



## Influence on Nutrition in 5-10 Years Old Children Due to COVID-19 Lockdown

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### Abstract

**Introduction:** Adequate nutrition is considered as a potential factor for health in the early stages of life and adolescence. Many countries developed initiatives to avoid agglomerations, which have led to changes in lifestyle habits, especially those involving food consumption and physical exercise, during lockdown period. It has also influenced the food-buying behaviors, dietary habits, and physical activities of people around the globe. Hence, in our study, efforts has been made to understand the impact of lockdown and home quarantine on the health and nutrition of 5-10 year old children in India.

**Materials and Methods:** A self-administered online questionnaire that was distributed across India to the parents via social media platforms. A questionnaire containing 10 questions was designed for the assessment of data about consumption frequency of selected foods, general food habits and other factors related to nutrition of children. Questions were aimed at investigating changes in their children's usual dietary habits i.e., eating healthy vegetables and fruits, immunity booster supplements and fried food.

**Results:** The total of 201 parents answered the survey. Findings from this study revealed that 48.5% children had modified eating practices, but at the same time 70.5% children were eating snacks and fried food more frequently, 79% had access to milk and other dairy products, 50.5% children had disturbed meal timings, whereas, 49.5% (n=99) parents answered that their child used to exercise sometimes and 50.5% children gained weight.

**Conclusion:** COVID 19 lockdown has affected all the aspects of health and nutrition in most of the children, but major effects were seen on meal timings, eating practices and weight of children.

**Keywords:** Children; Nutrition; COVID-19; Lockdown

### Introduction

Coronavirus-19 disease (COVID-19) was declared as a global pandemic by the World Health Organization (WHO) on 11 March 2020. Lockdown and home quarantine, main measures to curb the spread of the virus, were promoted by countries around the globe [1]. This implementation firstly caused panic and disruptions to food supply leading to shortages of some staple foods in most supermarkets and grocery stores [1].

The COVID-19 pandemic has influenced all the aspects of everyday life. Among them, nutrition plays an important role at the

global, national and individual levels. The pandemic has also influenced the food-buying behaviors, dietary habits and physical activities of people in all the countries [2].

Adequate nutrition is considered as an important factor to maintain health in early stages of life. At these stages, it is crucial to stimulate good eating habits that can both influence good health status and predispose non-communicable diseases in adulthood [3]. Home confinement can exacerbate changes in some lifestyle routines, especially involving sedentary and bad eating habits. Considering the period of lock down, in which the population was in strict home isolation, the need to investigate the influence on diet quality arises [4-7].

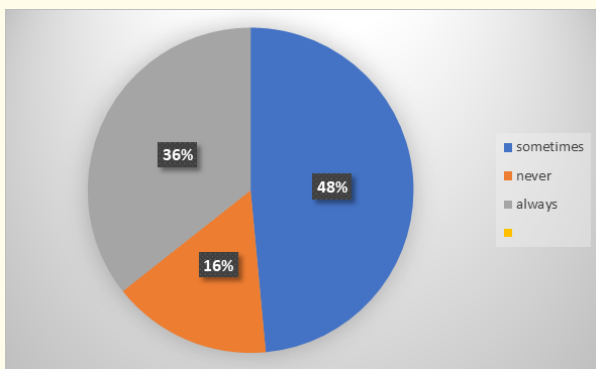
So far, no data with respect to the real eating habits of the population during lockdown period was available. Therefore, the main purpose of this study was to examine whether the COVID-19 outbreak confinement has influenced dietary habits among the Indian young (5-10yrs) population.

**Materials and Methods**

This cross-sectional study used a self-administered online questionnaire that was distributed across India via social media platforms (e. g., Whats-app and e-mail). The google forms platform was used to create, design, and distribute the questionnaire. This questionnaire included 10 questions. Participants were encouraged to complete the form and help distribute the questionnaire among their family members, friends and relatives. Thus, participants were selected by a snow ball sampling technique. Furthermore, to exaggerated or duplicated data, all the participants were limited to single response. Participants included people living in India who have children aged between 5-10 years and who had successfully completed the questionnaire. Online surveys were the appropriate method for data collection during the period of lockdown and home quarantine.

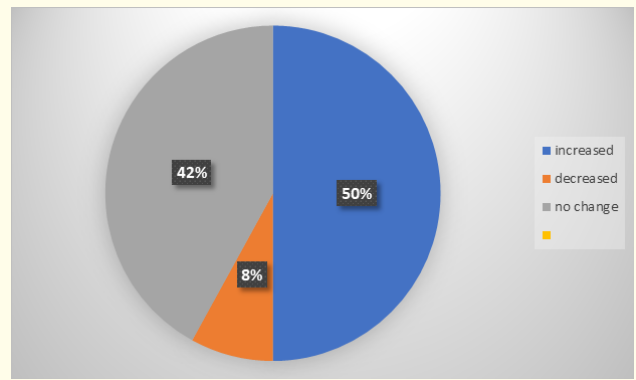
**Result**

A total number of parents that answered the survey was 201 and most of them belong to Maharashtra, India. In response to the question about modifying child’s eating practices, it was observed that 48.8% of parents sometimes modified the eating practices of the child. Irrespective of the modifications done in eating practices, 50.7% parents have observed increase in weight of their child, whereas only 7.5% parents observed decrease in weight of their child (Figure 1,2).

