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Covid lockdown fear diaries - Behavior, eating and brushing habits in kids

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Abstract

Background: The COVID-19 pandemic affected the world and resulted in a major loss of human life, posing an unparalleled threat to the health system, food systems and economic system. Due to the second wave of COVID-19, Governments imposed state-wise lockdown. During the lockdown, children faced restricted physical activity and a long stay at home which may impact their behavioral, eating and oral hygiene habits.

Aim: To assess the children’s behavioral, eating and oral hygiene habits during the COVID- 19 pandemic lockdown.

Methodology: A web-based cross-sectional analysis of 23 questions was conducted on 1114 children aged 6–13 years and their parents in Maharashtra (India). The question's concerns focused on changes in children daily routine, eating patterns, anxiety level, and oral health during the pandemic lockdown.

Results: The correlation was found between the fear level of children and behavioral changes of children during the pandemic lockdown. 69.2% of children showed a change in their behaviour during the lockdown. Total 39.9% of children skipped dental treatment due to fear of being infected by COVID-19. 31.2% of parents respondent said they increased their intake of meals. No change in oral hygiene habits was seen.

Conclusions: The COVID-19 pandemic-imposed lockdown that affected behavior and food consumption habits in children. The role of parents in children's toothbrushing and the frequency of children's toothbrushing did not change during the lockdown.

Keyword: COVID-19, Children, Diet, Fear, Mental health, Oral health, Pandemic, Toothbrushing

Introduction

The pandemic COVID-19 caused by extreme acute respiratory syndrome Coronavirus 2 has spread around the world. On January 30, 2020, the first case of COVID-19 in India was registered. The World Health Organization (WHO) declared COVID-19 as a pandemic on March 11th, 2020. According to the Ministry of Health and Family Welfare (MoHFW) of India, a total of 3413642 confirmed COVID-19 cases had been registered from 32 states/union territories as of May 3, 2021. The majority of the cases have been registered from Maharashtra, Delhi, Uttar Pradesh and Gujarat. The MoHFW has recorded 218959 deaths as a result of COVID-19, resulting in a case-fatality rate of 1.10 percent.

The Indian Ministry of Health and Family Welfare has raised concern about the recent outbreak and has taken the requisite steps to monitor COVID-19 spread. In Maharashtra (India), the second wave of COVID-19 started during the middle of March 2021 and having mutated COVID-19 strain with high fatality rate than the first wave of COVID-19. Because of that, the Government imposed a second state-wide lockdown in Maharashtra (India) to limit virus transmission, which began on April 14, 2021.

As a result of the closure of schools, parks, transports and sports activities, children spent long periods at home during the pandemic. The new routine could lead to overconsumption of food, particularly highly processed and calorie-dense foods [1]. Because of decreased physical activity and intake of calorie-dense foods, the lockdown may also be a source of put-on weight during the COVID19 pandemic. Ghosh A et al (2020) observed that carbohydrate intake and snacking frequency rose by 21% and 23%, respectively, activity time was shortened in 42% of patients, and put on weight resulted in 19% of diabetes patients [2]. Repeated sugar intakes favor an accumulation of dental biofilms and lead to caries and gums-related disease production [3].

The lockdown has a direct effect on routines, as well as causing general anxiety about the future. Changes in diet, economic problems, general worries, and anxiety, combined with a lack of preventive dental care, can affect the oral health and behavior of children during enforced stay-at-home orders. Thus, this study aimed to assess the children’s behavioral, eating and oral hygiene habits during the COVID-19 pandemic lockdown period in Maharashtra (India).

Material and methods

A cross-sectional study was carried out using probabilistic sampling, with children aged 6–13 years and their parents, from all 6 geographic divisions of Maharashtra, India (Kokan, Nashik, Pune, Aurangabad, Amravati and Nagpur). This study was conducted after the Bharati Vidyapeeth Deemed to be University's

(India) Research Ethical Committee approved it. [BV (DU)MC&H/Sangli/IEC/0-53/21].

The representative sample size was estimated using a 95% confidence level and a margin of error of 5%. The sample calculation considered 29.97 million children aged 6–13 years in Maharashtra in 2011(Maharashtra census 2011). The sample size was estimated at a minimum of 323 respondents.

