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Mapping the risk landscape of childhood obesity: A narrative review of behavioral and socioeconomic determinants

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ABSTRACT

Childhood obesity is a critical global health concern with a rising prevalence in both developed and developing countries and is associated with substantial short- and long-term consequences, including metabolic, cardiovascular, and psychosocial disorders. This narrative review synthesizes recent evidence on the behavioral, familial, and socioeconomic determinants of childhood obesity to inform prevention strategies. Ten peer-reviewed articles published between 2015 and 2025 were reviewed, encompassing diverse populations from Asia, Europe, South America and Oceania. Studies met the inclusion criteria if they targeted children aged 2–18 years, defined overweight/obesity using standardized anthropometric measurements, and reported one or more risk factors. The extracted data were thematically analyzed into five domains: sociodemographic and family characteristics, dietary behaviors, physical activity and sedentary lifestyle, breastfeeding and early life exposures, and socioeconomic disparities. Across the included studies, unhealthy dietary patterns and insufficient physical activity were the most frequently cited modifiable risk factors, appearing in more than half of the studies. Maternal obesity, low parental education, and limited household income were consistently linked to higher obesity risk through both biological and environmental pathways, while short breastfeeding duration and cesarean delivery were recurrent early-life factors associated with increased prevalence. Socioeconomic disparities amplify exposure to obesogenic environments, particularly in disadvantaged communities. The findings indicate that childhood obesity is a multifactorial condition shaped by interdependent behavioral, familial, and structural determinants. Effective prevention requires equity-focused multisectoral strategies that integrate healthy eating promotion, physical activity encouragement, maternal and child health support, and interventions targeting the social determinants of health.

Keywords: childhood obesity, dietary behavior, parental influence, risk factors, socioeconomic status.

1. INTRODUCTION

Childhood obesity is associated with a wide array of adverse health outcomes (Ahmed & Mohammed, 2025), including an increased risk of type 2 diabetes, cardiovascular diseases, dyslipidemia, hypertension, sleep apnea, orthopedic problems, and non-alcoholic fatty liver disease (Fruh, 2017). Beyond physiological effects, it also carries significant psychosocial burdens (Smith et al., 2020), such as low self-esteem, bullying, social isolation, depression, and anxiety (Kar & Kar, 2010). Critically, obesity that begins in childhood is likely to persist into adulthood, reinforcing a lifelong trajectory of health risks and reduced quality of life (Rankin et al., 2016). Thus, prevention and early intervention during childhood are paramount for reducing the global burden of non-communicable diseases.

Despite the extensive recognition of obesity as a public health issue, the etiology of childhood obesity is complex and multifactorial (Verma et al., 2025). A wide range of interrelated factors, including genetic, behavioral, socioeconomic, environmental, and psychosocial factors, contribute to the development and persistence of obesity in children (Karakitsiou et al., 2024). Although genetic predisposition can influence metabolism and fat storage, environmental and lifestyle factors are far more significant in explaining the recent sharp rise in obesity rates (Tirthani et al., 2021). Behavioral patterns such as excessive caloric intake, poor dietary quality, insufficient physical activity, sedentary screen-based leisure, short sleep duration, and emotional eating have been consistently implicated in the literature. In addition, parental influence through both genetic inheritance and role modeling plays a central role in shaping a child's behavior and attitudes toward food and activity (Mahmood et al., 2021).

Among the modifiable risk factors, diet quality and eating patterns are among the most extensively studied domains. The consumption of energy-dense, nutrient-poor foods, such as fast food, sugary beverages, and salty snacks, has become increasingly common among children (Rousham et al., 2022). Moreover, unhealthy eating habits, such as meal skipping, snacking before meals, and a preference for strong-tasting or ultra-processed foods, have been linked to an increased risk of obesity (Larson et al., 2018). The proliferation of these dietary patterns is often facilitated by urban lifestyles, easy access to fast-food outlets, aggressive food marketing targeting children, and a decline in traditional meal structures (Tsochantaridou et al., 2023).

Simultaneously, there has been a marked reduction in children's physical activity levels (van Sluijs et al., 2021). Many children today do not meet the WHO's recommended 60 min of moderate-to-vigorous physical activity per day (Baran et al., 2020). Increased screen time, often exceeding two to three hours per day, has replaced outdoor play and physical recreation (Zong et al., 2024). This sedentary lifestyle not only reduces energy expenditure but also contributes to mindless eating and disrupted sleep patterns, both of which further exacerbate weight gain (Sandri et al., 2025).