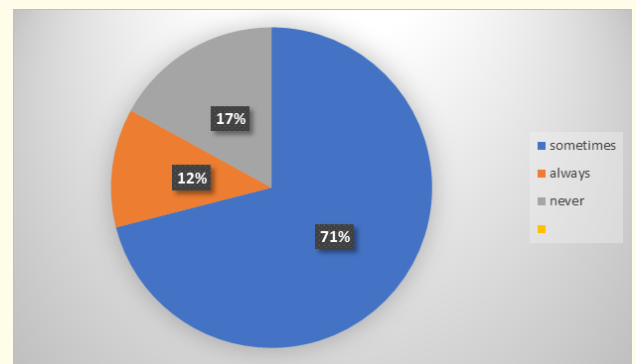


**Figure 1:** Modification in diet of the child.

Regarding the question about the child’s eating fresh fruit and vegetables during lock down most of the parents answered that their child always ate fresh fruit and vegetables and it is shocking that 70.6% parents observed increase in frequency of eating snacks and fried food as compared to before lockdown period (Figure 3).



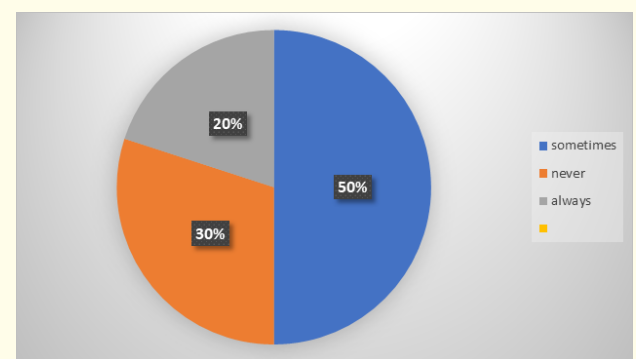
**Figure 2:** Change in weight of the child.



**Figure 3:** Increased in snacks consumption of the child.

When asked if the parents were stressed that the children will lack food, maximum parents answered never, also during such strict lockdown most of the parents always had access to milk and other dairy products too. However very few parents gave immunity boosting drinks and supplements to their children during the lockdown.

And lastly when asked about disturbed meal timings, 50.7% parents reported that they observed disturb meal timings of their child during lockdown whereas only 49.3% of the parents reported that their child used to exercise during COVID-19 period (Figure 4).



**Figure 4:** Disturbed meal timings.

## Discussion

Adequate nutrition is considered as a very potential factor for health in early stages of life and adolescence. At these stages, it is very important to stimulate good eating behaviors that can both influence the current health status and the predisposition to non-communicable (NCDs) diseases in adulthood.

It should be emphasized that the findings of this study indicate a potentially beneficial situation, as it was observed that children of participants did not reduce their frequency of fruit and vegetable consumption and in fact increased the consumption during the pandemic situation and the parents tried to modify their eating practices. Similar results of positive diet changes during the COVID-19 pandemic have been reported by Ruiz-Roso, *et al.* and by Laguna, *et al.* who stated that the Spanish population increased their frequency of eating vegetables during lockdown period. This could be associated with health motivations, as it was also observed in a study of Polish adolescents, as in the period of COVID-19, health was declared as a more important food choice determinant by the participants. In addition, during the lockdown, families may have more time to cook in their households, which might be another determinant of increased vegetable and healthy food consumption during the pandemic.

In the present study, the participants reported increased weight of their children during lockdown as the pandemic has increased the sedentary lifestyle of people hence the problem of insufficient physical activity may be more prominent among children with an excessive body mass. This was also indicated by Pietrobelli, *et al.*, who stated that during the COVID-19 pandemic obese adolescents have spent less time being physically active, resulting in increase in weight. The sedentary lifestyle potentially acquired during the pandemic may not be easily reversible for children and their parents. Infancy and early childhood are a key period for learning healthy eating habits that accompany us throughout our lives and into adulthood. The COVID-19 period exacerbated the problem of excessive body mass in children and adolescent.

In the present study, it was reported that the frequency of eating fried foods and snacks was also increased in children whereas watching TV has been associated with snacking frequency, especially in young children and adolescence. Mittal, *et al.* summarised that snacking while watching television is associated with a promotion of over-consumption on a later meal. Moreover, depending on the type of food products consumed and the energy value of diet, sedentary lifestyle and more screen time may increase the risk of obesity. Similar conclusions may be formulated from results of the study by Yang, *et al.*, who observed that during lockdown Chinese adolescents were less engaged in physical activity of moderate-to-vigorous intensity and had increased consumption of snacks, disturbed meal and sleep timings.

Taking in account all the discussed differences in diet and physical activity during the period of lockdown due to the COVID-19 pandemic, it must be emphasized that the pandemic has affected dietary lifestyle of children.

## Conclusion

COVID 19 lockdown has affected nutrition and health in most of the children. As a pediatric dentist, we can suggest the parents to do certain things to help to improve health of the children like adding more vegetables and fruits to the diet of children, doing regular exercise with them, limiting screen time and snack consumption.

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