

EFFECT OF COVID-19 LOCKDOWN ON DIETARY BEHAVIOUR AND PHYSICAL ACTIVITY OF YOUNG WOMEN BETWEEN 20-30 YEARS

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Abstract: This study was undertaken to evaluate the effect of lockdown on dietary behaviour and physical activity of young women between 20-30 years. 100 young women between the age of 20-30 years and residing in Mumbai City were selected using Purposive Convenience Sampling. Data was collected using online Google forms and circulated to the participants through social media handles. Participants were asked to fill data for before and during lockdown. Majority of the participants were found to be engaged in full body workouts and yoga at home during lockdown. A non-significant trend was noted in the frequency, duration and intensity of the exercises performed by the participants ($p > 0.05$). However, a significant increase was noted in the subjects engaged in household chores ($p = 0.006$). Due to lockdown, participants were working from home and a significant decrease was noted in their travelling time ($p = 0.000$). Also, sitting and sleep time had increased significantly ($p = 0.000$). A significant decrease was noted in the subjects ordering food from outside ($p = 0.000$). Participants reported consumption of indigenous decoction and other herbs to improve their immunity. Through Food Frequency Questionnaire, the consumption of snacks, desserts, fruits, bread/bun, carbonated drinks and non-vegetarian foods were found to decrease significantly during lockdown ($p < 0.05$).

IndexTerms - COVID-19, Lockdown, Pandemic, Diet, Physical Activity.

I. INTRODUCTION

In 2019, the world witnessed the greatest pandemic outbreak of all times- Coronavirus Disease 2019. COVID-19 is a lower respiratory disorder which is caused by SARS-CoV-2 (Severe Acute Respiratory Syndrome Coronavirus-2). This virus was first isolated from the patient suffering from pneumonia in Wuhan, China. It was initially named as 2019- novel Coronavirus (2019-nCoV) on 12th January, 2020 by World Health Organisation (WHO). Later, WHO officially renamed the disease as Coronavirus Disease 2019 (COVID-19) and Coronavirus Study Group (CSG) of the International Committee proposed the name for the new virus as SARS-CoV-2, both issued on 11th February, 2020 (Yan-Rong et al., 2020).

The number of people getting infected from COVID-19 had increased dramatically. Innumerable deaths were reported. As a preventive measure, lockdown was imposed globally to prevent further spread of the disease. While lockdown might have prevented the spread of one disease, it has also paved way for other non-communicable diseases. In a cross-sectional survey by Sinha et al., 2020, the authors investigated the sleep-wake pattern, meal timings and social media exposure, and how all of these factors are interrelated. The participants reported longer sleep duration, delayed meal times and increased duration of watching television by two hours in younger participants and three hours in older participants. The authors da Silva et al., 2020 in their narrative review also reported an increase in the screen time, because of which participants became more inactive.

Lockdown and social distancing norms had forced people to stay in their houses in order to prevent further spread of the disease. For people whose lives were already sedentary, this was like a cherry on the icing. Physical inactivity is associated with visceral fat deposition. Physical inactivity, along with abdominal obesity, gives rise to fat accumulation-induced chronic inflammation with fatigue and muscle wasting due to increase in Interleukin 6 (Burini et al., 2020). These associations increase the mortality and morbidity, and reduce the overall quality of life. In a cross sectional survey done on Chilean population, the authors reported that a sedentary time of ≥ 6 h/day had a positive association with body weight increase (Reyes-Olavarría et al., 2020). In a study, it was found that the participants whose physical activity had decreased reported high amount of perceived stress, while it wasn't true the other way round (Dunca et al., 2020; López-Bueno et al., 2020). This correlation was stronger in women than in men (Maugeri et al., 2020).

A population study conducted by Scarmozzino & Visioli, 2020 showed an increase in the consumption of 'comfort food' which included sweet savories, salty snacks etc. There was a decrease in alcohol consumption (36.8 %), and some participants also stated decrease in fresh fruit and vegetable consumption due to lack of availability. Emotional eating was prevalent in women because they were more prone to become anxious and resort to emotional eating than men. They were also at high risk of becoming the victim of depression. These women resorted to comfort food to cope anxiety and stress (Al-Musharaf, 2020). Another online survey done on young Polish women reported increase in cooking frequency, snacking and food consumption in general. Subjects with high BMI were more prone to quarantine-related increased food consumption, the lowest frequency of fruit, vegetable, and legume consumption on a daily basis; and the greatest tendency to consume meat, sweets, salty snacks, and fast foods every day (Sidor & Rzymiski, 2020).

