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Review

Childhood obesity in Bangladesh: an emerging public health crisis

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Abstract: Childhood obesity has emerged as a major public health challenge worldwide, particularly in low- and middle-income countries that face the double burden of overnutrition and undernutrition. Bangladesh is currently experiencing a rapid nutrition and lifestyle transition. As a result, increasing rate of overweight and obesity among children and young people are contributing to elevated risk of non-communicable diseases and long-term health complications. This study aimed to synthesize recent evidence on the prevalence, determinants, and public health implications of childhood obesity in Bangladesh. A narrative review approach was utilized to examine national surveys, peer-reviewed articles, and global databases published in the last two decades. Findings show a rapid rise in childhood obesity. The prevalence of overweight among Bangladeshi children under 5 increased from 0.9% in 2000 to 2.4% in 2019, while overweight among adolescents aged 5-19 rose from approximately 3% in 2000 to over 9% in 2016. Similar upward trends are observed in obesity rates for both boys and girls. Multiple factors including rapid urbanization, shifting dietary patterns towards energy dense foods, increasing purchasing power, physical inactivity, academic pressure, lack of awareness among parents, and inadequate policy implementation contribute to this growing problem. Evidence based prevention strategies include accessible female friendly physical activity opportunities, structured urban planning with sufficient recreational activities, raising maternal awareness about obesity risks, and including nutrition education in school curriculum. Since, socioeconomic similarities of Bangladesh with its neighboring countries are common, insights from this review might also be applied to regional policy improvement. Therefore, addressing childhood obesity in Bangladesh requires effective strategies by involving policy makers, educators, and public health practitioners to mitigate the future burden.

Keywords: food environment; nutrition transition; physical activity; urbanization

1. Introduction

Childhood obesity has become a major global public health issue due to its far-reaching health and societal consequences. In response, the World Health Organization (WHO) targets no increase in childhood overweight by 2025 to combat obesity and diabetes worldwide (Cesare *et al*., 2019). Childhood obesity results in immediate

psychological issues such as depression, anxiety, and low self-esteem, and can lead to physical health complications including asthma and liver issues (Garcia-Castillo *et al*., 2025; Hawton *et al*., 2025). Furthermore, it poses long-term risks for chronic conditions like cardiovascular disease, diabetes, and musculoskeletal disorders, ultimately increasing the risk of disability and early death (Ciezki *et al*., 2024). According to evidence, over three-quarters of children who are overweight or obese will remain so as adults and treating obesity in adults is extremely challenging (NCBI, 2017; Hall and Kahan, 2018). The significant likelihood of overweight status continuing into later life, along with the limited effectiveness of current treatments, underscores the urgent need for early prevention strategies (Pharmacy Times, 2025).

Recent data underscore how this global trend is mirrored in countries with low and moderate incomes, including Bangladesh. In 2016, over 40 million children under five and 330 million adolescents aged 5-19 were overweight or obese globally. The global prevalence of overweight children under five has surged from 4.80% in 1990 to 5.90% in 2018. Although the global average shows only a modest rise, the increase has been more pronounced in parts of Asia, excluding Eastern Asia, where childhood overweight has steadily risen (Cesare *et al*., 2019).

Between 1975 and 2016, global obesity prevalence in adolescents rose from 0.70% to 5.60% in girls and from 0.90% to 7.80% in boys aged 5-19. In South Asia, previously negligible obesity rates increased to over 3% by 2016 in countries like Afghanistan, Pakistan, Bhutan, and Bangladesh (Cesare *et al*., 2019). Specifically, in Bangladesh, the prevalence of overweight children under five grew from 0.90% in 2000 to 2.40% in 2019, while among adolescents (5–19 years), overweight rates rose from 2.90% to 9.30% in boys and from 3.10% to 8.70% in girls from 2000 to 2016. Obesity rates for the same age group also increased, from 0.70% to 3.0% in boys and from 0.40% to 2.30% in girls during this period (Global Nutrition Report, 2022).

Bangladesh is experiencing a nutrition transition, characterized by a shift from traditional undernutrition issues to increasing rates of childhood overweight and obesity. Without timely public health interventions, this trend may lead to a greater burden of non-communicable diseases in the future. Hence, understanding the causes of childhood obesity is crucial for early intervention. Although, a growing number of studies has examined various aspects of childhood obesity in Bangladesh, very few studies compile data on prevalence trends, underlying determinants, and contextual susceptibilities. This gap limits the ability of public health professionals, health educators, and policy makers to develop coordinated and evidence-based strategies. Additionally, the fragmentation of existing evidence across these fields underscores the need for an integrated and comprehensive synthesis.

