

Impact of Second Wave of COVID-19 on Lifestyle Behaviors of Obese Children: A Descriptive Study

Priyadarshini R¹, Maria A Therese²

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ABSTRACT

Background: Due to the lockdown, the coronavirus disease 2019 (COVID-19) pandemic may cause changes to daily life. Children may be exposed to the childhood obesity epidemic caused by COVID-19. The study aimed to assess lifestyle behavior among obese children during the second wave of the COVID-19 lockdown.

Materials and Methods: Descriptive research was undertaken among obese children in Puducherry. Purposive sampling was used to select a 150-person sample size. Both the quantitative technique and the descriptive design were used. Data were collected by using a semi-structured questionnaire related to demographic and lifestyle behavior.

Results: A total of 150 participants were eligible. The finding reveals that out of 150 (100%) samples, 94 (62.67%) had an average lifestyle, 48 (32%) had an unhealthy lifestyle, and 8 (5.33%) had a healthy lifestyle among obese children during the second wave of the COVID-19 lockdown. The demographic variable "number of children in the family" ($\chi^2 = 11.107, p = 0.025$) had a statistically significant association with the lifestyle behavior of obese children during the second wave of the COVID-19 lockdown ($p < 0.05$). The other demographic variables had no statistically significant association with lifestyle behavior among obese children during the second wave of the COVID-19 lockdown.

Conclusion: obese youngsters often led typical lifestyles. Therefore, during the second wave of the COVID-19 lockdown, nursing education should have a greater emphasis on the lifestyle choices of obese children.

Keywords: COVID-19 second wave, Lifestyle behavior, Obese children.

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INTRODUCTION

"Childhood obesity is not a straightforward problem."

Tom Vilsack

Beginning in December 2019, the entire world will be impacted by a new infection caused by the coronavirus 2, which causes severe acute respiratory syndrome. The highly infectious coronavirus disease was first detected in Wuhan, China. In India, Kerala reported its first instance of coronavirus disease 2019 (COVID-19) infection in January. In March, the first instance of COVID-19 infection was found in Puducherry, India. The WHO has confirmed the first COVID-19 round for March 2020. COVID-19 cases have decreased, and on January 4, 2021, a school in Puducherry will return after a nine-month break. Compared to the first wave in March 2021, the second wave caused substantially greater destruction. Pondicherry implemented a number of legislative measures, including the suspension of schools on March 19 and a lockdown on May 9, 2021, as the "last resort" preventive measures to halt the spread of disease until COVID-19 vaccines were available. Children may be exposed to the childhood obesity epidemic caused by COVID-19. In 2016, there were 340 million overweight or obese children and teens between the ages of 5 and 19.¹

Obesity is defined as the accumulation of extra fat, which leads to risks to human health.² Obesity is mainly caused by a lifestyle comprising high-calorie intake and no physical activity.³

Most psychological and emotional reactions to COVID-19 may raise the likelihood of developing unhealthy eating habits.⁴ According to a workman report, a sizable sample of kids in kindergarten through second grade. Over the course of two

^{1,2}Department of Medical Surgical Nursing, Mother Theresa Post Graduate and Research Institute of Health Sciences, Puducherry, India

Corresponding Author: Maria A Therese, Department of Medical Surgical Nursing, Mother Theresa Post Graduate and Research Institute of Health Sciences, Puducherry, India, Phone: +91 9894141223, e-mail: drmaria163@gmail.com

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summer vacations, the prevalence of overweight and obesity dramatically increased, but the author was unable to notice an increase in adiposity. Structure and routine surrounding mealtimes, physical exercise, and sleep cycles should be provided for the three primary lifestyle factors linked to a higher risk of childhood obesity in the classroom.⁵

Programs include children's sports/activity lessons that are either live or recorded. The cancellation of children's sports and online classes, exercise classes, and other classes has inspired platforms like Zoom, YouTube, Instagram, and proprietary mobile applications.⁶ Fast food that is already prepared, while tasty, has a negative impact on obesity rates among adolescents, frequently more so than among adults.⁷ One of the biggest risk factors for severe COVID-19 is rising disease mortality, particularly in young people. The rising trend in kid obesity needs to be continuously

monitored due to public health concerns.⁸ By December 2020, India would have 14.4 million obese youngsters if schools did not reopen.⁹

Due to a lockdown, children were abruptly required to forgo their regular school schedules and stay home to complete hours of online coursework instead of engaging in outside leisure activities.¹⁰ So, the researcher aimed to assess lifestyle behavior among obese children (6–14 years) during the pandemic.

