



Family lifestyle and children's weight status in Kuwait: A cross-sectional analysis

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ABSTRACT

Article History

Received: 15 August 2025

Revised: 24 March 2026

Accepted: 29 June 2026

Published: 12 August 2026

Keywords

Childhood obesity

Children

Cross-sectional study

Family lifestyle

Health behaviors

Kuwait

Overweight

Parental perception.

Kuwait ranks among the top countries worldwide in childhood obesity rates. This study investigates the impact of family lifestyle on overweight and obesity among children in Kuwait. The study used a descriptive cross-sectional survey, with a sample of 696 children aged between 6–12 years (323 boys, 373 girls) and their parents. Data were collected using a questionnaire divided into five dimensions: dietary patterns, hunger cognition, parental perception, social behaviors, and environmental influences (Cronbach's $\alpha = 0.887$). Results showed that lifestyle differences were not uniform across all variables or dimensions. Females scored higher than males on the overall lifestyle measure. By contrast, parental education showed significant differences only in the nutritional/behavioral dimension, while income was associated with differences in the parental attitudes dimension. Family structure mattered only in the nutritional/behavioral dimension, and housing type was significant only in the cognitive/nutritional dimension. The governorate of residence showed significant differences across the overall lifestyle score and all dimensions. Sleep duration influenced only the nutritional/behavioral dimension, with children sleeping ≥ 8 hours showing the most favorable outcomes. The findings highlight the role of family lifestyle in children's health and underscore the need for interventions based on improving family lifestyles to address childhood obesity.

Contribution/Originality: This study contributes to the existing literature on childhood obesity and family lifestyle in Kuwait by exploring the lifestyle patterns of families with obese children and providing valuable insights that help guide therapeutic and preventive interventions aimed at promoting healthy family behaviors to address childhood obesity.

1. INTRODUCTION

Childhood obesity has emerged as one of the most significant public health challenges of the 21st century. According to the World Health Organization (2023), the prevalence of overweight and obesity among children has more than quadrupled globally since 1975, with recent estimates indicating that over 390 million children and adolescents are classified as overweight or obese. Childhood obesity is a serious health problem that impacts school-age children. It is a major issue as the additional weight usually sets children on the path to health problems once thought to be adult conditions, such as diabetes mellitus, hypertension, and high cholesterol Mayo Clinic (2023).

Obesity and overweight among children are increasing worldwide, especially among those aged 6–9 years in the Arab world. One study examined the effect of a family-based lifestyle intervention on weight reduction among Jordanian children with obesity aged 6–9 years.

During the past 13 years, the prevalence of obesity among school-aged children in Kuwait has significantly increased, making it a pressing public health concern (Al-Ta'iar et al., 2021). Obesity is primarily linked to a disrupted daily routine, including excessive eating habits and a lack of physical activity. Evidence indicates that adopting regular physical exercise and maintaining informed, healthy food choices can prevent obesity and its associated health risks (García-García et al., 2014).

Recent findings in Kuwait indicate that obesity affects 30–40% of children and adolescents of both sexes (El-Bayoumy, Shady, & Lotfy, 2009; Musaiger et al., 2013; Ng, Mann, & Gulabivala, 2011; Zaghoul et al., 2013). Consequently, the Kuwaiti Ministry of Health has declared overweight and obesity as significant threats to public health, contributing to the chronic disease burden and straining the healthcare system (Kuwait of Ministry, 2014). The failure to control obesity over the past three decades has only worsened the current crisis.

However, despite these encouraging findings, several gaps remain in the literature. The results show inconsistent outcomes regarding the sustainability of weight loss. On the other hand, relatively few studies have examined the psychological benefits of lifestyle interventions beyond weight reduction. There is also limited evidence about how family involvement contributes to maintaining healthy routines over time.

The present study seeks to address these gaps by evaluating the effectiveness of a structured lifestyle modification program for children with overweight and obesity. Specifically, the study pursues three main objectives. The first objective is to explore the psychological and social factors that determine childhood obesity in Kuwait, with a particular focus on the impact of family lifestyle on obesity. The second objective is to evaluate the relationship between a child's gender, parents' education, area of living, and the child's weight. The third objective is to examine the association between a child's weight and the number of hours of sleep, family size, and the parents' perception of the child's body. The study may provide important recommendations for reducing obesity in children and adolescents.