II. MATERIALS AND METHODS

The study aimed to evaluate the effect of lockdown on dietary behaviour and physical activity of the subjects, and also to identify the various reasons for the change. The study was conducted on 100 young women between the age of 20-30 years residing in Mumbai City, Maharashtra, India. Participants were selected using purposive convenience sampling. Survey forms

were administered to the participants using online platform (Google form) via social media handles such as WhatsApp and Instagram. The instructions of filling of the survey and the objectives of the study were explained to the participants who filled the forms. They consented to be a part of the study. The study was approved by Institutional Ethics Committee. Following data was collected from the participants: Personal Information, Medical History, Consumption of nutritional supplements, Questions on Dietary Pattern and Physical Activity for before lockdown and during lockdown (i.e. April to June 2020). In physical activity, subjects were asked to tick the various exercises they performed along with its intensity, duration and frequency, household chores done, travelling time, sitting time and sleeping hours. Dietary behaviour consisted of questions on food habits, number of meals consumed in a day, frequency of skipping meals, frequency of ordering food from outside, amount of tea/coffee and milk consumed daily, frequency of snack consumption and reasons for its change and inclusion of herbal immunity boosters. Food consumption pattern was assessed through a food frequency questionnaire (FFQ). The options were never, rarely, once a month, once in 15 days, once a week, 2-3 times a week and daily. The data was analysed using Statistical Package for Social Sciences Software (SPSS version 20). Student’s paired t-test was used to identify if there was any change in their habits. The change was considered significant at 95% level of confidence (p value < 0.05).

III. RESULTS AND DISCUSSION

3.1 Demographic data and medical history

35% of the participants were of 22 years followed by 21 years (21%), 20 years (16%) and 23 years (14%) respectively. 14% of the participants were in the age group of 24-29 years. Most of the participants (59%) were graduates, 23% had completed a professional or honours degree and 18% were found to have completed their Higher Secondary Certificate Examination. 85% participants were not suffering from any clinical condition. 15% participants reported a medical history. The most commonly reported disease among the participants was PCOS (53.61%) followed by thyroid (Hypo/Hyper- 26.70%). Diabetes Mellitus, Migraine, Sinusitis and Bronchitis were reported by 6.70% participants. It was found that out of the 15% participants suffering from medical condition, only 9% were taking medication. 74% of the participants were not consuming any nutritional supplements, 14% of the participants were taking supplements before pandemic while 12% of the participants started consuming supplements during pandemic. 38.5% of the participants consumed vitamin C and 34.60% consumed vitamin D. Zinc, B complex and calcium was consumed by 26.90% of the participants. 23.10% of the participants consumed multivitamin tablets, omega 3 and protein, while multimineral tablets were consumed by 19.20% participants. Iron and Folate/Folic acid were taken by 7.70% participants.

3.2 Physical Activity

Percentage of the participants performing physical activity showed an increasing trend (68%) than before lockdown (60%). From figure 3.2.1, majority of the participants were found to be engaged in full body home workouts, which also showed an increasing trend from 33.30% to 55.10% during lockdown period. The percentage of the participants performing yoga also increased from 31.70% to 40.60% during lockdown. An increasing trend was observed in the performance of zumba, a type of physical activity (8.30% to 13%) and jogging (5% to 7.20%), whereas a declining trend was observed for aerobics (11.70% to 8.70%), gym workout (23.30% to 8.70%) and brisk walk (35% to 18.80%) because of physical restriction due to lockdown. Chopra et al., 2020 in their study reported the various reasons for decline in the physical activity, which were lack of availability of time (25.3%), lack of motivation (24.5%) and social restriction to parks and public places (18.6%).

