

The Effect of Covid-19 on the Eating Habits in Children; A Survey-based Study among General Saudi Public

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Introduction: Self-isolation has been also associated with tediousness and stress, which in turn may lead to increased energy consumption, comfort foods, and emotional eating. So far, there is a scarcity of researches aiming at modifications of children's lifestyle activities during the COVID-19 pandemic. **Materials and Methods:** This is a cross-sectional study conducted among the parents of children visiting the REU clinics using an online survey. Online questionnaire was constructed consisting of questions related to age, number of children, socioeconomic status, and food-related habits and changes observed. **Results:** More than half of the parents reported that their children experienced changed eating habits. **Conclusion:** Parents have become more lenient towards their children's demands and it has affected their children's physical activity as well, which has decreased.

Keywords: COVID-19, Eating habits, Children, Saudi public.

INTRODUCTION

COVID-19 pandemic has demonstrated that self-isolation at home due to the lockdown was linked with a decreased level of physical activity, lengthier sitting time, alterations in eating habits, and sleeping patterns. Additionally, a rise in food bought before the pandemic was stated in several countries, which increased the accessibility of foods for the duration of the lockdown. Self-isolation has been also associated with tediousness and stress, which in turn may lead to increased energy consumption, comfort foods, and emotional eating. So far, there is a scarcity of researches aiming at modifications of children's lifestyle activities during the COVID-19 pandemic. However, it was discovered that children tend to consume less vegetables and more sugar during the non-school-going periods (Androutsos et al., 2021).

Contrasted to parents' food parenting habits during meals, parents often had a lenient approach to children's snacking, for instance being less expected to have definite rules or limits related to snacking. Snack selections are less expected to be decided beforehand (i.e. more likely to be chosen at the moment), than main meals, which are more often planned beforehand. With children of all age groups spending the majority time at home due to the COVID-19 pandemic, snack

parenting systems may consequently undertake a more important role in parent-child food relations and have a very strong possibility to affect children's diets both constructively and adversely as well (Jansen et al., 2021).

A Canadian-based study by Carroll et al., (2020) revealed that among their sample of 254 families with young children, they discovered that the majority of families stated decreased physical activity since COVID-19 social distancing constraint execution. Over half of the families also described alterations to their children's eating behaviors and meal habits with some of those variations expected to be leading to better diet quality, for example eating more meals from scratch, whereas others would be anticipated to lead to lower quality diets, such as eating more snack foods.

Another study conducted by Ruiz-Roso et al., (2020) reported the first indication of physical activity routines' alterations in teenagers during Covid-19 confinement in two countries in Europe and three countries in South America. Regardless of the various factors of physical inactivity in the people in both continents, they witnessed a relatively high proportion of physical inactivity in the sample before and during the Covid-19 pandemic, which was deteriorated through the

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lockdown measures. They also noticed a high frequency of ultra-processed food intake among adolescents, which was also exacerbated by the lockdown and Latin American countries demonstrated higher habitual ultra-processed food intake.

An Italian-based study revealed that children's food consumption was altered in 40.2% of the sample. Among the 1588 families that proclaimed that their children were consuming more food, there was an upsurge in the intake of snacks in 958 (60.3%), fruit juices in 223 (14.0%), and soft drinks in 165 (10.4%). Reasons correlated with heightened children's food consumption were parental female gender, challenging or unmanageable household budget, having more than one child, and having kids older than 2 (Dondi et al., 2021).

AIMS OF THE STUDY

- To determine the current practice of snacking and other food habits among the children in visiting REU clinics, Riyadh.
- To compare the responses on the basis of socioeconomic status.

MATERIALS AND METHODS

Study Design

This is a cross-sectional study conducted among the parents of children visiting the REU clinics using an online survey.

Study Sample

123 parents were used in this study including both males and females.

Study Instrument

Online questionnaire was constructed consisting of questions related to age, number of children, socioeconomic status, and food-related habits and changes observed.

Instrument Validity and Reliability

A pilot study was conducted by sending the survey to 20 participants and the data were inserted in SPSS version 22 to determine the reliability by using Chronbach's coefficient alpha (value: 0.716). Validity of the questionnaire was tested by sending it to experienced researchers in REU and changes were made according to their feedback and comments.

Statistical Analysis

Collected data was analyzed using SPSS version 22, where descriptive as well as inferential statistics were conducted. Comparisons between groups were made with the value of significance kept under 0.05 using the Chi-square test.

RESULTS

A total of 123 parents participated in this study with 40.7% having 1-2, 52.8% having 3-5, and 6.5% having 6 or more children (Figure 1). Regarding their socioeconomic status, 6.5% belonged to low, 88.6% to medium, and 4.9% to high socioeconomic status. Overall frequencies and comparisons

on the basis of socioeconomic status have been presented in tables 1 and 2.

