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Original Research Article

Has the COVID-19 lockdown wreaked havoc on diet and lifestyle choices?

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ABSTRACT

Background: The COVID-19 pandemic induced nationwide lockdown affected the 1.3 billion population of India. Home confinement and isolation have caused sudden lifestyle and dietary changes. A healthy diet is crucial in this period. Studies have shown that subjects with severe obesity and smokers are at higher risk of COVID-19. Such studies can help advocate nutritional interventions to support the health status of people. Hence this study aims to investigate the impacts of COVID-19 lockdowns on dietary behavior and lifestyle habits of adults.
Methods: This is a cross sectional study done in Chengalpattu district with a sample size of 150 adults. Two-stage random sampling was done and a semi structured, self-administered online questionnaire was used. IBM statistical package for the social sciences (SPSS) v.21 was used for analyses.
Results: In this study 46% people reported snacking more during the COVID-19 lockdown. An increase in alcohol consumption was seen in 14.6% and 45% smokers experienced a rise in smoking frequency. There was a 2.6% decrease in the number of people spending time for physical fitness during lockdown and the perception of weight gain was observed in 46.7% of respondents. Sleep duration seemed to have improved in the lockdown with 64.7% people sleeping for 7-9 hours during lockdown, compared to only 40.7% people before lockdown.
Conclusions: The current study found that there was a negative impact of lockdown on the dietary habits and lifestyle choices of the people. Hence it is important to advocate appropriate nutritional interventions and create awareness among people about healthy diet and lifestyle choices during these the COVID-19 pandemic.

Keywords: COVID-19, Dietary habits, Smoking

INTRODUCTION

The COVID-19 pandemic which began in December 2019 induced one of the largest nationwide lockdowns in the world affecting the 1.3 billion population of India. It is estimated that globally at least 4 billion people were under lockdown. During this period people were either working from home, attending online classes or even being temporarily unemployed. Isolation, home confinement and boredom led to sudden lifestyle and dietary changes in a large number of people. Even as the lockdown is being lifted in a gradual manner, people are struggling to return to their normal routine. The changes that happened during the lockdown have now become the "new normal" which not only means wearing masks and using sanitizers but also food and lifestyle changes that have become part of people's lives.

Also, the fear of contracting the virus and the economic impact of the lockdown had burdened people with stress. A healthy diet is crucial especially in such a period when the immune system needs to fight back. Studies have shown that subjects with severe obesity are one of the groups with higher risk of complications from COVID-19 disease.[1] Studies also say that more severe symptoms can occur in smokers.[2] In addition, such negative diet and

lifestyle changes also increase the risk of certain non-communicable diseases. It is known fact that obesity and physical inactivity are one of the major behavioral risk factors for non-communicable diseases like diabetes, hypertension, and cardiovascular disorders. Such studies can help advocate nutritional interventions to help support the health status of the people.

Hence this study aims to investigate the impact of COVID-19 induced lockdowns on dietary behavior and lifestyle habits of people.

Aims and objectives

Aims and objectives of the study include: to explore and analyze the changes in dietary habits and lifestyle among the adult population of Chengalpattu district, and to assess their fear of contracting the corona virus during grocery shopping and through contact with food products.

METHODS

This is a cross sectional study done in an urban health training centre (UHTC) of a medical college at Chengalpattu district. Taking the prevalence of dietary habits change as 43% with 7% margin of error, the minimum sample size required was calculated to be 150 adults.[3] Adults who were registered in the outpatient department (OPD) were taken as the study population and the study was done during a period of one month.

Inclusion criteria

Individuals above 18 years of age and who consented to participate in the study were included.

Exclusion criteria

People who were tested positive for COVID or had any acute illness during the study period, pregnant women and people those who did not consent to participate in the study were excluded.

Sampling method

Two-stage random sampling was done.

Stage 1

Two months were randomly selected (November 2019 and January 2020) from the period before lock down started, from the OPD register maintained at our UHTC by lottery method.

Stage 2

Totally there were about 2223 adults in these two months out of which 150 adults were selected by random number generator table for our study

Study tool

A semi structured, self-administered online (Google form) questionnaire which had three parts as following was used.