STATEMENT OF PROBLEM

A study to assess the impact of the second wave of COVID-19 on obese children's lifestyle behavior in selected area at Puducherry.

OBJECTIVES

This study has the following two objectives:

1. To assess the lifestyle behavior among obese children during the second wave COVID-19 lockdown.
2. To associate the lifestyle behavior with their selected demographic variables.

MATERIALS AND METHODS

A descriptive study was conducted among obese children in selected areas at Puducherry. A total of 150 subjects were selected by using a purposive sampling technique. The approach was quantitative and the design was descriptive. The target group for this study in Puducherry included all obese children. Children with obesity who met the inclusion criteria and were available at the time of data collection made up the samples. Aged 6–14 years old, a body mass index (BMI) of 30 kg/m², the ability to read and speak Tamil or English, and a willingness to engage in the study were inclusion criteria. After an extensive search of the literature, the researcher made the modified lifestyle-related behavior questionnaire by Archana Kumara, Piyush Ranjan, and Aastha Goel (2020) to assess the lifestyle behavior among obese children during the second wave COVID-19 lockdown. It consists of two sections. First, demographic data, which includes age, gender education, occupation and education of mother and father, religion, residence, family type, number of children in the family, order of birth, family monthly income, and BMI. Second, a questionnaire regarding lifestyle behavior among obese children, which includes dietary patterns, exercise, sleep, and screen time. Meal patterns, portion sizes, frequency of meals, food category consumption patterns, intake of high-fat, salty, and sweet foods, and sweet beverage consumption are among the 14 components that make up eating behavior. It features four categories that focus on various aspects of physical activity, including exercise, participation in household tasks, leisure-related activity, sitting, and screen time, and two tests to evaluate sleep quality (Table 1).

Scoring Technique

Positive items = 10	Negative items = 10
Daily = 3	Daily = 0
Often = 2	Often = 1
Sometimes = 1	Sometimes = 2
Never = 0	Never = 3

Formal permission was taken from concerned authorities for conducting the research study. Data were collected for a duration

Table 1: Scoring of lifestyle behavior

Score	Percentage %	Lifestyle behavior
1–7	<50%	Unhealthy lifestyle
8–14	51–75%	Average lifestyle
15–20	>75%	Healthy lifestyle

of 2 weeks. Prior permission was obtained from the community, and a total of 150 samples were gathered by the purposive sampling method. Information was collected from subjects through survey methods. Multiple choice questionnaire was given to the selected obese children. Each participant took 20 minutes to complete the questionnaire and 14 days to complete 150 samples. The BMI was calculated using anthropometric measurements. The WHO uses BMI classification to determine obesity, with overweight defined as a BMI above 25 and obesity defined as a BMI above 30. In the current study, all participants were classified into the obese category as per BMI. To determine the frequency, percentage, mean, standard deviation, and descriptive statistics were utilized. Chi-square tests and other inferential statistics were employed to examine the relationship between the test results and particular demographic characteristics.

RESULTS

Description of Demographic Variables in Obese Children

Table 2 shows that most of the obese children 67 (44.7%) were aged 12–14 years, 86 (57.3%) were females, 67 (44.7%) of children were studying in VIII–IX standard, 67 (44.7%) of mothers were housewives, 41 (27%) of fathers were private employees, 93 (62%) were Hindus, 128 (85.3%) were residing in the urban area, 103 (68.7%) belonged to the nuclear family, 96 (64%) had two children in the family, 114 (76%) were the first born child, 88 (58.7%) had a family monthly income of INR 5,000–10,000, and 94 (62.7%) had a BMI of 30–34 (Fig. 1).

Assessment of Lifestyle Behavior among Obese Children during the Second Wave of the COVID-19 Lockdown

Table 3 shows that 94 (62.67%) had an average lifestyle, 48 (32%) had an unhealthy lifestyle, and 8 (5.33%) had a healthy lifestyle among obese children during the second wave of the COVID-19 lockdown.