A modified questionnaire [4] is prepared by testing content validity. The questionnaire contained 23 mandatory questions about children's behavioral, eating and oral hygiene habits. The survey's purpose was to evaluate behavioral changes, dietary changes and oral hygiene habits changes in the COVID 19 pandemic lockdown. This was conveyed to parents and their children at the online school parent's meeting, and a Google Forms link was forwarded to the parents' online meeting platform from April 12th to May 5th, 2021, when the COVID- 19 spread curve was still increasing in India. The questionnaire was designed in English language and then it was translated into regional (Marathi) language to understand the purpose of the questions. Then translated questions were checked and validated by subject experts.

The questionnaire was divided into two parts, first part of the questionnaire consists of parent's observations regarding their children's behavioral, eating and oral hygiene habits during the lockdown period in Maharashtra. The second part consists of children's own perceptions regarding eating and oral hygiene habits during the lockdown period in Maharashtra. It was available for 23 days. All children with age between 6-13 years and their parents who fit the criteria could answer the questionnaire. All the respondents had access to the Assent as well as Consent Statement and requested to agree with it before being included in the present study.

The informed consent included the objectives of the study, the responsible researchers and their contact information. The approximate time for the answer completion to the questionnaire was informed, being about five minutes. The answers and data obtained were stored by the researchers and used only for this study. To ensure the anonymity of each respondent, no identifying information was collected. Before sending the questionnaire, participants could change their answers as many times as they wish. No duplicate response control tool was used, but if identical responses in sequence were observed, one was excluded. The answers obtained were tabulated in Excel (Microsoft Corp., Redmond, USA), and the statistical analysis was performed using the IBM-SPSS 22.0 software. The fear level was categorized into '0' '1to 2', '3 to 4', '5 to 6', '7 to 8' and '9 to 10'. Fear levels 6–8 and 9–10 were considered moderate and high fear, respectively. Data analysis included the description of the relative and absolute frequencies of the variables.

Results

A total of 1114 questionnaires were filled in by people from Maharashtra state. The majority of parents responded with a mean age group of 35.6 years and most commonly the mean age group of their children was 8 to 11 years.

Most parents (n = 328) reported that their children did not go to school neither out for leisure or visiting family and friends. As the pandemic situation became the children anxious about their surroundings. Regarding the number of people living in each house, 48.6% of the households had three to four people, and 55.9% of respondents had 2 children aged 6 to 13 years.

Most of the parents responded to the fear scale i.e., on a scale of 0 to 10, where 0 is no fear and 10 is terror, indicating the child fear of the pandemic, 28.8 % observed no fear among the children whereas 37.9% reported fear levels equal to or higher than 5, while 11.1 percent declared fear levels 9 or 10. 25.8% of parents noticed behavior changes in children such as mood swings, 10.5% observed tension and headache among their children with lack of focus were seen in 8.3% of children. There were also 30.8% of parental responses seen with no change observed in children behavior during the pandemic. When the fear level of children ($p<0.001$) was increased, we see negative behavioral changes in children during pandemic lockdown [Fig. 1].

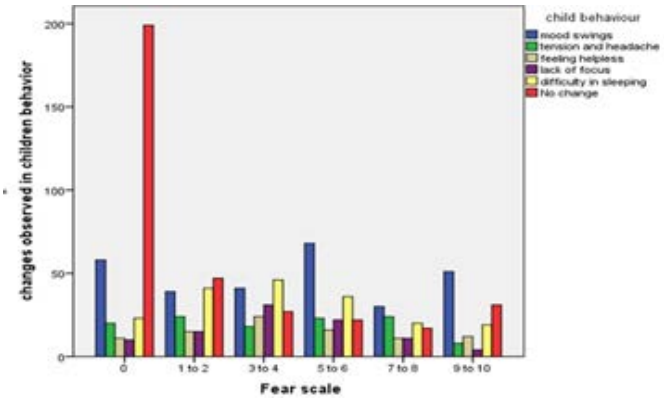

Fig. 1: Association between fear level of children and behavioral changes in children, Maharashtra (India)

Change in food consumption among children was observed in 31.2 % of families, mostly seen in 8 to 11 years of age group and whereas age group 12 years and above had very less changes in food intake. 42.8 % of children had a healthy diet with fruits and vegetables and only 6.5% of children were eating more processed food and cookies. 76.6 % of children preferred home-cooked food over frozen and microwaved food. There was no statistically significant relationship found between change in eating habits and frequency of eating [Fig. 2].

