.458	-1.81	.44
		3	-.219	.465	.990	-1.50	1.06
		4	-.763	.516	.577	-2.18	.65
fast food	1	2	.338	.225	.563	-.28	.96
		3	.238	.319	.946	-.64	1.11
		4	.259	.392	.964	-.82	1.34
		5	.957	.421	.158	-.20	2.11
	2	1	-.338	.225	.563	-.96	.28
		3	-.100	.316	.998	-.97	.77
		4	-.079	.389	1.000	-1.15	.99
		5	.619	.419	.578	-.53	1.77
	3	1	-.238	.319	.946	-1.11	.64
		2	.100	.316	.998	-.77	.97
		4	.021	.450	1.000	-1.22	1.26
		5	.719	.476	.557	-.59	2.03
	4	1	-.259	.392	.964	-1.34	.82
		2	.079	.389	1.000	-.99	1.15
		3	-.021	.450	1.000	-1.26	1.22
		5	.697	.527	.678	-.75	2.15
	5	1	-.957	.421	.158	-2.11	.20
		2	-.619	.419	.578	-1.77	.53
		3	-.719	.476	.557	-2.03	.59
		4	-.697	.527	.678	-2.15	.75

Dressingsaucesjam	1	2	.391	.235	.456	-.25	1.04
		3	.719	.333	.198	-.20	1.63
		4	.092	.408	.999	-1.03	1.21
		5	.500	.439	.786	-.71	1.71
	2	1	-.391	.235	.456	-1.04	.25
		3	.327	.330	.858	-.58	1.23
		4	-.299	.406	.948	-1.41	.82
		5	.109	.437	.999	-1.09	1.31
	3	1	-.719	.333	.198	-1.63	.20
		2	-.327	.330	.858	-1.23	.58
		4	-.627	.469	.670	-1.92	.66
		5	-.219	.496	.992	-1.58	1.14
	4	1	-.092	.408	.999	-1.21	1.03
		2	.299	.406	.948	-.82	1.41
		3	.627	.469	.670	-.66	1.92
		5	.408	.550	.946	-1.10	1.92
	5	1	-.500	.439	.786	-1.71	.71
		2	-.109	.437	.999	-1.31	1.09
		3	.219	.496	.992	-1.14	1.58
		4	-.408	.550	.946	-1.92	1.10
pacekdsweets	1	2	.287	.222	.695	-.32	.90
		3	.692	.314	.183	-.17	1.56
		4	.611	.386	.510	-.45	1.67
		5	.848	.415	.248	-.29	1.99
	2	1	-.287	.222	.695	-.90	.32
		3	.404	.311	.692	-.45	1.26
		4	.324	.384	.917	-.73	1.38
		5	.561	.413	.655	-.57	1.69
	3	1	-.692	.314	.183	-1.56	.17
		2	-.404	.311	.692	-1.26	.45
		4	-.081	.444	1.000	-1.30	1.14
		5	.156	.469	.997	-1.13	1.44
	4	1	-.611	.386	.510	-1.67	.45
		2	-.324	.384	.917	-1.38	.73
		3	.081	.444	1.000	-1.14	1.30
		5	.237	.520	.991	-1.19	1.66
	5	1	-.848	.415	.248	-1.99	.29
		2	-.561	.413	.655	-1.69	.57
		3	-.156	.469	.997	-1.44	1.13
		4	-.237	.520	.991	-1.66	1.19
milkanditsproducts	1	2	.099	.177	.981	-.39	.58
		3	.387	.251	.534	-.30	1.08
		4	.070	.308	.999	-.78	.92
		5	.481	.331	.593	-.43	1.39
	2	1	-.099	.177	.981	-.58	.39
		3	.288	.248	.774	-.39	.97
		4	-.029	.306	1.000	-.87	.81
		5	.382	.329	.774	-.52	1.29
	3	1	-.387	.251	.534	-1.08	.30
		2	-.288	.248	.774	-.97	.39
		4	-.317	.354	.898	-1.29	.65
		5	.094	.374	.999	-.93	1.12
	4	1	-.070	.308	.999	-.92	.78
		2	.029	.306	1.000	-.81	.87
		3	.317	.354	.898	-.65	1.29
		5	.411	.414	.859	-.73	1.55
	5	1	-.481	.331	.593	-1.39	.43
		2	-.382	.329	.774	-1.29	.52
		3	-.094	.374	.999	-1.12	.93

fruitsandvegetABLE	1	4	-.411	.414	.859	-1.55	.73
		2	.252	.141	.381	-.13	.64
		3	.145	.199	.949	-.40	.69
		4	.305	.245	.724	-.37	.98
		5	.114	.263	.993	-.61	.84
	2	1	-.252	.141	.381	-.64	.13
		3	-.106	.197	.983	-.65	.44
		4	.053	.243	.999	-.61	.72
		5	-.138	.261	.985	-.86	.58
	3	1	-.145	.199	.949	-.69	.40
		2	.106	.197	.983	-.44	.65
		4	.160	.281	.980	-.61	.93
		5	-.031	.297	1.000	-.85	.79
	4	1	-.305	.245	.724	-.98	.37
		2	-.053	.243	.999	-.72	.61
		3	-.160	.281	.980	-.93	.61
		4	-.191	.329	.978	-1.10	.71
		5	-.114	.263	.993	-.84	.61
	5	1	.138	.261	.985	-.58	.86
		2	.031	.297	1.000	-.79	.85
3		.191	.329	.978	-.71	1.10	
4		.500	.191	.070	-.02	1.02	
Nuts	1	3	.548	.270	.257	-.20	1.29
		4	.589	.332	.391	-.32	1.50
		5	.079	.357	.999	-.90	1.06
		2	-.500	.191	.070	-1.02	.02
	2	3	.048	.268	1.000	-.69	.78
		4	.089	.330	.999	-.82	1.00
		5	-.421	.355	.759	-1.40	.55
	3	1	-.548	.270	.257	-1.29	.20
		2	-.048	.268	1.000	-.78	.69
		4	.041	.381	1.000	-1.01	1.09
		5	-.469	.403	.773	-1.58	.64
	4	1	-.589	.332	.391	-1.50	.32
		2	-.089	.330	.999	-1.00	.82
		3	-.041	.381	1.000	-1.09	1.01
		5	-.510	.447	.785	-1.74	.72
	5	1	-.079	.357	.999	-1.06	.90
		2	.421	.355	.759	-.55	1.40
		3	.469	.403	.773	-.64	1.58
		4	.510	.447	.785	-.72	1.74
	Redmeat	1	2	.164	.271	.974	-.58
3			.467	.383	.740	-.59	1.52
4			-.059	.471	1.000	-1.35	1.23
5			.655	.506	.695	-.74	2.05
2			-.164	.271	.974	-.91	.58
2		3	.303	.380	.931	-.74	1.35
		4	-.223	.468	.989	-1.51	1.06
		5	.491	.503	.867	-.89	1.87
		1	-.467	.383	.740	-1.52	.59
3		2	-.303	.380	.931	-1.35	.74
		4	-.526	.541	.867	-2.01	.96
		5	.188	.572	.997	-1.38	1.76
		1	.059	.471	1.000	-1.23	1.35
4		2	.223	.468	.989	-1.06	1.51
		3	.526	.541	.867	-.96	2.01
		5	.714	.634	.793	-1.03	2.46
		1	-.655	.506	.695	-2.05	.74
5		2	-.491	.503	.867	-1.87	.89