Sleep duration is an emerging behavioral factor that has received increasing attention. Short sleep duration has been associated with hormonal imbalances, such as reduced leptin and elevated ghrelin levels, which can increase appetite and calorie intake (Lipps et al., 2025). Additionally, children who sleep less are more likely to engage in late-night eating and be tired during the day, reducing their propensity for physical activity (Hermes et al., 2022). Beyond individual behaviors, familial and socioeconomic determinants powerfully influence childhood obesity (Williams et al., 2018). Children of overweight or obese parents are significantly more likely to be overweight themselves because of both genetic transmission and shared household behaviors (Firman et al., 2024). Maternal obesity, in particular, has been shown to be a strong predictor of childhood obesity in multiple studies (Umano et al., 2025). Other family related factors, such as parental education level, family income, breastfeeding practices, mode of delivery (e.g., cesarean section), and household food environments, also play significant roles. Socioeconomic disparities manifest not only in access to healthy food options and safe recreational spaces but also in differential exposure to obesogenic environments, including food deserts, low-walkability neighborhoods, and high-stress living conditions (Umano et al., 2025).

Notably, social inequalities in childhood obesity have become increasingly pronounced in recent years. Children from lower-income families or marginalized communities are disproportionately affected, often due to cumulative disadvantages in education, access to health-promoting resources, and cultural

norms surrounding food and body images (Vilar-Compte et al., 2021). These inequalities are not merely coincidental but stem from structural determinants that require systemic policy responses. Given the complexity and interconnectedness of these risk factors, it is imperative to comprehensively understand the multifaceted nature of childhood obesity. Synthesizing current evidence on the various behavioral, biological, familial, and socioeconomic determinants can provide a foundation for more targeted, context-specific, and effective prevention strategies.

This literature review aims to explore and synthesize recent research findings on the risk factors associated with obesity in childhood. By examining evidence from a range of global studies conducted between 2015 and 2025, this review highlights key modifiable and non-modifiable determinants, with particular attention to diet, physical activity, lifestyle behaviors, parental influences, and socioeconomic contexts. Through this synthesis, the review contributes to a deeper understanding of the pathways leading to childhood obesity and offers insights for policymakers, educators, healthcare providers, and families seeking to curb its rise.

2. METHOD

This narrative literature review aimed to synthesize the current evidence on the multifactorial risk factors associated with childhood obesity. A narrative review approach was chosen to provide a comprehensive interpretative synthesis of diverse study designs, populations, and geographic contexts. This method enables the integration of quantitative and qualitative findings across heterogeneous sources, allowing for a more nuanced understanding of complex phenomena, such as childhood obesity.

2.1 Search Strategy and Selection Criteria

The primary literature analyzed in this review was selected from a curated collection of ten peer-reviewed journal articles published between 2015 and 2025. These articles were previously identified and provided for review, comprising studies from various countries, including South Korea, China, Turkey, Romania, Bosnia and Herzegovina, Brazil and Australia. The selected studies represented a range of research methodologies, including cross-sectional surveys, cohort studies, and population-based analyses, ensuring a broad and diverse representation of the risk factors under investigation.

Although a formal systematic database search was not conducted for this review, the selection of articles followed clear inclusion criteria: (1) studies must focus explicitly on children or adolescents aged 2–18 years, (2) the primary outcome must include overweight and/or obesity as defined by body mass index (BMI) or similar anthropometric indicators, and (3) the study must report on one or more risk factors associated with childhood obesity. The exclusion criteria were review articles, studies that focused exclusively on adult populations, and studies lacking primary data or statistical analysis related to obesity risk.

2.2 Study Selection Process

The study selection process followed the PRISMA guidelines. Initially, a total of 624 records were identified through database searches, and 13 additional records were obtained from other relevant sources. After removing duplicates, 80 unique records remained for screening. Titles and abstracts were reviewed to assess relevance, resulting in the exclusion of 557 records that did not meet the inclusion criteria, primarily because they focused on adult populations, lacked primary data, or did not address obesity as an outcome. The full texts of 26 articles were assessed for eligibility. Of these, 16 articles were excluded for the following reasons: not meeting the age range criterion (n = 6), absence of BMI or equivalent anthropometric outcome measures (n = 5), and lack of reported risk factors for obesity in childhood (n = 5). Ultimately, 10 articles met all the inclusion criteria and were included in the qualitative synthesis. The PRISMA flowchart (Figure 1) illustrates the detailed selection process and reasons for study exclusion.

