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INTERNATIONAL JOURNAL OF ADVANCED RESEARCH (IJAR)

Article DOI: 10.21474/IJAR01/22898
DOI URL: http://dx.doi.org/10.21474/IJAR01/22898

RESEARCH ARTICLE

LIFESTYLE DETERMINANTS AND HEALTH OUTCOMES ASSOCIATED WITH CHILDHOOD OBESITY: A SYSTEMATIC REVIEW OF CURRENT EVIDENCE

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Manuscript Info

Manuscript History
Received: 19 December 2025
Final Accepted: 20 January 2026
Published: February 2026

Key words:-
Childhood obesity, lifestyle determinants, sleep deprivation, sedentary behavior, diet, physical activity.

Abstract

Background: Childhood obesity has emerged as a major global health concern. Increasing prevalence among children and adolescents is closely associated with behavioral and environmental factors such as poor diet, inadequate sleep, and reduced physical activity.

Objective: To review existing scientific evidence regarding lifestyle determinants and health consequences associated with childhood obesity.

Methods: A systematic review of selected peer-reviewed studies was conducted.Articles examining childhood obesity prevalence, behavioral determinants, metabolic mechanisms, and long-term health outcomes were analyzed.

Results: Evidence indicates that short sleep duration, sedentary lifestyl e, high intake of sugar-sweetened beverages, and low levels of physical activity significantly contribute to increased obesity risk among childre n.

Conclusion: -Childhood obesity is influenced by multiple modifiable lifestyle factors. Preventive strategies should focus on improving sleep hygiene, encouraging physical activity, and promoting healthy dietary patterns.

Introduction: -

Childhood obesity is one of the most serious public health challenges of the 21st century. According to the World Health Organization, the prevalence of overweight and obesity among children has increased dramatically in recent decades.Obesity during childhood is associated with numerous health complications including cardiovascular disease, insulin resistance, and psychological problems. Early onset obesity also increases the likelihood of obesity persisting into adulthood.Lifestyle behaviors such as reduced physical activity, increased sedentary screen time, consumption of calorie-dense foods, and insufficient sleep play a critical role in the development of obesity.

Studies by Karine Spiegel and Shahrad Taheri demonstrated that sleep deprivation disrupts appetite regulation hormones such as leptin and ghrelin, increasing hunger and caloric intake.Understanding these behavioral and physiological factors is essential for developing effective strategies to prevent childhood obesity.

Objectives: -

Primary Objective: -

To examine lifestyle factors associated with childhood obesity.

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Secondary Objectives:-

1. To analyse global trends in childhood obesity.
2. To evaluate behavioral determinants including sleep, diet, and physical activity.
3. To examine metabolic mechanisms linking lifestyle behaviors to obesity.

Methodology: -

Study Design: -

Systematic review of selected research articles.

Inclusion Criteria: -

- Peer-reviewed articles
- Studies involving children and adolescents
- Research addressing obesity determinants or outcomes

Exclusion Criteria: -

- Non-human studies
- Studies unrelated to paediatric obesity

Data Sources: -

Literature was reviewed from scientific databases including:

- PubMed
- Scopus
- Google Scholar

Data Extraction: -

Information extracted included:

- Study design
- Population characteristics
- Key outcomes related to obesity determinants

Results: -

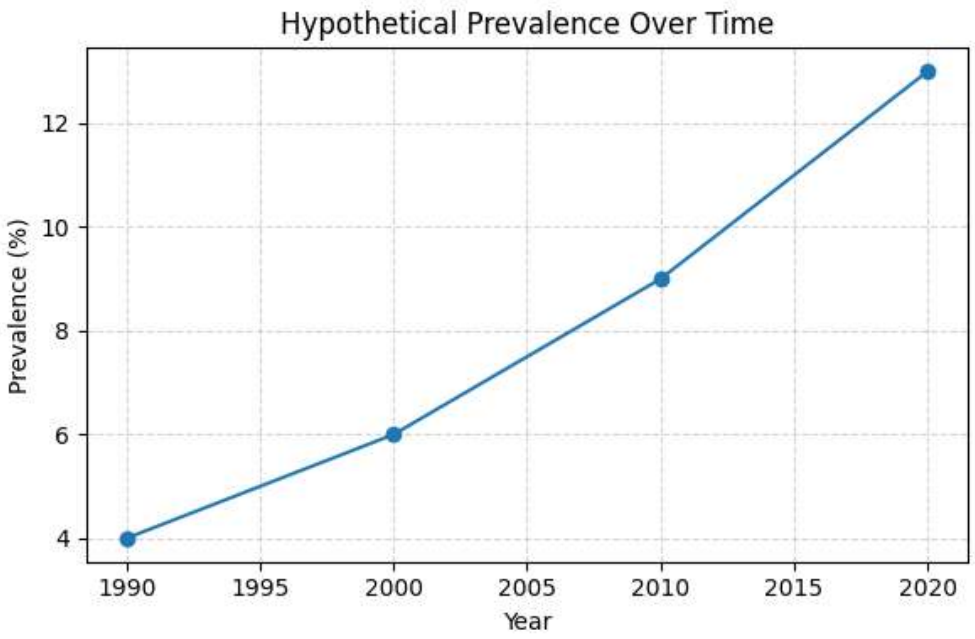
Global Prevalence of Childhood Obesity (PRISMA Item 20 – Results of Individual Studies): -