		3	-.188	.572	.997	-1.76	1.38
		4	-.714	.634	.793	-2.46	1.03
Frozenfruitandvegetable	1	2	.037	.257	1.000	-.67	.74
		3	.348	.364	.874	-.65	1.35
		4	-.060	.446	1.000	-1.29	1.17
		5	.660	.480	.644	-.66	1.98
		1	-.037	.257	1.000	-.74	.67
	2	3	.311	.360	.910	-.68	1.30
		4	-.097	.444	.999	-1.32	1.12
		5	.623	.477	.688	-.69	1.93
		1	-.348	.364	.874	-1.35	.65
	3	2	-.311	.360	.910	-1.30	.68
		4	-.408	.513	.932	-1.82	1.00
		5	.313	.542	.978	-1.18	1.80
		1	.060	.446	1.000	-1.17	1.29
	4	2	.097	.444	.999	-1.12	1.32
		3	.408	.513	.932	-1.00	1.82
5		.720	.601	.752	-.93	2.37	
1		-.660	.480	.644	-1.98	.66	
5	2	-.623	.477	.688	-1.93	.69	
	3	-.313	.542	.978	-1.80	1.18	
	4	-.720	.601	.752	-2.37	.93	
	2	.335	.286	.769	-.45	1.12	
Eggs	1	3	.163	.406	.994	-.95	1.28
		4	.531	.498	.824	-.84	1.90
		5	.913	.536	.433	-.56	2.39
		1	-.335	.286	.769	-1.12	.45
	2	3	-.172	.402	.993	-1.28	.93
		4	.197	.495	.995	-1.16	1.56
		5	.578	.533	.814	-.89	2.04
		1	-.163	.406	.994	-1.28	.95
	3	2	.172	.402	.993	-.93	1.28
		4	.368	.573	.968	-1.21	1.94
		5	.750	.606	.729	-.91	2.41
		1	-.531	.498	.824	-1.90	.84
	4	2	-.197	.495	.995	-1.56	1.16
		3	-.368	.573	.968	-1.94	1.21
		5	.382	.671	.979	-1.46	2.23
1		-.913	.536	.433	-2.39	.56	
5	2	-.578	.533	.814	-2.04	.89	
	3	-.750	.606	.729	-2.41	.91	
	4	-.382	.671	.979	-2.23	1.46	
	2	.453	.238	.318	-.20	1.11	
SweetBeverages	1	3	.480	.337	.614	-.45	1.41
		4	.787	.414	.319	-.35	1.92
		5	.636	.445	.610	-.59	1.86
		1	-.453	.238	.318	-1.11	.20
		3	.027	.334	1.000	-.89	.94
	2	4	.334	.412	.927	-.80	1.47
		5	.183	.443	.994	-1.03	1.40
		1	-.480	.337	.614	-1.41	.45
		2	-.027	.334	1.000	-.94	.89
	3	4	.308	.476	.967	-1.00	1.62
		5	.156	.503	.998	-1.23	1.54
		1	-.787	.414	.319	-1.92	.35
	4	2	-.334	.412	.927	-1.47	.80
		3	-.308	.476	.967	-1.62	1.00
		5	-.151	.558	.999	-1.68	1.38
5	1	-.636	.445	.610	-1.86	.59	

