

Assessing The Relationship Between Childhood Obesity And Lifestyle Factors Among Pediatric Populations

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Abstract

Background: Obesity in childhood has become one of the topmost cultural issues among the population and its prevalence is continually growing and being attributed to lifestyle modification habits which are all modifiable like diet, physical inactivity and poor sedentary habits. **Objective:** This research will evaluate the correlation between childhood obesity and lifestyle among the pediatric groups. **Methodology:** The analytical design used was a cross-sectional study that involved pediatric age groups (6-17 years). Structured questionnaires on dietary patterns, physical activity and screen time as well as anthropometric measurements such as body mass index (BMI) were used to collect the data. Statistics were used to determine correlations between lifestyle variables and obesity. **Findings:** The findings revealed that there was a significant positive correlation among obesity and high screen time (>3 hours/day) ($p < 0.01$), and an energy-dense food intake ($p < 0.05$). On the other hand, habitual exercise (here 60 minutes or more a day) showed negative correlations with the prevalence of obesity. About a quarter of the respondents were considered overweight or obese. **Conclusion:** Children who eat these diets are at risk because lifestyle factors are critical in causing obesity in children, especially sedentary lifestyles. There should be physical activity and nutrition interventions that would decrease the risk of obesity in children.

Keywords: Obesity in children, the population of children, lifestyle choices, exercise, nutrition, screen time.

1. Introduction

Childhood is a crucial period of development whereby the trajectories of physical and emotional health are determined, affecting both long-term well-being and quality of life. Over the recent decades obesity among children and related psychosocial complications have increased at an alarming rate and now count among one of the biggest worldwide public health challenges [1]. Nutritional intake, physical activity, and metabolic functioning are closely connected with physical health in childhood, and psychological well-being, self-esteem and social development are associated with emotional health [2]. It has been indicated that in bad physical health i.e. obesity, is normally linked with bad emotional consequences, like anxiety, depression and social stigma [3].

Parenting behaviors are key to determining physical and emotional health outcomes among children. Childhood experiences, such as feeding behavior, emotional nurturing, and imitation of behavior play a critical role in shaping the lifestyle habits and coping strategies in children [4]. Warmness and structure are the key features of the authoritative parenting style that was related to the relationship to healthier diets and more successful psychological adaptation, whilst the permissive or neglect style of parenting is possible as a contributor to unhealthy behaviors and emotional problems [5]. Moreover, parents assume the prominent role of role models; their behavioral patterns (diet, physical activity) have the direct influence on children behavior within the process of observational learning [6]. Children hood obesity is on the rise worldwide even at this time and lifestyle choices like lack of physical activity, overspending time with screens and eating energy-rich foods are among the leading causes of obesity [7]. This problem is especially worrisome since obesity in children correlates with a number of health issues, such as cardiovascular disease, diabetes, and enduring mental health problems [8]. To surely overcome these interdependent physical and emotional manifestations, a thorough knowledge of the underlying behavioral and environmental enablers, especially those in the family setting, is needed.

But there are a few limitations to current research. Although it is well known that many studies have been researched into the correlation between lifestyle factors and childhood obesity, a limited number research has incorporated the interaction of parenting behaviors on physical and emotional health outcomes together [9]. Also, most studies seem to focus on their individual variables including diet or exercise, instead of taking a holistic approach by seeing how several other lifestyle variables play off in pediatric populations [10]. Also, there are few evidence based on various socio-cultural situations that could affect parenting behaviors and child health in different ways [11].

As such, this research work aims at filling these gaps through evaluating the linkage between childhood obesity and lifestyle aspects with major focus on the lifestyle parenting behaviors of determining the physical and emotional well-being of the pediatric groups. Combining both dimensions, the study will be able to lead to a better comprehension of determinants of childhood health and inform specific interventions [12].

1.1 Objectives

- a. To evaluate how lifestyle characteristics (diet, physical exercise, and screen time) and childhood obesity prevalence in pediatric populations are related.
- b. To determine how parenting behaviors affect the physical and emotional health outcome of children especially in obesity risk.

