

A Comparative Study Of Dietary Patterns Among Higher Secondary School Students During Covid-19 And Post Covid-19 Pandemic

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ABSTRACT

This research paper aims to analyse the dietary pattern and food habits of higher secondary students during the period of pandemic as well as post covid-19. The beginning of covid-19 has noticed that higher secondary students were more restricted in their food habits as they used to spend most of their inside their houses due to the undertaken lockdown measures. The restrictive measures during the pandemic had brought many changes in terms of their selected lifestyle elements like physical activity, education, and stress levels. The survey also suggested that there was a huge decrease in their physical activities because they used to spend most of their time in front of their computer systems, using electronic gadgets but a positive observation was demonstrated in most of their food habits. Moreover, it was also examined that there was a significant increase in the number of homemade meals consumed per day by them in course of pandemic. Many higher secondary students stated that throughout the outbreak of covid-19 many limitations were imposed on their eating habits which aimed to totally reduce the impact of corona virus amongst them. Overall there are many findings which we will discuss below and therefore, many efforts have been made to investigate the main causes as well as consequences of this change. Sample of 321 students of higher secondary school were surveyed to know their dietary patterns during covid-19 pandemic and post covid-19 pandemic. Study found a significant difference during covid-19 pandemic and post covid-19 pandemic dietary patterns among higher secondary school students.

KEY WORDS: Higher secondary, Students, Covid-19, Pandemic, Physical activity.

INTRODUCTION

The spread of novel corona virus disease around the world in March, 2020 let us observed numerous restrictions due to lockdown measures undertaken by every country were conducted like- ban on mobility, schools and colleges were closed, cooperative institutions offered work from home facilities and many more to reduce the number of infections (Hua & Shaw, 2020). To handle the worsening of global pandemic many countries all over the world suddenly ordered lockdown in all places of public gathering like schools, higher educational institutions, restaurants, different shopping complexes, and cinemas were closed. Covid-19 pandemic has affected all aspects in each and everyone's lives. Various modes of transportation services which include- railways, road and air were totally suspended with exceptions for essential services were shutdown to control public gathering. Therefore, the lockdown measures caused major change in everyone's professional work as their life-style and ways of spending free time changed (Sharma & Jhamb, 2020). This paper will help us understand the major changes caused by the pandemic related to higher secondary students in their dietary habits. Proper dietary habits amongst them plays a very crucial role in this stage of higher secondary students thus, its impacts might last on their health. People used to spend most of their time at home during the period of lockdown. Unfortunately, after few months the second wave of covid-19 came and they began to restrict the movement again. Most of the higher secondary students spend more time in their homes and they modified their lifestyle by reducing their physical activity because students increased the amount of time devoted to sitting. Changes in their lifestyle behaviour caused by the lockdown measures observed a major change related to their dietary habits (Di Renzo, et.al, 2020). Online teaching, school closure and their restriction in their outdoor activity significantly impacted their lifestyles and dietary habits. Higher secondary students used to eat more during the quarantine, and most of them students stated that they snacked very frequently. Students during the phase of quarantine and self-isolation even observed changes in their satiety and hunger thus, leading towards overeating. Many students consumed healthy diets because it was recommended by World Health Organization and the Spanish Academy of Nutrition as well as dieters that consumption of more fruits and vegetables could only help everyone towards its prevention and treatment (Hargreaves, et.al, 2021). At this stage of life higher