		2	-.183	.443	.994	-1.40	1.03
		3	-.156	.503	.998	-1.54	1.23
		4	.151	.558	.999	-1.38	1.68
HotBeverages	1	2	.838*	.230	.003	.21	1.47
		3	.769	.326	.130	-.13	1.67
		4	.654	.400	.478	-.45	1.75
		5	1.332*	.430	.019	.15	2.51
		1	-.838*	.230	.003	-1.47	-.21
	2	3	-.069	.323	1.000	-.96	.82
		4	-.184	.398	.991	-1.28	.91
		5	.494	.428	.778	-.68	1.67
		1	-.769	.326	.130	-1.67	.13
		2	.069	.323	1.000	-.82	.96
	3	4	-.115	.460	.999	-1.38	1.15
		5	.563	.487	.776	-.77	1.90
		1	-.654	.400	.478	-1.75	.45
		2	.184	.398	.991	-.91	1.28
		3	.115	.460	.999	-1.15	1.38
	4	4	.678	.539	.718	-.80	2.16
		1	-1.332*	.430	.019	2.51	-.15
		2	-.494	.428	.778	-1.67	.68
		3	-.563	.487	.776	-1.90	.77
		4	-.678	.539	.718	-2.16	.80
WineBeer	1	2	.047	.248	1.000	-.63	.73
		3	.194	.351	.981	-.77	1.16
		4	.242	.431	.980	-.94	1.43
		5	1.476*	.464	.014	.20	2.75
		1	-.047	.248	1.000	-.73	.63
	2	3	.147	.348	.993	-.81	1.10
		4	.195	.429	.991	-.98	1.37
		5	1.429*	.461	.018	.16	2.70
		1	-.194	.351	.981	-1.16	.77
		2	-.147	.348	.993	-1.10	.81
	3	4	.048	.496	1.000	-1.31	1.41
		5	1.281	.524	.107	-.16	2.72
		1	-.242	.431	.980	-1.43	.94
		2	-.195	.429	.991	-1.37	.98
		3	-.048	.496	1.000	-1.41	1.31
	4	4	1.234	.581	.213	-.36	2.83
		1	-1.476*	.464	.014	-2.75	-.20
		2	-1.429*	.461	.018	-2.70	-.16
		3	-1.281	.524	.107	-2.72	.16
		4	-1.234	.581	.213	-2.83	.36
Spirits	1	2	.319	.243	.682	-.35	.99
		3	.211	.344	.973	-.73	1.16
		4	.278	.423	.965	-.88	1.44
		5	1.679*	.454	.002	.43	2.93
		1	-.319	.243	.682	-.99	.35
	2	3	-.109	.341	.998	-1.05	.83
		4	-.041	.420	1.000	-1.20	1.11
		5	1.360*	.452	.024	.12	2.60
		1	-.211	.344	.973	-1.16	.73
		2	.109	.341	.998	-.83	1.05
	3	4	.067	.486	1.000	-1.27	1.40
		5	1.469*	.513	.037	.06	2.88
		1	-.278	.423	.965	-1.44	.88
		2	.041	.420	1.000	-1.11	1.20
		3	-.067	.486	1.000	-1.40	1.27
	4	4	1.401	.569	.103	-.16	2.96

OrganicCerealsandPulses	5	1	-1.679*	.454	.002	-2.93	-.43	
		2	-1.360*	.452	.024	-2.60	-.12	
		3	-1.469*	.513	.037	-2.88	-.06	
		4	-1.401	.569	.103	-2.96	.16	
	1	2	2	.564	.239	.131	-.09	1.22
			3	.277	.339	.925	-.65	1.21
			4	.771	.416	.347	-.37	1.91
			5	.465	.447	.837	-.76	1.69
			1	-.564	.239	.131	-1.22	.09
		2	3	-.287	.336	.913	-1.21	.64
			4	.207	.414	.987	-.93	1.34
			5	-.099	.445	.999	-1.32	1.12
		3	1	-.277	.339	.925	-1.21	.65
			2	.287	.336	.913	-.64	1.21
			4	.493	.478	.841	-.82	1.81
			5	.188	.506	.996	-1.20	1.58
	1		-.771	.416	.347	-1.91	.37	
	4	2	-.207	.414	.987	-1.34	.93	
		3	-.493	.478	.841	-1.81	.82	
		5	-.306	.561	.982	-1.85	1.23	
1		-.465	.447	.837	-1.69	.76		
5	2	.099	.445	.999	-1.12	1.32		
	3	-.188	.506	.996	-1.58	1.20		
	4	.306	.561	.982	-1.23	1.85		
	2	.276	.230	.752	-.36	.91		
	3	.216	.326	.964	-.68	1.11		
OrganicTeaandCoffee	1	4	-.078	.400	1.000	-1.18	1.02	
		5	.372	.430	.909	-.81	1.55	
		1	-.276	.230	.752	-.91	.36	
		3	-.060	.323	1.000	-.95	.83	
		4	-.354	.397	.900	-1.45	.74	
	2	5	.097	.428	.999	-1.08	1.27	
		1	-.216	.326	.964	-1.11	.68	
		2	.060	.323	1.000	-.83	.95	
		4	-.294	.460	.968	-1.56	.97	
		5	.156	.486	.998	-1.18	1.49	
	3	1	.078	.400	1.000	-1.02	1.18	
		2	.354	.397	.900	-.74	1.45	
		3	.294	.460	.968	-.97	1.56	
		4	.451	.538	.919	-1.03	1.93	
		1	-.372	.430	.909	-1.55	.81	
	4	2	-.097	.428	.999	-1.27	1.08	
		3	-.156	.486	.998	-1.49	1.18	
		4	-.451	.538	.919	-1.93	1.03	
		2	.450	.226	.274	-.17	1.07	
		3	.370	.321	.779	-.51	1.25	
OrganicSpices	1	4	.527	.394	.667	-.55	1.61	
		5	.620	.423	.587	-.54	1.78	
		1	-.450	.226	.274	-1.07	.17	
		3	-.081	.318	.999	-.95	.79	
		4	.077	.392	1.000	-1.00	1.15	
	2	5	.169	.421	.994	-.99	1.33	
		1	-.370	.321	.779	-1.25	.51	
		2	.081	.318	.999	-.79	.95	
		4	.158	.453	.997	-1.09	1.40	
		5	.250	.479	.985	-1.07	1.57	
	3	1	-.527	.394	.667	-1.61	.55	
		2	-.077	.392	1.000	-1.15	1.00	
3		-.158	.453	.997	-1.40	1.09		
4	1	-.527	.394	.667	-1.61	.55		
	2	-.077	.392	1.000	-1.15	1.00		
	3	-.158	.453	.997	-1.40	1.09		