DISCUSSION

This study aimed to assess the prevalence of snacking and change in dietary habits among the children of parents visiting REU clinics. A Brazilian-based study found that families demonstrated breakfast eating practices and the intake of raw salad, vegetables, beans, and soft drinks. Medium to the high class used fruits, juices, vegetables, and beans more regularly. Social isolation influenced the eating habits of children and adolescents (Teixeira et al., 2021). These findings are supporting the results of our study, as there is an increased intake of juices and soft drinks noticed among the children of our study participants. Moreover, more than half of the parents reported that their children experienced changed eating habits, which is also seen in the Brazilian study.

Another study in France stated that several parents reported alterations in child eating practices, feeding habits, and food shopping motivations. When changes happened, child appetite, food enjoyment, food responsiveness, and emotional overeating considerably increased throughout the lockdown. Increased child boredom substantially anticipated increased food responsiveness, emotional overeating, and snacking in between meals. Parents generally became more lenient: less rules, more soothing with food, more child autonomy. They purchased pleasurable and sustainable foods more regularly, prepared more home-cooked meals and cooked more with the child (Philippe et al., 2021). These findings are similar to what we observed as majority of the children changed their eating behaviors and the majority of parents became lenient towards the demands of their children.

A Greek-based study revealed that during the COVID-19 era, children, adolescents, and young adults gained weight. Alterations in dietary activities, increased food consumption, and unhealthy food preferences including potatoes, meat, and sugary drinks were observed during the current COVID-19 pandemic. Additionally, as the restrictions enforced reduced movements out of the house, physical activity was restricted, indicating another risk factor for weight gain (Stavridou et al., 2021). Once again, these findings are supportive of what we discovered in our results.

Limitations of this study include the fact that survey studies are sometimes associated with participants being uncomfortable in providing answers that present themselves in an unfavorable manner. Moreover, the study subjects may not be fully aware of their reasons for any given answer because of lack of memory on the subject, or even boredom (Esposito, 2010).

CONCLUSIONS

- There is a definite change in the eating habits of children during the pandemic.
- Parents have become more lenient towards their children's demands and it has affected their children's physical activity as well, which has decreased.
- Overall, no statistically significant association was seen when eating habits were compared with socioeconomic status.
- However, higher socioeconomic status participants tend to be more lenient as compared to lower socioeconomic groups.