secondary students it is essential for them to acquire good eating habits. It was also noted that improvement in their dietary patterns during the period of lockdown improved their nutritional knowledge and behaviours amongst them, as several studies have indeed reported. Proper dietary patterns and healthy eating habit play a very important role as any kind of unhealthy food consumption practise in this growing phase of life can cause irreversible ramifications which are an increase risk to obesity, non-communicable diseases and decrease in immune system functioning (Cecchini, et.al, 2022). Many investigations revealed that the pattern of home-cooked foods, consumption of snacks, junk foods, fruits and vegetables tend to increase significantly but, some studies also showed controversial findings. Nutritional dietary status during the period of quarantine has been therefore, critically altered worldwide thus; it also became a priority amongst them in this stressful situation. Students who used to watch television more are less likely to therefore, follow dietary pattern .These improvements considered amongst the higher secondary students eventually might play a helpful role in preventing chronic diseases and corona virus related complications if persistent. The present study will come up with a better understanding of their dietary patterns during covid-19 pandemic and post covid-19 pandemic, while there were many students who increased their physical activity over this period of time. Aim of this paper, was to compare this period and study their dietary patterns during this period as correct nutritional dietary pattern is crucial in this time of when the immune system needed to fight back. We also observed that many higher secondary students who read newspaper and were connected with social media during covid-19 played a positive role on following dietary pattern students.. However, we will also cover below several factors including multiple lifestyle behaviours amongst higher secondary students that dominated their dietary pattern during or post covid-19.

LITERATURE OF REVIEW

The outbreak of corona virus is considered to be one of the greatest threats to global health all over the world in recent years (Zumla & Niederman, 2020). This cross-sectional study is carried out to explore the dietary patterns of higher secondary students during the covid-19 and post the pandemic. This novel corona virus was initially identified in the Chinese city of Wuhan on December 2019 and therefore, numerous attempts to contain it there were failed. Later on it started to first spread across other parts of Asia and then all over the world. According to some of our research it has caused more than 668 million cases that led to 6.73

million confirmed deaths worldwide by making this disease the deadliest in our history. The spread of covid-19 had triggered severe social as well as economic disruption in every corner of the world. Therefore, in its wake it altered people's lifestyles and dietary patterns of each and every individual with a drastic reduction in any form of public gathering. In order to stem the spread of novel corona virus governments of different nations started to impose lockdown measures and have taken many extraordinary actions in response to contain the virus rather which brought a disruption in everyone's lifestyle and daily routines (Ali, et.al, 2020). One of the major containment measures considered by different countries was total confinement of all population in their homes which is known as lockdown. Many countries imposed numerous preventive measures to prevent its rapid spread. It is necessary to understand the dietary patterns of higher secondary students during this period of pandemic and post covid-19. Many countries were negatively affected because all vital places including the educational educations like schools and colleges were closed. Thus, the safety of all the students during this period is taken into consideration. Dietary patterns of higher secondary school students during covid-19 and post covid-19 were accessed. According to several studies it is concluded that consumption of healthy diet and being physically active are some of the factors that are foundations of good health and well-being therefore, which results in effective functioning of their immune system. Many students stated that due to these restrictive measures it led them towards decreased intake of fried and junk foods as well as different fast-foods but eatables like homemade related cooked food increased amongst them (Das, et.al, 2021). Consumption of eatables like salty and spicy snacks as well as processed meat is replaced by fruits and vegetables amongst some of the girls and boys to follow healthy diet habits. Food outlets all across different areas were shutdown during this period of lockdown. During the period of pandemic most of the schools remained closed this allowed each and every student to remain at home for a very longer period of time. Dietary patterns of these students formed during the period of lockdown will not be unchallenging to be changed or corrected. Poor food habits of higher secondary school students have been considered and proved to be closely related to some of the chronic diseases like obesity and diabetes in their upcoming life. This study is definitely going to provide everyone a picture of changes in their dietary patterns during and after the up-liftment of covid-19 lockdown (Chaudhary, et.al, 2020). Descriptive studies were used to summarise their dietary pattern because on the other hand several researches demonstrated that changes in their eating habits during this period of