Therefore, this review examines the rising issue of childhood obesity in Bangladesh, investigating its key determinants and the country's vulnerability to nutritional transition. It aims to provide policymakers and public health professionals with practical insights for prevention and control by identifying major influencing factors and distinct risk environments associated with childhood obesity. This study might also guide neighboring South Asian countries that share similar socioeconomic and demographic characteristics.

2. Causes of rising childhood obesity and vulnerability of South Asians

The built environment attributes the rise of obesity to physical inactivity and dietary intake (Papas *et al*., 2007). Excessive energy consumption, often involving refined carbohydrates and processed foods, is linked to weight gain due to increased insulin release and fat storage (Ludwig and Ebbeling, 2018). The increasing obesogenic environment increases the likelihood of kids consuming high-calorie, energy-dense, or nutrient-deficient foods and drinks (Bergman *et al*., 2025). Additionally, it promotes sedentary lifestyles by reducing opportunities for active movement in daily life (Sridhar and Gumpeny, 2024). Obesity in children is influenced by factors such as maternal health during pregnancy, the intrauterine environment, and rapid weight changes during infancy as well (Cristian *et al*., 2023; Gilley *et al*., 2023).

Genome-wide association studies have identified genetic risk factors for weight gain and clarified biological processes of obesity. The fat mass and obesity-associated gene affect energy intake, with variations leading to higher calorie consumption and decreased fullness sensations (Loos and Yeo, 2013). In addition, significant genetic and epigenetic variation exists in obesity phenotypes between populations, including South Asians, with distinctive metabolic profiles and more central body adiposity (Scott *et al*., 2016). However, evidenced by the substantial disparities in incidence between Samoa and American Samoa, people with nearly identical genes can have substantially diverse obesity phenotypes. Even if some people have a genetic tendency to be overweight, obesity-associated genes cannot explain the current obesity epidemic's quick development and magnitude (Lee, 2009).

Globalized markets, commercial interests, and limited political commitment contribute to the rising prevalence of obesity, often driven by economic factors and socioeconomic inequality. In addition, marginalized and

underprivileged communities in high-income environments exhibit a higher prevalence of obesity compared to those with higher socioeconomic status. On the other hand, in certain, but not all, low- and middle-income contexts, a higher prevalence of obesity is reported in groups with higher socioeconomic status (Cesare *et al*., 2019).

3. Vulnerability of Bangladesh to childhood overweight and obesity transition

Studies from Bangladesh have examined many risk factors for schoolchildren's rising overweight and obesity (Table 1). According to studies, Bangladeshi children's low physical activity (PA) may be caused by a lack of playgrounds, increased urbanization, rising purchasing power, and easy access to mobile phones and handheld computers (Hasan *et al*., 2020). The gross domestic product (GDP) per capita reveals that 140 lower and middle-income countries are undergoing economic transition, with increased consumer spending among the middle class. This demographic, representing over 80% of the global population, is projected to account for about 70% of global consumption by 2030, up from 25% in 2009. Additionally, there is a positive correlation between obesity and the rise in GDP (Hossain *et al*., 2022a). Bangladesh has been among the fastest-growing economies in the world over the past decade (World Bank, 2022). With the increasing household income, the diet of families and individuals has been changing along with the availability of fast food and the unavailability of healthy food nearby. Even young adolescents are becoming addicted to fast food (Rahman, 2014). Urbanization and economic growth contribute to a "nutrition transition," enhancing food purchasing power while decreasing physical activity. This shift has led to emerging economies, particularly in South Asia, experiencing rising rates of childhood overweight and obesity, alongside persistent underweight issues (Hossain et al., 2022b).

Table 1. Determinants of childhood obesity in Bangladesh.