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2.3 Data Extraction and Synthesis

Each article was reviewed in full-text format, and key data were independently extracted, including study design, sample size, age range of participants, geographic setting, and reported risk factors. Particular attention was paid to modifiable behavioral factors, such as dietary habits, physical activity, sedentary behavior, and sleep, as well as structural and contextual determinants, such as socioeconomic status, parental characteristics, birth-related factors, and breastfeeding practices.

The extracted data were thematically categorized to identify recurrent patterns and points of convergence across the studies. A thematic synthesis approach was applied to group the findings into five main domains: (1) sociodemographic and family characteristics, (2) dietary behavior and eating patterns, (3) physical activity and sedentary lifestyle, (4) breastfeeding and early life exposures, and (5) socioeconomic inequalities. This categorization allowed for a comparative analysis of different risk factors and their relative influences across contexts.

2.4 Quality Considerations and Limitations

Although the review did not employ a formal risk-of-bias tool, preference was given to studies published in high-impact, peer-reviewed journals and those using validated measurement tools, standardized definitions of obesity (e.g., WHO growth charts or CDC BMI percentiles), and robust statistical analyses, including multivariate regression models. However, the narrative nature of this review introduces certain limitations. Without a systematic search and quality assessment protocol, selection bias may be present, and the findings cannot be generalized across all global populations. Moreover, reliance on observational data limits causal inference regarding the associations described. Nonetheless, the narrative synthesis of evidence from diverse geographic and cultural contexts provides valuable insights into the multidimensional risk landscape of obesity in childhood. Tis following Figure 1 is the findings offer a basis for policy and intervention development, especially in settings with similar sociodemographic or nutritional transitions.

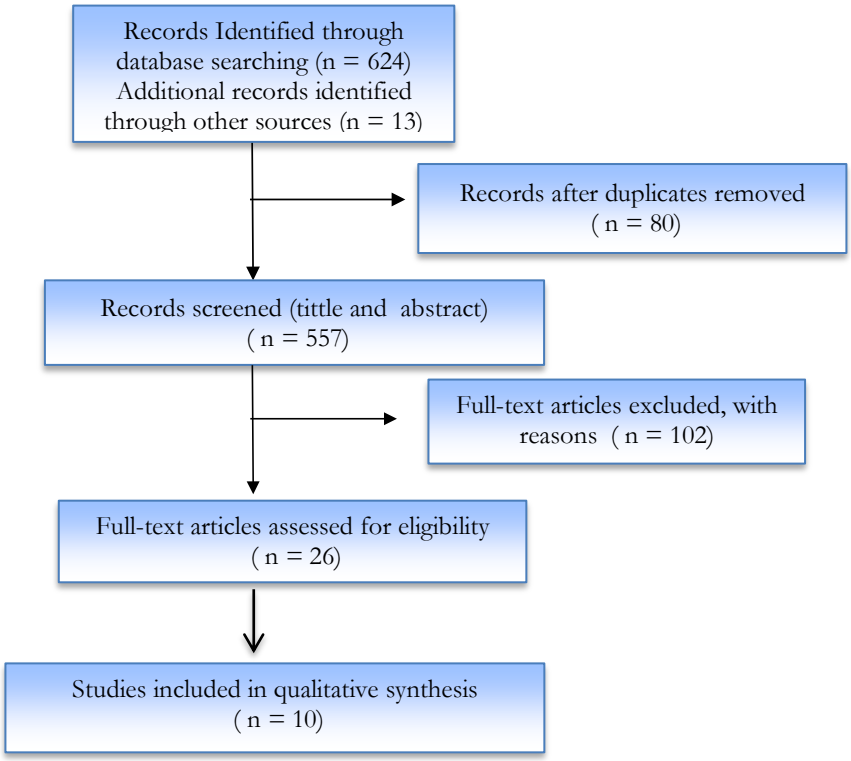

Figure 1. PRISMA Flow Chart

3. RESULTS AND DISCUSSION

The studies spanned diverse geographic regions, including Asia, Europe, and South America, and represented various methodological approaches, such as cross-sectional surveys, cohort studies, and population-based analyses. As shown in Table 1, each study examined specific behavioral, familial, and socioeconomic determinants of childhood obesity, allowing for a comparative understanding of risk factors across different contexts.