Epidemiological studies show a steady increase in childhood obesity across many countries due to rapid urbanization, dietary changes, and reduced physical activity levels.

GRAPH 1

Global Trend in Childhood Obesity

Year	Prevalence (%)
1990	4
2000	6
2010	9
2020	13

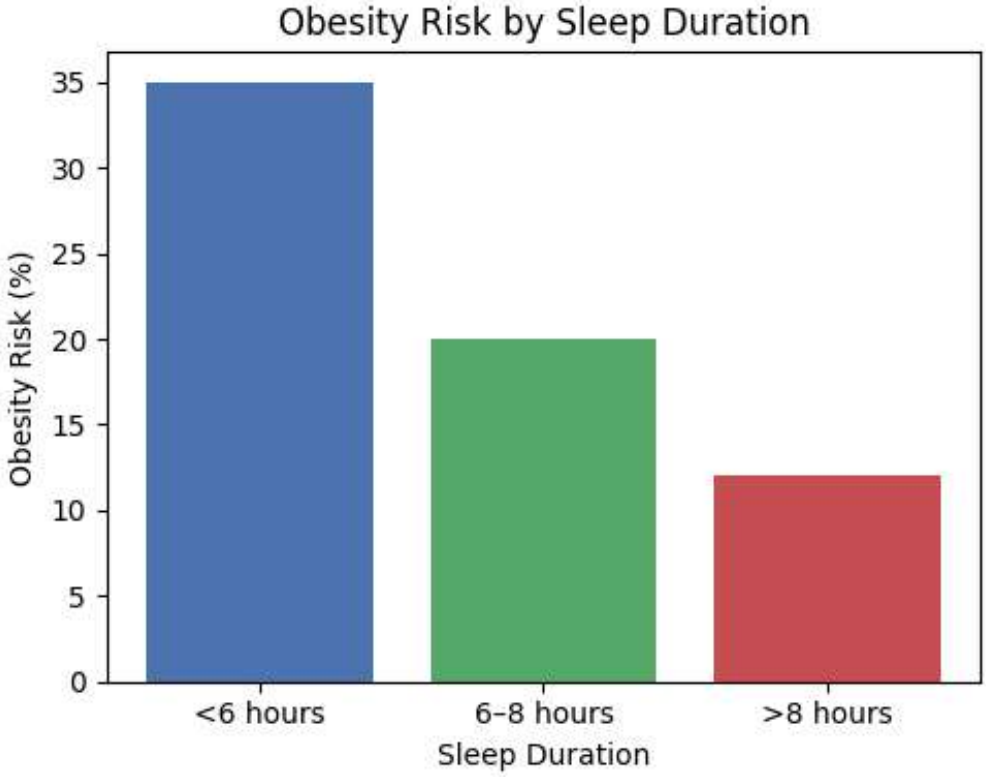


Interpretation:
The data illustrates a progressive increase in childhood obesity prevalence over three decades.

Sleep Duration and Obesity (PRISMA Item 20):-
Insufficient sleep alters metabolic regulation and appetite control mechanisms, contributing to increased energy intake and weight gain.

