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LOCKDOWN DUE TO COVID-19: JUNK FOOD CONSUMPTION PATTERN AND LIFESTYLE CHANGES AMONG COLLEGE STUDENTS IN SOUTH INDIA.

Community Medicine

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ABSTRACT

Background and Objectives: The current situation of continuous lockdown due to COVID-19, has altered the diet pattern and lifestyle of adolescents .The objective of this study was to assess the junk food consumption pattern and lifestyle changes in college students of South India.
Methodology: It was a cross sectional questionnaire based online survey. A questionnaire consisting of 30 questions based on junk food consumption pattern and life style changes was made available as Google forms and shared to medical, paramedical, dental, engineering and arts college students in South India. The survey was done from 18 July to 22 July 2020.
Results: 211 responses were received and the data expressed as numbers and percentage. The data revealed that 49% students observed an increase in their body weight. 51% reported a decrease in their junk food consumption. 83% students preferred home-made foods and 64% have developed a change in their liking from junk foods to healthy foods. 60% students sleep for 6-8hrs a day and 8% students sleep more than 10hrs a day. 44% students have reduced physical activity and 70% an increase in screen (mobiles/computers/television) exposure time of more than 6hrs a day.
Conclusion: This online survey observed a change in diet pattern and lifestyle of college students in South India. A decrease in junk food consumption and physical activities were observed. An increase in body weight and sleep duration has been reported. There was a tremendous increase in screen exposure time during the lockdown.

KEYWORDS

Lockdown, COVID-19, Junk food, lifestyle changes, College students

INTRODUCTION:

COVID-19, Corona virus disease 2019 is a viral infectious disease caused by SARS-CoV2, Severe Acute Respiratory Syndrome Corona virus 2. The pandemic has spread to more than 188 countries across the globe and more than 17.3 million cases have been reported till 31 July 2020. The death due to this disease is more than 6,73,431 as on 31 July 2020. In India, 16,43,543 cases and 35,817 deaths have been reported as on 31 July 2020.[1]

On March 24, 2020, the Government of India ordered a nationwide lockdown for 21 days, to limit the movement of the 1.3 billion populations, as a measure to prevent the spread of COVID-19. Since then many states and districts of India are still under lockdown with minimal relaxation depending on the incidence of COVID-19.

The schools and universities of many states of India, including Tamilnadu, remain closed since 24 March, 2020. The students are confined to their homes and miss any outdoor activities like sports, physical fitness exercises, Cinemas and public gatherings. Online classes are scheduled for the students by the schools and colleges since April 2020. Students are in a position to stay at home and attend online classes for more than 4 months. Junk food consumption could be one of the factors that the students might be interested to reduce their stress during lockdown period.

"Eat healthy and live healthy" is one of the essential requirements for long life. Junk food generally refers to foods that contribute lots of calories but little nutritional value. They are rich in fats and sugars but low in complex carbohydrate and dietary fibres. The widespread liking developed among adolescents for junk food, in general, may be due to its convenience of procuring, taste and flavour, reasonable price and not their nutritional quality. In recent years nutritional knowledge about junk food consumption and the associated health risks have received global attention. However India is still experiencing "nutritional transition" characterized by increasing consumption of junk food and a growing number of meals purchased and consumed away from home.[2]

In recent decades, it has been observed that junk food and fast food consumption has increased the risk of depression, aggressiveness, cardiac diseases, hypertension, obesity, type 2 diabetes mellitus and even cancer. The flavouring and colouring agents added can be allergic causing asthma, rashes and anaphylaxis.[3]

Most of the students during their meal time eat junk food and get addicted to the taste of it which then becomes custom. Junk food is not only consumed during the meal time, but also when students have spare time and the desire.[4]

The lifestyle of the students has changed due to the current scenario of continuous lockdown. Consequently the screen time of the students spent on mobiles, computers and televisions has increased. The eating habits and sleep pattern of the students have changed as well.[5]

Limited studies are available on the food consumption pattern and lifestyle changes during COVID-19 lockdown in India. With this background, this study was planned to assess the junk food consumption pattern and lifestyle of college students during COVID-19 lock down period.

OBJECTIVES:

1. To assess the knowledge and consumption pattern of junk foods among college students during lockdown period.
2. To know the lifestyle changes (eating habits, physical activity, sleep and screen time) among students during the lockdown period.
3. To assess the body weight and body mass index in college students.