Table 1. Summary of Reviewed Articles on Risk Factors for Childhood Obesity

No.	Article Title	Author(s)/ Year	Objective	Findings	Conclusion
1	Factors associated with overweight and obesity in preschool children	(Kurspahić-Mujčić & Mujčić, 2020)	To identify sociodemographic and behavioral factors contributing to obesity in preschool children	Male gender, maternal overweight, low physical activity, >180 min/day screen time, snacking during screen time are risk factors	Maternal behavior and sedentary lifestyle significantly contribute to preschool obesity
2	Association of dietary habits with general and abdominal obesity in Korean children and adolescents	(Yun et al., 2024)	To analyze how dietary habits relate to general and abdominal obesity via cluster analysis	Cluster with irregular meals, low fruit/vegetable intake, high fat/protein intake had higher obesity risk	Promoting healthy dietary patterns and nutrition education may reduce obesity
3	Analysis of risk factors affecting obesity in Korean adolescents	(Kim et al., 2025)	To identify behavioral risk factors for obesity in adolescents	Skipping dinner, sedentary time ≥12 h/day, high protein intake increase obesity risk; sleep ≥8 h protective	Healthy meal routines and sufficient sleep reduce obesity risk

4	Relationship between breastfeeding duration, lifestyle and obesity in children	(Y. Liu et al., 2025)	To assess breastfeeding and lifestyle factors in obesity risk among 3–16-year-olds	Shorter breastfeeding, unhealthy lifestyle habits (meat-heavy diets, snacking before meals) increase obesity risk	Longer breastfeeding and healthy lifestyle jointly reduce obesity risk
5	Lifestyle factors associated with being overweight and obesity in children and adolescents	(Pan et al., 2025)	To explore associations between lifestyle and obesity among children in Zhejiang, China	High fried food intake, night snacking, sweet/salty/spicy food preference = higher obesity; regular PA = protective	Targeting diet and physical activity behaviors is crucial for prevention
6	Prevalence and Determinants of Overweight and Obesity Among Romanian Children	(Drăgănescu et al., 2025))	To estimate prevalence and predictors of obesity among Romanian children	Parental obesity, fast-food intake, low PA, and lower education were risk factors	Family health habits and education strongly influence childhood obesity
7	Socioeconomic inequalities in childhood and adolescent obesity in Australia	(Gautam et al., 2025)	To assess how SES, behavioral, and biological factors contribute to obesity disparities	Household income = 49% of disparities; maternal BMI = 29%; unhealthy diet = 10%	Obesity prevention must address socioeconomic and behavioral inequalities
8	Risk factors for overweight and obesity in children aged 2–6 years	(Kondolot et al., 2017)	To identify cultural and familial risk factors in Turkish children	High income, long TV time on weekends, low PA linked to higher obesity risk	Early childhood is critical to establish healthy behavioral patterns
9	Maternal obesity, environmental factors, cesarean delivery and breastfeeding.	(Portela et al., 2015)	To examine birth, socioeconomic, and breastfeeding variables on obesity	Cesarean delivery, maternal obesity, lower maternal education/work status increased risk	Breastfeeding modifies obesity risk; maternal health and delivery mode matter
10	Prevalence of and risk factors for overweight and obesity in Chinese children and adolescents	(H. Li et al., 2024)	To determine prevalence and risk factors in four Chinese provinces	Male adolescents had highest prevalence; 13 key risk factors identified	Obesity is high; prevention must focus on early education and parental support

Childhood obesity arises from the interplay of multiple risk factors operating at different levels: individual, familial, social, and environmental. This section synthesizes findings from recent studies into five thematic domains: (1) sociodemographic and family factors, (2) dietary behavior and eating patterns, (3) physical activity and sedentary lifestyle, (4) early life and breastfeeding exposures, and (5) socioeconomic disparities. Together, these themes elucidate the multifactorial nature of obesity in children and highlight both the modifiable and non-modifiable determinants.