Determinants	Contributing elements	References
Environment	Insufficient playground and park; unsafe outdoor spaces	Islam *et al*. (2015); Bhuyan (2021); Hossain *et al*. (2022a)
Physical inactivity and sedentary behavior	Low physical activity among boys and girls; high screen time; limited female friendly physical activity option	Uddin *et al*. (2020); Ma *et al*. (2020); Hossain *et al*. (2022b); Islam *et al*. (2023); Kakon *et al*. (2025)
Urbanization and economic transition	Rapid urban growth; purchasing power; shifting lifestyle patterns;	Hossain *et al*. (2022); World Bank (2022)
Food setting	Easy access to fast food; lack of fresh fruit in school canteen; influences of marketing on unhealthy food	Datar *et al*. (2014); Hasan *et al*. (2021); Hossain *et al*. (2022a); Qasrawi *et al*. (2025)
Parental factors	Low awareness of childhood obesity; misconception about ideal body mass index (BMI); screen time encourages picky eaters	Hossain *et al*. (2019, 2020)
Academic pressure	Homework load; coaching centers after school; physical exercise classes altered by academics	Save the Children (2018); Hasan *et al*. (2020)
Policy gaps	Poor execution of school playground; limited observation of food environment	Bangladesh ECD Network (2011)

3.1. Lack of playgrounds in the city and urban areas

Environmental factors can create changes linked to obesity that may be inherited across generations, influencing development throughout life, including prenatal stages. Recent advancements in understanding the environment-obesity relationship have moved past mere description to explore personal mechanisms and genetic factors. Research shows that young children are particularly susceptible to their immediate surroundings, more so than older children or adults. For instance, children with limited access to recreational facilities have a 68% higher likelihood of obesity (Nicolaidis, 2019). Dhaka, the capital of Bangladesh, is the most vulnerable city for obesity among children due to its obesity-inducing environment. It is highly densely populated, ranking as the eleventh largest megacity globally, with over 18.20 million people living in an area of 1528 km² (Swapan *et al*., 2017). In the Economist Intelligence Unit’s 2015 livability index, Dhaka ranked 139th out of 140 cities, just above Damascus, which placed last at 140th (World Bank, 2015).

Among all the factors in the built environment, the drastic decline in playgrounds and parks in Dhaka is the prime concern for a child's health. Previous research has demonstrated that children with limited access to playgrounds are more likely to become overweight or obese (Hossain *et al*., 2022a). In 1960, 80.50% of Dhaka's land was covered by green spaces, wetlands, or vegetation, which decreased to about half, 41.3%, by 2005 (Alam *et al*., 2025). Dhaka city has lost 29% of its vegetation over the last two decades, from 2001 to 2021. In 2024, only 1.26% of Dhaka Metropolitan City's land area was covered by Public Open Space (POS). Just 9.32% of residents had access to a POS within 300 meters of their homes, which is far below the WHO recommendation that all citizens should have such access (Konijnendijk, 2023; Alam *et al*., 2025).

The WHO recommends nine square meters of open space per urban resident, while Dhaka offers less than one square meter, specifically between 0.05 and 0.50 square meters. This indicates that open space availability in Dhaka is 18 to 180 times lower than the WHO guidelines (Hossain and Tasnim, 2020). Besides that, not all playgrounds and parks are accessible to everyone, as some, like the National Zoo and Shishu Park, charge fees that restrict children's access. Additionally, many parks are unsuitable for play due to mismanagement, lack of facilities, and poor condition (Islam *et al*., 2015; Bhuyan, 2021). As a result, children lacking access to playgrounds and parks are likely to engage more in sedentary activities, with 49% playing video or computer games and 17% playing puzzles at home, which contributes to a more sedentary lifestyle (Save the Children, 2018).

3.2. Low level of physical activity and increased sedentary behavior

Insufficient physical activity (PA) contributes significantly to the rising childhood obesity epidemic. It is the fourth leading cause of global death, with 81% of adolescents not meeting the recommended 60 minutes per day of moderate-to-vigorous intensity PA (Uddin *et al*., 2020). Sedentary behavior (SB) is distinct from insufficient PA and is independently associated with poor health outcomes (Andrade, 2024). Evidence indicates that about one in four adolescents and adults from LMICs are sedentary for at least 3 hours a day (Ma *et al*., 2020). The prevalence of insufficient physical activity (PA) among Bangladeshi adults and children varies, with 59% of adolescents in a nationally representative sample being inactive, while non-representative studies report a range of 20% to 67%. There is also limited evidence regarding the prevalence of SB in Bangladesh, particularly concerning gender and urban versus rural settings (Uddin *et al*., 2020). A higher prevalence of SB was found among adult females compared to males, whereas prolonged screen time was reported in Bangladeshi boys than girls (Hossain *et al*., 2022b; Kakon *et al*., 2025). The lower levels of PA among Bangladeshi females than males may be due to the limited availability of female-friendly PA opportunities, particularly in outdoor recreational activities (Islam *et al*., 2023).