METHODOLOGY:

It is a cross sectional questionnaire based survey. A questionnaire consisting of thirty questions was developed and validated. The questionnaire comprised of four components namely the demographic data (age, gender, course pursued), the participants perception of anthropometric parameters (body weight before and after lock down, body mass index), knowledge and practice of junk food consumption and lifestyle changes like eating habits, sleep duration, time spent on physical fitness activities and time of exposure to screen (mobile phones/ computers/ television).

Among the thirty questions, five questions were on the demographic and anthropometric details, fourteen on junk food consumption and eleven were based on the lifestyle changes.

After validation, the questionnaire was made available as Google

forms and administered online from 18 to 22 July 2020, to the students of various medical, dental, paramedical, engineering and arts colleges in South India. Students who were willing to give online informed consent alone participated in the study, completed and submitted the questionnaire. The responses received were analysed and results summarized.

The study was initiated after getting approval from the Institutional Human Ethics Committee.

The data obtained were entered in an Excel sheet and percentage of responses analysed.

RESULTS:

Around 211 responses were received, of which 11 were incomplete. Hence 200 responses were analysed and represented as numbers and percentage.

Demographic Details:

Among the 200 respondents 115 were female and 85 were male students. The age group of the students ranged between 18 and 22 years. The distribution of students, age and course wise is given in Table.1.

Table 1: Demographic Details

Gender	No(%)
Male	85(42.5)
Female	115(57.5)
Age in yrs	**No(%)**
18	16(8)
19	74(37)
20	64(32)
21	26(13)
22	20(10)
Course	**No(%)**
MBBS	102(51)
BDS	4(2)
Paramedical	8(4)
Engineering	50(25)
Arts	26(13)
Others	10(5)

Anthropometric Data:

Body Weight:

It was observed that 49% of the students had perceived an increase in body weight during the lock down period. 50% girls and 30% boys among the respondents had reported weight gain.

Body Mass Index (BMI):

The percentage of students in the under-weight range has come down during lock down. There is a proportionate increase in the percentage of students in the normal BMI range during lock down. However there is no change in the students reporting overweight and obesity before and during lockdown.(Figure.1)

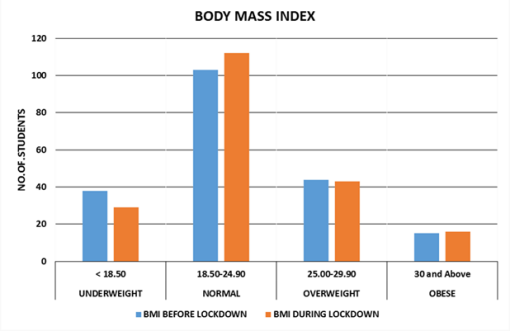

Figure.1: Body Mass Index

Knowledge And Practice Of Junk Food Consumption:

Only 30% of the students responded correctly to the question on what is junk food. The question on the influence of junk food on health was answered correctly by 78% students.

It was found that 47% students preferred Pizza, 18% preferred Burger, 14% chocolates, 7% French fries/salted chips, 7% home-made snacks, 5% biscuits and 2% soft drinks as shown in Figure.2.

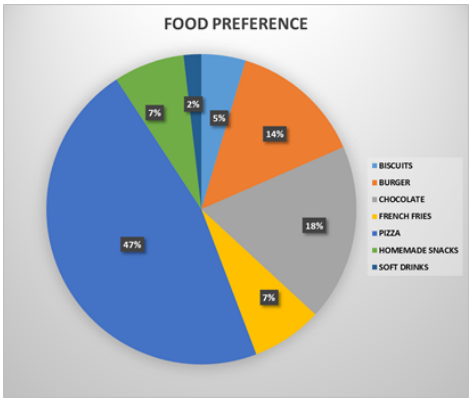

Figure 2: Food Preference

It was observed that 25% of the students consumed junk food twice or thrice a week. 15% and 10% students consumed junk food once a week and daily respectively.

The reason for consumption of junk food was to enjoy the taste in 72% of the students, 29% due to variety of choices and 25% to reduce stress due to lockdown.(Figure 3) It was observed that boredom was the commonest emotion experienced by 47% students during lockdown that tempts them to consume junk food. Happiness was the reason in 24.5% students, stress in 21% of students and sadness in 7.5%.