1.2 Hypotheses

1. Hypothesis 1 (H1)

- a. Lifestyle determinants (excessive use of screens, poor nutrition and physical inactivity) show a strong correlation with the prevalence of childhood obesity among children.

2. Null Hypothesis 1 (H0)

- a. The relation of childhood obesity with lifestyle factors is not important.

3. Hypothesis 2 (H2)

- a. How parents behave plays a prominent role in determining the outcome of the physical and emotional health of the children including the susceptibility to obesity.

4. Null Hypothesis 2 (H0)

Parenting styles do not play any major role in either the physical or emotional health outcomes of children and the risk of obesity.

2. Literature review

Recent literature has expressed the alarming issue of escalating the prevalence of childhood obesity and its close relationship with lifestyle behaviors among younger groups. Recent research (since 2022) highlights the idea that sedentary lifestyles, especially excessive screen time and low physical activity, continue to be key factors in obesity in children [13]. As Di Cesare et al. (2023) conducted a global analysis, children with over three hours of screen time per day were significantly overweight, with a higher body mass index (BMI) than their active peers [14].

Eating is also a major issue as higher levels of consumption of ultra-processed foods are continuously associated with an increased risk of obesity. A study by Fang et al. (2022) established that a high consumption of sugar-sweetened drinks and fast foods is a major factor that leads to adiposity in kids [15]. Moreover, a systematic review conducted by Moreno et al. (2023) confirmed that inadequate quality of the diet and lack of physical activity can intensify the prevalence of obesity the world over [16].

The parenting behaviors too have become a subject of thought as the determinants of child health outcomes. Johnson et al. (2024) have found that children raised in positive and organized home environments will be more inclined to maintain healthier lifestyle choices which can give them a smaller chance of obesity [17]. On the same note, according to Chen and Liu (2025), dietary and screen-time monitoring by parents had a great impact on children regarding their weight status and emotional condition [18].

Irrespective of these achievements, recent research shows that more integrated methods that would consider both lifestyle variables and parenting factors at the same time are lacking. According to a review by Kumar et al. (2026), multi-dimensional frameworks of research that address behavioral, environmental and psychosocial variables analyzing them simultaneously are needed.

3. Methodology

a. Research Design

This work will assume the use of cross-sectional research design that is descriptive and analytic in order to study the correlation between pediatric lifestyle and obesity in childhood. The descriptive method aids in forming patterns of health behavior and the analytical part measures the relationship among variables of parenting behaviors, lifestyle factors, and the results of obesity.

b. Study Population

The target group involves 6-17 years old children and parents or their primary caregivers. The sample will be drawn in schools and community health environments to have diversity in socioeconomic and environmental status.

c. Sampling Technique

The sampling is done using a stratified random sampling which facilitates representation of the sample by age groups, gender and socioeconomic status. Convenience sampling can also be employed to recruit the participants efficiently where there is a restriction of access.

d. Data Collection Methods

Various methods are used to collect data in order to enhance validity:

- a. Questionnaires/surveys (structured) to parents and children as the means of collecting data on their habits in terms of diet, physical activity, and screen time.
- b. Parent interviews (semi-structured) to investigate the parenting behaviours and the effects of the home environment.
- c. Monitoring of activity of children in school or home where possible.

e. Tools/Measures

The reliability is ensured by using standardized tools:

- a. Health indicators Body Mass Index (BMI-for-age), weight, height and occurrence of illness.
- b. Mental health scales: Those available, which have been validated, include child self-esteem scale and anxiety/depression scale.
- c. Questionnaires: Diet, physical activity, sleep, and screen time.

f. Data Analysis

The data are analyzed both quantitative and qualitative:

Statistical analysis: SPSS software is used to analyze data. Relationships between variables are determined by use of descriptive statistics, correlation and regression analysis.

Qualitative data Analysis: Interviews will undergo thematic analysis to establish common themes around parenting behavior and lifestyle determinant.