		5	.092	.530	1.000	-1.37	1.55
		1	-.620	.423	.587	-1.78	.54
		2	-.169	.421	.994	-1.33	.99
		3	-.250	.479	.985	-1.57	1.07
		4	-.092	.530	1.000	-1.55	1.37
ReadytoCookProducts	1	2	.383	.235	.480	-.26	1.03
		3	.628	.333	.329	-.29	1.54
		4	-.172	.409	.994	-1.30	.95
		5	.815	.440	.346	-.39	2.02
		1	-.383	.235	.480	-1.03	.26
	2	3	.244	.330	.947	-.66	1.15
		4	-.555	.407	.651	-1.67	.56
		5	.432	.438	.861	-.77	1.63
		1	-.628	.333	.329	-1.54	.29
		2	-.244	.330	.947	-1.15	.66
	3	4	-.799	.471	.437	-2.09	.49
		5	.188	.497	.996	-1.18	1.55
		1	.172	.409	.994	-.95	1.30
		2	.555	.407	.651	-.56	1.67
		3	.799	.471	.437	-.49	2.09
	4	4	.987	.551	.382	-.53	2.50
		1	-.815	.440	.346	-2.02	.39
		2	-.432	.438	.861	-1.63	.77
		3	-.188	.497	.996	-1.55	1.18
		4	-.987	.551	.382	-2.50	.53
ReadytoCookMasaalas	1	2	.591	.240	.103	-.07	1.25
		3	.424	.340	.724	-.51	1.36
		4	-.023	.418	1.000	-1.17	1.12
		5	.924	.449	.242	-.31	2.16
		1	-.591	.240	.103	-1.25	.07
	2	3	-.167	.337	.988	-1.09	.76
		4	-.614	.415	.577	-1.75	.53
		5	.333	.447	.945	-.89	1.56
		1	-.424	.340	.724	-1.36	.51
		2	.167	.337	.988	-.76	1.09
	3	4	-.447	.480	.884	-1.77	.87
		5	.500	.508	.862	-.89	1.89
		1	.023	.418	1.000	-1.12	1.17
		2	.614	.415	.577	-.53	1.75
		3	.447	.480	.884	-.87	1.77
	4	4	.947	.563	.446	-.60	2.49
		1	-.924	.449	.242	-2.16	.31
		2	-.333	.447	.945	-1.56	.89
		3	-.500	.508	.862	-1.89	.89
		4	-.947	.563	.446	-2.49	.60
CandyCookiesCakePastries	1	2	.376	.224	.447	-.24	.99
		3	.359	.317	.790	-.51	1.23
		4	.293	.389	.944	-.78	1.36
		5	.421	.419	.852	-.73	1.57
		1	-.376	.224	.447	-.99	.24
	2	3	-.018	.314	1.000	-.88	.85
		4	-.083	.387	1.000	-1.15	.98
		5	.045	.416	1.000	-1.10	1.19
		1	-.359	.317	.790	-1.23	.51
		2	.018	.314	1.000	-.85	.88
	3	4	-.066	.448	1.000	-1.30	1.16
		5	.063	.473	1.000	-1.24	1.36
		1	-.293	.389	.944	-1.36	.78
		2	.083	.387	1.000	-.98	1.15

		3	.066	.448	1.000	-1.16	1.30	
		5	.128	.524	.999	-1.31	1.57	
		5	1	-.421	.419	.852	-1.57	.73
			2	-.045	.416	1.000	-1.19	1.10
			3	-.063	.473	1.000	-1.36	1.24
PackagedBakedProducts	1	4	-.128	.524	.999	-1.57	1.31	
		2	.323	.235	.647	-.32	.97	
		3	.473	.334	.617	-.44	1.39	
		4	.322	.410	.935	-.80	1.45	
	2	5	.473	.440	.820	-.74	1.68	
		1	-.323	.235	.647	-.97	.32	
		3	.150	.331	.991	-.76	1.06	
		4	-.001	.407	1.000	-1.12	1.12	
		5	.150	.438	.997	-1.05	1.35	
	3	1	-.473	.334	.617	-1.39	.44	
		2	-.150	.331	.991	-1.06	.76	
		4	-.151	.471	.998	-1.44	1.14	
		5	.000	.498	1.000	-1.37	1.37	
		1	-.322	.410	.935	-1.45	.80	
	4	2	.001	.407	1.000	-1.12	1.12	
		3	.151	.471	.998	-1.14	1.44	
		5	.151	.552	.999	-1.36	1.67	
		1	-.473	.440	.820	-1.68	.74	
		2	-.150	.438	.997	-1.35	1.05	
	5	3	.000	.498	1.000	-1.37	1.37	
4		-.151	.552	.999	-1.67	1.36		
1		2	.278	.211	.682	-.30	.86	
		3	.796	.299	.063	-.03	1.62	
		4	.201	.368	.982	-.81	1.21	
	5	.984	.395	.096	-.10	2.07		
	2	1	-.278	.211	.682	-.86	.30	
3		.518	.297	.407	-.30	1.33		
4		-.077	.365	1.000	-1.08	.93		
5		.706	.393	.379	-.37	1.79		
3		1	-.796	.299	.063	-1.62	.03	
	2	-.518	.297	.407	-1.33	.30		
	4	-.595	.423	.623	-1.76	.57		
	5	.188	.447	.993	-1.04	1.42		
	4	1	-.201	.368	.982	-1.21	.81	
2		.077	.365	1.000	-.93	1.08		
3		.595	.423	.623	-.57	1.76		
5		.783	.495	.511	-.58	2.14		
5		1	-.984	.395	.096	-2.07	.10	
	2	-.706	.393	.379	-1.79	.37		
	3	-.188	.447	.993	-1.42	1.04		
	4	-.783	.495	.511	-2.14	.58		
	FreshBread	1	2	.278	.211	.682	-.30	.86
3			.796	.299	.063	-.03	1.62	
4			.201	.368	.982	-.81	1.21	
5			.984	.395	.096	-.10	2.07	
2			1	-.278	.211	.682	-.86	.30
	3	.518	.297	.407	-.30	1.33		
	4	-.077	.365	1.000	-1.08	.93		
	5	.706	.393	.379	-.37	1.79		
	3	1	-.796	.299	.063	-1.62	.03	
2		-.518	.297	.407	-1.33	.30		
4		-.595	.423	.623	-1.76	.57		
5		.188	.447	.993	-1.04	1.42		
4		1	-.201	.368	.982	-1.21	.81	
	2	.077	.365	1.000	-.93	1.08		
	3	.595	.423	.623	-.57	1.76		
	5	.783	.495	.511	-.58	2.14		
	5	1	-.984	.395	.096	-2.07	.10	
2		-.706	.393	.379	-1.79	.37		
3		-.188	.447	.993	-1.42	1.04		
4		-.783	.495	.511	-2.14	.58		

*. The mean difference is significant at the 0.05 level.