covid-19 era were considered to be both positive and negative. For example- If there was a reduction in consumption of fast food, fruits and vegetable therefore, it was also observed an increase in snacking and sweet consumption. Changes in their dietary patterns have significant short-term as well as long-term impacts on high school student's health. Proper dietary pattern and eating habits play a crucial role in their physical and mental development. So, any kind of unhealthy diet in this period of life can also lead them to irreversible consequences which are as-increased risk of obesity or over-weight, decreased immune system and several non-communicable diseases. This cross-sectional survey amongst the higher secondary school students is used to evaluate changes in their dietary patterns as many students also reported that they consumed more unhealthy foods and increased intake of snacks between their meals and late at night. Obesity has been considered a major health concern from many years though; the period of pandemic has significantly increased the health-related risks associated with obesity today (Albury, et.al, 2020). Many students also started spending more than 5hrs on their electronic devices like computers, laptops and mobile phones during the period of covid-19 compared to a lower proportion the same on them during the post pandemic (Mohan, et.al, 2021). Major proportion of high school students also had a proper sleeping hours during the covid-19 lockdowns compared to post covid-19 as they had less than 7hrs of sleep before and after lockdown respectively. In addition, there dietary pattern seemed to influence their quality of sleep. We investigated that many students who used to consumed 5 or more meals per day during the post pandemic increased during the period of covid-19. Students mentioned that they had enough to eat during the period of lockdown as they were spending or staying with their family and these students also did not have to manage with a little, as they usually have while in their schools. High school students who used to skip their breakfast as a result of time factor significantly decreased during the lockdown. Generally, it was also observed that many students also became conscious of their dietary patterns and their eating habits since the pandemic struck as they prioritised strengthening their immune system (Tariga, et.al, 2021). Many students planned their specific meal plan to cut down both calorie and fat intake in their diet to maintain and reduce their weight as they were less physically active. It was also observed that the percentage of students who used to consume home-made foods during post pandemic also increased in covid-19 lockdowns. This research also found that as intake of food was increased in their dietary patterns but, consumption of fresh produce such as fruits and

vegetables reduced. There was also an increase in home cooking foods such as home made pizza and bread. Eventually, these adolescents have also considered to consume the unhealthiest dietary pattern during the period of covid-19 as, they had unlimited food accessibility that provoked disruptive eating behaviours in them (Khalil11, et.al, 2020). These eating habits and lifestyle modifications amongst this age group can lead to threaten their health. High school students need to correct their dietary pattern and develop healthy eating habits especially during the period of pandemic at the same time immune system might need to fight back. Consumption of diet rich in saturated fats, salt and sugar content can lead them to early development of hypertension, obesity and impaired glucose tolerance. Thus, lower physical activities have also been suggested to interact both with body fat and in their appetite deregulations. 89% of higher secondary students consumed three meals a day during the period of lockdown and female students had significantly less tendency to have 3 main meals per day. The behaviour behind for not consuming three main meals a day amongst the girl students was because of the desire to be thin and their unhappy feeling about their weight. Habit of consuming milk and milk made products daily was significantly higher amongst the boy students than the girls. However, it was concluded that there was no remarkable change towards the habit of consuming these products between 15-19 years of adolescents. When it comes to consumption of milk majority of higher secondary school students have it every day or few times in a week. The high schools students needs to consume healthy eating habits and have proper dietary plans as nutrition is considered to be most important environmental factor which helps to influence their physical and mental health so, that is why it is knowledge on this topic is very crucial amongst them. Healthier diet was also promoted during the period of covid-19. Consumption of foods with higher animal protein quality such as egg and milk or vegetative products which are rich in protein like legumes as well as cereal products also seemed to be their regular choice during the post covid-19 (Martín-Rodríguez, et.al, 2022). Thus, it is necessary for all students to intake two to three servings of non-vegetarian or other sources of protein rich food every day. Additionally, it also revealed that students who belonged to lower socio-economic status have a worse dietary pattern. Many studies also unveiled that consumption of different types of carbonated or sugary drinks also decreased during pandemic which showed consideration of healthier dietary pattern amongst them. Intake of energy should also be taken into consideration due to lack of physical activities and decrease in sports activities. Governments