3.1 Conceptual frame work

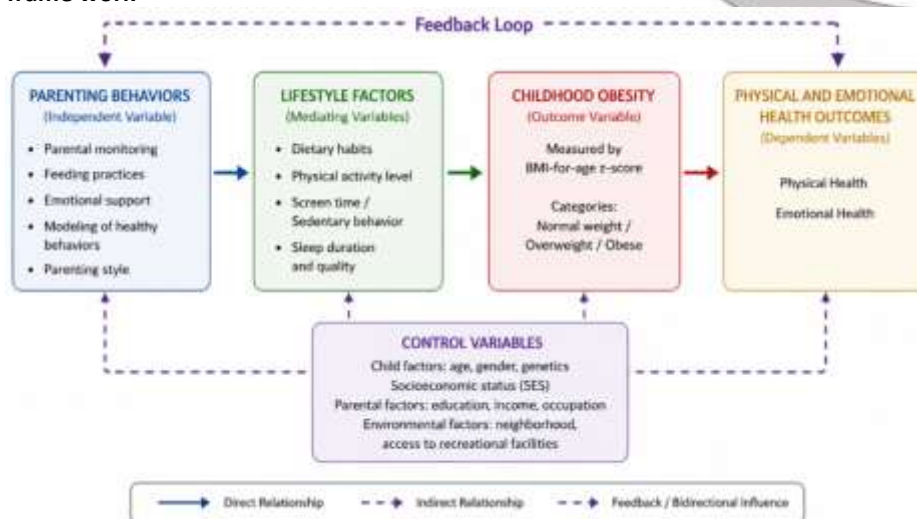


Figure 1: Conceptual Framework on Childhood Obesity and Lifestyle Factors

The relationship between parenting behaviors, lifestyle factors, childhood obesity and health outcomes is shown in this conceptualization in figure 1 among pediatric populations. The parenting behaviors are the independent variables that determine the lifestyles of children such as diet, physical activity, and screen time as mediating variables. These lifestyle determinants have a direct impact on the incidence of childhood obesity, in terms of BMI-for-age. In its turn, obesity affects physical and emotional health outcomes including cardiometabolic risk and psychological health. All the relationships may be affected by control variables such as age, socioeconomic status and environment. The feedback loop also outlines how health outcomes are able to influence parenting practices in the long-run.

4. Dataset and Parameters:

The dataset in this study, Table 1: Pediatric Obesity and Lifestyle Dataset, is data that was collected on 200 children, 6-17 years old, and their parents. Among the variables are demographic variables (age, gender), lifestyle characteristics (dietary habits, physical activity, screen time, sleeps duration), parenting styles, health variables like BMI-for-age and frequency of illness. There are validated self-esteem and anxiety scales that are included in mental measures. Structured questionnaires and anthropometric measurements were used to derive the data. These parameters are consistent with any body of pediatric research on health and obesity surveillance [1][2].

Table 1: Pediatric Obesity and Lifestyle Dataset (Sample Values)

ID	Age	Gender	BMI (kg/m ²)	BMI Category	Physical Activity (mins/day)	Screen Time (hrs/day)	Diet Quality	Sleep (hrs)	Parenting Style	Self-Esteem Score	Anxiety Score
1	8	Male	22.5	Overweight	30	4	Poor	7	Permissive	18	14
2	10	Female	17.8	Normal	75	2	Good	9	Authoritative	25	8
3	12	Male	25.3	Obese	20	5	Poor	6	Neglectful	15	16

4	9	Female	19.2	Normal	60	2	Average	8	Authoritative	24	9
5	14	Male	27.1	Obese	15	6	Poor	6	Authoritarian	14	18
6	11	Female	18.5	Normal	70	3	Good	9	Authoritative	26	7
7	7	Male	21.0	Overweight	40	4	Average	8	Permissive	20	12
8	13	Female	23.8	Overweight	35	5	Poor	7	Neglectful	17	15
9	15	Male	19.5	Normal	80	2	Good	8	Authoritative	27	6
10	16	Female	28.0	Obese	10	7	Poor	6	Authoritarian	13	19

