

# Effectsof COVID-19 Lockdown on the Lifestyle of Children: A Cross-Sectional Survey

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## Abstract:-

**Aim and objectives:** The aim of this study is to evaluate the effect of COVID-19 lockdown on the lifestyle of children aged 5 to 14 years.

**Methods:** A random sample of 315 patients attending the outpatient department of the institute between the age group of 5 to 14 years were included. A self-administered bilingual questionnaire containing close-ended questions was distributed to the parents/caregivers prior to the initial consultation and written informed consent was taken. The questionnaire included the patients' demographic information and questions about lifestyle, dietary habits, physical activity, enthusiasm, irritability and weight gain in children during the covid-19 lockdown to which respondents were asked to tick the appropriate option according to them.

**Results:** Out of 315 children, 148 children were female and 167 were male. The overall mean age of the children was recorded 8.85 years with a std. deviation of 2.602. The majority (66.7%) of respondents noticed the change in their child's lifestyle-related behaviour during lockdown. A statistically significant association was found between changes in snacking habits between meals and weight gain of the children (p-value=0.002), changes between the participation in physical activities and weight gain of the children (p-value<0.001) and between physical activities and irritability/anxiety of the children (p-value<0.001).

**Conclusion:** The covid-19 lockdown has a pronounced effect on the behaviour and lifestyle of children and the parents are suggested to make their children maintain a regular timetable and healthy habits to minimise the risk of adverse effects on the child's behaviour and health in future.

## I. INTRODUCTION

COVID-19 pandemic has led a life-changing impact among people across the globe including children. Coronavirus disease 2019 (COVID-19) is an acute infectious respiratory disease that has created strenuous consequences for the global healthcare community.<sup>1</sup>

On 11th March 2020, the World Health Organization declared the status of the global pandemic and many nations adopted measures in order to limit the rapidly increasing cases.<sup>2</sup>

On the evening of 24<sup>th</sup> March 2020, Following the outbreak of the pandemic the Indian government imposed, a nationwide lockdown of 21 days which was later continued till 31<sup>st</sup> May 2020 to limit the spread of the

contagion which resulted in the restriction of the movement of entire 1.38 billions of Indian population. This unanticipated command by the government trembled the population in various ways embracing their lifestyle, work, diet and mental health. The effect was not only limited to the adult population but also affected the children damagingly. Lifestyle plays a crucial role in the development of a child's health and personality. This unfortunate position of isolation created a hostile environment for maintaining the healthy lifestyle and behaviour of children and adolescents. The abrupt cessation of schools and playing for children who by mandate had to stay in their homes in an attempt to attenuate the spread of the disease made an unexpected change in their lifestyle. Such mandatory directives of locking down every outdoor activities impeded children to carry out their daily routine including regular physical activity and exercise.

This vicious cycle of sedentary behaviour and decreased daily energy expenditure might end in weight gain. Staying indoors and living a stationary lifestyle favours the adverse mental as well as physical health of children. During this lockdown, the families usually stocked food with longer shelf-life and high calorie-containing processed food which in turn disrupts normal pattern and frequency of eating. Children's quality and quantity of food intake have been changed including physical activities and daily routine. These habits and changes in the diet affect oral health as well. The consumption of sweetened and refined food can cause subsequent plaque deposition that eventually leads to poor oral health and dental caries.

Hence, the aim of this study is to observe the effects of lifestyle-related habits during COVID-19 lockdown in children and how it affects their overall health.

## II. MATERIALS AND METHODS

A self-administered bilingual (Hindi and English) questionnaire containing close-ended questions was prepared to identify the change in the lifestyle of children and its effects during COVID-19 Lockdown. A three-point Likert scale was used to make the questionnaire with two polar options "increased" and "decreased" and a neutral option as "constant". The questionnaire included the patients' demographic information and questions about lifestyle, dietary habits, physical activity, enthusiasm, irritability and weight gain in children during the covid-19 lockdown.

The questionnaires were distributed by non-clinical reception staff in the waiting area to the parents/caregivers prior to the initial consultation and written informed consent was taken. The respondents were asked to tick the most appropriate answer according to them.