GRAPH 2
Sleep Duration vs Obesity Risk

Sleep Duration	Obesity Risk (%)
<6 hours	35
6–8 hours	20
>8 hours	12

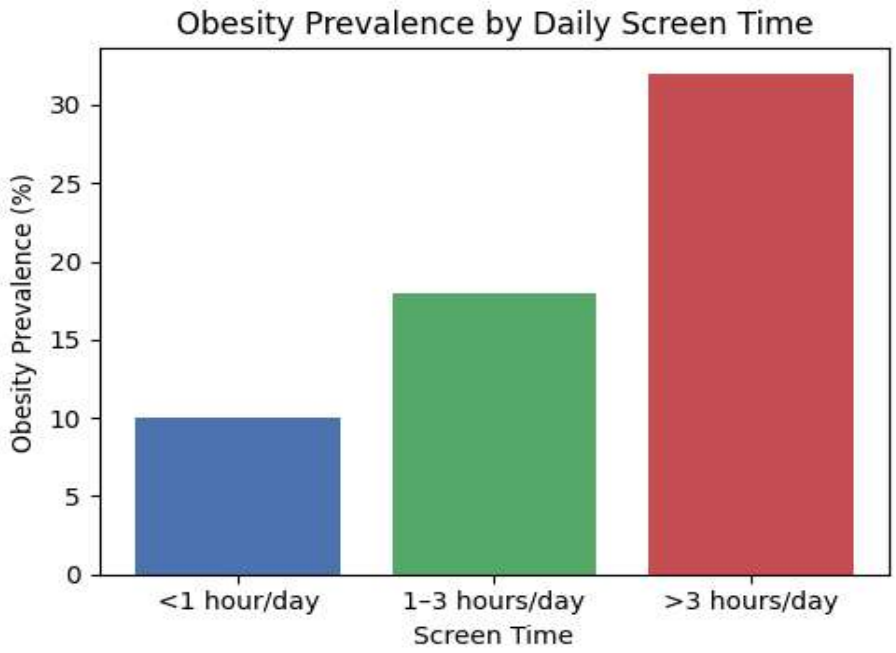


Interpretation:
Children sleeping fewer than 6 hours show the highest obesity risk.

Sedentary Behaviour: -
Sedentary activities such as prolonged screen time reduce energy expenditure and contribute to weight gain.

GRAPH 3
Screen Time and Obesity Prevalence

Screen Time	Obesity Prevalence (%)
<1 hour/day	10
1–3 hours/day	18
>3 hours/day	32

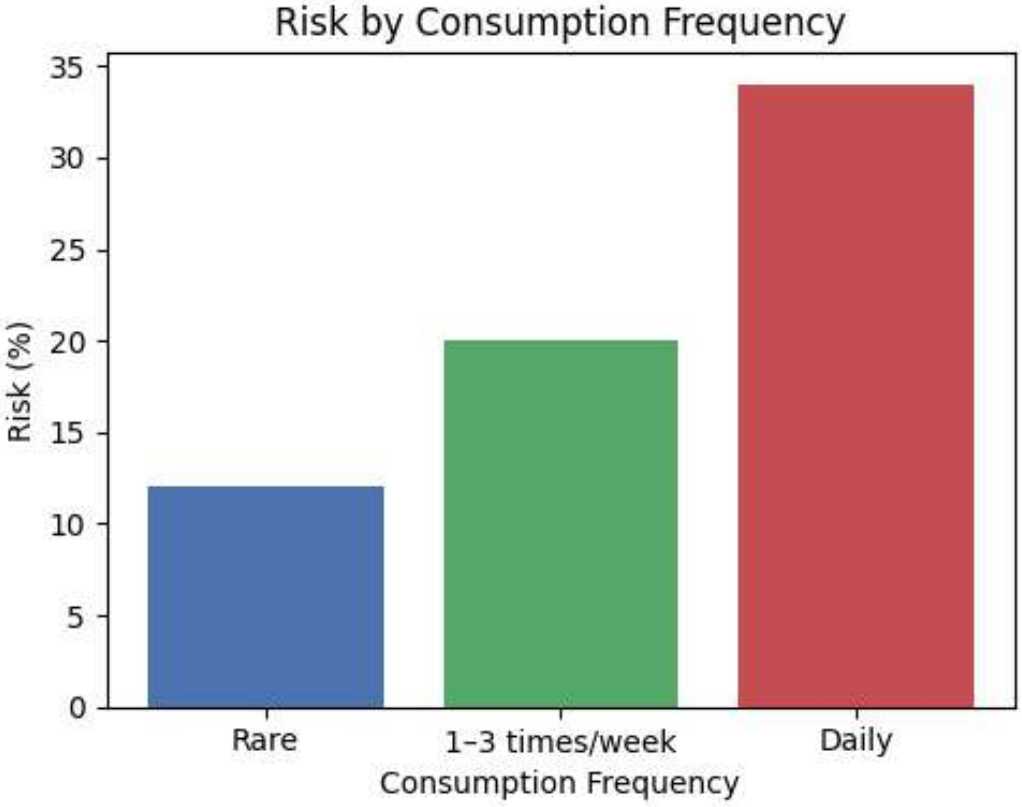


Interpretation:
Higher screen time correlates with increased obesity prevalence.