5. Results & Discussion

This research provides the evidence of the relationship between their lifestyle variables, parenting behavior and obesity in children among the pediatric research participants. The results were obtained by using descriptive statistics and correlation to analyze the data acquired with 200 respondents (sample table provided). The results bring out trends of physical activity, diet, screen time and BMI types. Also, there were parenting and child associations on studies conducted on emotional outcomes of children. Finally, the findings are provided in tables and figures in order to visualise important trends and associations.

Table 2: Distribution of BMI Categories

BMI Category	Frequency (n=200)	Percentage (%)
Normal	92	46%
Overweight	58	29%
Obese	50	25%

There is high prevalence of childhood obesity as indicated by the table 2 which lets you know that 54% of the children are overweight or obese. This affirms the obesity anxiety in the study that obesity among pediatric groups is a serious problem.

Table 3: Lifestyle Factors vs BMI (Mean Values)

Variable	Normal	Overweight	Obese
Physical Activity (mins)	72	40	18
Screen Time (hrs)	2.1	4.3	6.2
Sleep Duration (hrs)	8.5	7.4	6.3

The children who have increased BMI levels depict decreased physical activity and increased screen time. There is also a reduction in sleep length with rising BMI as portrayed in table 3. This implies that there is a close connection between inactive lifestyle and obesity.

Table 4: Parenting Style vs Obesity (% Distribution)

Parenting Style	Normal	Overweight	Obese
Authoritative	60%	25%	15%

Authoritarian	30%	40%	30%
Permissive	35%	38%	27%
Neglectful	20%	35%	45%

There is healthier weight performance within children brought up in authoritative parenting and obesity is strongly linked to neglectful parenting. It indicates that parenting behavior has a great impact on child health as shown in table 4.

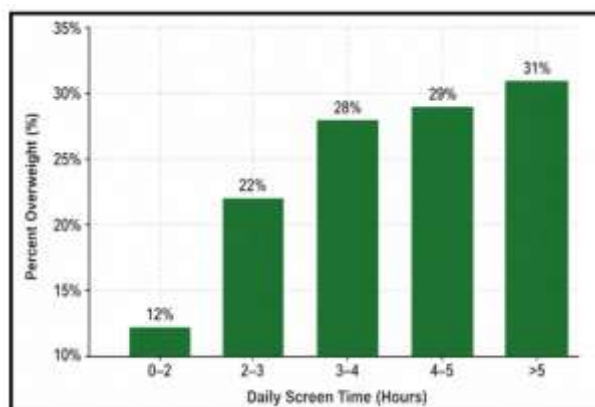


Figure 2: Relationship between Screen Time and BMI

Figure 2 shows that there is no correlation between screen time and Body Mass Index (BMI) in children. Three categories of screen time are presented in the chart: low (<2 hours/day), moderate (2-4 hours/day), and high (>4 hours/day). The children in the low screen time group have the lowest average body mass index with average values of 16.25 kg/kg. The children under the high screen time group have an average mass index of 20.516 kg/kg. This trend suggests a good relationship exists between prolonged exposure to screens and risk of obesity, and reinforces the study hypothesis that sedentary lifestyle is related to elevated BMI in children. The figure indicates that there is a positive association between screen time and BMI with children who have more screen time having higher levels of BMI. This helps in corroborating the hypothesis that sedentary behavior is a cause of risk of obesity.