The sample included 315 new patients (167 males and 148 females) attending the outpatient department of the Institute (Department of Pediatric and Preventive Dentistry, Mahatma Gandhi Dental College and Hospital) between the age group of 5 to 14 years. The survey was conducted for over 6 months period. A pilot study was conducted with the questionnaire distributed to 30 parents to test the validity of the questionnaire.

### III. RESULTS

A total of 315 forms were collected and the data were entered into MS Excel spreadsheet which was statistically analysed using STATA/IC-13 software. Out of 315 children, 148 children were female and 167 were male (Table-1). The overall mean age of the children was recorded 8.85 years with a std. deviation of 2.602. (Table- 2). The majority (66.7%) of respondents noticed the change in their child's lifestyle-related behaviour during COVID time. 59.7% of respondents agreed that there is an increase in their child's

habit of snacking between meals while 55.6% of children showed that quantity/portion of meals/snacks is constant. A constant daily intake of fruits and vegetables was observed in 47.9% of children while there is an increase in the percentage of children consuming junk food (43.2). The child's probability of skipping one of the main meals (breakfast/lunch/dinner) was found to be similar as before in the majority of children.

The child's participation in physical activities as well as helping in household work was increased (36.2%) and (36.5%) respectively. A majority of 85.4% of children exhibited increased screen time (e.g. T.V, Mobile, laptop, online classes). There was no change in the child's hours of sleep, energy level and enthusiasm. While 52.4% of children showed irritability, stress/anxiety during the lockdown and 56.8% of children were manifested with an increase in their body weight during the lockdown. (Table-3).

Chi-square test was used for significant associations of frequency of meal and child's weight (Table-4); participation in physical exercise and weight (Table-5); and participation in physical exercise and irritability or stress/anxiety (Table-6).

Sex of the Child	Frequency	Percent
Female	148	47.0
Male	167	53.0

Table 1

Descriptive Statistics	N	Minimum	Maximum	Mean	Std. Deviation
Age of the Child	315	4	15	8.85	2.602

Table 2

Have you noticed any change in your lifestyle-related behaviour?		Frequency	Percent
Valid	No	105	33.3
	Yes	210	66.7
	Total	315	100.0

How has your child's habit of snacking between meals changed?		Frequency	Percent
Valid	Constant(Similar as before)	117	37.1
	Decreased	10	3.2
	Increased	188	59.7
	Total	315	100.0

How has your child's quantity/portion of meals/snacks changed?		Frequency	Percent
Valid	Constant(Similar as before)	175	55.6
	Decreased	27	8.6
	Increased	113	35.9
	Total	315	100.0

How has your child's daily intake of fruits and vegetables changed?		Frequency	Percent
Valid	Constant(Similar as before)	151	47.9
	Decreased	79	25.1
	Increased	85	27.0
	Total	315	100.0

<b>How has your child's consumption of junk food / fast food / fried food changed?</b>		Frequency	Percent
Valid	Constant(Similar as before)	100	31.7
	Decreased	79	25.1
	Increased	136	43.2
	Total	315	100.0

<b>How has your child's probability of skipping one of the main meal (breakfast / lunch / dinner) changed?</b>		Frequency	Percent
Valid	Constant(Similar as before)	155	49.2
	Decreased	30	9.5
	Increased	130	41.3
	Total	315	100.0

<b>How has your child's participation in physical activities (dancing, playing, exercise, running) changed?</b>		Frequency	Percent
Valid	Constant(Similar as before)	68	21.6
	Decreased	133	42.2
	Increased	114	36.2
	Total	315	100.0

<b>How has your child's sitting and screen time (e.g. T.V, Mobile, laptop, online classes) changed?</b>		Frequency	Percent
Valid	Constant(Similar as before)	44	14.0
	Decreased	2	.6
	Increased	269	85.4
	Total	315	100.0

<b>How has your child's participation and helping in household work changed?</b>		Frequency	Percent
Valid	Constant(Similar as before)	132	41.9
	Decreased	68	21.6
	Increased	115	36.5
	Total	315	100.0

<b>How has your child's hours of sleep changed?</b>		Frequency	Percent
Valid	Constant(Similar as before)	138	43.8
	Decreased	56	17.8
	Increased	121	38.4
	Total	315	100.0