of several countries must consider into account and create new policies to create adherence which will eventually help them to promote healthy eating habits in their lifestyles. These are some of the lifestyle components of higher secondary school students and dietary patterns which were evidenced from several research studies. Online classes and increase in their on screen time amongst these adolescents also worsened their sleep quality amongst them and was very high during the period of pandemic lockdowns. This has been directly associated with their behavioural changes, dietary changes and BMI. High school students are a highly vulnerable population as they are still defining their dietary patterns. During the post pandemic many high school students also have the tendency to adopt risky habits such as usages of tobacco, alcohol consumption, skipping meals while there were some higher secondary school students who gained more interest in nutrients rich foods (Kolokotroni, et.al, 2021). Therefore, it was noted that not all studies have found a decline in eating habits during the period of covid-19. Major strength of this paper is that it provides us a wide overview of their dietary patterns during covid-19 and post covid-19. The negative dietary patterns which were sustained during post pandemic may contribute to sever health issues amongst this population group in the nearby future as being obese and overweight can make them more susceptible to different types of chronic health conditions and disease (Cecchetto, et.al, 2021). It is observed that there may be possibilities for more future lockdowns which will definitely influence their dietary patterns. Although there were many positive changes in their dietary practices during this phase of pandemic therefore, each and every individual must aim to maintain healthy lifestyle habits in order to prevent such diseases and its long term health effects.

OBJECTIVE

1. To compare the dietary patterns among higher secondary school students during covid-19 pandemic and post covid-19 pandemic

METHODOLOGY

Sample of 321 students of higher secondary school were surveyed to know their dietary patterns during covid-19 pandemic and post covid-19 pandemic. The primary data of this study was collected through “random sampling and survey method.” Comparative mean and independent t-test was applied to analyze and evaluate the data to get the end results

FINDINGS

Table below is sharing general details of the respondents. 321 students were surveyed in which 67.3% are boys and 32.7% are girls. 29.0% respondents are below 18 years of age, 43.9% are between 18-20 years and rest 27.1% are above 20 years of age. 24.6% of the students lives in their home, 27.7% lives in hostel, 29.9% accommodate in PG and rest 17.8% lives in other places.

Table 1 General Details

Variables	Respondents	Percentage
Gender		
Boys	216	67.3
Girls	105	32.7
Total	321	100
Age (years)		
Below 18	93	29.0
18-20	141	43.9
Above 20	87	27.1
Total	321	100
Accommodation		
Home	79	24.6
Hostel	89	27.7
PG	96	29.9
Others	57	17.8
Total	321	100

Table 2 Comparison between dietary patterns among higher secondary school students during covid-19 pandemic and post covid-19 pandemic

S. No.	Dietary patterns during covid-19 pandemic and post covid-19 pandemic	Comparative mean	
		Pre	Post
1.	Students became conscious of their dietary patterns and their eating habits	4.23	4.53
2.	Students gain more interest in nutrients rich foods	4.34	4.53
3.	Consumption of healthy diet and being physically active	4.19	4.39
4.	Eating habit of homemade cooked food	3.87	4.26
5.	Food that effects functioning of immune system is preferred	4.34	4.62
6.	Significant increase in the number of homemade meals consumed	4.48	4.61

S. No.	Dietary patterns during covid-19 pandemic and post covid-19 pandemic	Comparative mean	
		Pre	Post
	per day		
7.	Consumption of eatables like salt and spicy snacks and processed meat is replaced by fruits and vegetables	4.46	4.62
8.	Limitations on eating habits with aim to reduce the impact of corona virus	4.02	4.39
9.	Intake of fried and junk foods as well as different fast-foods	4.24	4.08
10.	Consumption of different types of carbonated or sugary drinks	4.22	4.15

Table above is showing Comparison between dietary patterns among higher secondary school students during covid-19 pandemic and post covid-19 pandemic. It is found from the table that higher mean value 4.62 is shown by the respondents who says that post covid 19 Consumption of eatables like salt and spicy snacks and processed meat is replaced by fruits and vegetables and Food that effects functioning of immune system is preferred. Respondents also says that post covid the students gain more interest in nutrients rich foods and Students became conscious of their dietary patterns and their eating habits with mean value 4.53. Post covid the Consumption of healthy diet and being physically active with mean value 4.39 and Limitations on eating habits with aim to reduce the impact of corona virus with mean value 4.39. Respondent shares that Eating habit of homemade cooked food is increased post covid with mean value 4.26. The table also shows that pre covid the Consumption of different types of carbonated or sugary drinks and Intake of fried and junk foods as well as different fast-foods was more with mean value 4.22 and 4.24 respectively.