3.1 Sociodemographic and Family Factors

Numerous studies have consistently demonstrated that family related characteristics, especially maternal obesity, parental education, and household dynamics, are significant predictors of childhood overweight and obesity. Kurspahić-Mujčić and Mujčić's (2020) cross-sectional study found that preschool boys were more likely to be overweight or obese than girls, with an odds ratio (OR) of 1.6 (95% CI: 1.01–2.53). Additionally, maternal overweight status was strongly associated with childhood

obesity (OR = 3.34), underscoring the intergenerational transmission of obesity risk, potentially via both genetic and behavioral pathways.

Similarly, in a Romanian study, Drăgănescu et al. (2025)observed that children with overweight or obese parents had a significantly higher likelihood of excess weight. In their multivariate analysis, fast food consumption, lower parental education, and limited physical activity were strong predictors of childhood overweight and obesity. The findings reinforce that parents, particularly mothers, not only contribute biologically, but also serve as behavioral role models who shape their children's diet, activity patterns, and body image.

Parental educational attainment also plays a crucial role. Parents with higher education levels are more likely to be informed about nutritional guidelines and healthy lifestyle practices, which can translate into healthier home environments (Ma et al., 2023). Conversely, children of less-educated parents may experience fewer restrictions on screen time and poor dietary regulation (Gautam et al., 2025). In a Chinese cohort study, maternal education was inversely associated with childhood obesity, particularly among children who were not breastfed for extended periods (S. Li et al., 2024).

The mode of delivery was also highlighted as a potential risk factor. Cesarean delivery was associated with an increased risk of childhood obesity in the same Brazilian cohort (PR = 1.98), possibly due to its influence on the gut microbiota and metabolic programming. These findings suggest that perinatal and early life exposures may predispose children to metabolic alterations that increase their risk of obesity.

3.2 Dietary Behavior and Eating Patterns

Dietary behavior is a potent and modifiable contributor to obesity in children. Multiple studies across different populations have confirmed that unhealthy eating patterns, including high intake of fast food, preference for calorie-dense and nutrient-poor foods, and irregular meal timing, are significantly associated with an increased risk of obesity. In the cluster analysis by Yun et al. (2024) on Korean children and adolescents, those categorized into the "unhealthy dietary habit" cluster were significantly more likely to be overweight or obese, both generally and abdominally. The unhealthy cluster was characterized by lower consumption of fruits and vegetables, higher total energy intake, and lower levels of nutrition education. These findings suggest that dietary patterns, rather than individual nutrients, offer greater explanatory power in understanding obesity risk.

Other studies have reinforced the harmful impact of specific dietary behaviors. For instance, Pan et al. (2025) found that the frequency of fried food consumption, snacking at night, and preference for sweet, salty, or spicy flavors were independently associated with an increased risk of obesity in Chinese children. Notably, children who consumed fried foods or engaged in nighttime snacking seven days per week had significantly higher odds of being overweight or obese (OR = 88.3 and OR = 13.2, respectively). Meal skipping, particularly skipping dinner, also appears to influence weight outcomes. Kim et al. (2025) showed that skipping dinner at least three times per week was positively associated with obesity among Korean adolescents (adjusted OR = 2.22). This may be due to disrupted circadian eating rhythms, compensatory overeating during other meals, or late-night snacks. Together, these findings affirm that promoting structured meal timing and diet quality is essential for obesity prevention.

3.3 Physical Activity and Sedentary Lifestyle

Low levels of physical activity and high levels of sedentary behavior are well-established risk factors for obesity in children. Screen time, in particular, has been widely implicated in its association with reduced energy expenditure, exposure to food advertising, and mindless eating. In Bosnia and Herzegovina, Kurspahić-Mujčić et al. (2020) found that children who engaged in less than 60 minutes of physical activity per day were significantly more likely to be overweight or obese ($p = 0.014$), while screen time exceeding 180 minutes per day was also positively associated with excess weight ($p = 0.020$).

These findings align with the WHO recommendations and underscore the importance of limiting screen-based leisure activities among children.

