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Changes in food frequency pattern during the COVID-19 pandemic among school going children of Thiruvananthapuram district

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Abstract

Title of the article: Changes in the food frequency pattern during the COVID-19 pandemic among school going children of Thiruvananthapuram District

Methodology: Two hundred and fifty school going children (10-12 years) were randomly selected from four schools from Trivandrum district. Pre and Post study was conducted in this study for assessing the changes in the food frequency pattern of school going children before and during pandemic.

Results: Compared to before the epidemic, the majority of children's have changed their food frequency pattern. Consumption of sugar items, white flour items, bakery items, chocolates and fizzy drinks were increased during pandemic.

Conclusion: Findings of the present study recommends that there is a need to decrease the consumption pattern of unhealthy foods and need to increase the consumption of healthy foods in children. Because the unhealthy consumption pattern of food may cause many health problems in children.

Keywords: Food frequency pattern, childhood obesity, COVID-19 impact

Introduction

The coronavirus disease 2019 (COVID-19) is a respiratory infection caused by the SARS-COV-II virus that was first identified in Wuhan, China, in December 2019. Since then, it has been widely reported and on march 11, 2020, the World health organization (WHO, 2021) declared it to be a global pandemic (WHO, 2021). Globally, more than 113 million cases and more than 2.5 million fatalities had been reported by February 2021 (WHO, 2021). The burden of COVID-19 pandemic and quarantine with constraints on many levels, has resulted in significant lifestyle changes, which have changed the eating habits in terms of having less control over the quantity and quality of food. These adjustments include an increase in carbohydrate consumption, an increase in snacking and home cooking when confined (Zupo *et al.*, 2020) [20]. The COVID-19 pandemic has altered many aspects of daily living, including eating habits. The frequency of meals has grown during the lockdown and children are consuming more sugary items (Pietrobelli *et al.*, 2020) [11]. According to Ruiz-Roso *et al.* and Di Renzo *et al.* (2020) [6], children's consumption of sweets increased by up to 20.7% during the lockdown and was linked to a higher BMI. During COVID-19 pandemic there was a shift towards a "obesity pandemic" is feared as paediatric obesity rates rise, especially in middle- and high-income nations (Heady *et al.*, 2020) [8].

Materials and Methods

Location of the study

The present study was conducted in four schools in Trivandrum district.

Selection of the respondents

250 school going children in the age group of 10-12 years were randomly selected from 4 schools for assessing the food consumption pattern.

Pre-Intervention Assessments

A preliminary assessment will be done by collecting data from the selected samples.

Data collection: The survey will be conducted using an online platform accessible from any device with an Internet connection (Email, WhatsApp)

Results and Discussion

Items	Average intake before pandemic	Average intake during pandemic	Difference	Std. Deviation	t value	p value
Tea	5.21	5.50	0.28	2.00	-2.26	0.02
Juice	4.29	5.01	0.72	1.43	-7.936	.000
Ice cream	3.43	4.15	0.72	1.47	-7.699	.000
Coffee	2.84	2.77	-0.072	2.43	0.468	0.64
Parotta	3.28	4.08	0.796	1.28	-9.825	.000
Puffs	3.64	4.32	0.676	1.36	-7.857	.000
Biscuit	4.74	5.19	0.448	1.53	-4.61	.000
Bread	3.12	4.20	1.08	1.82	-9.34	.000
Jalebi	2.71	3.93	1.226	1.33	-14.361	.000
Laddu	2.82	4.07	1.252	1.36	-14.547	.000
Cake	3.44	4.64	1.196	1.54	-12.209	.000
Chips	4.62	5.41	0.784	1.60	-7.742	.000
Milk chocolate	3.03	3.90	0.868	1.55	-8.837	.000
Nut chocolate	2.98	3.87	0.892	1.52	-9.24	.000
Miranda	1.84	2.70	0.86	1.63	-8.301	.000
Sprite	1.69	3.46	1.768	1.77	-15.789	.000
Maaza	2.13	3.52	1.392	1.90	-11.567	.000
Apple fizz	1.54	2.82	1.276	1.89	-10.672	.000