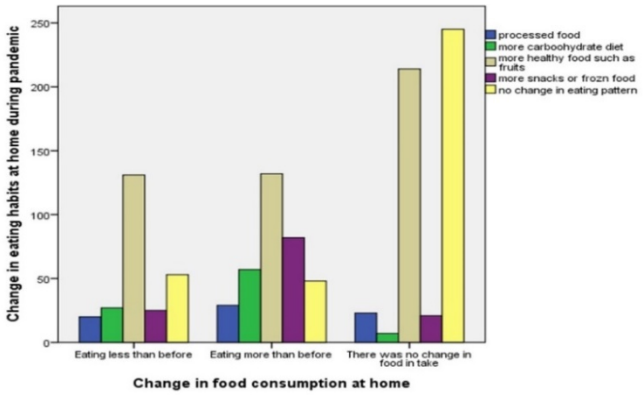

Fig. 2: Association between change in eating habits and frequency of eating in children of Maharashtra (India)

Only 46% of parents reported they only left home for minimal necessities such as pharmacy, like this most of the family's daily routine was affected. 168 (15.1%) of children declared a member in their family was positive on being tested and 3.7 % of family members had symptoms related to COVID-19 in which 12.8 % were in isolation centers. There were 747 (67.1%) children who did not undergo any dental treatment before the pandemic and others have undergone dental treatment for caries (12.0%), toothache (11.8%), orthodontic (5.4%) and trauma (3.8%) reasons. The frequency of occurrence of trauma, new caries, and toothache are shown in [Table 1].

Table 1: Distribution of children (aged 6-13yrs) report regarding their dental trauma, new caries and toothache during lockdown in Maharashtra (n = 1114)

	No	Yes, parent sought care and treated by a dentist	Yes, but did not seek care	Yes, parent sought care, but not treated by a dentist
	n (%)	n (%)	n (%)	n (%)

Trauma	900 (80.8)	101 (9.1)	60 (5.4)	53 (4.8)
New caries	800 (71.8)	130 (11.7)	70 (6.3)	114 (10.2)
Toothache	759 (68.1)	126 (11.3)	66 (5.9)	163 (14.6)

Overall, 62.9 % of children reported no change in the parental role on tooth brushing during pandemic and 6 to 8 years of children took help of parents for brushing. There was an increased brushing frequency to twice a day in 309 (27.7%) responses in which 66 children are 8 to 9 years and 112 children are of 12 years of age. There was no statistically significant difference ($p<0.001$) observed between a parental role for children's brushing and frequency of children's toothbrushing [Table 2].

Table 2: Association between parental role for children's toothbrushing and frequency of children's toothbrushing in Maharashtra (India)

Effect of lockdown on frequency of tooth brushing?	Is there any change of parental role in your toothbrushing during pandemic?			p-value
	Started taking help of parents for brushing	Stopped taking help of parents for brushing	No changed in parent role	
Increased brushing frequency to twice a day	74	82	153	<0.001
Increased brushing frequency after every meal	45	62	55	
Decreased brushing frequency to once a day	23	52	109	
No changed in brushing frequency	26	49	384	
Total	168	245	701	

During the pandemic of COVID 19, there were 101 (9.1%) children who had dental trauma which was treated by the dentist and 60 (5.4%) children did not seek any care after the trauma, whereas other 53 (4.8%) children sought care but did not get treated by the dentist. On dental appointments, 39.9 % were scared of being infected by COVID 19 and 51% feel the dental treatment not being an urgent issue. [Fig. 3]

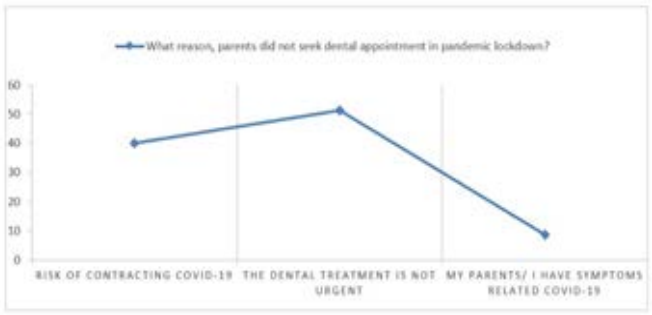

Fig. 3: Parents did not seek dental appointment for children during lockdown in Maharashtra (India)