Occupational and transport-related physical activity (PA) significantly contributes to total PA among Bangladeshi adults in both urban and rural areas (Moniruzzaman *et al*., 2017). In contrast, high-income countries are experiencing a decline in occupation-related physical activity due to a reduction in jobs requiring moderate-intensity activity and a rise in sedentary positions, especially in the service sector. Additionally, there has been an increase in motorized transport and a decrease in active transport, further reducing transport-related physical activity (Strain *et al*., 2024). Due to rapid urban-industrial transformation and modernization, Bangladeshis have become increasingly technology-centered, with greater access to labor-saving devices in both occupational and domestic settings, heavier reliance on motorized transport, and more time spent on screen-based entertainment (Uddin *et al*., 2020).

3.3. Urbanization and Bangladesh

Several studies show that rapid urbanization is associated with higher incidence of childhood obesity. Urbanization is considered one of the most influential obesogenic environmental factors in developing countries (Wu *et al*., 2021). From 2000 to 2010, Bangladesh has experienced exceptionally rapid urban growth which is faster than the average of South Asian nations. Over that time, 1.69% of the inhabitants who lived in officially recognized urban areas increased yearly, equivalent to the rate of urbanization experienced by developed countries during their period of industrialization. Additionally, according to the Agglomeration Index, which captures functional urban characteristics, nearly 45.70% of Bangladesh's population lived in areas with urban characteristics in 2010, compared to only 28% based on the official definitions, indicating a substantial level of hidden urbanization (World Bank, 2015). Furthermore, almost 62% of Bangladesh's urban population lived in slums in 2009, with 21.30% below the national poverty line in 2010. This high rate of slums and poverty is linked to chaotic urbanization, leading to future health concerns such as obesity and other non-communicable diseases (NCDs) (World Bank, 2015).

By 2050, 67% of the population of LMICs is expected to live in urban areas, following decades of rapid and uncontrolled urban population increase in most LMICs (UN DESA, 2018). With a population of about 170 million, Bangladesh is an LMIC, where approximately 57 million children make up almost 33% of the population (BBS 2022; UNICEF, 2023). The country has one of the highest population densities in the world (Roy *et al*., 2022). The proportion of the population living in urban areas increased from 5.10% in 1990 to 32.80% in 2013, and by 2040, it is projected to exceed 50%. In Bangladesh, where the population is expanding and more people are moving into cities, childhood obesity may develop into a significant public health emergency in the upcoming year (Ahmed *et al*., 2024). Moreover, the increasing population will necessitate the construction of new infrastructure such as schools, hospitals, and shopping centers, which will reduce available spaces for children's play and social activities.

Dhaka, Gazipur, Narayanganj, Comilla, and Chittagong, along with other industrialized districts, have ranked high in the developed index, indicating significant urbanization in Bangladesh. Interestingly, higher percentages of overweight and obese children have been observed in these districts, with rates of 3.10% in Dhaka, 3.30% in Gazipur, 2.80% in Narayanganj, and 1.70% in Comilla (Hossain *et al*., 2022a).

Urban areas typically provide better infrastructure, sanitation, drinking water, and access to medical services. However, urbanization can have adverse effects, particularly in low- and middle-income countries (LMICs), where rising population density and limited access to quality healthcare pose significant challenges. In Bangladesh, widespread urbanization has resulted in extremely high population density, making access to quality healthcare more difficult (Rahaman *et al*., 2023). These forms of urbanization significantly impact health and nutrition, particularly maternal and pediatric overweight and obesity, through environmental, social, and cultural changes that drive shifts in dietary patterns. Evidence suggests that this situation is a major contributor to raising childhood overweight and obesity. Childhood obesity may also be affected by demographic, socioeconomic, and parental factors such as household status, parental education, and maternal nutrition. However, these elements can be influenced by the degree of urbanization (Casari *et al*., 2022; Sarker, 2025).

Additionally, dietary changes brought about by urbanization have affected Bangladesh and many other nations worldwide. Fast food and high-calorie beverage consumption have significantly increased recently, especially in metropolitan areas, which may be a factor in the rising prevalence of overweight and obesity in children, adolescents, and adults. Consuming inexpensive oils and local fried foods increases fat consumption, which may impair the control of energy balance and cause weight gain (Casari *et al*., 2022).