The data was put through the statistical test of Independent samples T test to ascertain if there is any difference between the Gender of the Population and the Food consumption change pre and post lockdown during COVID pandemic. The results indicate that there is no significant difference between all Food items and the Gender of the population except Organic Cereals and Pulses and Hot Beverages.

Table 5: Chi Square Test

H0: The Food Items are Independent of State under study

H1: The Food Items are dependent of the state under study

Particulars	Sig. value for State(Gujarat & Maharashtra) under study
Salted snacks	0.488

Fast foods	0.135
Dressing sauces/ Jam	0.123
Packaged sweets	0.248
Milk and Their Products	0.568
Fresh Fruits and vegetables	0.373
Nuts	0.481
Red/white meat	0.021
frozen fruits and vegetables	0.439
Eggs	0.187
Sweet Beverages	0.089
Hot beverages	0.032
Wine and beer	0.021
Spirits	0.019
Organic cereals and pulses	0.033
Organic Tea and Coffee	0.738
Organic spices	0.644
Using ready to cook products	0.340
Using ready to cook masalas	0.026
Candy, cookies, cakes, and pastries	0.560
Packaged baked products	0.192
Fresh bread	0.857

5 % Significance level*

Data was put through a chi square test to ascertain whether the change in the Food items taken under study are associated with the place of stay or state. Table 5 enumerates the p value obtained for all the food products under study. It is established that the change in the food habits in the category Red/White meat, Sweet & hot beverages, Wine, beer ,spirit & Organic pulses & cereals have been significantly dependent on the selected states. While other food items are showing no association between change in the food consumption habits and the states considered in the study.

Change in the consumption household consumption patterns pre and post lockdown

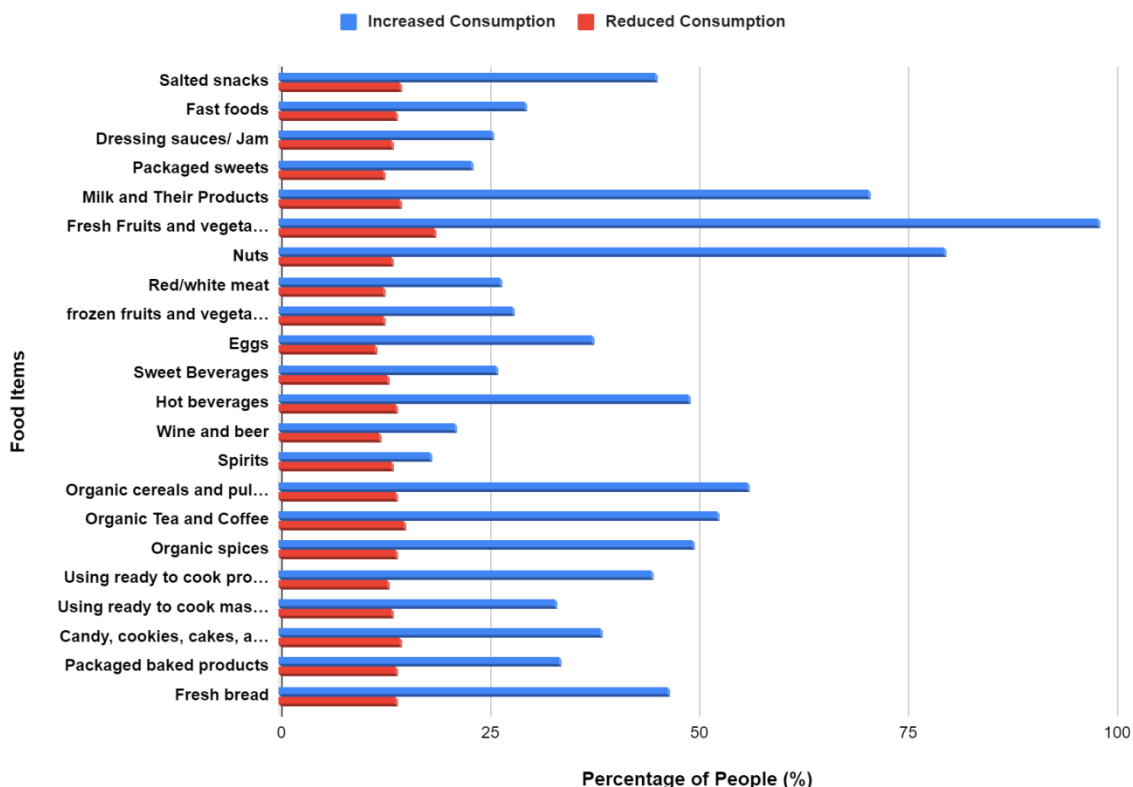


Figure 1: Food Consumption change pre and post lockdown

Source: Created by authors by Primary Data Collection

Table 6: Reason for increase in consumption of food products (Values in Percentage %)

Particulars	Work from home(%)	Eating out of boredom	Maintenance of healthy diet	More cooking at home
Salted snacks	25.7	17.7	7.3	16.3
Fast foods	15.9	15.9	8.4	16.3
Dressing sauces/ Jam	11.0	10.2	8.5	11.4
Packaged sweets	13.4	13.0	8.0	10.5
Milk and Their Products	20.5	9.8	25.4	18.0
Fresh Fruits and vegetables	17.8	7.3	41.3	13.0
Nuts	15.0	8.5	38.2	8.5
Red/white meat	9.4	7.7	15.0	4.7
frozen fruits and vegetables	12.7	8.1	13.1	7.6
Eggs	11.4	5.9	18.1	7.2