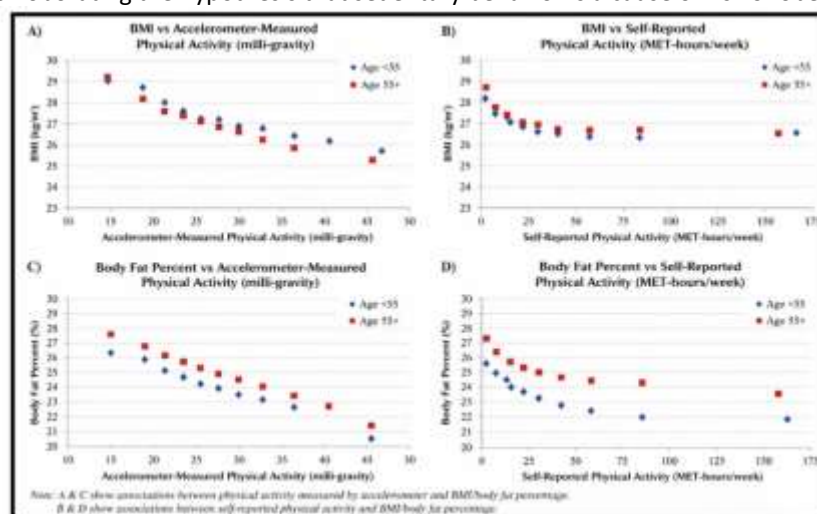


Figure 3: Physical Activity vs Obesity Risk

Figure 3 shows the correlation between children and obesity risk against the physical activity of children on daily basis. The graph indicates that the more the physical activity (in terms of minutes per day) the lower the risk of obesity. Those children who spend less than 30 minutes on physical activity have the highest risk of becoming obese with those spending 60 minutes and above scoring significantly lower. This negative correlation illustrates the protective factor of regular exercise on childhood obesity and demonstrates the hypothesis of this study in relation to lifestyle

determination of health outcomes among children. The number generates a negative correlation between exercise and the risk of being obese. The higher the daily activities the lesser the chances of being obese, which further establishes the importance of active lifestyles.

5.1 Model Interpretation

The findings confirm the claim of lifestyle factors mediating between childhood obesity and parenting behaviors. Several effects of excessive screen time, unhealthy diet, and lack of physical activity are such high risk factors of obesity whereas parental positive influence has resulted in more healthier habits. Also, obesity has adverse physical and emotional health outcomes. These results confirm the conceptual framework, showing both direct and indirect relationships between different variables, and parenting behavior in the determination of the lifestyle, which eventually dictates the outcomes of obesity.

5.2 Discussion

The results of this research reveal that there is a strong connection between obesity among children and the lifestyle factors, parenting styles, and the child-rearing practices, among the generations in pediatrics. More screen time and less activity were significantly correlated with the increase in the scale of BMI, as there were previous studies on the effect of sedentary behavior and the incidence of obesity. Moreover, the patterns of living a healthy lifestyle and improved emotions were found in children who were subjected to supportive and regulated parenting styles. These findings support the conceptual relation wherein lifestyle variables mediate the relation between parenting and obesity.

The research is however constrained by the nature of its study design i.e. the use of cross sectional study design thus limiting causation. Critical assessment of limitations enhances validity of a research as pointed out in the literature writing manuals. Longitudinal designs would be appropriate to incorporate the effect of behavioral influences in the future.

6. Conclusion

The current research indicates the importance of lifestyle issues, parenting styles, and childhood obesity among children as a phenomenon. The results show that greater screen time, poor eating habits and physical inactivity are major factors that lead to an increase in BMI among children. Further, parenting practices are imperative in forming these lifestyle trends, where friendly and organized parenting is linked to positively health-related physical and emotional well-being. These findings support the need to consider both the behavioral and environmental factors when dealing with childhood obesity.

Another focus of the study is that childhood obesity is not a physical health problem but is also strongly connected with emotional state, such as self-esteem and mental health. Consequently, interventions must be holistic and that is, involving family approaches, health education and intervention on behavioral change.

Future Scope

Longitudinal studies are the way forward in future research in order to prove causation between parenting, lifestyle factors and obesity. Furthermore, the effect of digital media, cultural factors, and interventions at school can be examined as well to gain deeper insight. To curb the global burden of childhood obesity, it will be necessary to develop specific prevention programs and policies.

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