There are many questions tested in this study.

1. Are there significant differences in the overall degree of lifestyle impact on children's weight according to their sex?
2. Are there significant differences in lifestyle impact on children's weight according to the guardian's educational level?
3. Are there significant differences in the overall degree of lifestyle impact on children's weight according to the guardian's income level?
4. Are there statistically significant differences between parents of families living in apartments and those living in houses regarding the total score of the Lifestyle Scale and its five dimensions?
5. Are there statistically significant differences between parents from extended families and those from nuclear families on the total score of the Lifestyle Scale and its five dimensions?
6. Are there significant differences in the overall degree of lifestyle impact on children's weight according to the governorate where they live?
7. Are there significant differences in the overall degree of lifestyle impact on children's weight according to the number of hours of the child's sleep?

By integrating both physical and psychological measures, this research aims to contribute to the growing evidence base on effective childhood obesity interventions and to provide practical recommendations for future prevention and treatment strategies.

2. LITERATURE REVIEW

2.1. Lifestyle Factors and Physical Activity

Numerous studies worldwide have confirmed that family lifestyle, including diet and physical activity, is a major contributing factor to childhood obesity (Amro, Okofi, & Hardank, 2022; Maia, Rodrigues, & Silva, 2025). While Amro et al. (2022) focused on cultural and family behaviors specific to each region, Maia et al. (2025) highlighted parental routines, such as mealtimes, screen use, and sleep patterns, which remain globally relevant but may vary among families. Studies have also emphasized the importance of physical activity in reducing childhood obesity (Alnahdi, 2020; Shah, Cost, Fuller, Birken, & Anderson, 2020), and gender differences have been observed, with Shah et al. (2020) and Asmani (2022) reporting higher rates of obesity among boys compared to girls. Overall, these studies demonstrate that lifestyle and physical activity are fundamental to children's weight, although specific patterns vary according to cultural and social norms.

2.2. Socioeconomic Status and Affluence

Socioeconomic factors are closely linked to childhood obesity. In Kuwait, Oguoma et al. (2021) reported a widespread prevalence of overweight and obesity, with correlations with age, sex, and other sociodemographic factors. In contrast, Stoothoff, Smith, and Johnson (2024) in Arkansas found a strong association between schools with low socioeconomic status and significantly higher obesity rates, highlighting the impact of economic income on childhood obesity. Regionally, Amro, Okofi, and Hardank (2023) systematically reviewed studies from the Gulf Cooperation Council (GCC) countries, including Kuwait, and demonstrated that socioeconomic conditions are often positively associated with obesity, with stronger effects among girls. Similarly, Alshaikh, Alqarni, and Alghamdi (2023) in Saudi Arabia and Insaf, Almarzooqi, and Yusuf (2024) in Ajman confirmed that higher family wealth increases the risk of obesity, often accompanied by easier access to unhealthy food choices and potentially sedentary behaviors. Taken together, these results highlight specific international and Gulf patterns, revealing that while socioeconomic status is a global factor for obesity, gender and cultural differences shape its impact in the Gulf context.

2.3. Sugar Sweetened Beverages (SSB) and Dietary Behaviors

Dietary habits, particularly the intake of sugar-sweetened beverages (SSBs), have emerged as consistent predictors of childhood obesity. Alhareky, Goodson, Tavares, and Hartman (2024), using data from the Kuwait Healthy Life Study ($n = 6,305$, ages 10–12), found that high soda consumption was significantly linked to increased obesity risk. In contrast, Alqaoud, Al-Jawaldeh, Al-Anazi, Subhakaran, and Doggui (2021) studied younger preschool children in Kuwait (ages 2–5, $n = 5,304$) and showed that SSB consumption, breakfast skipping, and screen time were key contributors to overweight and obesity. At the university level, Zafar, Alkazemi, Muthafar, Alanzi, and Sidhu (2025) reported that 34% of Kuwaiti students were high sugar consumers, with males having greater total intake, while females consumed SSBs more frequently. Importantly, Zafar et al. (2025) also demonstrated that health awareness and preference for unsweetened options reduced sugar intake. Collectively, these studies indicate that SSB consumption is a persistent risk factor across multiple age groups in Kuwait, emphasizing the importance of early and continuous lifestyle interventions.