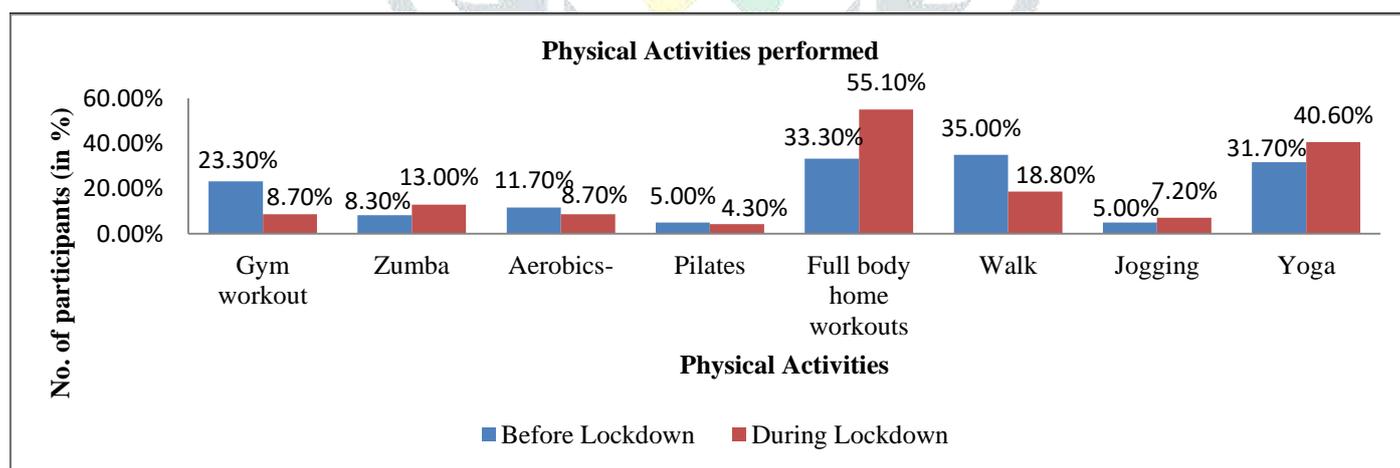


Fig 3.2.1: Physical Activities performed

Table 3.2.1: Physical Activity Analysis

Questions		Mean ± Standard Deviation	N	t-test	df	Sig (2-tailed)
Pair 1- How often did you perform them?	Before Lockdown	2.22 ± 2.04	100	1.492	99	0.139
	During Lockdown	2.53 ± 2.007	100			
Pair 2- What was the duration?	Before Lockdown	1.73 ± 1.66	100	1.878	99	0.063
	During Lockdown	2.07 ± 1.65	100			
Pair 3- What was the intensity of the workouts?	Before Lockdown	1.12 ± 1.04	100	1.864	99	0.065
	During Lockdown	1.32 ± 1.03	100			

From table 3.2.1, a non-significant trend was noted (p value= 0.139) in performing exercises during lockdown by the participants. Also, a non-significant difference was noted for the duration of the exercises and its intensity performed (p value > 0.05). Hence, not much change was observed in the physical activities performed by the participants before and during lockdown. Puccinelli et al., 2021 in their cross-sectional study on Brazilians found that during lockdown, the physical activity level of the participants had significantly reduced as compared to before lockdown (p < 0.005). Also, the low level of physical activity was associated with higher incidences of anxiety and depression, which was found more in women than men (p < 0.001). Woods et al., 2020 in their review article found that low physical activity due to social distancing was associated with the risk of cardiovascular disease, reduced immune and respiratory function, musculoskeletal system and brain function. Due to lockdown restriction, housekeeping members stopped coming. Hence, there was an increase in the percentage of participants doing household chores from 78% to 96%. Figure 3.2.2 shows that majority of the subjects were found doing household chores such as washing utensils (58% to 81.90%), followed by sweeping and mopping the floor (55.60% to 77.70%), cooking (54.30% to 70.20%), drying the clothes (45.70% to 62.80%) and washing clothes (33.30% to 40.40%). A declining trend was noted in the participants engaged in dusting (3.70% to 1.10%); perhaps the participants were engaged in doing other household chores which could not be neglected. In a study conducted by Ismail et al., 2020 on UAE adults, it was found that the number of participants who performed household chores daily increased from 24.1% to 35.4% (p < 0.001).