Frequency pattern in consuming juice

According to the table 1, it is evident that there is significant differences in the overall food frequency pattern in consuming juice among school going children before pandemic and during pandemic (t-value=-7.936, p value,.000). The mean value of average intake of juice before pandemic is 4.29 and during pandemic are 5.01. study conducted by Lama and Abdulmoein (2021) reported in their study 25% more people are adopting more artificial juice and fresh juice and sweetened beverages. . Similar results are piloted in the study conducted by Deschasaux *et al.* (2020) ^[5] suggest that a significant portion of the population engaged in unhealthy eating and lifestyle choice as a result of the lockdown, including increased consumption of juice (22%) among 41 children. Another study conducted by Eliza (2020) ^[7] reported that most children enjoy the juice, but consistently indulging has detrimental impacts on health. In addition to having harmful levels of fat and calories, many forms of juices are heavy in sugar. Sweets are generally empty calories that cause health issues since they lack nutrition.

Frequency pattern in consuming ice cream

From the above table, it is evident that the there is significant differences in the overall food frequency pattern in consuming ice cream among school going children before pandemic and during pandemic (t value=-7.699, p>value=.000).The mean value of average intake of ice cream before pandemic is 3.43 and during pandemic are 4.15. Similar results are piloted in the study conducted by Roberta *et al.* (2021) ^[13]. It suggests that there was an increase in the intake of comfort food including chocolate (32%), ice cream and deserts (32%) among the respondents and some findings in the study indicate that a rise in the consumption of comfort food despite the possibility that eating habits could be improved by spending all of one's time at home because children and teenagers may have less access to eat foods. So, ice cream was not a bad food that good for children at a limited quantity (Cole *et al.*, 2000) ^[4].

Frequency pattern in consuming wheat flour items

From the above table ,it is evident that there is significant

differences in the overall food frequency pattern in consuming parotta among school going children before pandemic and during pandemic(t value=-9.825, p value=.000).The mean value of average intake of parotta before pandemic is 3.284 and during pandemic are 4.080.

From the above table, it is evident that there is significant differences in the overall food frequency pattern in consuming puffs among school going children before pandemic and during pandemic (t value=-7.857,p value=.000). The mean value of average intake of puffs before pandemic is 3.644 and during pandemic are 4.320.

From the above table, it is evident that there is significant differences in the overall food frequency pattern in consuming biscuit among school going children before pandemic and during pandemic (t value=-4.61, p value=.000). The mean value of average intake of biscuit before pandemic is 4.74 and during pandemic are 5.19.

From the above table, it is evident that there is significant difference in the overall food frequency pattern in consuming bread among school going children before pandemic and during pandemic (t value= -9.34, p value=.000). The mean value of average intake of bread before pandemic is 3.12 and during pandemic are =4.20.

White flour is the main example of processed foods that are commonly accessible and almost always necessary. They provide empty calories which causes to feel both overfed and undernourished. Maida is used in the bread, puffs, Parotta, biscuit and the list is endless. All fast food contains maida. It can be found everywhere, including in homes, hotels, roadside restaurants and bakeries. In general, nutritionists and medical professionals advise us to limit salt intake if have blood pressure issues and to manage the intake of sweets if have diabetes. But maida is a food that should be avoided in all deteriorating medical conditions (Anjali, 2016) ^[2]. The present study resulted that majority of the children were increased the intake of maida products like parotta, puffs, bread and biscuit during pandemic. A study conducted by Arun (2020) ^[3] reported that during the COVID-19 pandemic lockdown, there has been a rise in bread and other white flour items consumption.

Frequency pattern in consuming bakery items

From the above table, it is evident that there is significant differences in the overall food frequency pattern in consuming Jalebi among school going children before pandemic and during pandemic (t value= -14.361, p value=.000). The mean value of average intake of Jalebi before pandemic is 2.71 and during pandemic are 3.93.

From the above table, it is evident that there is significant difference in the overall food frequency pattern in consuming laddu among school going children before pandemic and during pandemic (t value=-14.547, p value=.000). The mean value of average intake of laddu before pandemic is 2.82 and during pandemic are 4.07.

From the above table, it is evident that there is significant difference in the overall food frequency pattern in consuming cake among school going children before pandemic and during pandemic (t-value= -12.209, p value.000). The mean value of average intake of cake before pandemic is 3.44 and during pandemic are 4.64.