2.4. Critical Gap in the Kuwaiti Context

Multiple studies directly or indirectly emphasize the role of family lifestyle in shaping obesity outcomes. Factors such as daily routines, eating habits, physical activity, and socioeconomic background influence children's weight (Maia et al., 2025). Despite the growing body of international and regional evidence, limited research focuses specifically on how family lifestyle interacts with childhood obesity in Kuwait. This gap highlights the need for targeted Kuwaiti research to better understand the interplay between family environment and obesity among children aged 7–12, providing locally relevant insights for public health policy.

2.5. Aims

Kuwait ranked third globally in terms of obesity and weight gain rates. The main reasons behind the spread of obesity and overweight, in general, and among children, in particular, have been discussed in this study. This study examines some of these factors. The aims and objectives of this study include evaluating the relationship between a child's gender, parents' education, area of living, and the child's weight. It also summarizes the association between a child's weight and the number of hours of sleep, family size, and the parents' views of the child's body.

3. METHODOLOGY

3.1. Research Design

The present research follows a descriptive, cross-sectional survey design. This approach was deemed most appropriate for achieving the study's objectives, which include evaluating the relationship between a child's demographic characteristics (gender, area of living), family factors (parents' education, income, family structure), and lifestyle habits (sleep duration) with their weight status. The design facilitates the collection of extensive data on family lifestyle, dietary patterns, and parental beliefs concerning overweight and obesity from a large, geographically diverse sample across Kuwait.

3.2. Participants

The study sample consisted of 696 children, aged between 6 and 12 years, who were selected from various regions across the State of Kuwait. The selection was based on criteria identifying them as having excessive weight or obesity. The sample was recruited through a purposive sampling strategy, targeting individuals from health clubs, nutrition and diet centers affiliated with the Ministry of Health, primary schools under the Ministry of Education, and various social media platforms. This multi-pronged recruitment approach ensured a broad and representative sample.

Data collection occurred over a six-month period, from November 2, 2021, to April 23, 2022. Of the total child participants, there were 323 males (46.4%) and 373 females (53.6%). The parental component of the sample included responses from 199 fathers (28.6%) and 497 mothers (71.4%), who completed the questionnaire on behalf of their children and their family's lifestyle. Individuals who did not meet the research criteria or submitted incomplete questionnaires that compromised validity were excluded from the final analysis. The final, validated sample size was 696.

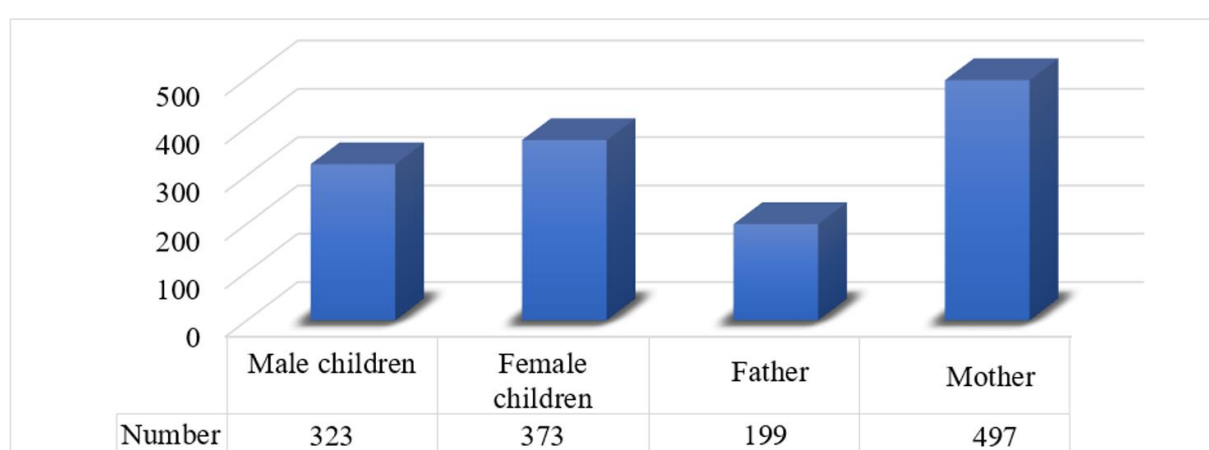


Figure 1. Graphical representation of study participants.