Part I

It included questions on personal details, socio demographic characteristics.

Part II

It included questions on eating habits.

Part III

It included questions on lifestyle changes including physical activity, sleep duration, smoking, alcohol consumption and questions to assess fear of contracting corona virus.

The recruited participants were contacted over phone and explained about the purpose and confidentiality of this study. After obtaining consent the online questionnaire was sent to them for filling. The collected Google form data were coded in Microsoft excel and analyzed using IBM- statistical package for the social sciences (SPSS) software version 21.0.

RESULTS

All the 150 participants completed the questionnaire. The breakdown of the socio demographic characteristics of the studied population are presented in Table 1. Majority (58.7%) of the participants were in the age group 25-45 years. 35.3% of the participants were in the age group 18-24 years and 5.3% of the participants were greater than 45 years. Gender distribution is as follows, 48% were males and 52% were females. Majority (51.3%) of the study population were people who had completed under graduation. 47.3% people were post graduates and 1.3% of the people had completed secondary school. 42% of the study population were students and only 29.3% of the study population were going to work as usual during the lockdown. The remaining people of the study population were mostly at home during the lockdown. The distribution of the body mass index (BMI) of the study participants according to World Health Organization (WHO) classification of BMI is as follows, 56.7% participants were in the normal BMI category, while 33.0% participants were in the overweight category and 6.7% participants were in the obese category. Only 3.3% of the study participants were in the underweight category.

Dietary patterns

Table 2 shows the distribution of dietary changes among the participants. 32% of the study participants reported consuming more food than usual during the quarantine and 46% of the participants reported snacking more frequently

during the quarantine. 22.7% of the participants said that they consumed more than 4 meals per day during the lockdown. 2% of the participants reported taking more than 6 meals per day during the lockdown while 0.7% participants took more than 6 meals even before the lockdown. 10% of the study participants took 4-5 meals per day before the lockdown while 20.7% people took 4-5 meals per day during the lockdown, which is a 10% rise. Table 3 shows the distribution of participants who consumed more food during quarantine according to their employment status during quarantine. 50% of the participants who were unemployed and 41% of the students (who were also in home confinement) consumed more food than usual during the quarantine. 63.7% participants who worked as usual reported that they consumed food as usual during the quarantine. The employment status was found to be a significant factor influencing the consumption of more food during quarantine. With respect to snacking, 46% reported snacking more frequently during the lockdown with 2.7% people snacking more than 4 times per day during the lockdown. Table 4 shows the frequency distribution of consumption of various foods during the lockdown. 45.3% of the participants reported consuming fruits and vegetables once a day, while 32% participants reported consuming meat products 2-3 times a week and 44.7% reported consuming dairy products once a day. 28.7% participants reported consuming fast foods/junk foods once per week while 23.3% reported as consuming fast foods 2-3 times a week. 24.7% of the participants reported consuming packed foods or instant foods atleast once per week. 32.7% people reported consuming sweets and desserts 2-3 times a week and 35.3% reported consuming coffee/tea more than once per day.

Lifestyle changes

Table 5 shows the distribution of lifestyle changes among the participants during the lockdown. 46.7% of the participants responded that they noticed an increase in their bodyweight during the quarantine. Before the lockdown only 40.7% of the participants reported having an ideal sleep duration of 7-9 hours, while during the lockdown 64.7% participants reported sleeping for 7-9 hours.[4] Before the lockdown 59.3% participants spent time for physical activity and 30.7% participants reported spending more than 5 hours per week for physical activity, while during the lockdown 56.7% people spent time for physical activity and 24.7% reported spending more than 5 hours a week for physical activity. With respect to the adverse social habits which is shown in Tables 6 and 7, it is observed that 9.3% participants reported smoking before the lockdown while it decreased to 6.7% during the lockdown and 5.3% participants reported a tendency to smoke more during the lockdown. 20.7% participants responded that they had consumed alcohol before the lockdown while it reduced to 14.7% during the lockdown among which 5.3% reported as having a tendency to drink more during the lockdown.

