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The Role of Social Media in Unhealthy Food Consumption and Childhood Obesity: A Review of Current Evidence

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ABSTRACT: Social media has become an integral part of children's daily lives. In 2021, the number of global social media users reached approximately 4 billion people. Such personalized and borderless social media platforms are changing people's eating habits through news, posts, and advertisements. Children and adolescents are at a unique life stage that makes them highly sensitive to social influences. This makes them especially vulnerable to marketing strategies on digital media. In fact, the behavior of children and adolescents is greatly influenced by social media and its various users, including friends, influencers, and marketers. Commercial messages are incorporated into gameplay in "advergaming," making it difficult to distinguish between entertainment and persuasion. Concurrently, the global increase in childhood obesity coincides with the marked increases in the food and beverage industry's budget for marketing aimed at children. Nowadays, food and beverage companies can utilize marketing trends that pass for entertainment to reach children anywhere and at any time. Since most of the social media platforms do not fully regulate the promotion of unhealthy meals, the issue is getting worse. Children and teenagers are at risk of being exposed to unhealthy food marketing on social media platforms due to the absence of comprehensive government regulation. Hence, children and young adults are now bombarded with food promotions on these platforms. In this context, the General Authority for Statistics reported that 98.43% of Saudi youth use social media, highlighting the need to study how the use of these platforms and exposure to food marketing affect food consumption patterns and weight gain among this age group (from 5 to 18 years old).

INTRODUCTION

Childhood overweight, obesity, and related diseases are among the most significant public health challenges of the 21st century worldwide. According to the World Health Organization (WHO), obesity is defined as abnormal or excessive fat accumulation. The body mass index (BMI) is considered to be 30 kg/m² for adults (WHO, 2024). For children, age needs to be considered; therefore, the reference BMI is determined using growth curves developed by the WHO. The WHO defines obesity among children under 5 years of age as a weight-for-height or a BMI for age over 3 standard deviations above the median of the WHO Child Growth Standards. Children and youth aged 5–19 years are considered obese when the BMI for age exceeds 2 standard deviations above the WHO reference median (WHO, 2024).

Childhood is the most critical stage for developing food habits, which surely affects later health concerns (Birch, Savage, & Ventura, 2007). Obesity, other metabolic problems, and eating disorders are consequences of the transmission of unhealthy eating behaviors between generations (World Health Organization, 2021a). The family is regarded as the major teacher in the subject of eating behaviors, as studies show a link between children's food preferences and their parents' preferences (Savage, Fisher, & Birch, 2007). However, it is not only parents who are modeling this behavior; technological advancement and broad digitalization of food have become a major threat (Khajeheian et al., 2018). Unfortunately, many studies around the world show

that children and adolescents use social media for up to several hours every day (Bozzola et al., 2022; Scott, Biello, & Woods, 2019; Khajeheian et al., 2018).

An increasing number of reviews and experimental and observational research indicate that social media frequently exposes children and adolescents to marketing of ultra-processed and fast foods, primarily via advertisements, influencers, and peers (Lafontaine, Hanson, & Wild, 2025; Mc Carthy, Vries, & Mackenbach, 2022). This marketing influences children's requests, choices, and consumption; advertisements of unhealthy food and beverages on social media and in advergames exacerbate pester behavior, preference for advertised items, and actual consumption of harmful snacks and drinks (Qutteina et al., 2019). Research links increased engagement with vlogs or promotional content and increased consumption of sugary drinks and other unhealthy foods to a higher risk of childhood obesity (Ibrahim et al., 2025). Randomized trials investigated the impact of social media influencer marketing of healthy and unhealthy foods on children's food consumption. The study showed a significant increase in total consumption (448.3 calories) and specifically in the consumption of unhealthy snacks (388.8 calories) among children who watched influencers promoting unhealthy snacks, compared to children who watched influencers promoting non-food products (357.1 and 292.2 calories, respectively) (Coates et al., 2019).

Several long-term health problems, such as diabetes, high cholesterol, hypertension, and heart disease, are linked to obesity (Raddadi et al., 2019). Additionally, obesity has been associated with decreased productivity and increased unemployment rates, which affects economic and social conditions (Blüher, 2019). Given these problems, the prevalence of obesity and its contributing variables have been the subject of numerous Saudi Arabian studies (Aljefree and Alhothali, 2022; Al-Raddadi et al., 2019). Inadequate physical exercise and the promotion of unhealthy foods and beverages are two of the main causes of the obesity pandemic (Keith et al., 2007). Therefore, this study aims to investigate the relationship between obesity and the frequency of use of social media platforms and exposure to food and beverage marketing through them, with particular emphasis on any potential relationship to the consumption of unhealthy foods.

1. EPIDEMIOLOGY OF CHILDHOOD OBESITY

Obesity among children and adolescents has increased significantly worldwide from 1.7% for girls and 2.1% for boys, respectively, in 1990 to 6.9% and 9.3%, respectively, in 2022 (Wang et al., 2025). In 2022, the number of overweight children and adolescents aged 5 to 19 years exceeded 390 million, including 160 million who were obese. While overweight children under the age of 5 reached 35 million in 2024 (WHO, 2024). WHO published the results of the sixth round of its Childhood Obesity Surveillance Programme (2022–2024), reporting that 25% of children aged 7 to 9 years are overweight and obese, and 11% are obese (WHO, 2025). Global childhood obesity has skyrocketed, with estimates suggesting that the number of obese children will reach 254 million by 2030 (WHO, 2021).