Figure 1 displays the distribution of 696 child participants and their responding parents. The sample includes 323 male children, 373 female children, 497 mothers, and 199 fathers.

3.3. Instrument

The primary instrument for data collection was a comprehensive, self-developed questionnaire titled "Family Lifestyle Pattern and the Relationship with Overweight and Obesity in Childhood." This 40-item scale was meticulously designed to measure five key dimensions of family lifestyle. The development process included a validation stage where the questionnaire was presented to a group of arbitrators at Kuwait University; their feedback led to the modification of several items to enhance clarity and relevance. The instrument demonstrated strong internal consistency, with a Cronbach's alpha reliability coefficient of 0.887 for the scale as a whole.

The questionnaire was divided into three main parts. The first and second parts collected personal data on the parent (gender, age, education, income, family type, residence) and the child (gender, age, birth order, sleep hours, parent's perception of the child's body). The third part comprised the 40-item lifestyle scale, with responses measured on a three-point Likert scale (Always, Sometimes, Never). The five dimensions measured were:

- Eating Behaviors (13 items): Focused on the child's eating habits, such as consumption of fast food, eating speed, meal regularity, and eating while distracted.
- Eating Cognition (8 items): Assessed the child's thoughts and beliefs about weight loss, diet programs, and the causes of their weight gain.
- Parents' Thoughts About Their Child (8 items): Explored parental attitudes, beliefs, and experiences regarding their child's weight and the feasibility of diet programs.
- Eating Social Behaviors (5 items): Measured the social context of eating, including family meal practices and eating habits during social outings.
- Behavioral Environment Related to the COVID-19 Pandemic (6 items): Investigated the perceived impact of the pandemic on the child's weight, physical activity, and eating behaviors.

A complete version of the questionnaire is available for public access on the Open Science Framework (OSF) repository, ensuring transparency and facilitating future research. It can be accessed at: <https://osf.io/cvq8m/files/osfstorage/65cbb7519b32ca121697f1f3>.

4. RESULTS

Question one: Are there significant differences in the overall degree of lifestyle on children's weights according to their sex?

Table 1. The differences in the overall degree of the lifestyle on children's weights according to their sex.

Questionnaire	Sex	N	Mean	SD	t	df	p-value
Lifestyle	Male	323	79.32	12.414	5.883	694	< 0.001***
	Female	373	85.05	13.137			

Note: ***p < 0.001.

Table 1 shows that 323 males have a mean of 79.32 and a standard deviation of 12.414, while 373 females have a mean of 85.05 and a standard deviation of 13.137. The T-test indicated statistically significant differences in the overall lifestyle measure and its five dimensions by child's sex, favoring females ($T=5.883$, $p<0.001$).

Question two: Are there significant differences in children's weight based on the guardian's educational level?

Table 2. The differences in children's weight according to the guardian's educational level and lifestyle.

Dimension		Sum of Squares	df	Mean Square	F	p-value
The child's nutritional behavior	Between Groups	214.538	3	71.513	3.638	0.013*
	Within Groups	13602.426	692	19.657		
	Total	13816.964	695			

Note: *p < 0.05.

Table 2 presents the results of one-way ANOVA, which showed a significant difference only in the first dimension of lifestyle (Behavioral/Nutritional aspect involving identifying the child's nutritional behavior from the parents' perspective) measurement according to the guardian's educational level for guardians with postgraduate education ($F = 3.64$, $p < 0.05$). There are no statistically significant differences in the overall lifestyle measure. Detailed post hoc results are in (Appendix 3).

Question Three: Are there significant differences in the overall degree of the lifestyle on children's weight according to the guardian's income level?

Table 3. The differences in lifestyle on children's weight according to the guardian's income level.

Dimension		Sum of Squares	df	Mean Square	F	p-value
The third dimension: Thoughts and accumulated experiences of the parent regarding their children's weight.	Between Groups	143.480	3	47.827	4.598	0.003**
	Within Groups	7198.093	692	10.402		
	Total	7341.573	695			

Note: ** $p < 0.01$.

Table 3 presents the one-way ANOVA results, indicating a significant difference only on the third dimension of the lifestyle scale (Parental attitudes towards their children involve identifying the thoughts and accumulated experiences of the parent regarding their children's weight) ($F = 4.598$, $p < .01$). Post hoc comparisons (Appendix 4) show significant differences among the four income groups, ordered from highest to lowest scores as follows: ≥ 1501 , 501–1000, 1001–1500, with the lowest scores among parents with incomes < 500 .