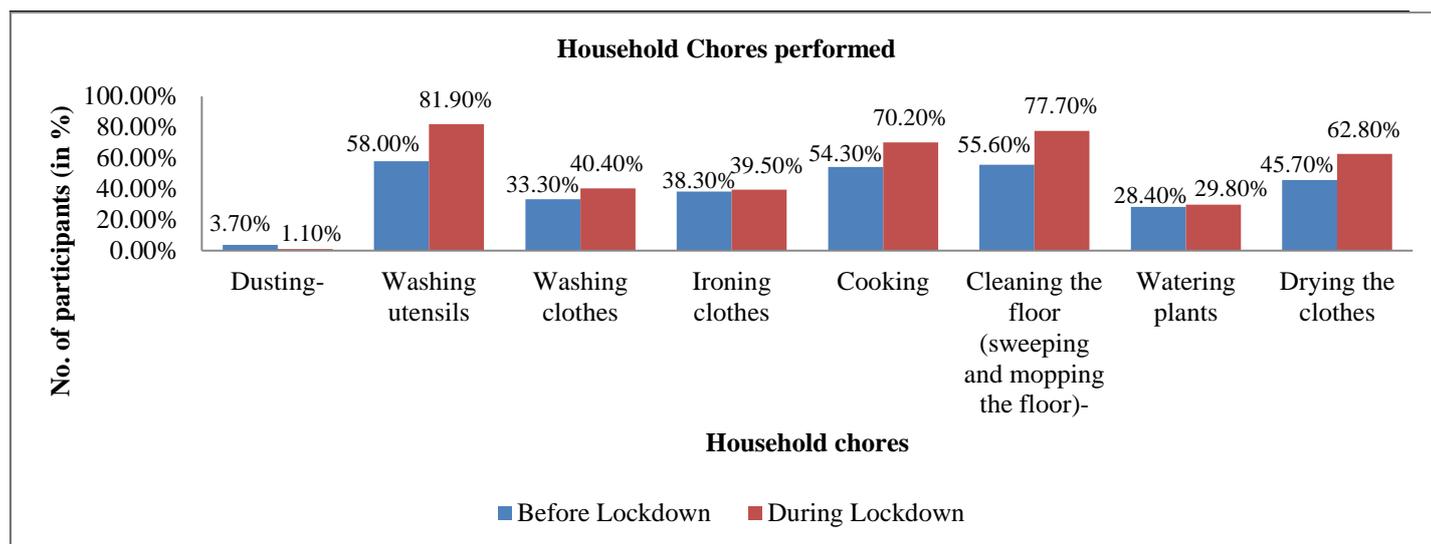


Fig 3.2.2: Household Chores performed

Table 3.2.2: Analysis of Physical Activity

Questions	N	Mean ± Standard Deviation	t-test	df	p-value	
Pair 1- Do you do any household chores?	Before Lockdown	100	0.96 ± 0.197	2.783	99	0.006**
	During Lockdown	100	1.11 ± 0.469			
Pair 2- Average time taken to do household chores	Before Lockdown	100	1.5 ± 1.307	6.926	99	0.000**
	During Lockdown	100	2.32 ± 1.413			
Pair 3- How much time did you spend in travelling?	Before Lockdown	100	2.65 ± 1.25	13.727	99	0.000**
	During Lockdown	100	0.69 ± 0.775			
Pair 4- How much time did you spend in sitting? (including your job/college hours)	Before Lockdown	100	2.96 ± 1.109	8.897	99	0.000**
	During Lockdown	100	3.72 ± 1.036			
Pair 5- How many hours do you sleep?	Before Lockdown	100	1.86 ± 0.682	5.944	99	0.000**
	During Lockdown	100	2.31 ± 0.706			

Table 3.2.2 shows the analysis of physical activity. Due to lockdown, people spent a lot of time at home. Participants were engaged in a lot of household chores (p value= 0.006) and the increase in duration of household chores was highly significant (p value= 0.000). Time spent in travelling significantly reduced from 2.65 ± 1.25 to 0.69 ± 0.775 (p value= 0.000). The working/college hours were found to increase, and a significant increase was observed in their seating time due to online classes and desk job (p value = 0.000), thus contributing to the sedentary lifestyle. Since there was a significant decrease in the travelling time (p value= 0.000) and also participants were at home, it may be the reason why the sleep duration of the participants had increased (p value = 0.000). Overall, staying at home decreased the physical activity of the participants. These findings were in agreement to the study conducted by Sañudo et al., 2020 on Spanish young adults. It was found that due to confinement, there was decrease in physical activity engagement and an increase in the sedentary behavior of the respondents. Sitting time increased by an average of 3.3 hours per day during lockdown (p = 0.002). Sleep duration had also increased, probably due to not travelling to college or work and having more time to sleep.

3.3 Food Consumption and Dietary Behaviour

51% participants were vegetarian and 49% were non-vegetarian. Most of the participants consumed three-four meals in a day before and during lockdown (a decrease from 51% to 48%). Participants consuming more than four meals increased from 12% to

19%. 59% of the participants did not skip meals during lockdown. The percentage of participants not ordering any takeaways increased from 14% to 34% during lockdown. No participant ordered food daily during the lockdown. Participants snacking often increased from 38% to 48% during the lockdown. The percentage of participants snacking between the meals increased from 27.4% to 29.4% during lockdown ($p < 0.001$). This is in agreement with the study conducted by Alfawaz et al., 2021.