When asked about the fear of contracting the virus during grocery shopping and contact with food, 49.3% participants said that they had a fear of contracting the coronavirus during grocery shopping while 22% said they had a fear of contracting the virus during contact with food (Table 8).

Table 1: Distribution of the general characteristics of the participants (n=150).

Characteristics	N	%
Age (in years)		
18-24	54	36.0
25-45	88	58.7
>45	8	5.3
Gender		
Male	72	48
Female	78	52
Education		
Secondary school	2	1.3
Undergraduate	77	51.3
Post graduate	71	47.3
BMI		
Underweight (<18.5)	5	3.30
Normal (18.5-24.9)	85	56.70
Overweight (25-29)	50	33.30
Obese (>30)	10	6.70
Employment status		
Student	63	42
Work from home	20	13.3
Go to work as usual	44	29.3
Unemployed	10	6.7
Temporarily out of job	13	8.7
Hours of work per day (including work from home and online classes)		
<3	18	12
3-6	34	22.7
6- 8	56	37.3
>8	42	28

Table 2: Distribution of the dietary changes of the participants (n=150).

Parameters	N	%
Dietary changes		
Yes	48	32
Did you consume more food than usual during quarantine?		
No	75	50
May be	27	18

Continued.

Parameters	N		%	
No. of meals per day	**Before lockdown**	**During lockdown**	**Before lockdown**	**During lockdown**
1-2	24	25	16	16.7
3	110	91	73.3	60.7
4-5	15	31	10	20.7
>6	1	3	0.7	2
Did you snack more frequently than usual during quarantine?				
Yes	69		46	
No	63		42	
Maybe	18		12	
No. of snacks eaten per day during quarantine				
None	15		10	
1	51		34	
2	68		45.3	
3	12		8	
>4	4		2.7	

Table 3: Distribution of participants who consumed more food during quarantine according to their employment status during quarantine (n=150).

Category	Yes	No	Maybe	Total	P value
Student	26 (41.3)	22 (34.9)	15 (23.8)	63	
Work from home	04 (20.0)	15 (75.0)	01 (5.0)	20	
Work as usual	10 (22.7)	28 (63.7)	06 (13.6)	44	0.034
Unemployed	05 (50.0)	03 (30.0)	02 (20.0)	10	
Temporarily out of job	03 (23.1)	07 (53.8)	03 (23.1)	13	

Table 4: Dietary habits during the lockdown (n=150).

Food servings during quarantine	Vegetab-les and fruits	Pulses/cereals /wheat/dhal/ millet	Meat products	Dairy products	Fast foods/ junk foods	Instant product/ packed foods	Sweets/ desserts	Coffee/ tea
>1 per day	35 (23.3)	34 (22.7)	9 (6.0)	40 (26.7)	10 (6.7)	7 (4.7)	10 (6.7)	53 (35.3)
Once per day	68 (45.3)	62 (41.3)	17 (11.3)	67 (44.7)	22 (14.7)	16 (10.7)	15 (10)	45 (30)
2-3 times/week	34 (22.7)	43 (28.7)	48 (32)	26 (17.3)	35 (23.3)	34 (22.7)	49 (32.7)	15 (10)
Once per week	10 (6.7)	6 (4.0)	43 (28.7)	9 (6.0)	43 (28.7)	37 (24.7)	45 (30)	5 (3.3)
Once per month	1 (0.7)	0	11 (7.3)	5 (3.3)	25 (16.7)	23 (15.3)	22 (14.7)	1 (0.7)
Never	2 (1.3)	5 (3.3)	22 (14.7)	3 (2.0)	15 (10)	33 (22)	9 (6.0)	31 (20.7)

Table 5: Lifestyle changes during the lockdown (n=150).

Lifestyle changes	N		%	
Change in body weight				
Increase	70		46.7	
No change	54		36	
Decrease	26		17.3	
Sleep duration (hours)	**Before lockdown**	**During lockdown**	**Before lockdown**	**During lockdown**
<7	87	42	58	28
7-9	61	97	40.7	64.7
>9	2	11	1.3	7.3
Time spent for physical fitness				
Yes	89	85	59.3	56.7
No	61	65	40.7	43.3
Duration of physical activity per week (hours)				
1-2	38	41	25.3	27.3

Continued.