A similar pattern was observed among Korean adolescents. Kim et al. (2025) reported that sedentary time exceeding 12 hours per day was associated with higher obesity risk (OR = 1.46), while physical inactivity was consistently correlated with increased BMI and waist circumference. Pan et al. (2025) offered further insights, showing that children who engaged in moderate-to-vigorous physical activity seven days per week had a significantly lower risk of overweight and obesity (OR = 0.137). These findings suggest that regular exercise has a protective effect that extends beyond energy balance and potentially influences metabolic flexibility and appetite regulation.

3.4 Breastfeeding and Early-Life Exposures

Early life nutritional exposures, particularly breastfeeding duration and formula-feeding practices, have been investigated for their protective or predisposing roles in childhood obesity. While the findings are mixed, several studies suggest that breastfeeding may confer a modest protective effect, particularly when maintained for longer durations. Liu et al. (2025) conducted a cross-sectional study in China showing that children who were breastfed for 4–12 months had a significantly lower risk of obesity. This protective effect was amplified when combined with healthy lifestyle habits, such as limiting the intake of high-fat foods and reducing snacking before meals. This mechanism may involve improved metabolic programming, better appetite regulation, and avoidance of early overfeeding.

Portela et al. (2015) supported similar findings in their Brazilian cohort, reporting that breastfeeding duration modified the association between maternal obesity and child overweight. Among children who were breastfed for a longer duration, maternal obesity had a less pronounced effect on child weight, suggesting a buffering mechanism (F. Liu et al., 2022). These findings highlight the importance of the early nutritional environment in shaping long-term weight outcomes. Promoting exclusive and extended breastfeeding may be an effective population-level strategy for preventing early onset obesity.

3.5 Socioeconomic Disparities and Structural Inequities

One of the most consistent and concerning themes across studies is the disproportionate burden of obesity among children from lower socioeconomic strata. Gautam et al. (2025) conducted a decomposition analysis in Australia and found that household income accounted for 49% of the socioeconomic inequality in childhood obesity, followed by biological factors (29%) and behavioral factors (10%). Notably, maternal BMI and poor dietary habits were disproportionately concentrated in low-income households. These findings reflect not only differences in individual choices but also the structural constraints. Families from disadvantaged backgrounds may lack access to fresh produce, safe recreational spaces and consistent health messaging (Karakitsiou et al., 2024). Moreover, high levels of stress, food insecurity, and time poverty may contribute to suboptimal health behaviors (Sandri et al., 2025). The implications are profound: without addressing structural inequities, interventions focused solely on behavior change may fail to reach the populations most at risk. Therefore, public health strategies must prioritize equity by incorporating upstream policies such as school meal reform, urban design, and parental leave policies that support breastfeeding and childcare.

3.6 Childhood obesity risk factor

This section synthesizes empirical evidence derived from ten peer-reviewed studies, integrating findings from diverse geographic and cultural contexts to construct a comprehensive understanding of the multifactorial determinants of obesity in childhood. Figure 2 demonstrates that unhealthy dietary patterns and insufficient physical activity emerged as the most prevalent risk factors, each documented in over half of the included studies. Unhealthy dietary behaviors included frequent consumption of energy-dense, nutrient-poor foods, such as fried snacks, sugar-sweetened beverages, and ultra-processed meals.

Low physical activity was characterized by inadequate engagement in moderate-to-vigorous physical activity and excessive screen-based sedentary behavior. In combination, these behaviors disrupt the balance between caloric intake and expenditure, thereby substantially increasing the risk of excessive adiposity in children.

Parental attributes, most notably maternal overweight or obesity, were also consistently identified as salient determinants. This intergenerational association is sustained not only through genetic predisposition but also through shared familial environments in which dietary practices, physical activity patterns, and health-related norms are transmitted across generations. Socioeconomic characteristics, including reduced household income and limited parental educational attainment, further modulate these behavioral patterns by constraining access to nutritious foods, reducing opportunities for structured and unstructured physical activity, and shaping perceptions of healthy lifestyle practices (see Figure 2).