Table 4 shows that the demographic variable “number of children in the family” ($\chi^2 = 11.107, p = 0.025$) had shown a statistically significant association with lifestyle behavior among obese children during the second wave of the COVID-19 lockdown ($p < 0.05$). The other demographic variables had not shown a statistically significant association with lifestyle behavior among obese children during the second wave of the COVID-19 lockdown.

DISCUSSION

Frequency and percentage wise distribution of demographic variables among obese children. Out of the 150 obese children, the study results on demographic variables found that out of 150 samples of the obese children 67 (44.7%) were aged 12–14 years, and 64 (42.7%) were men.

In terms of gender, the study included 86 female participants (57.3%) and 64 male participants (42.7%). As for educational status, 67 obese children (44.7%) were studying in VIII–IX standards.

Table 2: Frequency and percentage distribution of demographic variables in obese children (N = 150)

Demographic variables	No.	%
Age of the child		
6–8	36	24.0
9–11	47	31.3
12–14	67	44.7
Gender of the child		
Male	64	42.7
Female	86	57.3
Child's educational status		
II–IV	40	26.7
V–VII	43	28.7
VIII–IX	67	44.7
Occupation of mother		
Housewife	67	44.7
Private employee	18	12.0
Own business	17	11.3
Coolie	16	10.7
Government employee	32	21.3
Demographic variables	No.	%
Occupation of father		
Unemployed	27	18.0
Private employee	41	27.3
Own business	30	20.0
Coolie	34	22.7
Government employee	18	12.0
Religion		
Hindu	93	62.0
Christian	42	28.0
Muslim	15	10.0
Others	–	–
Residence		
Rural	22	14.7
Urban	128	85.3
Type of family		
Nuclear	103	68.7
Joint	47	31.3
Separate	–	–
No. of children in the family		
1	44	29.3
2	96	64.0
3 and above	10	6.7
Demographic variables	No.	%
Order of birth		
First	114	76.0
Second child	30	20.0
Third and above child	6	4.0

Family monthly income (INR)	No.	%
5,000–10,000	88	58.7
<5,000	6	4.0
>10,000	56	37.3
Child's BMI		
30–34.9	94	62.7
35–39.9	44	29.3
>40	12	8.0

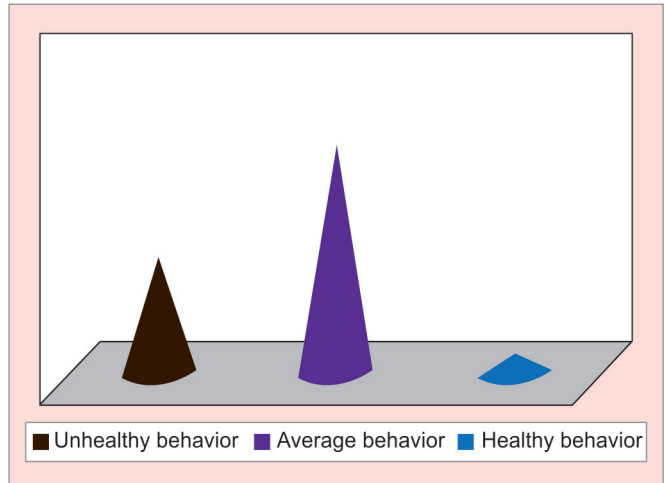


Fig. 1: Percentage distribution of lifestyle behavior among obese children during the second wave of the COVID-19 lockdown

Table 3: Frequency and percentage distribution of lifestyle behavior among obese children during the second wave of COVID-19 lockdown (N = 150)

Lifestyle behavior	No.	%
Unhealthy lifestyle (≤50%)	48	32.0
Average lifestyle (51–75%)	94	62.67
Healthy lifestyle (>75%)	8	5.33

The majority of mothers (67, 44.7%) were housewives, while 41 fathers (27%) were private employees. In terms of religion, 93 (62%) were Hindus, 128 (85.3%) were residing in urban areas, 103 (68.7%) belonged to a nuclear family, 96 (64%) had two children in the family, 114 (76%) were first born child, 88 (58.7%) had a family monthly income of INR 5,000–10,000, and 94 (62.7%) had a BMI of 30–34.9.