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Sweet Beverages	9.7	10.9	10.1	7.4
Hot beverages	15.7	12.3	17.8	11.9
Wine and beer	9.4	9.0	8.6	4.7
Spirits	9.0	8.5	7.7	4.7
Organic cereals and pulses	13.3	6.2	29.5	12.0
Organic Tea and Coffee	15.1	11.3	27.2	8.4
Organic spices	13.8	9.6	23.4	9.2
Using ready to cook products	19.0	14.3	8.9	12.2
Using ready to cook masalas	13.9	9.2	11.8	12.6
Candy, cookies, cakes, and pastries	16.7	15.8	9.0	11.1
Packaged baked products	16.1	14.0	8.1	8.1
Fresh bread	18.6	11.4	13.1	8.9

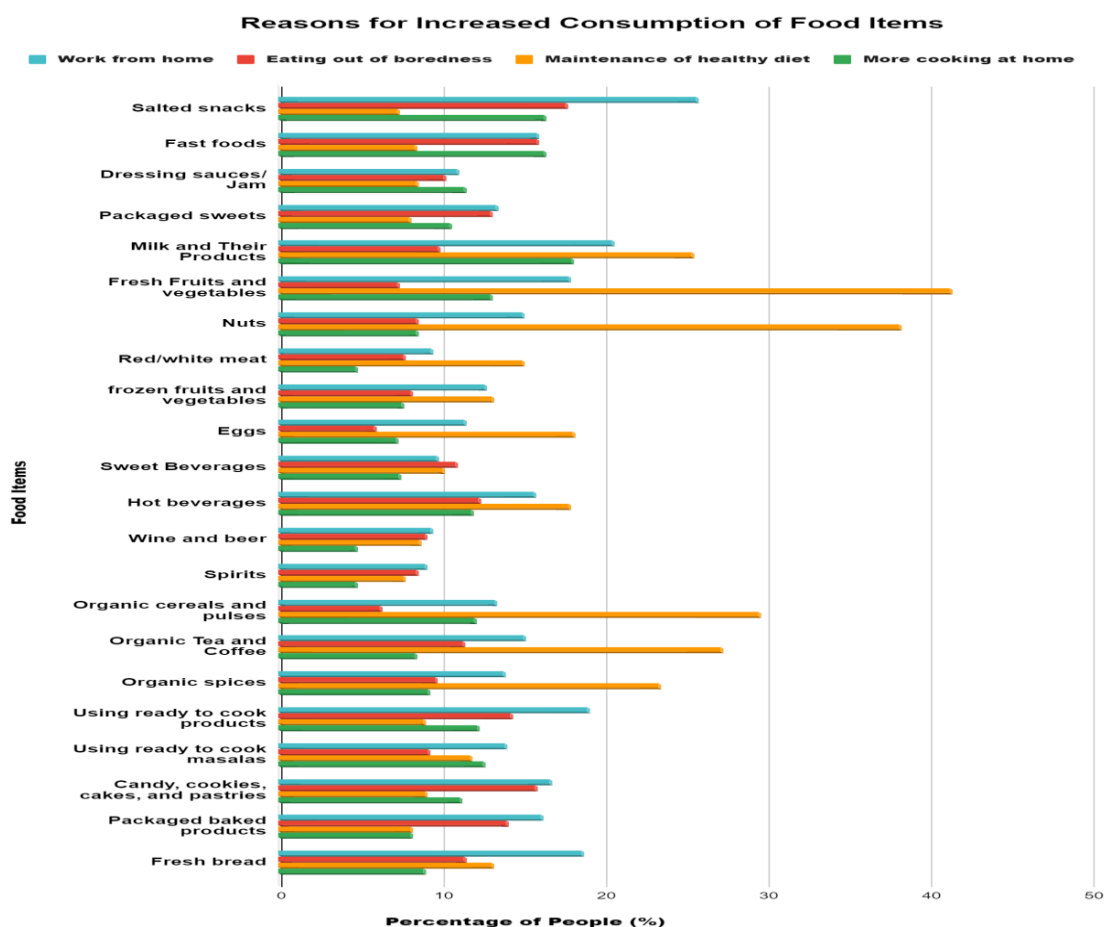


Figure2. Reasons for Increased consumption of Foods

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Source: Created by authors from data collection

Table 6 brings out the major reasons for increase in consumption of food of various categories. According to the study, it can be inferred (refer figure 1) milk, milk products, Fresh fruits & vegetables, nuts, organic cereals, organic tea are the major products of consumption increase. Sample population under study must have recollected from public sources like media, ayurvedic learnings etc. to find food that will support the human body in increasing & maintaining immunity to fight corona infection.

Table 7: Reason for Reduction in consumption of food products (Values in Percentage %)

Particulars	Income Loss	Employment Loss	Cost of Good Increased	Maintenance of healthy Diet	Non availability of the product	Safety Reasons
Salted snacks	8.4	2.8	2.8	30.0	5.6	20.4
Fast foods	8.0	3.2	1.6	29.5	5.6	30.7
Dressing sauces/ Jam	6.5	4.0	3.2	28.3	5.3	19.8
Packaged sweets	4.3	3.9	3.1	25.6	4.3	24.8
Milk and Their Products	7.8	3.7	2.9	24.8	4.1	11.1
Fresh Fruits and vegetables	7.4	3.7	3.3	17.4	0.8	12.8
Nuts	7.4	3.3	5.3	13.2	2.0	13.9
Red/white meat	5.8	3.9	2.7	13.6	2.7	15.5
frozen fruits and vegetables	5.3	4.5	4.1	18.5	2.5	16.0
Eggs	7.4	2.1	4.9	17.7	4.1	14.8
Sweet Beverages	5.3	4.9	2.8	17.9	5.3	19.5
Hot beverages	5.3	5.7	2.0	10.5	4.1	15.2
Wine and beer	5.4	4.5	2.9	14.0	2.9	16.9
Spirits	6.6	4.5	2.5	15.3	4.1	14.9
Organic cereals and pulses	6.2	4.9	4.9	9.6	4.5	14.0
Organic Tea and Coffee	6.6	5.3	4.5	2.8	6.2	12.8
Organic spices	5.8	5.4	4.1	10.0	4.6	15.4
Using ready to cook products	5.7	4.9	2.9	21.6	6.1	17.1
Using ready to cook masalas	5.7	5.3	2.4	19.0	4.9	18.6
Candy, cookies, cakes, and pastries	4.7	6.6	2.7	17.4	4.3	18.2