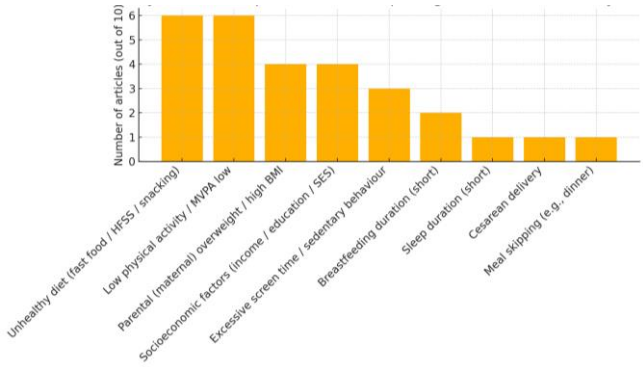

Figure 2. number of articles reporting each childhood obesity risk factor

Although fewer studies explicitly addressed early life exposures, two factors, short duration of breastfeeding and cesarean delivery, were recurrently associated with a heightened obesity risk in the studies that did. These factors may influence metabolic programming, appetite regulation, and gut microbiome composition, thereby exerting long-term effects on body-weight regulation. Moreover, socioeconomic disparities, identified in more than half of the reviewed studies, perpetuated structural barriers to health-promoting environments. Such disparities are particularly pronounced in urban settings, where children may experience greater exposure to fast food outlets, marketing of energy-dense foods, and limited access to safe spaces for physical activity. Collectively, these findings underscore that childhood obesity is shaped by the dynamic interplay of behavioral, familial, biological, and structural determinants of health. Addressing this public health challenge necessitates multifaceted interventions that concurrently target individual-level behaviors and the broader socioeconomic and environmental contexts in which these behaviors are embedded.

3.7 Synthesis and Implications

The studies reviewed present converging evidence that childhood obesity is a multifactorial condition driven by interdependent biological, behavioral, and social factors. Maternal obesity, poor dietary habits, physical inactivity, and low socioeconomic status are recurring risk factors in diverse settings. While some factors, such as genetic predisposition or delivery method, are not modifiable, most determinants identified are amenable to public health interventions.

To be effective, interventions must adopt a multisectoral and life-course approach. School-based nutrition education, regulation of food marketing to children, promotion of physical activity, breastfeeding support, and targeted social assistance for low-income families are essential components. Crucially, these strategies must be culturally sensitive and responsive to the specific needs of each community.

4. CONCLUSION

The evidence synthesized in this review underscores the complex and multifactorial nature of childhood obesity. Across diverse populations and geographic regions, a consistent pattern of risk factors emerges, ranging from familial influences such as parental obesity and maternal education to modifiable behaviors, including poor dietary habits, physical inactivity, excessive screen time, and insufficient sleep. Furthermore, socioeconomic disparities significantly shape the distribution and persistence of obesity, revealing that environmental and structural conditions are as influential as individual behavior.

While certain biological and early life exposures, such as mode of delivery or genetic predisposition, are non-modifiable, most risk factors identified in this review are amenable to intervention. This highlights the importance of early preventive strategies that prioritize maternal health, breastfeeding support, balanced dietary patterns, structured physical activity, and reduced sedentary behavior from an early age. Importantly, interventions should not only target individual and family level behaviors but must also address the broader structural and socioeconomic determinants that create obesogenic environments, especially among disadvantaged populations.

To combat the global rise in childhood obesity, multi-level and multi-sectoral efforts are needed. Policymakers, educators, healthcare providers, and families must collaborate to create supportive environments that enable children to grow up healthily. Public health strategies must be rooted in equity to ensure that the most vulnerable children are not left behind. Future research should continue to explore culturally and contextually relevant interventions, with particular attention to long-term outcomes and the intergenerational cycles of obesity. Ultimately, reversing the trajectory of childhood obesity will require a sustained and integrated approach that places the child at the center of a network of supportive families, schools, communities, and policies that prioritize their health and well-being.

Ethical Approval

Ethical approval was not required for this study.

Informed Consent Statement

Informed consent was not obtained for this study.

Author Contributions

AL contributed to the conception and design of the study, coordinated the overall project, developed the methodology, and conducted data analysis. He further revised the manuscript to enhance its academic rigor and oversaw the final editing and submission process. SW conducted the literature review and provided support for data interpretation. Both authors reviewed and approved the final version of the manuscript, with Slamet Widodo being designated as the corresponding author.

Disclosure Statement

No potential conflicts of interest were reported by the authors.

Data Availability Statement

The data presented in this study are available upon request from the corresponding author for privacy reasons.

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Notes on Contributions

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