Question four: Are there statistically significant differences between parents of families living in apartments and those living in houses on the total score of the Lifestyle Scale and its five dimensions?

An independent-samples t -test showed a significant difference only on Dimension 2 (Cognitive/Nutritional aspect involves identifying the thoughts associated with overweight and obesity in the child from the parents' perspective) $n(694)$ $t = -2.05$, $p = .041$ (Levene's $F = .001$, $p = .976$), with higher scores for parents living in houses ($M = 16.92$, $SD = 3.52$) than those living in apartments ($M = 16.34$, $SD = 3.49$) Table 4.

Table 4. The differences between parents of families living in apartments and those living in houses on Cognitive/Nutritional aspect involve identifying the thoughts associated with overweight and obesity in the child from the parents' perspective.

Questionnaire	Families living	N	Mean	SD	t	df	p-value
Dimension 2	Apartments	235	16.34	3.49	-2.045	473.597	0.041*
	Houses	461	16.92	3.51			

Note: * $p < 0.05$.

Research Question five: Are there statistically significant differences between parents from extended families and those from nuclear families on the total score of the Lifestyle Scale and its five dimensions?

An independent-samples t -test showed a significant difference only on Dimension 1 (The first dimension: Behavioral/Nutritional aspect involves identifying the child's nutritional behavior from the parents' perspective), $t = -2.52$, $p = .012$, in favor of parents from nuclear families ($M = 26.65$, $SD = 4.38$) over extended families ($M = 25.77$, $SD = 4.54$). The effect was small ($d \approx 0.20$). No significant differences were found on the remaining dimensions or the total score Table 5.

Table 5. The differences between parents from extended families and those from nuclear families on the total score of the lifestyle scale and its five dimensions.

Questionnaire	Family type	N	Mean	SD	t	df	p-value
Dimension 1	Extended families	255	25.77	4.54	-2.518	694	0.012*
Behavioral/Nutritional	Nuclear families	441	26.65	4.38			

Note: * $p < 0.05$.

Research Question Six: Are there significant differences in the overall degree of lifestyle on children's weight according to the governorate where they live?

The one-way ANOVA results showed that there were statistically significant differences in the overall degree and all dimensions of the lifestyle scale according to the governorate of housing. According to the ($F = 15.548$, $p < 0.05$). Moreover, it was found that Capital ($N = 40$) and (Std. D. = 88.300), Hawalli ($N = 51$) and (Std. D. = 87.039), Farwaniya ($N = 170$) and (Std. D. = 78.206), Mubarak Al-Kabeer ($N = 52$) and (Std. D. = 84.327), Jahra ($N = 217$) and (Std. D. = 79.180) and Ahmadi ($N = 166$) and (Std. D. = 87.415).

Research Question Seven: Are there significant differences in the overall degree of lifestyle on children's weight according to the number of hours of the child's sleep?

Table 6. The differences in the overall degree of the lifestyle on children's weight according to the number of hours of the child's sleep.

Dimension		Sum of Squares	df	Mean Square	F	p-value
Behavioral/Nutritional	Between Groups	241.24	2	120.62	6.157	0.002**
	Within Groups	13575.724	693	19.59		
	Total	13816.964	695			

Note: ** $p < 0.01$.

Table 6 investigates a statistically significant difference only on the first dimension (Behavioral/Nutritional aspect involves identifying the child's nutritional behavior from the parents' perspective) of the lifestyle scale (less than 6 hours and between 6 to 8 hours), ($F = 6.157$ and $p < 0.01$). However, there were no statistically significant differences in the five dimensions based on the child's sleep hours. Post hoc comparisons Table 7 show statistically significant differences in the dimension analysis among different sleep durations, ordered as follows: 8 hours or more, 6-8 hours, and less than 6 hours of sleep.

Table 7. The differences between numbers of different sleeping hours.