The prevalence of obesity among children and adolescents in Saudi Arabia over the last 24 years was reported in a systematic review by Adam et al. (2024). The study included participants aged 2 to 19 years, and the prevalence of overweight ranged from 5% to 29%, while obesity ranged from 3.8% to 49.7%, according to the Centers for Disease Control and Prevention (CDC) criteria. Another nationwide population-based retrospective study included children and adolescents aged 2–19 years who visited any facility within the National Guard Health System across Saudi Arabia between 2016 and 2021. Overall, about 11.2% of the population was overweight and 9.4% was obese, according to the Saudi growth reference for children and adolescents. The prevalence of obesity was highest among children aged 2–6 years (12.3%) (AlEnazi et al., 2023).

2. HEALTH AND ECONOMIC BURDEN OF CHILDHOOD OBESITY

Childhood obesity is associated with personal, societal, and economic challenges for children and their countries. Children with obesity are at increased risk of developing cardiometabolic abnormalities, including insulin resistance, type 2 diabetes mellitus, hypertension, dyslipidemia, and non-alcoholic fatty liver disease (Sypniewska, 2015). The economic consequences of childhood obesity extend beyond direct medical costs to include indirect economic consequences, which may include labor market costs such as absenteeism and the resulting decrease in productivity (Ling et al., 2023). A meta-analysis study quantitatively evaluated the worldwide economic burden of childhood overweight and obesity in comparison with healthy weight. The increased annual total medical costs were \$237.55 per capita due to childhood overweight and obesity (Ling et al., 2023). In the United States, the incremental lifetime direct medical costs for a 10-year-old child with obesity versus the one with a healthy weight ranged from \$16,310 to \$19,350 (Finkelstein, Graham, & Malhotra, 2014). Furthermore, the added lifetime medical costs related to obesity among fifth graders in the US were estimated to be \$25 billion higher than those who maintained a healthy weight during both childhood and adulthood (Levitt, Jackson, & Morrow, 2016). A German study reported that the lifetime costs

increased by 3.7 times for men and five times for women who were overweight or obese during childhood compared to children of healthy weight (Sonntag et al., 2015). Unfortunately, childhood obesity is projected to raise direct and indirect annual costs to US\$13.62 billion and US\$49.02 billion, respectively, by 2050 (Ling et al., 2023).

3. CURRENT CHALLENGES IN CHILDHOOD OBESITY PREVENTION

Children are constantly exposed to persuasive food advertisements across multiple media channels, including television, video game platforms, and social media. Such marketing practices can shape food preferences, increase purchase requests, and encourage unhealthy dietary habits from an early age, to the point that providing energy-dense, nutrient-poor foods has become one of the major challenges in the field of obesity prevention (US Federal Trade Commission, 2019). Evidence suggests that digital marketing has become particularly influential because of its interactive and often less-regulated nature (Herbst, 2024). A comprehensive report from the University of Connecticut Rudd Center for Food Policy and Obesity states that food marketing is increasingly relying on integrated marketing campaigns and promotion across various platforms, rather than television, to spur children's demand for products (Radesky et al., 2022). Food ads are increasingly focusing on foods and drinks that are high in calories and low in nutrients, to the point that fruit and vegetable consumption has declined, increasing the risk of obesity (Thai et al., 2017; Pearson and Biddle, 2011). The global food environment increasingly promotes the consumption of ultra-processed foods, sugar-sweetened beverages, and fast foods through aggressive marketing strategies. Of the 590 endorsements made by the 163 celebrities in the sample, food and beverage was represented in 18% of ads. 71% of the 69 nonalcoholic beverages promoted sugary drinks, and 80.8% of the 26 endorsed foods promoted high-calorie, low-nutrient foods (Bragg et al., 2016).

Unhealthy food advertising among 13-17-year-olds is also correlated with the development of media-driven norms that overshadow healthy family values (Beaudoin, 2014). For example, school-aged children who viewed ads for influencers promoting unhealthy foods showed a significant increase in intake of unhealthy snacks compared with children who viewed influencers promoting nonfood items (Coates et al., 2019). An increase in calorie consumption was also observed among children aged 7 to 10 who play advertising games (Folkvord et al., 2014). Another significant challenge is the sedentary lifestyles among children and adolescents due to increased screen time associated with smartphones, tablets, computers, and social media use, which has contributed to reductions in physical activity and increased sedentary behavior (Edwards and Larson, 2022). Furthermore, screen exposure is frequently accompanied by mindless snacking, creating a dual pathway that may contribute to excessive weight gain (Marsh, Mhurchu, & Maddison, 2013).