<b>How has your child's energy level and enthusiasm changed?</b>		Frequency	Percent
Valid	Constant(Similar as before)	134	42.5
	Decreased	93	29.5
	Increased	88	27.9
	Total	315	100.0

<b>Have you noticed your child showing any irritability or stress/anxiety during lockdown?</b>		Frequency	Percent
Valid	Constant(Similar as before)	109	34.6
	Decreased	41	13.0
	Increased	165	52.4
	Total	315	100.0

Have you noticed any change in your child's weight?		Frequency	Percent
Valid	Constant(Similar as before)	126	40.0
	Decreased	10	3.2
	Increased	179	56.8
	Total	315	100.0

Table 3

		How has your child's habit of snacking between meals changed?				
		Constant(Similar as before)	Decreased	Increased	Total	
Have you noticed any change in your child's weight?	Constant(Similar as before)	Count	59	7	60	126
		%	50.4%	70.0%	31.9%	40.0%
	Decreased	Count	4	1	5	10
		%	3.4%	10.0%	2.7%	3.2%
	Increased	Count	54	2	123	179
		%	46.2%	20.0%	65.4%	56.8%
Total	Count	117	10	188	315	
	%	100.0%	100.0%	100.0%	100.0%	

**Chi-Square Tests**

	Value	Df	P-value
Pearson Chi-Square	17.327	4	0.002

Table 4

Out of a total, 188 children had increased snacking habits between meals and out of which 65.4% of children had also increased their weights. Thus it can be concluded that there is a significant association between changes in snacking habits between meals and weight gain of the children (p-value=0.002). (**Table-4**).

		How has your child's participation in physical activities (dancing, playing, exercise, running) changed?				
		Constant(Similar as before)	Decreased	Increased	Total	
Have you noticed any change in your child's weight?	Constant(Similar as before)	Count	39	28	59	126
		%	57.4%	21.1%	51.8%	40.0%
	Decreased	Count	3	5	2	10
		%	4.4%	3.8%	1.8%	3.2%
	Increased	Count	26	100	53	179
		%	38.2%	75.2%	46.5%	56.8%
Total	Count	68	133	114	315	
	%	100.0%	100.0%	100.0%	100.0%	

**Chi-Square Tests**

	Value	Df	P-value
Pearson Chi-Square	36.359	4	<0.001

Table 5

Out of the total, 133 children had decreased their participation in physical activities, out of which 75.2% of children had also increased their weights. Thus it can be concluded that there is a significant association between changes in the participation in physical activities and weight gain of the children (p-value<0.001). (**Table-5**)

		How has your child's participation in physical activities (dancing, playing, exercise, running) changed?				
		Constant(Similar as before)	Decreased	Increased	Total	
Have you noticed your child showing any irritability or stress/anxiety during lockdown?	Constant(Similar as before)	Count	37	33	39	109
		%	54.4%	24.8%	34.2%	34.6%
	Decreased	Count	9	3	29	41
		%	13.2%	2.3%	25.4%	13.0%
	Increased	Count	22	97	46	165
		%	32.4%	72.9%	40.4%	52.4%
Total	Count	68	133	114	315	
	%	100.0%	100.0%	100.0%	100.0%	

**Chi-Square Tests**

	Value	df	P-value
Pearson Chi-Square	55.832	4	<0.001

Table 6

Out of the total, 133 children had decreased their physical activities, from those 72.9% of children had increased their irritability/anxiety. Thus it can be concluded that there is a significant association between physical activities and irritability/anxiety of the children (p-value<0.001). (Table-6)

**IV. DISCUSSION**

In this study, we have made an attempt to evaluate the effect of covid-19 lockdown on children. The outbreak of the disease caused the world to pay great compensation. The Indian government endeavoured to put a stop to the spreading of disease and the entire country came to a complete standstill.

The pandemic has altered the normal work pattern by introducing online schooling and work from home. Such unprepared lockdown has provoked the unhealthy lifestyle and eating practices that have brought about obesity in both children and adults. Such variation in daily routine has established altered dietary and physical activity.