Despite the high degree of urbanization, breastfeeding practices in Bangladesh have been declining, are declining, which is concerning since breastfeeding is linked to a lower risk of childhood obesity. Also, urbanization contributes to an epidemiological transition, which occurs alongside the nutritional transition. For instance, a high level of urbanization is linked to a sedentary lifestyle, including watching television and playing on the computer or mobile games. These characteristics are strongly linked to childhood obesity (Casari *et al*., 2022). In Bangladesh, a recent study demonstrated a strong correlation between district-level urbanization and childhood overweight or obesity. Study also found, around 53% more children from highly urbanized areas are likely to be overweight or obese (Hossain *et al*., 2022a).

3.4. Food environment

Urban Bangladeshi school children frequently consume calorie-rich foods, such as fast foods and sugary drinks, while consuming minimal fruits and vegetables. In addition, research has shown that social, cultural, and environmental factors influence the eating habits of school-age children and adolescents. Studies suggest that access to healthy foods, implementation of nutrition and wellness policies, and availability of nutrition education programs, play a significant role in shaping students' eating habits (Hossain *et al*., 2022b). The social atmosphere and peer pressure in schools significantly affect dietary choices. Children's eating habits are influenced by household factors such as available food types, preparation time, the mother's employment and education, parental preferences, and convenience foods. Recent studies highlight that media marketing further encourages unhealthy food options among children and teenagers (Hasan *et al*., 2021).

Bangladesh has implemented school lunch policies to combat household food insecurity and reduce primary school dropout rates, particularly in impoverished areas, through targeted school feeding programs (Hossain *et al*., 2020). Approximately 3 million students in 15,289 primary schools in Bangladesh were served through the School Feeding Program in Poverty Prone Areas until 2022, and the new Government School Feeding Program is expanding further (Global Child Nutrition Foundation, 2024).

Generally, educational institutes in Bangladesh have cafeterias where students select food from available options. Those without cafeterias rely on nearby food shops and restaurants geared toward students, primarily offering fast food, traditional snacks, and sugary drinks, but lacking fresh fruits. A survey of 14 schools revealed

no fresh fruit options in their cafeterias, and only one school had guidelines for providing nutritious food and drinks to children (Hasan *et al*., 2021). However, students' preference is the key driver for not keeping fresh fruit in the school cafeterias. Most students skip breakfast and tend to consume junk food or fast-food during recess, largely due to the proximity of fast-food outlets to schools (Hasan *et al*., 2021).

Beyond the school food environment, using ready-to-use convenient foods, eating out, and using internet apps to purchase food have all become significant components of the family food ecosystem. Children can now effortlessly order food from local fast-food outlets and restaurants via smartphone apps, leading to an increase in the accessibility and consumption of fast and junk food, as parents and children no longer need to venture out to satisfy their food cravings (Qasrawi *et al*., 2025). Mothers' limited time for meal preparation significantly contributes to the increasing consumption of fast food and junk food. Many working mothers struggle to balance household responsibilities with their jobs, leading them to choose quick, prepackaged food options like sausages, nuggets, and bread for breakfasts and snacks. This time pressure also encourages them to allow their children to buy food from school cafeterias (Datar *et al*., 2014).

3.5. The role of mothers

Another key factor contributing to rising childhood overweight and obesity rates in Bangladesh is the low parental awareness of associated risk factors (Figure 1). Mothers, as primary caregivers, significantly influence their children's knowledge, behaviors, and attitudes towards health, impacting their weight status during critical developmental years (Hossain *et al*., 2019). In Bangladesh, more than 85% of mothers are primary caregivers, responsible for planning and preparing family meals (Hossain *et al*., 2020). However, a recent survey revealed that only 35% of mothers with preschool-aged children recognized overweight and obesity as health issues, while nearly 65% were unaware that pediatric obesity is a concern. This lack of awareness may be influenced by the pressing issue of undernutrition, which remains a significant health challenge for children in Bangladesh (Hossain *et al*., 2019).

Most maternal interactions prioritize children's nutrition, particularly in developing nations like Bangladesh, where undernutrition is prevalent and social norms shape perception. This leads to a dual problem of undernutrition and over nutrition, compounded by misconceptions regarding childhood obesity. Children whose weight statuses are underestimated as youngsters often gain the most weight in adulthood. A lexicometric analysis emphasizes the importance of education in accurately identifying children's weight statuses and increasing awareness of overweight and obesity. Therefore, to prevent childhood obesity in Bangladesh, it is essential to prioritize parent-focused educational programs aimed at mothers (Hossain *et al*., 2019).