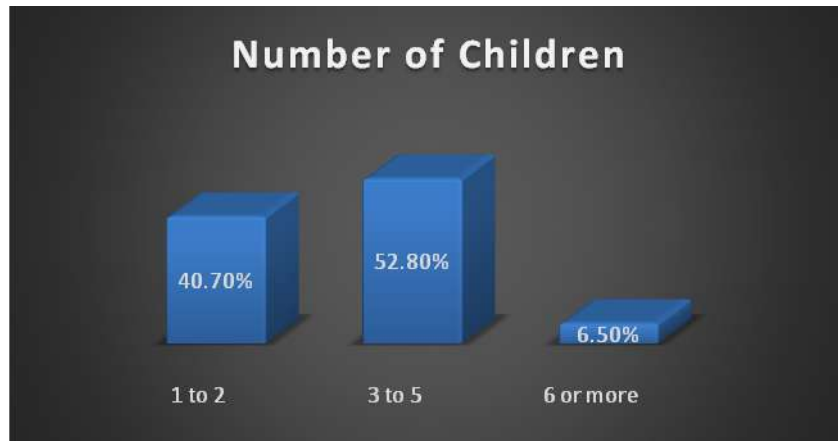


Figure 1: Number of children reported by study participants

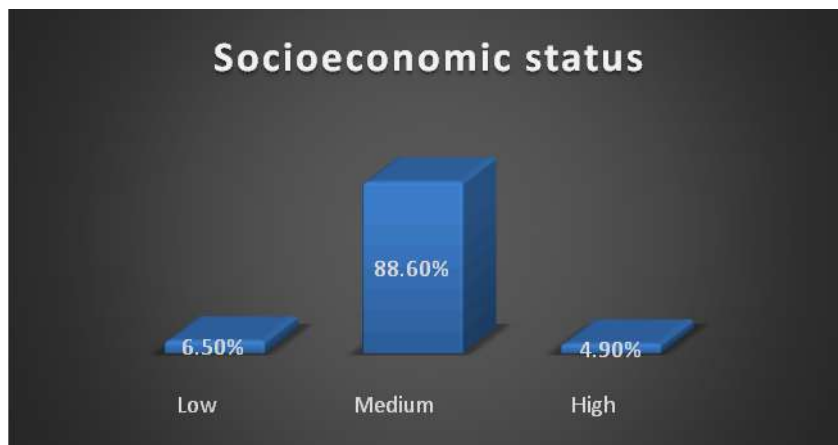


Figure 2: Socioeconomic status of study participants

Table 1: Frequencies of survey responses by the study participants

Survey Questions	Frequencies (%)
Have you noticed any change in body weight of one of your children during lockdown?	A little: 39% Yes definitely: 30.9% Not at all: 30.1%
Have you noticed any change in eating habits of one of your children during lockdown?	A little: 28.5% Yes definitely: 52% Not at all: 19.5%
If yes, please select one of the following:	My child has started consuming more food: 65.8% My child has decreased consuming food: 19.2% I don't know: 15%
Have you noticed one of your children asking for more sweets/sugary snacks during lockdown?	Not at all: 4.9% Sometimes: 65% Yes always: 30.1%
If yes, please select one of the following:	Candies: 33.3% Cookies: 12.5% Cookies and desserts: 49.2% I don't know: 5%
If yes, did you say yes to their demands?	Not at all: 3.3% Sometimes: 79.7% Yes always: 17.1%
Have you noticed an increased demand in sugary drinks by your children?	A little: 36.6% Yes definitely: 28.5% Not at all: 35%
If yes, what is the frequency of sugary drinks consumption?	Once per day: 54.9% 2-3 times per day: 26.2% More than 3 times per day: 1.6%

	I don't know: 17.2%
If yes, what is the type of sugary drinks they demand?	Boxed juices: 46.2% Soft drinks: 19.8% Both: 23.6% I don't know: 10.4%
Are you worried about weight gain of your child/children due to excessive sugar intake?	A little: 29.3% Yes definitely: 43.9% Not at all: 26.8%
Are you worried about the incidence of dental caries of your child/children due to excessive sugar intake?	A little: 18.9% Yes definitely: 75.4% Not at all: 5.7%
Has your child complained of toothache in the recent past?	A little: 19.7% Yes definitely: 40.2% Not at all: 40.2%
Has your child reduced his/her physical activity in recent past?	A little: 18.9% Yes definitely: 75.4% Not at all: 5.7%
Would you like to work on decreasing the sugar/sweet food consumption by your child/children?	Yes: 87.8% No: 0.8% Maybe: 11.4%

Table 2: Survey responses and their comparisons on the basis of socioeconomic status

Survey Questions	Low	Medium	High	p-value
Have you noticed any change in body weight of one of your children during lockdown?	A little: 13% Yes definitely: 87% Not at all: 0%	A little: 41% Yes definitely: 28% Not at all: 31%	A little: 33% Yes definitely: 17% Not at all: 50%	.007*
Have you noticed any change in eating habits of one of your children during lockdown?	No Statistically Significant Association			.069
If yes, please select one of the following:	No Statistically Significant Association			.815
Have you noticed one of your children asking for more sweets/sugary snacks during lockdown?	No Statistically Significant Association			.445
If yes, please select one of the following:	No Statistically Significant Association			.290
If yes, did you say yes to their demands?	Not at all: 13% Sometimes: 63% Yes always: 25%	Not at all: 2% Sometimes: 84% Yes always: 14%	Not at all: 17% Sometimes: 17% Yes always: 67%	.001*
Have you noticed an increase demand in sugary drinks by your children?	A little: 25% Yes definitely: 75% Not at all: 0%	A little: 39% Yes definitely: 25% Not at all: 36%	A little: 0% Yes definitely: 33% Not at all: 67%	.007*
If yes, what is the frequency of sugary drinks consumption?	No Statistically Significant Association			.142
If yes, what is the type of sugary drinks they demand?	No Statistically Significant Association			.512
Are you worried about the weight gain of your child/children due to excessive sugar intake?	No Statistically Significant Association			.622
Are you worried about the incidence of dental caries of your child/children due to excessive sugar intake?	No Statistically Significant Association			.496
Has your child complained of toothache in the recent past?	No Statistically Significant Association			.709
Has your child reduced his/her physical activity in the recent past?	No Statistically Significant Association			.546
Would you like to work on decreasing the sugar/sweet food consumption by your child/children?	Yes: 88% No: 13% Maybe: 0%	Yes: 88% No: 0% Maybe: 12%	Yes: 83% No: 0% Maybe: 17%	.004

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CONFLICT OF INTEREST

There is no conflict of interest among the authors regarding the writing and publication of this research.

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