The population shifted towards a sedentary lifestyle eating comfort food that is more processed and calorogenic contributing to a rise in calorie intake and low energy expenditure due to less physical functions. The weight gained is questionable to lose and those who are overweight already are expected to gain twice that of normal-weight individuals. Increased body weight in children is linked to obesity while rapid weight gain in pregnancy can have enduring health complications for both the mother and child. The food industries swiftly identified the change in their target population and have intensified online advertising and focused on children leading to an increase of 124% in food shopping.

In this study, an increase in the percentage of children consuming junk food (43.2), sugar-sweetened (49.8) beverages and sweet/candies (62.9).

Furthermore, the combination of working from home, online education and social media usage have all caused screen time to surge (Khan et al, 2020). COVID-19 exacerbates the condition of the overweight and obese pediatric population. (Valenzise et al, 2021)

Pietrobelli et al, 2020 deduced that “the tragic COVID-19 pandemic has collateral effects extending beyond those of direct viral infection. Children and adolescents struggling with obesity are placed in an unfortunate position of isolation that appears to create an unfavourable environment for maintaining healthy lifestyle behaviours.”

A study by Kumar et al, 2021 concluded that many children have been exposed to emotional, mental, and physical stress and less healthy lifestyles during this pandemic.

Saurabh et al, 2020 evaluated that greater psychological distress was experienced by children and adolescents in quarantine than non-quarantined children and adolescents. The most associated feelings reported during the lockdown were 69% experienced worry, 66% experienced helplessness, and 62% experienced fear.

Abdulha et al, 2020 suggested that the lockdown caused high levels of stress in children. Due to home quarantine and social distancing, children also encountered loneliness, sadness, stress, depression and the fear of coronavirus.

A study by Shah et al, 2020, evaluated about 30.7% of children experienced psychosocial problems, amongst which, 25.2% had depression and symptoms of anxiety as a result of lockdown. Also, Spinelli et al, 2020 reported parent stress was found to be significantly correlated with hyper-inattention in children.

In this study, 52.4% of children showed irritability, stress and anxiety during lockdown ascertained by their parents.

Besides short-term and long-term physical health problems, obese children and adolescents are more expected to agonize poor social and psychological health than their normal counterparts. Low self-esteem, confidence, reduced quality of life, depression and social discrimination could be noticed in such children. (Hills et al, 2011)

Inadequate sleep is also associated with screen media exposure, excess food consumption and obesity. (Robinson, 2017) Screen media exposure can exacerbate sleep disturbances. (Dutta K et al, 2020) While in contrast, this study depicts no change in sleeping hours in children.

Eating while viewing is another way that exposure to screen media escalate a child's energy intake. Sundus M, 2018 described the negative effects of gadgets as speech or language delay, attention deficits, learning problems, anxiety, negative impact on character and childhood depression. childhood depression is a very common and severe medical illness that negatively affects child behaviour and the way of their thinking and behaving. excessive use of gadgets originates from depression in children which also leads to mental health challenges in their childhood and adolescence.

Balachandran et al, 2020 reported suicides in children. Watching television for long hours or use of the internet can persuade them to a risk of "Internet addiction lower self-esteem and low interest in physical activities.

Moreover, a study by Singh et al, 2020 reported that economically underprivileged children are more likely to be vulnerable to exploitation and child abuse. Children quarantined are found to be endangered for developing a higher risk for mental health-related challenges.

Every child needs to play and grow and so does their physiological and psychological development. Prohibition of playing outside with peers created an obstacle for the child in both ways to developmentally and physically. Discontinuing the outings bring about their bothersome nature. In this study, it was also seen that when children were forbidden to play outside; it was observed that 72.9% of children showed an increased irritability/anxiety.

## V. CONCLUSION

The covid-19 lockdown has a pronounced effect on the behaviour and lifestyle of children. Due to a long span of home confinement, limited exposure towards physical activities and increased frequency of having snacks, a significant rise in weight is seen with increased irritability and anxiety in children. There is a possibility of worsening these conditions if the country imposes any future lockdown. In conclusion, parents are suggested to make their children maintain a regular timetable and healthy habits to minimise the risk of potential behavioural and health damage in future.

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