In this study, findings reveal that out of 150 (100%) samples, 94 (62.67%) had an average lifestyle, 48 (32%) had an unhealthy lifestyle, and 8 (5.33%) had healthy lifestyle among obese children during the second wave of COVID-19 lockdown. The demographic variable “number of children in the family” ($\chi^2 = 11.107, p = 0.025$) had a statistically significant association with the level of lifestyle behavior among obese children during the second wave of the COVID-19 lockdown ($p < 0.05$). The other demographic variables had no statistically significant association with the level of lifestyle behavior among obese children during the second wave of the COVID-19 lockdown.

Table 4: Association of lifestyle behavior among obese children during the second wave of COVID-19 lockdown with their selected demographic variables ($N = 150$)

Demographic variables	Unhealthy behavior		Average behavior		Healthy behavior		Chi-square value
	No.	%	No.	%	No.	%	
No. of children in the family							$\chi^2 = 11.107$
1	14	9.3	27	27	5	3.3	df = 4
2	27	18.0	64	64	3	2.0	$p = 0.025$
3 and above	7	4.7	3	3	0	0	S*

S*, Significant

The present study was conducted to investigate the impact of the COVID-19 shutdown on the lifestyle choices of youngsters with obesity, building upon a previous study conducted in Verona, Italy. Vegetable intake was same, while fruit consumption was up ($p = 0.055$) during the lockdown. On the other hand, consumption of red meat, sugary drinks, and potato chips increased noticeably throughout the lockdown (p -value: 0.005 to <0.001). Sleep time increased by 0.65 to 1.29 hours per day ($p = 0.003$), but time spent participating in sports reduced by 2.30 to 4.60 hours per week (XSD). The number of hours spent on screens rose by 4.852.40/day ($p < 0.001$).

Based on the finding of the present study, the following recommendations have been made. There is a crucial need to create awareness among obese children regarding their dietary habits, exercise, sleep, and screen time. They should also be warned about unhealthy dietary habits and their hazards in the future. The study can be replicated in different settings with a larger sample to validate and generalized the finding of the study. The study can be done among adolescents with obesity and adult with obesity.

The data were analyzed as per the objectives stated. The first objective of the study was to assess the level of lifestyle behavior among obese children during the second wave of the COVID-19 lockdown.

The findings reveal that out of 150 (100%) samples, 94 (62.67%) had average lifestyles, 48 (32%) had unhealthy lifestyles, and 8 (5.33%) had healthy lifestyles among obese children during the second wave of the COVID-19 lockdown.

The present study was supported by Androniki Stavridou⁹ (February 2021) who conducted a study on the evaluation of relevant papers pertaining to childhood and adolescent obesity during the COVID-19 pandemic through 10 November 2020. Cohort studies, cross-section studies, and case-control studies using quantitative methods were all regarded as acceptable study designs. There were a total of 15 papers that were qualified; of those, 9 identified 17,028,111 children, adolescents, and young people aged 5–25; 5 related to studies with an age mix ($n = 20, 521$), and 1 included parents of children aged 5–18 ($n = 584$). Children, adolescents, and young adults put on weight during the COVID-19 era. During the ongoing COVID-19 pandemic, it was seen that dietary habits had changed, food intake had grown, and unhealthy food choices, such as potatoes, pork, and sugary drinks, had been made. Restrictions under COVID-19 upset children, adolescents, and young adults' daily schedules and caused changes in their eating habits and levels of physical activity.

The second objective of the study was to associate lifestyle behavior with their selected demographic variables.

The demographic variable "number of children in the family" ($\chi^2 = 11.107, p = 0.025$) had a statistically significant association

with the level of lifestyle behavior among obese children during the second wave of the COVID-19 lockdown ($p < 0.05$). The other demographic variables had no statistically significant association with the level of lifestyle behavior among obese children during the second wave of the COVID-19 lockdown.