Table 3 “Independent Sample t-test”

		“Levene's Test for Equality of Variances”		“t-test for Equality of Means”		
		F	Sig.	t	df	Sig. (2-tailed)
Students became conscious of	EVA	6.649	.010	-3.756	319	.000

		“Levene's Test for Equality of Variances”		“t-test for Equality of Means”		
		F	Sig.	t	df	Sig. (2-tailed)
their dietary patterns and their eating habits	EVNA			-3.742	274.441	.000
Students gain more interest in nutrients rich foods	EVA	3.640	.057	-2.515	319	.012
	EVNA			-2.511	308.425	.013
Consumption of healthy diet and being physically active	EVA	8.227	.004	-1.830	319	.068
	EVNA			-1.824	283.363	.069
Eating habit of homemade cooked food	EVA	6.395	.012	-3.419	319	.001
	EVNA			-3.414	308.680	.001
Food that effects functioning of immune system is preferred	EVA	11.831	.001	-3.652	319	.000
	EVNA			-3.645	301.704	.000
Significant increase in the number of homemade meals consumed per day	EVA	5.416	.021	-1.738	319	.083
	EVNA			-1.734	300.507	.084
Consumption of eatables like salt and spicy snacks and processed meat is replaced by fruits and vegetables	EVA	11.500	.001	-2.156	319	.032
	EVNA			-2.151	297.610	.032
Limitations on eating habits with aim to reduce the impact of corona virus	EVA	5.511	.020	-3.398	319	.001
	EVNA			-3.388	286.381	.001
Intake of fried and junk foods as well as different fast-foods	EVA	10.406	.001	1.450	319	.148
	EVNA			1.455	287.769	.147
Consumption of different types of carbonated or sugary drinks	EVA	8.377	.004	.652	319	.515
	EVNA			.654	296.973	.514

Table above is showing Independent Samples Test which was applied to compare the dietary patterns among higher secondary school students during covid-19 pandemic and post covid-

19 pandemic. It is found from the table that for all the statements like Students became conscious of their dietary patterns and their eating habits, Students gain more interest in nutrients rich foods Eating habit of homemade cooked food, Food that effects functioning of immune system is preferred, Consumption of eatables like salt and spicy snacks and processed meat is replaced by fruits and vegetables and Limitations on eating habits with aim to reduce the impact of corona virus are significant as the value under Sig. (2-tailed) column is below 0.05. except Consumption of healthy diet and being physically active, Significant increase in the number of homemade meals consumed per day, Intake of fried and junk foods as well as different fast-foods and Consumption of different types of carbonated or sugary drinks.

CONCLUSION

The period of covid-19 resulted in both favourable as well as unfavourable changes of higher secondary school students on their dietary patterns (Grant, et.al, 2021). Although some studies also concluded that it observed an increase in unfavourable eating habits during post pandemic as most of the junk foods and fast-foods were available to them. This research also disclosed two well defined profiles of nutrition were on one hand we observed intake of numerous healthy foods such as fruits, meat, fish, green vegetables, rice and on another side non-healthier foods like alcohol, pizza, burgers and many more. This paper also noted a decrease in their food consumption habits and healthier diet habits amongst them during the phase of lockdown. Numerous actions must be encouraged and they are required globally to re-adopt many healthy dietary lifestyles during and post pandemic lockdowns. Therefore, if negative dietary patterns remain sustained amongst the adolescents post lockdown then they may contribute towards numerous health issues among them. Reduction in their physical activities and obesity were some of the major concerns found through this analysis. Further investigations are needed to be considered so that we are able to implement several multidisciplinary interventions to develop many healthier dietary patterns in schools which will encourage them to adopt healthy eating habits.

The study had compared the dietary patterns among higher secondary school students and found a significant difference during covid-19 pandemic and post covid-19 pandemic where the Students became conscious of their dietary patterns and their eating habits, Students gain more interest in nutrients rich foods Eating habit of homemade cooked food, Food that effects

functioning of immune system is preferred, Consumption of eatables like salt and spicy snacks and processed meat is replaced by fruits and vegetables and Limitations on eating habits with aim to reduce the impact of corona virus.

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