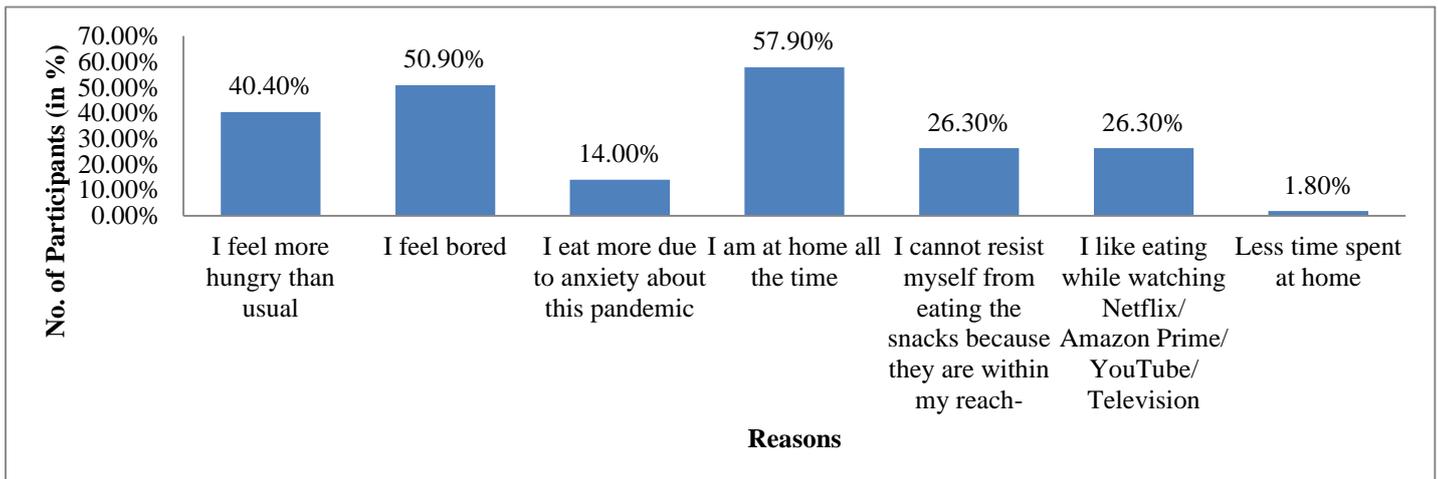


Fig 3.3.1: Reasons for change in frequency of snacking

When an enquiry was taken from the participants about the various reasons for change in the snacking pattern (fig 3.3.1), 57.90% of the participants reported that they were at home all the time; hence there was increase in snacking by most of the subjects in the study. 50.90% of the participants snacked because of the boredom, followed 40.40% participants who reported that they felt more hungry now than before lockdown. 26.30% of the participants snacked because they couldn't resist themselves from eating and similar trend was noted in the participants who liked eating while watching Netflix/Amazon Prime/Television or YouTube. 14% of the participants were anxious due to the pandemic because of which they ate more than usual. 1.80% said that less time was spent at home because of which subjects didn't find any difference in the snacking pattern.

Many studies have reported weight gain due to COVID-19 lockdown. The quantitative descriptive/ correlational study by Zachary et al., 2020 investigated the various risk factors which were associated with weight gain during the pandemic. 59% of the participants reported no change in their weight, while 22% reported an increase in weight by 5-10 pounds and 4% reported a decrease in weight by 10 pounds. The participants experienced an increase in the food intake because they were with their family(59%), 65% said that they ate in response to sight and smell of the food, 73% craved certain foods, 73% ate food because they were bored and 65% increased snacking after dinner. Mindless eating occurs when there is loss of control over eating. This could be a possible factor linked with weight gain.