Packaged baked products	8.1	3.3	3.3	20.3	2.4	21.5
Fresh bread	6.2	4.9	3.7	18.5	3.3	18.9

Reason for Reduction in consumption of food products

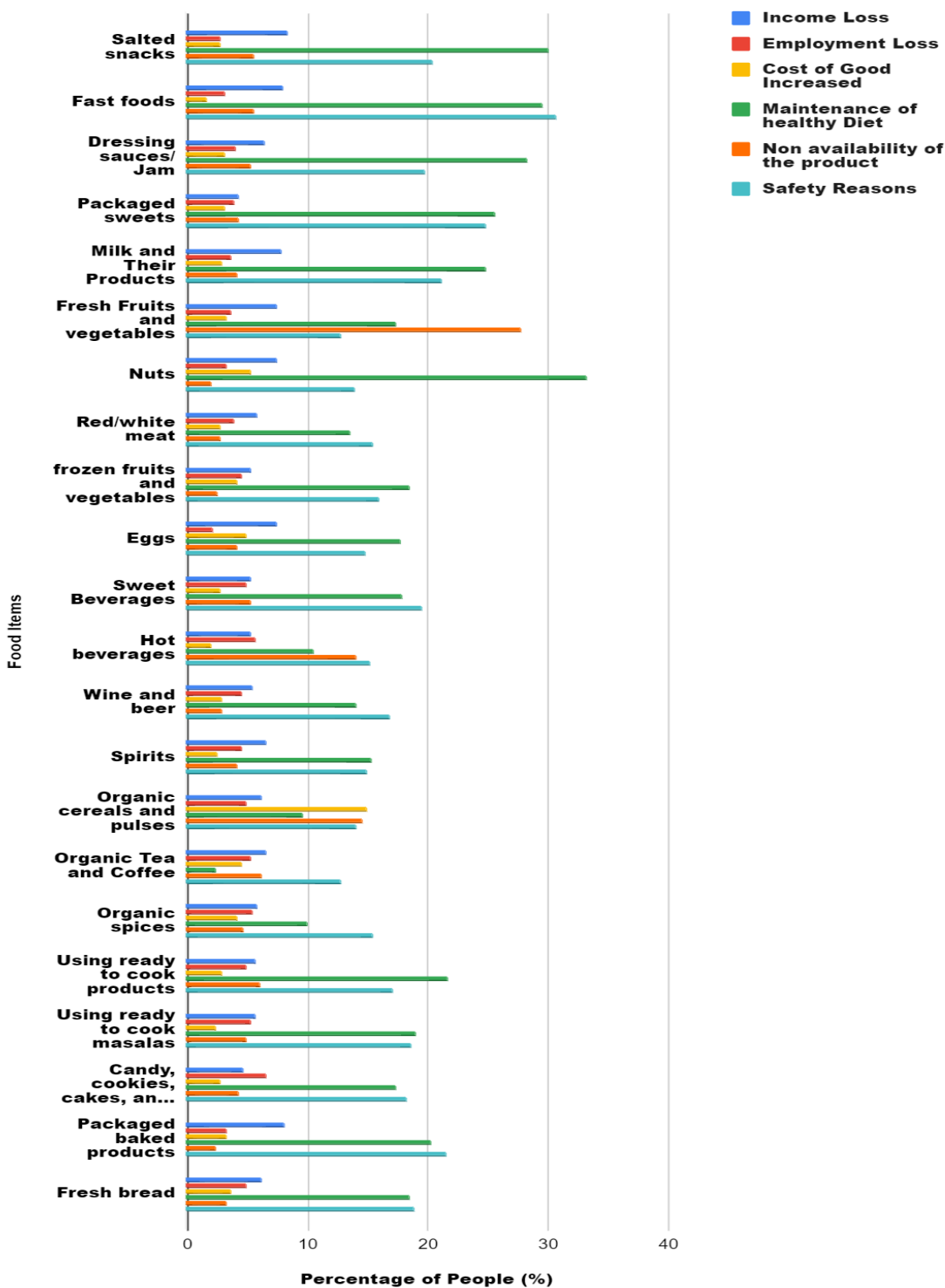


Figure 3: Reasons for decreased consumption of Foods
Table 7 depicts a decrease in consumption of food products that are perceived to be unrelated or negatively related to immunity building and leading a healthy lifestyle.