Dietary Factors: -
Consumption of sugar-sweetened beverages and high glycemic index foods significantly contributes to childhood obesity.

GRAPH 4
Sugar-Sweetened Beverage Consumption and Weight Gain Risk

Consumption Frequency	Risk (%)
Rare	12
1–3 times/week	20
Daily	34

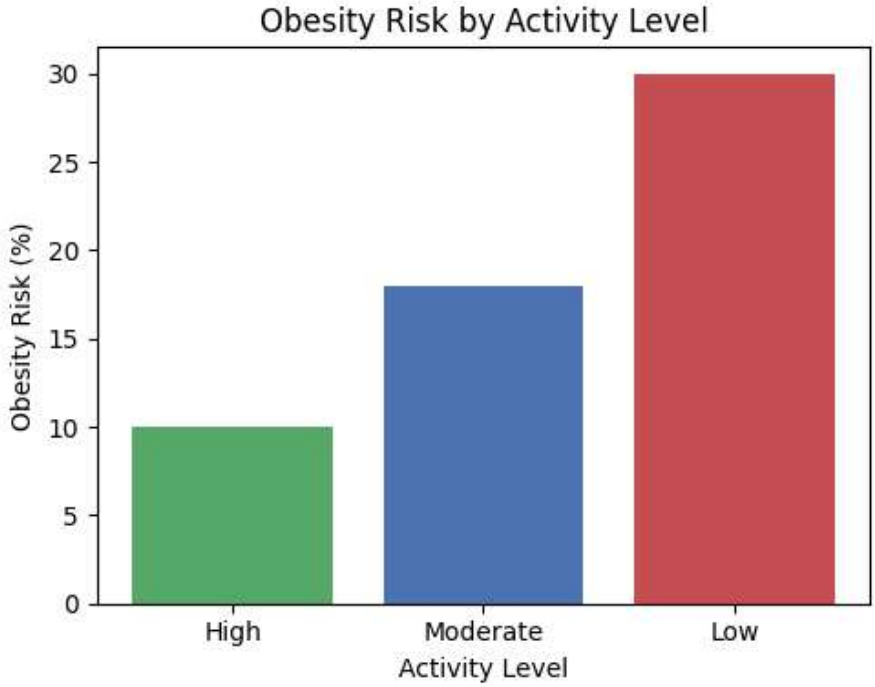


Interpretation:
Daily consumption shows the highest weight gain risk.

Physical Activity:-
Regular physical activity plays a crucial role in maintaining energy balance and preventing obesity.

GRAPH 5
Physical Activity Level and Obesity Risk

Activity Level	Obesity Risk (%)
High	10
Moderate	18
Low	30



Interpretation:
Lower physical activity levels are associated with increased obesity risk.

Discussion:-

The findings of this review highlight the multifactorial nature of childhood obesity. Behavioral and lifestyle factors significantly influence energy balance and metabolic regulation.Short sleep duration contributes to hormonal changes that increase appetite and caloric intake. Sedentary lifestyle behaviours, particularly excessive screen time, reduce energy expenditure and promote weight gain.Dietary patterns characterized by high consumption of refined carbohydrates and sugar-sweetened beverages further contribute to obesity risk by increasing insulin secretion and promoting fat storage. Encouraging physical activity and healthy lifestyle behaviours is essential for preventing obesity in children.

Public Health Implications: -
Effective strategies to reduce childhood obesity include:

- Promoting healthy sleep habits
- Reducing sedentary screen time
- Encouraging regular physical activity
- Improving dietary quality

School-based and community interventions may play a key role in addressing these factors.

Conclusion: -

Childhood obesity is a growing global health concern influenced by multiple lifestyle factors. Evidence from reviewed studies indicates that inadequate sleep, sedentary behavior, unhealthy dietary habits, and reduced physical activity significantly increase obesity risk. Addressing these modifiable factors through public health interventions and lifestyle modifications is critical for preventing obesity and improving long-term health outcomes in children.

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