The present study was supported by Angelo Pietrobelli's⁵ study (September 2020) on the impact of the COVID-19 shutdown on the lifestyle choices of youngsters with obesity in Verona, Italy. Longitudinal research was used for the study. Forty-one children and teenagers with obesity were included in the sample by telephone interview. Vegetable intake was the same, while fruit consumption was up ($p = 0.055$) during the lockdown. On the other hand, consumption of red meat, sugary drinks, and potato chips increased noticeably throughout the lockdown (p -value: 0.005–0.001). Sleep time increased by 0.65 to 1.29 hours per day ($p = 0.003$) but time spent participating in sports reduced by 2.30 to 4.60 hours per week (XSD). The number of hours spent on screens rose by 4.852.40/day ($p < 0.001$).

In order to prevent the depreciation of weight management efforts among youngsters suffering from excess adiposity, it is crucial to recognize these negative collateral impacts of the COVID-19 pandemic lockdown. These undesirable lockout consequences may have a long-term effect on a child's or adolescent's adult adiposity level, depending on the length of the lockdown.

SUMMARY

The present study assessed the lifestyle behavior among obese children during the second wave of COVID-19 lockdown in selected areas at Puducherry.

This study has the following two objectives:

1. To assess the level of lifestyle behavior among obese children during the second wave of the COVID-19 lockdown in selected areas at Puducherry.
2. To associate lifestyle behavior with their selected demographic variables.

The study assumed that during the second wave of COVID-19 lockdown, the lifestyle behavior of obese children would be average.

Demographic Data

The sociodemographic data were prepared to collect information regarding obese children. data consist of age, gender, education, mother and father of occupations, religion, residence, type of family, number of children in the family, order of birth, family income, economic status, BMI, and during COVID-19 pandemic did you gain weight.

Lifestyle Behavior

Multiple choices questions were used to assess the lifestyle behavior among obese children during the second wave of COVID-19 lockdown. The lifestyle-related behavior questionnaire used in the study was modified by Archana Kumara, Piyush Ranjan, and Aastha Goel (2020). Items had positive and negative scoring. It includes dietary patterns, exercise, sleep, and screen time.

There are 14 questions in the eating behavior domain, covering topics including meal frequency, portion size, frequency of meals, food group consumption patterns, and consumption of high-fat, salty, and sweetened foods and beverages. There are four questions in the domains on physical activity patterns that focus on various aspects of activity, including exercise, participation in household tasks, leisure-related activity, sitting, and screen time, and two tests to evaluate sleep.

MAJOR FINDING OF THE STUDY

The majority of obese children (67, 44.7%) were aged 12–14 years, and the majority of them (86, 57.3%) were female. Additionally, the majority of children (67, 44.7%) were studying in VIII-IX standard, and the majority of mothers (67, 44.7%) were housewives. Moreover, the majority of fathers (41, 27%) were private employees, and the majority of participants (93, 62%) were Hindus. Most of the participants resided in urban areas (128, 85.3%), belonged to nuclear families (103, 68.7%), and had two children in the family (96, 64%). The majority of children were first-born (114, 76%), and the majority of families had a monthly income of INR 5,000–10,000 (88, 58.7%), with 113 (75.3%) belonging to the middle class. Additionally, 94 (62.7%) of the participants had a BMI of 30–34.9, and 74 (49.3%) reported gaining weight during the COVID-19 pandemic. The study revealed that 94 (62.67%) of the participants had an average lifestyle, 48 (32%) had an unhealthy lifestyle, and 8 (5.33%) had a healthy lifestyle among obese children.

RECOMMENDATION

The following recommendations have been made based on the findings of this study. There is an urgent need to raise awareness among obese children about their eating habits, exercise, sleep, and screen time.

They should also be warned about the dangers of poor eating habits in the future.

The study can be conducted in a different setting with a larger sample size to validate and generalize the study findings.

The study can be conducted on obese adolescents and adults.

CONCLUSION

According to the study's findings, obese youngsters often led typical lifestyles. Therefore, during the second wave of the COVID-19 lockdown, nursing education should have a greater emphasis on the lifestyle choices of obese children. Plans must be made for nursing students to undertake awareness programs. They should also be aware of poor eating habits and the risks they pose in the future. Making obese youngsters aware of their eating habits, exercise routines, sleep schedules, and screen time is crucial.

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