<https://www.gapinterdisciplinaries.org/>

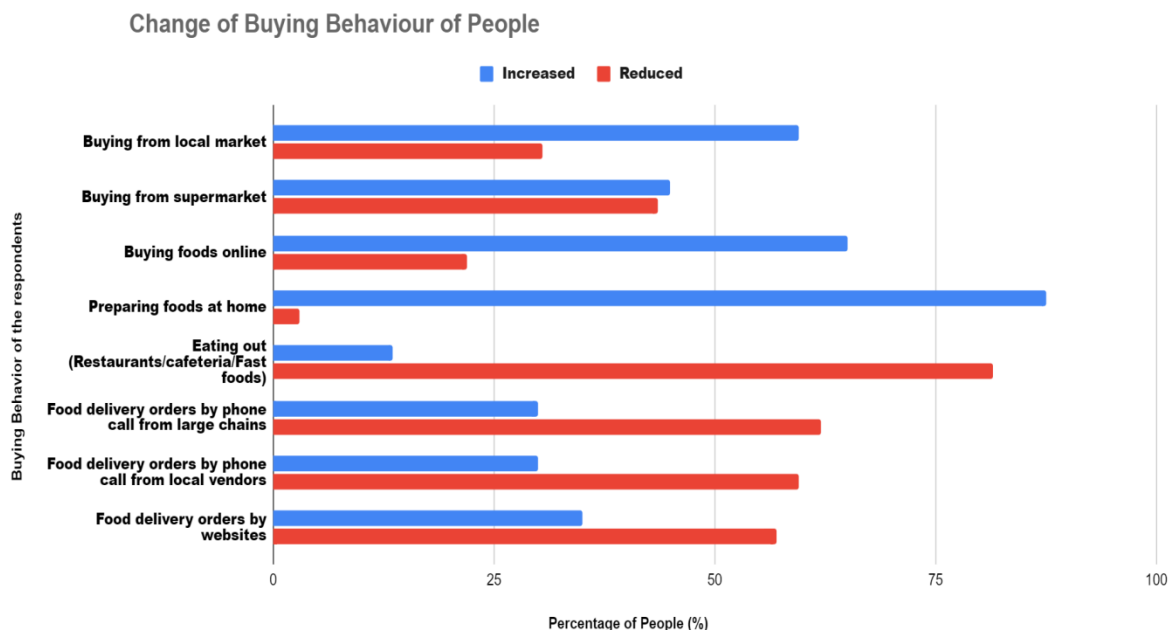


Figure 4: Change in Buying Behaviour of Foods pre and post lockdown

People have started living with the bare essentials in the pandemic situation and junk foods have replaced home cooked meals and fresh fruits and veggies. Nowadays, Healthfulness is the biggest consideration over price and taste. The demand for some foods during Pandemic has increased primarily to maintain a healthy diet and remote working. According to figure 1, 41.3% of people have increased the consumption of Fresh Fruits and vegetables during pandemic. Further, on average 52% of respondents responded that the consumption of Organic Cereals and Pulses, Organic Tea and Coffee and Nuts has shown a sharp rise to maintain better health with the primary reason to maintain a healthy diet and secondary work from home. Due to the current situation of working from home many people have noticed the change of consumption of foods and lifestyle changes. 43.8% of people said that work from home due to COVID has increased the consumption of Salted Snacks and Fresh Bread. This may include situations like eating out of boredom or inattentiveness as compared to regular office workings.

Further away, the consumption of some foods have been decreased with the consideration to avoid any health abnormalities during crisis. Maintenance of Healthy diet, Income loss and the safety reasons are the primary reasons behind the decrease in the consumption of some foods. The consumption of Processed foods (such as Salted snacks, Dressing Sauces and Jams, Fast foods, Packaged sweets, Ready to cook products) has been reduced by 60% with the main reason to maintain health and to stay safe. Other than that the consumption of some foods has been reduced due to other reasons including Increased cost of Goods, Employment loss and Income loss. Further, 15.8% of people have responded that the consumption of Premium brands has been reduced (such as Amul, Nestle, MTR, Haldiram's Kissan, Balaji, Mother Dairy, etc) because other lower and medium ranged alternative products are available in the market and home cooked meals continue to be preferred over outhouse consumption.

The results of the research - "Food Consumption change during COVID 19" clearly indicates the change in the buying behaviour/ Food shopping pre and post lockdown. According to figure 4, 87.5% people indicated that they prefer home cooked meals and have cut out of home consumption by 81%. Though there is a rise in the online consumption of foods and ordering groceries online, 65% of respondents responded. 59.9% of respondents prefer to buy from local shops rather than going to supermarkets. Ordering through phone calls from restaurant chains and local vendors as well as through websites has seen a decline curve.

1.9 CONCLUSION & DISCUSSION :

COVID 19 Pandemic has changed the way of living drastically.. Even though the situation is recovering, the pandemic has changed the living and eating styles and has forced people to live with the new normal by including some nutrients to the regular diets. The consumption patterns of consumers has undergone a drastic change during COVID pandemic especially in the consumption of Food - The basic necessity for the Human kind. Major Consumption change has been found in beverages & non vegetarian product categories in the study. Many people have curbed unhealthy foods in their diets in order to maintain a healthy lifestyle in this situation of a health crisis. Following that the people have switched their consumption to Fresh fruits and vegetables and Organic Foods such as Organic Tea - coffee, Spices and pulses. Thereby the demand for such

foods has increased sharply. There is a significant increase in the demand for Fresh Fruits and Vegetables, Milk and their products, Fresh breads, Hot beverages and Nuts to maintain healthy life - a primary reason behind the increased consumption. Vast decrease in the demand has been noticed in foods such as Wine and beer and Fast foods, Ready to cook Products, Dressing Sauces and Jam on account of maintaining a healthy diet and safety reasons. Out of the change in the consumption of Food items during COVID 19 Pandemic, Fruits and vegetables are the most consumed food items and the fast foods are the least consumed items in this crisis as people have started paying attention towards maintaining a healthy lifestyle. Gender of the consumers has no relationship with the consumption of food items except Hot Beverages and Organic Cereals and Pulses.

There is a significant reduction in the demand of the foods from restaurants and food houses directly as well as food delivery orders by phone calls and websites from local vendors and restaurant chains has also been brought down. Although Online delivery orders via phone calls and by websites are playing a key role in supplying food to people, there is significant reduction in the actual consumption of food from outside. Considering safety and social distancing as a matter of health and wealth, a surge is seen in home prepared foods. The concern for immunity continues to increase which is inferred from the results of the study. Consumption of food that does not directly relate to add on immunity & overall health has been avoided during the pandemic. The COVID Pandemic will give the chance to the world for Economic and Health reformation. The food companies and Food houses around the world need to reconsider their menus and food processing techniques to provide healthy foods to the world. People have started eating and choosing healthy alternatives and that may turn to standard practice while choosing food items. The right choice of healthy consumption will stay as a positive after effects even post pandemic.

1.10 LIMITATIONS AND FUTURE SCOPE:

COVID 19 will reshape the future of the Food Industry as food is now the major concern to maintain healthful living of Human Beings even post pandemic. This study has examined the impact of COVID 19 on the change in food consumption as well as buying behaviour with the corresponding reasons. Future expectations of customers from the food industry can be analyzed by including more parameters in the study. Moreover, participants of the study are from two states of Western India on the basis of convenience of the authors which can be further extended by considering other states in the study or worldwide.

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