Dependent variable	Number of sleeping hours (I)	Number of sleeping hours (J)	Mean difference (I-J)	Std. Error	p-value
Behavioral/Nutritional	Less than 6 hours	From 6-8 hours	-2.272*	0.710	0.004**
		8 hours or more	-2.560*	0.732	0.001**
	From 6-8 hours	Less than 6 hours	2.272*	0.710	0.004**
		8 hours or more	-0.288	0.358	1.000
	8 hours and more	Less than 6 hours	2.560*	0.732	0.001**
		From 6-8 hours	0.288	0.358	1.000

Note: ** $p < 0.01$, * $p < 0.05$.

5. DISCUSSION

Children face an increased risk of obesity today due to the high prevalence of an unhealthy lifestyle. Main factors contributing to this include spending long hours in front of video games, lack of physical activity, and the consumption of unhealthy processed foods. The current study found statistically significant differences in favor of females in maintaining a healthy lifestyle. Females tend to pay more attention to their outward appearance, and social media has further enhanced the female image. The results also align with the conclusions of Shah, Ali, and Khan (2020) and Asmani (2022), which indicate that the percentage of obesity is higher in males than in females. Moreover, females are more conscious about the presentation of their private and public bodies (Pop, Iorga, Şipoş, & Iurcov, 2021).

Our cognitive perceptions and information about health and food influence our eating habits, as well as our lifestyle and behaviors. According to cognitive-behavioral theory, thoughts are the drivers of behavior and emotions (Beck, 2020). This study found more than one cognitive aspect that may affect children's lifestyles, such as the guardian's view of the child's body and their educational level. Education provides greater awareness of health, which affects nutritional behavior, according to CBT theory. It was found that there is a statistically significant relationship

between the level of income and the guardian's thoughts towards the child. In our opinion, a high level of income could mean a high educational level, which correlates with higher income. This pattern of results is consistent with Kim, Ham, Jang, Yun, and Park (2014), who found that children from low-income families are more likely to have poor eating habits, and their behaviors may also expose them to obesity, such as staying in front of the TV for more than an hour (Kim et al., 2014).

In this study, we found that the child in a large family receives social support from different members of the family, and the child may find discrepancies in the implementation of the advised lifestyle. In our view, grandparents have played a role in the awareness of extended families in Arab society, where the methods of education tend to be excessively coddling and do not adhere to the parental leadership of the child. While the child from a nuclear family received support from his parents only, this means lifestyle and laws related to health and upbringing will be clearer to him.

The researchers can also attribute the differences between the social structure of housing in each governorate. For example, nuclear families are concentrated in some governorates, such as Hawalli, while extended families are concentrated in Jahra.

Finally, the need for sleep is one of the basic human needs. Human health is linked to the quality of sleep because of its many benefits on neurochemical reactions. The current study found that diet planning is better in children who sleep more than eight hours. Studies have shown that the number of sufficient hours of sleep for each age group is required according to developmental needs. School-age children need to sleep between 9 and 11 hours (Hirshkowitz et al., 2015).

6. CONCLUSION

It is well known that obesity or overweight is one of the most common health problems around the world. With all kinds of methods and techniques that the specialists of diet programs use to control this problem, its prevalence is increasing around the world.

This study investigated the family's lifestyle direction in order to determine its contribution on obesity, where the children learned their dietary habits that alter their weight. The result showed that the family lifestyle is one of the most important issues that researchers, nutritionists, psychologists and other health care professionals, should play their part in controlling obesity, especially in children.

In reality, most of the obese and overweight children hate diet programs because it makes them special as compared to other children. Besides these programs require particular kind of food which children would not be able to take. In addition, taking care of psychological and social aspects will be very useful in conjunction with diet programs in order to reduce the children's weight stable and continually.

6.1. Limitations and Suggestions

The study was limited to Kuwait and focused exclusively on the relationship between lifestyle and obesity, neglecting other factors such as internal diseases and psychological factors. It was limited to a sample of 696 parents of children aged 6 to 12 years. Despite the study's limitations, it arrived at several key recommendations, the most important of which are.

1. Develop programs to improve family lifestyles.
2. Provide workshops for parents on the importance of sleep, nutrition, and physical activity.
3. Develop educational interventions in schools to raise awareness of lifestyle factors.
4. Develop programs based on cognitive-behavioral counseling to improve the lifestyles of children and adolescents who are obese or overweight.

Funding: This research was funded by Kuwait University, Kuwait (Grant No. RT01/19).