From the above table, it is evident that there is significant difference in the overall food frequency pattern in consuming chips among school going children before pandemic and during pandemic (t value= -7.742, p value=.000). The mean value of average intake of chips before pandemic is 4.62 and during pandemic are 5.41.

According to the findings of the present study, in during pandemic the frequency of Jalebi, laddu, cake and chips were increased when compared with before pandemic. A study conducted by Aakriti *et al.* (2019) ^[1] revealed that laddu (71%), cake (7%) and other fried items like chips (14%) were increased during pandemic among school going children. Yet another study conducted by Simonnet *et al.* (2020) ^[15] reported that the daily consumption of bakery foods like cake and chips were increased. The management of overweight or obesity is significantly more difficult in a pandemic situation because of these consumption of bakery foods on daily basis.

Frequency pattern in consuming chocolate

From the above table, it is evident that there is significant difference in the overall food frequency pattern in consuming milk chocolate among school going children before pandemic and during pandemic (t value= =8.837, p value. 000). The mean value of average intake of milk chocolate before pandemic is 3.03 and during pandemic are 3.90.

From the above table ,it is evident that there is significant differences in the overall food frequency pattern in consuming nut chocolate among school going children before pandemic and during pandemic (t value= -9.24, p value.000). The mean value of average intake of nut chocolate before pandemic is 2.98 and during pandemic are 3.90.

From the above table ,it is evident that there is significant differences in the overall food frequency pattern in consuming Miranda among school going children before pandemic and during pandemic (t value= -8.301, p value=.000).The mean value of average intake of miranda before pandemic is 1.84 and during pandemic are 2.70.

The present study resulted that the intake of frequency pattern of chocolate includes milk chocolate, milk chocolate among school going children was high during COVID-19 pandemic when compared with before pandemic. Similar results are piloted in the study conducted by Raja (2021) ^[12]

showed that children were consuming more chocolate-based food items during COVID-19 lockdown. Another study conducted by Meike *et al.* (2021) ^[10] reported that interestingly, female children were more likely to increase their intake of chocolate more the males. In Denmark, male children were more likely to decrease their intake of chocolate and other sweet items.

Frequency pattern in consuming fizzy drinks

From the above table, It is evident that there is significant differences in the overall food frequency pattern in consuming sprite among school going children before pandemic and during pandemic (t value= -15.789, p value=.000). The mean value of average intake of sprite before pandemic is 1.69 and during pandemic are 3.46.

From the above table, it is evident that there is significant difference in the overall food frequency pattern in consuming maaza among school going children before pandemic and during pandemic (t value=-11.567, p value=.000). The mean value of average intake of maaza before pandemic is 2.13 and during pandemic are 3.52.

From the above table, it is evident that there is significant difference in the overall food frequency pattern in consuming apple fizz among school going children before pandemic and during pandemic (t value= -10.672, p value=.000). The mean value of average intake of apple fizz before pandemic is 1.548 and during pandemic are 2.824.

According to the present study, frequency pattern of fizzy drinks like Miranda, sprite, Maaza and apple fizz were increased during pandemic when compared with before pandemic. A study conducted by Lili *et al.* (2020) revealed that overall, 54.3% of young children consuming fizzy drinks at least once every day during COVID-19 pandemic. It's very dangerous because a typical 3.5 deciliter can or bottle of drink contains about 35 grammes of sugar and the WHO recommends that the sugar intake should be try to be less for children. WHO (2020) also warned that the consumption of such fizzy dinks including sugar must be less than 5% of total calorie.

Conclusion

Food frequency pattern of the school going children were assessed through the collection of details on the food frequency pattern in consumption of different food items. Majority of the children follow unhealthy food pattern. The frequency of consumption in sugary items, wheat flour items, bakery items, chocolates and fizzy drinks were increased during the COVID-19 pandemic. This may cause childhood obesity in children. Findings of the present study recommends that there is a need to decrease the frequency pattern in consuming the unhealthy foods and need to increase the frequency pattern of consuming healthy foods in children. Because the unhealthy eating pattern of food may cause many health problems in children.

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