4. OVERVIEW OF SOCIAL MEDIA USE AMONG CHILDREN AND ADOLESCENTS

Rapid advances in digital technology, widespread smartphone ownership, and increased internet accessibility have transformed how young people communicate, obtain information, and engage with entertainment. It was discovered through studies conducted in the US that almost all adolescents between the ages of 13 and 17 possess a smartphone (Anderson & Jiang, 2018). Consequently, social media such as TikTok, Instagram, YouTube, Snapchat, and Facebook has become an integral part of the daily lives of children and adolescents worldwide. According to the findings of a recent survey conducted among adolescents aged 9–17 in 19 European nations, more than half of them use social media on a daily basis, and about 16% of them give preference to communicating with their peers online rather than face-to-face (Smahel et al., 2022). Globally, the "Digital 2022" study indicates that 4.62 billion people regularly use social media (Ozkan et al., 2022).

The prevalence of social media use is also exceptionally high in the Middle East, including Saudi Arabia, where internet connectivity and smartphone penetration rates are among the highest globally. Almost the entire population of Saudi Arabia uses social media daily, with the number of users reaching 35.33 million as of January 2024 (Saudi Market Research, 2026). A study involving Saudi adolescents reported extensive media use among individuals aged 11–18 years and demonstrated significant associations between media exposure and dietary behaviors, emphasizing the growing importance of digital environments in shaping health-related choices among young people (Mumena et al., 2023).

With the rapid proliferation of social media platforms among adolescents, multiple adverse health and behavioral outcomes appeared, including diminished academic performance (Van Den Eijnden et al., 2018) and disordered eating (Holland & Tiggemann, 2016). Social media platforms are highly visual environments in which food images and videos are frequently displayed. Such features contribute to high levels of user engagement and may increase the frequency with which children encounter commercial food marketing. In this context, most customers read reviews and images on social media before visiting a restaurant; thus, restaurants have embraced the value of social media (Lepkowska-White, 2017). Social media use by

restaurants increases sales, market share, and business valuation, resulting in creating a more crowded and competitive market (Kim et al., 2015). Research also points to the importance of Instagram in exploring new horizons of children's and adolescents' food preferences, to the extent that many restaurant owners have modified their menus to prioritize visual appeal to ensure their dishes stand out on Instagram (Philp, Jacobson, and Pancer, 2022).

5. MECHANISMS LINKING SOCIAL MEDIA EXPOSURE TO UNHEALTHY FOOD CONSUMPTION

Unlike traditional forms of advertising, social media combines visual content, peer interaction, personalized algorithms, and influencer marketing to create a highly engaging digital environment (Gündüzyeli, 2025). Social learning theory is one of the most widely accepted explanations for the influence of social media on eating behaviors. Children and adolescents frequently observe celebrities and influencers consuming and endorsing specific foods on social media platforms. Repeated exposure to these behaviors can normalize unhealthy eating patterns and increase the likelihood that young users will imitate similar dietary choices (Peters, 2025). Consequently, children exposed to influencer-promoted unhealthy snacks consume significantly more calories than those exposed to non-food content (De Jans et al., 2020). Peer-generated content can further reinforce unhealthy dietary practices. Many studies have confirmed the role of peers in unhealthy food preferences of children. An experiment shows that if there are fast food restaurants near the school, teenagers are more likely to be influenced by their peers and have a preference for unhealthy food (Calvert, Dempsey, & Povey, 2021). It was reported that children in middle school are more likely to be affected by their peers' unhealthy food preferences (Kim, Chen & Cheon, 2019).

Exposure to appetizing food cues can stimulate neural reward pathways associated with hunger, craving, and food-seeking behaviors. Research in nutritional neuroscience indicates that visual food stimuli activate brain regions involved in reward processing, including areas associated with motivation and pleasure, thereby increasing the desire to consume palatable foods (Rolls, 2016). Experimental studies have shown that viewing digital food advertisements can increase immediate caloric intake among children and adolescents, suggesting that food-related social media content can directly influence eating behavior through cue-induced craving mechanisms (Boyland et al., 2022).

Emotional eating practices have also been linked to social media use. Social media is often used by kids and teenagers when they're bored, stressed, lonely, or experiencing emotional pain. For instance, social media usage has surged during the COVID-19 pandemic (Gao et al., 2022). The general public has reportedly experienced an upsurge in stress, anxiety, and depressive symptoms throughout the pandemic (Moreno et al., 2020), leading to significant changes in people's food habits, as well as having a direct impact on mental health (Eşer Durmaz et al., 2022). During these emotional states, exposure to food-related content may promote comfort eating and increase the intake of unhealthy snacks.

CONCLUSION

Evidence reviewed in this article demonstrates that social media platforms are important channels through which young people are exposed to extensive marketing of energy-dense, nutrient-poor foods and sugar-sweetened beverages. Through influencer endorsements, targeted advertising, peer interactions, and visually appealing food content, social media can influence food preferences, increase cravings, encourage unhealthy food consumption, and contribute to excess caloric intake. Consequently, addressing the digital food environment should be considered a priority in obesity prevention efforts. Based on the study findings, we call for relevant policy actions that address current social media marketing strategies targeted at children and adolescents.

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