Lifestyle changes	N		%	
3-4	29	29	19.3	19.3
>5	46	37	30.7	24.7

Table 6: Smoking and alcohol consumption habits before and during the lockdown (n=150).

Parameters	N		%	
	Before lockdown	During lockdown	Before lockdown	During lockdown
Smoking habits				
Yes	14	10	9.3	6.7
No	136	140	90.7	93.3
Alcohol consumption				
Yes	31	22	20.7	14.7
No	119	128	79.3	85.3

Table 7: Tendency to smoke and drink more alcohol during the quarantine (n=150).

Parameters	N	%
Tendency to smoke more during quarantine		
Yes	8	5.3
No	140	93.3
May be	2	1.3
Tendency to drink more alcohol during quarantine		
Yes	8	5.3
No	140	93.3
May be	2	1.3

Table 8: Participants fear of contracting the virus (n=150).

Parameters	N	%
Fear of contracting the virus during grocery shopping		
Yes	74	49.3
No	44	29.3
May be	32	21.3
Fear of contracting virus during direct contact with food		
Yes	33	22
No	92	61.3
May be	25	16.7

DISCUSSION

In the current study 32% people reported consuming more food during the quarantine and 18% participants said that they might have consumed more food during the quarantine. A similar study done in Italy reported that 46.1% respondents reported that they consumed more food during the home confinement period.[5] In this study 46% people reported snacking more during the COVID-19 lockdown. A similar study conducted in Poland showed that over 43% reported eating more.[3] The current study showed that 28.7% participants consumed junked foods atleast once a week while 24.7% participants consumed instant/pre-packed foods once per week. 32.7% participants reported consuming sweets or desserts 2-3 times per week. The study done in Italy also reported an increase in consumption of "comfort food" notably chocolates, ice cream, dessert and salty snacks.[5] The present study reported that almost half of the participants noticed an increase in body weight during the quarantine. There was a slight reduction in the number of people who smoke by 2.6% during the lockdown and a 6% reduction in the number of people who consumed alcohol during the lockdown. However, among the smokers 57.14% had an increased tendency to smoke during quarantine and among the people who consumed alcohol 25.8% had a tendency to drink more during quarantine. Another study done in Italy stated that the perception of weight gain was observed in 48.6% of the population. It also stated that an increase in alcohol consumption was seen in 14.6% and 45% smokers experienced a rise in smoking frequency. 3.3% of smokers decided to quit smoking while a slight increase in physical activity was reported in 38.3% respondents.[6] In the current study there was a 2.6% decrease in the number of people spending time for physical fitness during lockdown. A study done among diabetics in Spain during the lockdown reported that physical inactivity was exacerbated during the home confinement.[7] Sleep duration seemed to have improved in the lockdown with 64.7% people sleeping for 7-9 hours during lockdown, compared to only 40.7% people before lockdown. A study done in the United Kingdom stated that poor diet, poor sleep quality and reduced physical activity is linked to more negative mood.[8] Some participants had fear of contracting the virus during direct contact with food while some participants did not have the fear of contracting the virus while shopping for grocery.

CONCLUSION

The current study found that there was a negative impact of lockdown on the dietary habits of the people. People tend to consume more food during the home confinement and they tend to consume more of unhealthy foods. The physical activity among people has also reduced while there is an increase in weight gain. These changes would impact the health status of the people in a negative manner. Although there is a slight decrease in the number of people

who smoked and consumed alcohol during quarantine which can be attributed to the shops being closed in lockdown, the tendency to smoke and drink more was found to be increased. Such poor diet and lifestyle choices not only increases the risk of COVID-19 but also increases the risk of other non-communicable diseases such as diabetes, hypertension and cardiovascular disorders. Therefore, it is important to advocate appropriate nutritional interventions and create awareness among people about healthy diet and lifestyle choices during these testing times of COVID-19. In addition, it is also important to educate people adequately about the modes of spread of the virus and the precautions that need to be taken which can also reduce the anxiety among people. These measures would benefit the people in the long run as well.

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