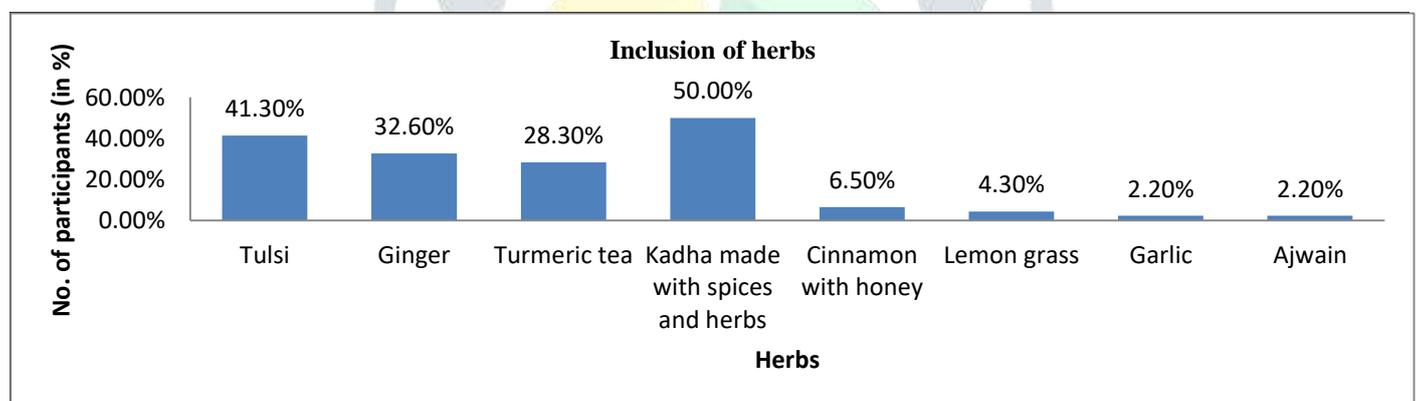


Fig 3.3.2: Inclusion of Herbs

From figure 3.3.2 it was noted that participants included herbs and some recipes made out of it in their daily life to improve their immunity. 50% of the participants were found to consume indigenous decoction (kadha) made with various spices and herbs. 41.30% of the participants consumed tulsi, 32.60% added ginger in their preparations and 28.30% took turmeric tea and turmeric milk. 6.50% of the participants were found to consume cinnamon with honey. Very few participants also consumed lemon grass (4.30%), garlic (2.20%) and carom seeds (2.20%).

The data of this study showed an intake of homemade decoctions and inclusion of herbs, as well as allopathic supplementation of vitamins and minerals by the participants to improve their immunity during the pandemic. Similar results were also found by Nanavaty et al., 2020 in their cross-sectional study done in Gujarat, India. Before pandemic, 42.19% participants were already taking immunity boosters and during pandemic, 64.16% were taking immunity boosters. 75.54% respondents consumed Ayurvedic medication as immunity boosters. Ministry of AYUSH under government of India had also published guidelines on improving immunity. This included drinking herbal decoction, turmeric milk etc. (Ministry of Ayush, *Ayurveda's immunity boosting measures for self care during COVID 19 crisis*).

Table 3.3.1: Dietary Behaviour Analysis

Questions		Mean \pm Standard Deviation	N	t-test	df	Sig (2-tailed)
Pair 1- How many meals do you consume?	Before Lockdown	2.72 \pm 0.712	100	1.534	99	0.128
	During Lockdown	2.84 \pm 0.748	100			
Pair 2- How often do you skip your meals?	Before Lockdown	1.15 \pm 1.32	100	3.201	99	0.002**
	During Lockdown	0.77 \pm 1.1	100			
Pair 3- How often do you order takeaways (Swiggy, Zomato etc.) or had your meals from outside?	Before Lockdown	1.90 \pm 1.291	100	4.69	99	0.000**
	During Lockdown	1.30 \pm 1.25	100			
Pair 4- How often do you snack in between your meals?	Before Lockdown	1.30 \pm 0.611	100	1.578	99	0.118
	During Lockdown	1.39 \pm 0.65	100			
Pair 5- How often do you consume tea/coffee daily?	Before Lockdown	0.73 \pm 0.54	100	2.388	99	0.019*
	During Lockdown	0.66 \pm 0.55	100			
Pair 6- Amount of milk consumed	Before Lockdown	1.97 \pm 1.80	100	0.791	99	0.431
	During Lockdown	2.06 \pm 1.94	100			

From table 3.3.1, it was found that although the number of meals consumed by participants had increased from 2.72 ± 0.712 to 2.84 ± 0.748 during lockdown, it was not significant (p value > 0.05). Further, number of meals skipped was decreased significantly during lockdown (p value = 0.002). During lockdown, there was a significant decrease in ordering of takeaways from outside by the participants (p value = 0.000). Snacking in-between of the meals increased from 1.30 ± 0.611 to 1.39 ± 0.65 , but this was non-significant (p value > 0.05). There was a significant decrease in the consumption of tea/coffee daily (p value = 0.019). The amount of milk consumed increased from 1.97 ± 1.80 to 2.06 ± 1.94 during lockdown, but it was non-significant (p value > 0.05). In an observational retrospective study conducted by Błaszczuk-Bębenek et al., 2020, it was found that the subjects snacking between the meals significantly increased by 5.1% during lockdown ($p=0.001$). The percentage of people eating outside food and ordering take-away had also decreased significantly ($p<0.001$), which is in agreement with the present study. The number of meals eaten during the day during lockdown had significantly increased ($p<0.001$). 11.2% of the participants consumed more than 5 meals per day.