Institutional Review Board Statement: Ethical approval was granted by the Office of the Vice President for Research, Kuwait University, Kuwait (Implementation Office Committee Meeting No. 50; Ref. 2B/56; approval date 16 April 2019).

Transparency: The authors state that the manuscript is honest, truthful, and transparent, that no key aspects of the investigation have been omitted, and that any differences from the study as planned have been clarified. This study followed all writing ethics.

Competing Interests: The authors declare that they have no competing interests.

Authors' Contributions: All authors contributed equally to the conception and design of the study. All authors have read and agreed to the published version of the manuscript.

Disclosure of AI Use: The authors used OpenAI's ChatGPT (GPT-5 version) to assist with language proofreading and to support the search for relevant studies. All outputs were reviewed and verified by the authors before inclusion in this work.

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Appendix 1. Family lifestyle and childhood overweight questionnaire.

Scientific Research Questionnaire

Family Lifestyle Pattern and the Relationship with Overweight and Obesity in Childhood

The researchers designed a scale consisting of (40) items measuring five dimensions in improving family lifestyle, namely:

1. Behavioral Nutritional Dimension, consisting of (13) items.
2. Cognitive Nutritional Dimension, consisting of (8) items.
3. Parental Attitudes Dimension towards their children, consisting of (8) items.
4. Social Nutritional Dimension, consisting of (5) items.
5. Child's Environment Dimension related to the period of the COVID-19 pandemic, consisting of (6) items.

Responses to the statements are (Always - Sometimes - Never).

First: Personal Data of the Parent:

1. Gender: Male - Female
2. Age: 25 - 35 36 - 45 46 - 55 56 and above
3. Marital Status: Married -Divorced -Widowed
4. Educational Level: High school - lower diploma - University Postgraduate studies
5. Occupation: Government sector -Private sector - Retired - Other
6. Monthly Income (Kuwaiti Dinar): Less than 500/ 501 - 1000/ 1001 - 1500/ 1501 and above

7. Nationality: Kuwaiti Non-Kuwaiti
8. Type of Family: Nuclear (parents and children)- Extended (with grandparents)
9. Type of Residence: House Building -Apartment
10. Governorate: Capital -Hawalli -Jahra -Farwaniya -Ahmadi -Mubarak Al-Kabeer

Second: Personal Data of the Child:

1. Gender: Male- Female
2. Age: 7 years- 8 years - 9 years - 10 years- 11 years- 12 years
3. Type of Education: Regular classes- Integrated classes- Special needs classes.
4. Child's Birth Order: Firstborn - Middle (between first and last)- Lastborn -Only child
5. Child's Sleeping Hours: Less than 6 hours, 6 to 8 hours, More than 8 hours.
6. Your Perception of Your Child's Body: Overweight- Obese- Normal -Thin.
7. Does Your Child Suffer from Chronic Diseases? Yes- No
8. Has Your Child Been Consulted by a Nutrition Specialist? Yes - No
9. What is Your Child's Weight?
10. What is Your Child's Height?

Third: Data Related to Communication Method:

Parent's Name:

Phone Number:

The first dimension: Behavioral/Nutritional aspect involves identifying the child's nutritional behavior from the parents' perspective.

Number	Item	Always	Sometimes	Never
1	My child eats fast food.			
2	He/ She finishes his/ her food quickly.			
3	He/ She eats his/ her meals at regular times.			
4	She eats while playing video games.			
5	My child eats sweets.			
6	He/ She eats snacks between main meals.			
7	He/ She eats fruits or vegetables.			
8	Soft drinks are an essential part with his/ her meals.			
9	My child eats even when he/ she doesn't need to.			
10	He/ She buys his/ her food from outside the house.			
11	He/ She takes his/ her food from home to school.			
12	He/ She drinks water regularly.			
13	He/ She child eats when he/ she is upset.			

The second dimension: Cognitive/Nutritional aspect involves identifying the thoughts associated with overweight and obesity in the child from the parents' perspective.

Number	Item	Always	Sometimes	Never
14	My child believes there is no suitable way to lose weight.			
15	My child insists that a diet program restricts his/ her freedom.			
16	My child believes he/ she will feel hungry even if he/ she finishes his/ her main meals.			
17	My child prefers to bring his/ her healthy food to school.			
18	My child believes the cause of his/ her excess weight is his/ her lack of willpower against food.			
19	My child repeats that his/ her friends are overweight and enjoy their lives.			
20	My child believes he/ she is unable to follow diet programs.			
21	My child believes that fast food is a cause of his/ her weight gain.			