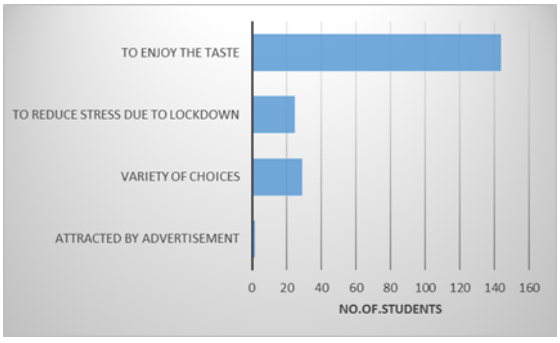

Figure 3: Reason For Junk Food Consumption

It was observed that 75% students had the intention to stop consuming junk food. 62% of the students reported that they are not able to stop consuming junk food as they feel that junk food helped them overcome tiredness when they were hungry. 16% students couldn't stop consuming junk food as they want to enjoy the taste again and again and 10.5% students felt happy when they eat junk foods.

It was observed that 51% of the students had decreased junk food consumption during lock down period. Among the students who reported to have reduced the junk food consumption the common reason is fear of COVID-19 transmission. And the reason for students who accepted to have increased junk food consumption is to overcome the stress due to continuous lockdown.

The observation on money spent on junk food was that 26% students spent less than Rs.100, 24% Rs.100-200, 22% Rs.200-500 and 8% spent more than Rs.500 per week. 20% students reported not to have spent money on junk food.

Junk food and online classes: 73% students did not eat junk food while attending online classes.

Lifestyle Changes During Lockdown:

It was observed that 83% students preferred home-made food in comparison with ordered foods during lock down and 64% of the students' preference had changed from junk food to healthy food during lock down.

Regularity of Meal intake: It was observed that 44%, 28% and 20% students did not consume breakfast, lunch and dinner respectively at regular timings.

Influence of lockdown on sleep duration: The students sleeping 8 to 10 hrs and more than 10 hrs have increased during lockdown when compared before lockdown. There was a decrease in students sleeping less than 6hrs and 6-8 hrs during lockdown than before lockdown shown in Figure.4

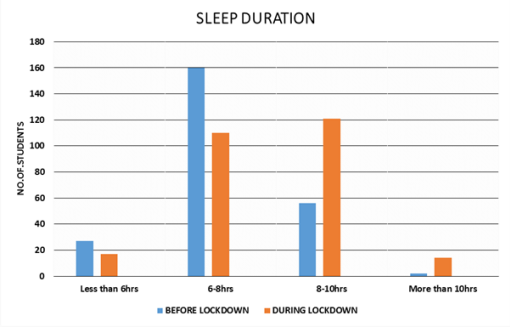

Figure.4: Sleep Duration

Time spent on physical fitness: There is a decrease in the percentage of students spending more than 6hrs for physical fitness per week.(Figure.5)

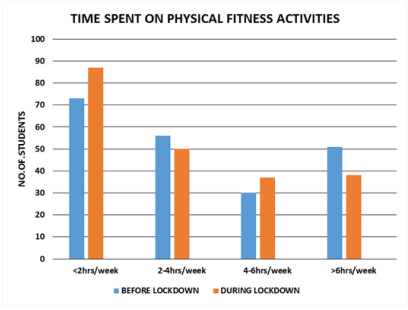

Figure.5: Time Spent On Physical Fitness Activities

Screen exposure duration: The time exposed to screen, either mobile phones or computers or television before and during lock down period was compared and the observation was that 70% students had an increased screen exposure time of more than 6 hrs per day.(Figure.6)

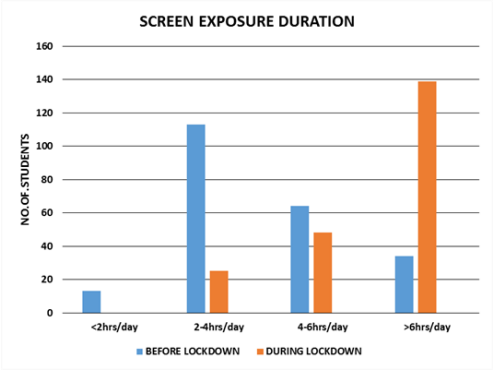

Figure.6: Screen exposure duration

DISCUSSION:

Lockdown has become an essential component of prevention of the rapid spread of COVID-19 pandemic. Many countries have made lockdown measures mandatory in this emergency situation. The Indian government has taken similar initiative and imposed a nationwide lockdown on March 25. The schools and universities have remained closed since then and the students are attending online classes.

College students in the age group of 18 to 22 years are vulnerable to get addicted to junk foods. The current scenario of continuous lockdown and confinement within the home might increase the boredom and stress and junk food consumption could be one of the factors that they may be interested in. The lifestyle of the students would definitely have a change as their daily routine gets disturbed.