3.4 Food Frequency Questionnaire Analysis

Table 3.4.1: Food Frequency Questionnaire Analysis

Food Groups		Mean \pm Standard Deviation	N	t-test	df	Sig (2-tailed)
Pair 1- Cereals	Before Lockdown	27.83 \pm 6.18	100	1.09	99	0.278
	During Lockdown	27.28 \pm 7.57	100			
Pair 2- Pulses and Legumes	Before Lockdown	14.70 \pm 4.13	100	0.356	99	0.723
	During Lockdown	14.56 \pm 5.29	100			
Pair 3- Milk and Milk Products	Before Lockdown	11.42 \pm 3.97	100	1.561	99	0.122
	During Lockdown	10.98 \pm 4.23	100			
Pair 4- Nuts and Oilseeds	Before Lockdown	15.70 \pm 8.21	100	0.68	99	0.498
	During Lockdown	16.08 \pm 8.81	100			
Pair 5- Poultry and Non Veg	Before Lockdown	6.35 \pm 6.59	100	3.400	99	0.001**
	During Lockdown	5.57 \pm 6.10	100			
Pair 6- Vegetables	Before Lockdown	45.80 \pm 11.53	100	0.898	99	0.371
	During Lockdown	44.93 \pm 14.69	100			
Pair 7-Fruits	Before Lockdown	24.98 \pm 8.78	100	2.098	99	0.038*
	During Lockdown	23.56 \pm 9.76	100			

Pair 8- Dried Fruits	Before Lockdown	6.98 ± 5.30	100	2.931	99	0.004**
	During Lockdown	6.02 ± 5.31	100			
Pair 9- Beverages	Before Lockdown	4.83 ± 3.68	100	1.645	99	0.103
	During Lockdown	4.33 ± 3.14	100			
Pair 10- Bakery products	Before Lockdown	6.07 ± 2.42	100	3.808	99	0.000**
	During Lockdown	5.39 ± 2.55	100			
Pair 11- Desserts	Before Lockdown	13.35 ± 5.87	100	5.48	99	0.000**
	During Lockdown	10.91 ± 6.35	100			
Pair 12- Snacks	Before Lockdown	29.70 ± 12.21	100	5.578	99	0.000**
	During Lockdown	24.44 ± 13.37	100			

Majority of the participants consumed rice and chapati daily. The consumption of rice, chapati, paratha, rice flakes, sago and idli reduced during lockdown, but not significantly (p value > 0.005). An increase was seen in consumption of bhakri and upma, but not significantly (p value > 0.05). Overall, there was decrease in the consumption of cereals from 27.83 ± 6.18 to 27.28 ± 7.57, but it was non-significant (p value > 0.05).

Split and whole yellow and green gram lentil, split pigeon peas and split bengal gram lentil were consumed the most by the participants. Consumption of Soya bean and black chickpeas increased during lockdown, but not significantly (p values > 0.05). There was a decrease in the consumption of Bengal gram flour, kidney beans and split and whole yellow and green gram lentil, split pigeon peas and split bengal gram lentil (p value > 0.05). No significant decrease was observed in the total consumption of pulses and legumes (p value > 0.05).

A significant decrease in the consumption of curd was reported during lockdown (p value= 0.038). There was a decrease in the consumption of cheese and khoa/cream (p value > 0.05). The consumption of paneer/cottage cheese increased during lockdown (p value > 0.05). Overall the consumption of milk and milk products decreased, but not significantly (p value > 0.05).

Subjects consumed almonds and walnuts the most. Flax seeds, chia seeds and pumpkin seeds consumption showed a declining trend (p value > 0.05), while consumption of other nuts and oilseeds by the participants slightly increased during lockdown. Although there was an increase in the overall consumption of nuts and oilseeds, it was not significant (p value > 0.05).

From table 3.4.1, a decreasing trend in consumption of all the non-vegetarian foods was noticed. Egg was consumed the most as compared to mutton which was consumed the least by the respondents. The decrease in consumption of chicken and fish was found to be highly significant (p value= 0.002 and 0.003 respectively). The decrease in the total poultry and non-veg foods was highly significant (p value= 0.001). There were many myths which people had harboured during COVID-19 pandemic. One such myth was that consuming non-veg foods can transmit the virus, and infect the person with COVID-19. There is no evidence to support this. Priyadharsini et al., 2020 in their review paper cleared this myth, and reported that properly cooked non-vegetarian foods are safe to consume. An online cross-sectional survey done in 26 Indian states showed a decrease in fast food and meat products in 60% and 34% of the participants respectively (Narayanan et al., 2020).