Discussion

Daily life has changed unexpectedly for many people around the world, due to COVID-19. The new routine may have an effect on family well-being by reducing income, increasing anxiety, stress, and instability [5,6,7]. The present study was carried out when Maharashtra

faced the second wave of COVID-19 and recorded an increasing number of daily cases, reaching its highest number of new confirmed cases per day approximately around 58,000- 63,000. So, the lockdown was once again introduced in the state by the government. This necessitated the extension of stay-at-home orders, physical distancing, transport limitation and closure of public or commercial places unless stated as essential services by the government. Financial insecurity, unemployment, economic crises, physical distancing, self-isolation, and potentially life-threatening diseases have affected people's concerns and mental health all over the world [8]. Brown SM et al (2020) reported parents observation as 21% detrimental effect on their child's wellbeing and 47% effect on their child's (under the age of 18 years) mental state during the COVID-19 pandemic [9]. In our study, more than 37.9% of parents reported fear levels equal to or higher than 5, while 11.1% declared fear levels 9 or 10. According to the present study, parents believe that 69.2% of their children experience behavioral changes (25.8% mood swings or irritability, 8.3% lack of focus or unable to concentrate in any activity, 16.6% difficulty in sleeping, 10.5% tension and headache, 8% feeling helpless) due to fear of COVID-19 or a prolonged stay at home during COVID-19 pandemic.

Fear has been present since the beginning of human development [10]. Moderate levels of fear, on the other hand, may have a negative impact on health and, in the long run, may cause emotional and physical harm by interfering with people's natural daily activities [11]. There was a significant relationship found between the level of fear and behavioral changes, since the cases of COVID-19 began to increase, people in the contaminated area have reduced their dental visits. In this study, 39.9% of respondents avoid dental treatment due to the chances of getting infected by COVID-19.

This result can be clarified by the fact that apprehension of COVID-19 during the lockdown era caused psychological tension in both parents and their children. Parents/caregivers may be especially concerned about COVID-19 in children because its signs and symptoms are not well established at such a young age [12]. Adverse COVID-19 manifestations in children have been reported, such as the Kawasaki disease-like illness associated with SARS-CoV-2 infection in Europe and the United States [13].

According to studies, people have delayed medical treatments (chemotherapy) because they are afraid of contracting COVID-19, which could lead to serious health problems in the near future. [14,15]. In terms of oral health, the current study found a similar pattern. Approximately 28.5% of respondents said they are not leaving their homes to attend medical or dental appointments. During the pandemic, 10.2% of children suffered dental trauma, 20.5% of children suffer toothache and 16.5% of children suffer new dental caries, even they skipped dental care for that.

During the COVID-19 pandemic, parents are responsible for supervising and assisting children in brushing and flossing their teeth. In this study, 62.9% role of parents has not changed in the brushing of children and 41.2% show no change in the frequency of children's brushing. There are some drawbacks to this study like clinical evaluation of the children's oral hygiene status was not possible due to pandemic lockdown.

Children's eating habits and dental care in Brazil have been negatively impacted by the COVID-19 pandemic [4]. Changes in dietary habits have been influenced by the new routine, work from home for parents, remote classes for children, and financial insecurity [16].

Approximately 31.2% of parents respondent said they increased their intake of meals. These dietary changes not only have an impact on overall health, but they also increase the risk of caries development. Simultaneously, there are psychological effects of the pandemic on children [17], which are linked to changes in food intake patterns and oral hygiene routines. Although this study found no link between parents and their children's perceptions of caries lesions, food intake, and oral hygiene.

It should be noted that the questionnaire was completed in the middle of the pandemic in Maharashtra (India). The consequences of poor dietary habits, poor oral hygiene and lack of preventive dental care may become more apparent in the future.

Conclusion

The Covid-19 pandemic affected children behavior and also raised food consumption in children. The role of parents in children's tooth brushing and the frequency of children's toothbrushing did not change during the pandemic lockdown. The current findings suggest that, following the pandemic, pediatric dentists will need to strengthen prevention steps, behavioral management, diet counseling, and oral hygiene orientation for their patients and parents in the dental office, as well as to conduct a thorough clinical examination of the oral cavity for further comprehensive treatment schedule.

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