In our study it was observed that lockdown has changed the diet pattern and lifestyle of the college students in South India. Nearly 50% of the students have observed an increase in body weight though many are not sure of the extent of weight gain as they are not aware of their pre lockdown body weight.

The knowledge about junk foods was not adequate among college students and this could be one of the reasons why they prefer to have them. The commonest junk food preferred by students was pizza followed by chocolates and burgers. Most of the students eat a small to medium serving of pizza/burger/French fries. The consumption of large servings of above mentioned junk foods was proportionately less. Boredom is the commonest reason to consume junk foods during lockdown. Seventy two percent students desire to enjoy the taste of the junk foods again and again.

Seventy five percent students have expressed the intention to stop consuming junk foods. The reason why they couldn't stop was to enjoy the taste repeatedly. 51% students have decreased junk food consumption during lockdown due to fear of COVID-19 transmission. The positive aspects of lockdown are a shift in the preference to eating healthy and home-made food items from junk foods and ordered foods and increase in duration of sleep. The negative aspects are weight gain, reduction in physical activity and drastic increase in screen exposure time. Boredom is the commonest emotion experienced by the students during lockdown.

An Italian survey was conducted by Laura De Renzo et.al on the eating habits and lifestyle changes during COVID-19 lockdown.[6]Weight gain was observed in 48.6% respondents during lock down which is similar to the finding of our study where 49% respondents have reported weight gain. A slight increase in physical activity has been reported by 38.3% respondents, in contrast to a slight decrease in physical activity reported by 44% respondents in our study. 54.8% have reported sleeping 7-9 hours a day in the Italian survey which is similar to our survey where 60% respondents sleep 8-10 hours a day.

Maria Belen Rouiz-Roso et.al have done a multinational online survey with enrolment of adolescents from Italy, Spain, Chile, Columbia and Brazil.[7]The authors have recorded the diet pattern of the adolescents during lockdown and compared it with their pre lockdown diet and diet guidelines and observed that lockdown due to COVID-19 has influenced their dietary habits. They have concluded that the families had more time to cook as there was an increase in consumption of legumes, fruits and vegetables. The adolescents were found to consume more sweets to overcome the boredom and stress due to lockdown. In the current study though questions were not based on sweet intake, it was observed that 47% adolescents preferred pizza and 18% chocolates during lockdown.

Linda A. Gallo et.al have studied the effect of lockdown on energy intake and physical activity in University students of Australia.[8] The study concluded that energy intake by female students has increased and physical activity in both female and male students has decreased in comparison with the previous two year data and has been attributed to closure of recreational sport and community gym during lockdown. This is similar to the current study where weight gain is observed more in female students which could be due to increased energy intake.

Celia Rodriguez Perez et.al conducted an online questionnaire based survey on changes in dietary behaviour during COVID-19 lockdown.[9]The authors have concluded that an improvement in the dietary behaviours have been observed in the Spanish population with an increase in intake of fruits, vegetable, legumes and a reduction in consumption of alcohol, red meat, fried foods and pastries during lockdown when compared with their usual habits. This is in concordance with the current study where 51% participants have reported to have reduced junk food consumption during lockdown and 64% students have changed their preference from junk food to healthy foods during lockdown.

Aleksandra Sidor et.al have done an online survey on adult Poles.to assess their dietary choices and habits during COVID-19 lockdown.[10] They observed that over-weight and obese individuals were more prone to dietary modifications like eating and snacking more, decreased preference to vegetables, fruits, legumes and increased liking towards fast-foods, meat and dairy. This is contrary to the current study where 64% respondents have changed their liking from junk food to healthy food during lockdown.

Amerta Ghosh et.al had studied the effect of lockdown on the dietary

habits and lifestyle changes of type II diabetes mellitus patients of India.[11]The authors have observed an increase in consumption of fruits in 20% respondents and 97% participants avoided ordered food items. This is in concordance with the current study where 83% respondents avoided ordered food items. Similar to the current study a reduction in physical activity was observed in 42% participants. 87% respondents were psychologically affected due to lockdown, but this component was not assessed in the current study.

Hence it is evident from this study that college students are experiencing a weight gain and having a reduced physical activity during the COVID-19 lockdown. The diet pattern has changed from junk foods to healthy and a home-made food due to fear of COVID-19 transmission and this is one of the positive outcomes of lockdown. The time exposed to mobile/computer/television screens has increased considerably. The sleep duration has also increased among students.