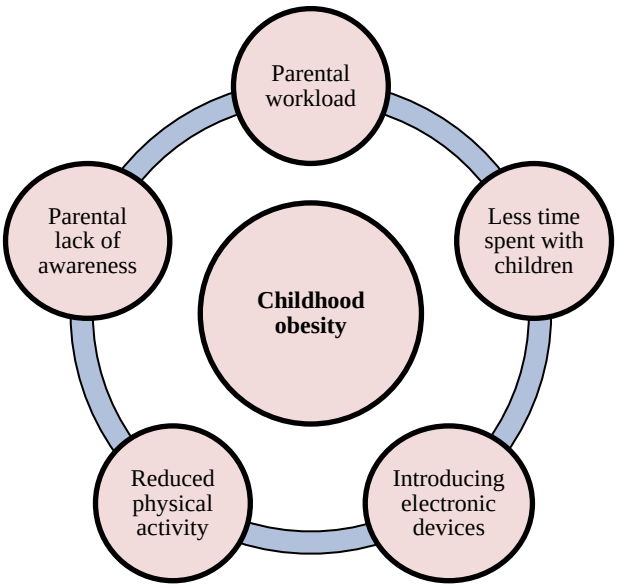

Figure 1. Parental factors contributing to childhood obesity in Bangladesh.

Parents often find it difficult to spend time with their children due to work obligations, leading some mothers to struggle with feeding picky eaters. This frustration may prompt the use of electronic devices such as smartphones and tablets, resulting in children becoming more engaged with online games and television, thus losing interest in outdoor activities (Hasan *et al*., 2020). This lower physical activity results in reduced calorie

burning and increased fat accumulation. Research shows that parental support is positively associated with children's PA, encompassing motivation, resources, supervision during activities, and parental involvement. Additionally, studies suggest that parents can greatly affect their children's PA by modeling an active lifestyle (Hasan *et al*., 2020).

3.6. The high academic load of the children

Parents and educational institutions often prioritize academic results over children's leisure and play. Research identifies three main barriers to play, excessive academic workload (46.90%), lack of open spaces (34%), and security concerns (12%). The academic workload is found to be the most significant impediment preventing children from engaging in sports like football and cricket (Save the Children, 2018). Additionally, parents view physical activity (PA) as a barrier to academic success, believing it exhausts children and impairs their concentration in class, which discourages them from encouraging participation in PA (Hasan *et al*., 2020).

Furthermore, concerns around long academic syllabus highlight challenges in completing curricula within the school year, often resulting in reduced time for physical education and lunch periods. While physical education is mandatory for grades 6 to 10, constraints limit practical activities, leading instructors to focus on theoretical content. Additionally, physical education's lesser emphasis arises from its non-contribution to final grades, with many students also attending coaching centers, limiting their participation in after-school physical activities (Hasan *et al*., 2020).

3.7. Security concern

Security concerns significantly hinder physical activity among children in Bangladesh, with 12% of inactive children reported safety issues. Additionally, parents worry about the risks of kidnapping and theft in open play areas, leading them to restrict outdoor play, particularly when they are preoccupied with work or lack trustworthy babysitters. Moreover, there are fears that children may be exposed to negative influences, such as smoking and drug use, from peers in these environments (Hasan *et al*., 2020).

3.8. The gap between policy and facility

Bangladesh faces a notable gap between policymaking and actual implementation. For example, Section 6.6.1 of the National Children Policy 2011 states that every educational institution must have a playground and sports equipment. Additionally, children's parks and sports facilities must be located where needed to meet community demands, ensuring adequate playgrounds are integrated into town development to promote children's PA and overall development (Bangladesh ECD Network, 2011). However, about 50% of schools in Dhaka do not have playgrounds (Hasan *et al*., 2020). Although schools must hire qualified teachers for physical education and include PA as a curriculum component, more is needed to know how effectively this regulation is enforced (Reliefweb, 2010).