A significant reduction was noted in the consumption of tomato (p value= 0.012), lady's finger (p value= 0.01) and potato (p value= 0.044). Tomato, cucumber and onion were found to be consumed the most as compared to sweet potato which was least preferred by the respondents. A decrease in consumption was noted in most of the vegetables, while sweet potato, pumpkin, bitter gourd and ridge gourd showed a slight increase (p value > 0.05). A decrease in the total consumption of vegetables was noted, though it was not significant (p value = 0.371). Hence, there was no change in the consumption of vegetables before and during lockdown. A NutriNetBrasil Cohort Study was conducted on Brazilian adult population, where the data were collected just before the lockdown began and during the lockdown. Unlike other studies, the authors here reported an increase in the consumption of healthy foods (such as vegetables, fruits and legumes) and stability in the consumption of unhealthy foods (ultra-processed foods). (Steele et al., 2020)

In the present study, it was noted that participants preferred banana and apple the most. There was a decrease in consumption of all the fruits, and a significant decrease was noted in the consumption of pomegranate and grapes (p value= 0.038 and 0.007 respectively). There was a significant decrease in the total consumption of fruits during lockdown (p value= 0.038). This could be due to low availability of the fruits and high cost attributed to lockdown restriction. 17% of the French participants reported a decrease in the consumption of fresh fruits and 18% for fresh vegetables due to poor access to the stores or products in a cross-sectional study by Deschasaux-Tanguy et al., 2021.

Respondents consumed dates mostly and the least consumption was noted in figs. A significant decrease was noted in the consumption of dried fruits during lockdown (p value= 0.004).

The consumption of carbonated beverages (p value= 0.025) and milkshakes (p value= 0.036) reduced significantly during lockdown. This could be probably due to the fear of catching cold. There was a decrease in consumption of coconut water (p value > 0.05) and increase in soy milk consumption (p value > 0.05). Table 3.4.1 showed a decrease in the total beverages consumed, which was not significant (p value = 0.103).

The consumption of white or brown bread and pav (bun) was found to decline significantly (p value= 0.003 and 0.001 respectively). The decrease in the consumption of bakery products was found to be highly significant (p value= 0.000).

In the present study, participants were found to eat chocolates the most during lockdown. Consumption of most of the desserts showed a significant decrease (p value < 0.05), while Indian sweets, kheer/phirni and custard/puddings showed a minimal decrease (p value > 0.05). Overall desserts' consumption significantly decreased during lockdown (p value= 0.000).

This is in contradiction with the results of the cross-sectional descriptive study conducted by Sánchez-Sánchez et al., 2020 on 385 Spanish adults. During the confinement, the authors reported an increase in the consumption of nuts, alcoholic beverages, confectionaries, homemade desserts and snacks amongst the respondents ($p < 0.05$).

A significant decrease in ordering food from the outside was reported in the study, which could be the reason for reduction in the snacks consumption. Respondents were at home all the time, and were eating home cooked meals. Thus, consumption of most of the snacks were found to be significantly decreased (p value= 0.000). It was observed that participants mostly consumed biscuits and maggi during lockdown. Consumption of papad, chivda/farsan and popcorn were found to be similar before and during lockdown. The decrease in total snacks consumption was found to be highly significant ($p = 0.000$).

In a cross-sectional study conducted in Kuwait by Husain & Ashkanani, 2020, it was found that consumption of fast food by the respondents had significantly reduced during the lockdown ($p < 0.001$), which is similar to the present study. There was an increase in the consumption of Americano coffee ($p = 0.005$) and chocolates, nuts and crisps, which is in contradiction with the results of the present study. There was a significant reduction in the frequency of consumption of fish and sea food ($p < 0.001$).

IV. CONCLUSION

Due to physical restriction of lockdown, all the schools, colleges and offices were shut. Participants were working from home. Their travelling time had decreased. Consequently, their sitting time and sleeping hours had significantly increased, contributing to the sedentary lifestyle ($p < 0.05$). The participants performed home based workouts, yoga, zumba etc. at their home. But the frequency, duration and intensity showed no significant difference during lockdown ($p > 0.05$). People were allowed to leave their house only for essential purposes, thus no household help was available either. A significant increase was seen in the participants doing the household activities during lockdown ($p < 0.05$). A significant decrease was noted in the consumption of cold food items such as carbonated drinks, ice creams etc ($p < 0.05$). No change was found in the consumption of cereals, pulses and milk and milk products ($p > 0.05$). A significant decrease was noted in the consumption of Non-veg foods, snacks, fruits and desserts. It can be concluded that COVID-19 lockdown had a negative impact on physical activity, but had slightly improved the eating habits of the participants.

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