The effect of lockdown has been nearly similar among adolescents in different parts of the world. Weight gain could be difficult to revert and may progress to obesity. The dramatic increase in screen exposure time may be due to online classes and alternative educational methods have to be planned. Awareness about ill effects of junk food consumption can be given to adolescents to prevent them from becoming addicted to it.

The limitations of our study are the small sample size and the extent of weight gain could not be assessed as the students were not aware of their pre lockdown body weight.

Table.2.Responses obtained for Questions on Junk food Consumption:

Questions on Practice of Junk Food Consumption	Frequency	Percentage
Q3.Which of the following is/are your favourite food during lockdown?		
A.Pizza	84	42
B.Burger	30	15
C.Chocolates	40	20
D.Biscuits	10	5
E.French fries/salted chips	16	8
F.Soft drinks	4	2
G.Homemade snacks and food	16	8
Q4.How often do you eat junk food during lockdown?		
A.Daily	19	10
B.Twice/Thrice a week	47	24
C.Once a week	29	14
D.Occasionally	105	52
Q5.what makes you like junk food?		
A.To enjoy the taste	144	72
B.Attracted by advertisement	2	1
C.Variety of choices	29	14
D.To reduce stress due to lockdown	25	13
Q6.Which of the following emotions you experience during lockdown?		
A.Happiness	18	9
B.Sadness	22	11
C.Boredom	110	55
D.Stressed out	50	25
Q7.Which of the following emotions tempts you to eat junk food during lockdown		
A.Happiness	50	25
B.Sadness	16	8
C.Boredom	94	47
D.Stressed out	40	20
Q8.Have you ever felt you should stop eating junk food?		
A.Yes	150	75
B.No	50	25
Q9.If you feel you cannot stop eating junk food give reasons.		
A.I want to enjoy the taste again and again	32	16
B.It brings friends together	20	10
C.It makes me forget my worries	8	4
D.I feel happy when I eat junk food	16	8
E.Helps me overcome tiredness when I'm hungry	124	62
Q10.Your consumption of junk food during lockdown period has:		
A.Increased	38	19
B.Decreased	102	51
C.There is no change	60	30
Q13.On an average how much money is spent on junk food per week during the lockdown?		
A.Less than Rs.100	58	29
B.Rs.100-200	48	24
C.Rs.200-500	44	22
D.More than Rs.500	16	8
E.I don't spend money on junk food	34	17

Table.3.Responses obtained for Questions on Lifestyle Changes during Lockdown:

Questions on Lifestyle Changes during Lockdown	Frequency	Percentage
Q16.Which of the following snack item do you prefer during lockdown?		
A.Home-made foods	166	83
B.Ordered food	34	17
Q17.Do you think this lockdown has changed your preference from junk food to healthy food?		
A.Yes	128	64%
B.No	72	36%
Q18.How many hours do you sleep per day before the lockdown period?		
A.Less than 6 hrs	22	11

B.6-8 hrs	160	80
C.8-10 hrs	16	8
D.More than 10 hrs	2	1
Q19.How many hours do you sleep per day during the lockdown period?		
A.Less than 6 hrs	16	8
B.6-8 hrs	110	55
C.8-10 hrs	58	29
D.More than 10 hrs	16	8
Q20.How many hours per week do you engage yourself in physical fitness activities before the lockdown?		
A.Less than 2 hrs	64	32
B.2-4 hrs	56	28
C.4-6 hrs	30	15
D.More than 6 hrs	50	25
Q21.How many hours per week are you involved in physical fitness activities during the lockdown?		
A.Less than 2 hrs	88	44
B.2-4 hrs	50	25
C.4-6 hrs	36	18
D.More than 6 hrs	26	13
Q22.How many hours per day is you screen time spent on mobile/computer/television before the lockdown?		
A.Less than 2 hrs	12	6
B.2-4 hrs	112	56
C.4-6 hrs	66	33
D.More than 6 hrs	10	5
Q23.How many hours per day is you screen time spent on mobile/computer/television during the lockdown?		
A.Less than 2 hrs	2	1
B.2-4 hrs	22	11
C.4-6 hrs	48	24
D.More than 6 hrs	128	64

CONCLUSION:

The dietary habits of the college students in South India have changed from junk food to healthy and home-made foods during lockdown. An increase in body weight has been observed and the weight gain is more among girls. There was a decrease in time spent on physical activity and a tremendous increase in screen exposure time of the students.

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