4. Strategies to prevent childhood obesity

Table 2 summarizes findings from reviewed articles about recommended strategies with expected outcomes to mitigate childhood obesity in Bangladesh. It is vital to make sufficient playgrounds and parks available and accessible to promote PA in Bangladesh since the number of playgrounds and parks is becoming scarce. In addition, females may not participate in sports because of a social taboo and may feel unsafe on the streets because of sexual or street harassment. Creating accessible physical activity opportunities that are female-friendly, along with enhanced family and community support and culturally appropriate interventions, can boost physical activity participation among females in Bangladesh. These recommendations are applicable to other low- and middle-income countries (LMICs) where female participation in sports may face social stigma and outdoor PA could be unsafe. Promoting PA for females in LMICs can help narrow the gender gap in PA and support the achievement of the 2025 global PA target (Uddin *et al*., 2020).

Research on sedentary behavior (SB) in Bangladesh is limited, primarily due to its insufficient recognition as an independent health risk factor in national policies. While physical activity (PA) promotion is mentioned in various policy documents, strategies to reduce SB have yet to be incorporated. There is a need for a national PA guideline to encourage physical activity and reduce sedentary behavior. Given the technology-driven lifestyle in Bangladesh and the adverse health effects associated with SB, future research should focus on assessing both SB and PA to pinpoint target populations for effective interventions (Uddin *et al*., 2020). In addition, given that the current physical environment significantly restricts mobility patterns, city and urban planners must reevaluate their role within society (Cesare *et al*., 2019). Structured urbanization must be prioritized, and current

disorderly urbanization should be managed to address the increasing inactivity among people, as sedentarism rises and future jobs demand less physical activity (Cesare *et al*., 2019).

In addition, governments, international organizations, civil society, and the private sector should address obesity by restricting the production and marketing of unhealthy foods while enhancing access to unprocessed foods. A sustainable food system integrated with healthy diets is vital for long-term health. Effective measures are needed to make nutritious foods more accessible and to limit harmful options, especially by curbing unethical marketing to low-income and vulnerable populations. The food industry often misuses the concept of energy imbalance to challenge regulations aimed at reducing high-energy food consumption, suggesting that physical activity can offset this imbalance; however, this argument should be viewed critically considering the ongoing obesity crisis (Cesare *et al*., 2019).

Table 2. Recommended strategies to prevent childhood obesity in Bangladesh.

Area	Recommended strategies	Expected outcomes
Physical activity and built environment	Increase playgrounds Design female friendly physical activity spaces	Increased physical activity Reduced sedentary behavior Lower screen time Improved health
Food setting	Restrict marketing on unhealthy foods Ensure healthy food options in schools	Decreased consumption of energy-dense foods
Parental education	Awareness program for parents Counseling about healthy feeding practices	Improved dietary habits Better weight management
School-based initiative	Healthy school meal programs Reinforce physical exercise curriculum Reduce academic load	Increased regular activity Healthier school environment
Policy implementation	Monitor built environment requirements Strengthen intersectoral coordination	Enhanced health-friendly infrastructure

Overall, increasing awareness among children about the health risks of fast food and the benefit of nutritious eating is essential in combating childhood obesity. Access to healthy foods should be improved in schools and food outlets. Implementing healthy school meals can help mitigate obesity issues. In Bangladesh, maternal awareness is vital, as mothers influence family nutrition and need to be educated on healthy diets and obesity consequences. Parents should encourage physical activities and minimize academic stress. Bridging the gap between policy and implementation is critical to preventing an obesity epidemic in Bangladesh.

5. Conclusions

Childhood obesity is a growing public health crisis driven by complex interactions among urbanization, physical inactivity, sedentary lifestyles, dietary shifts, socioeconomic, and environmental factors. Moreover, limited access to playgrounds, high academic pressures, working mothers time constraints, and the widespread availability of calorie-dense foods exacerbate the problem. Therefore, effective prevention requires a multifaceted approach, including promoting physical activity, improving access to healthy foods, increasing maternal and community awareness, and bridging gaps between policy and implementation. Such coordinated efforts across families, schools, and policy makers are essential to curb the rising trend of childhood obesity and mitigate its long-term health consequences.

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Data availability

It is a review article, and all the data analyzed are available in the referenced publications.

Conflict of interest

None to declare.

Authors' contribution

Abdullah Al Zaber: conceptualization, investigation, review, writing original draft, editing, validation; Ummay Soumayia Islam: investigation, review, editing, validation; Md. Arif Mahmud: review, editing, validation; Mesbah Uddin Talukder: review, validation; Gábor Bányai: supervision, review, validation. All authors have read and approved the manuscript.

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