The third dimension: Parental attitudes towards their children involves identifying the thoughts and accumulated experiences of the parent regarding their children's weight.

Number	Item	Always	Sometimes	Never
22	Diet programs take a long time, which my child cannot tolerate.			
23	I blame myself after implementing diet programs for my child.			
24	Diet programs restrict our freedom.			
25	I believe it's unfair to impose a diet program on my son.			
26	My child can do without fast food.			
27	My child's weight hinders him/ her from playing and moving.			
28	It's difficult to meet my child's nutritional needs while out of the house.			
29	Implementing diet programs on my child is difficult due to the influence of his weight being affected by genetics.			

The fourth dimension: Social/Nutritional aspect measures the child's interaction in the surrounding community and participation in social interactions related to food from the parents' perspective.

Number	Item	Always	Sometimes	Never
30	At home, we eat separately (each person has his/ her own meal).			
31	My child insists on eating meals outside the home during outings for enjoyment and entertainment.			
32	My child feels unjustly treated in front of his/ her family when there is a dietary program for him/ her.			
33	My child feels bored during the application of diet programs alone (without family members).			
34	My child is keen on eating healthy meals with his friends.			

The fifth dimension: Environmental aspect related to the COVID-19 pandemic involves identifying the thoughts and behaviors of the child associated with the COVID-19 pandemic from the parents' perspective.

Number	Item	Always	Sometimes	Never
35	The COVID-19 crisis was one of the reasons for my child's weight gain.			
36	I believe that COVID-19 contributed to my child's lack of movement.			
37	My child is afraid of contracting COVID-19 and prefers to stay at home.			
38	My child insists on ordering from restaurants because we don't go out of the house.			
39	Moving between family homes and staying overnight during the crisis contributed to my child's weight gain.			
40	My child eats more food when sharing meals with others since the COVID-19 crisis.			

Appendix 2. Post Hoc test results for differences in children's lifestyle according to guardian's educational level.

Post Hoc test of the differences in the lifestyle on children's weight according to the guardian's educational level (High School or less, Diploma, Undergraduate, Postgraduate)					
Dependent Variable	Guardian's educational level (I)	Guardian's educational level (J)	Mean Difference (I-J)	Std. Error	Sig.
The child's nutritional behavior	High school or less	Diploma	-0.702	0.482	0.872
		Undergraduate	-0.7357	0.428	0.518
		Postgraduate	-2.099*	0.639	0.006
	Diploma	High school or less	0.702	0.482	0.872
		Undergraduate	-0.034	0.429	1
		Postgraduate	-1.397	0.64	0.176
	Undergraduate	High school or less	0.736	0.428	0.518
		Diploma	0.034	0.429	1
		Postgraduate	-1.363	0.601	0.142
	Postgraduate	High school or less	2.099*	0.639	0.006
		Diploma	1.397	0.640	0.176
		Undergraduate	1.363	0.601	0.142

Note: * p < 0.05.

Appendix 3. Post Hoc Test Results for Differences in Children's Lifestyle According to Guardian's Income Level.

Differences in the lifestyle of children's weight according to the guardian's income level					
Dependent Variable	Guardian's income level (I)	Guardian's income level (J)	Mean Difference (I-J)	Std. Error	Sig.
The third dimension: Thoughts and accumulated experiences of the parent regarding their children's weight	Less than 500 KWD	501-1000 KWD	-1.430*	0.423	0.005
		1001-1500 KW	-1.370*	0.425	0.008
		1501 KWD and above.	-1.482*	0.433	0.004
	501-1000 KWD	Less than 500 KWD	1.430*	0.423	0.005
		501-1000 KWD	0.060	0.311	1
		1501 KWD and above.	-0.052	0.322	1
	1001-1500 KWD	Less than 500 KWD	1.370*	0.425	0.008
		501-1000 KWD	-0.060	0.311	1
		1501 KWD and above.	-0.111	0.324	1
	1501 KWD and above	Less than 500 KWD	1.482*	0.433	0.004
		501-1000 KWD	0.052	0.322	1
		1001-1500 KWD	0.111	0.324	1

Note: * p < 0.05.

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