

Digital Marketing of Ultra-Processed Foods to Children & Adolescents



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What are Ultra-Processed Foods?

According to the NOVA food classification system, ultra-processed foods (UPFs) are defined as foods that are formulated from ingredients that are almost exclusively used for industrial use and contain little to no whole foods.^{1,2} Many of these ingredients are used to lengthen the longevity of and improve the look, feel, or taste of the UPFs to appeal more to their target audience.¹ Increased or higher UPF consumption is associated with less consumption of unprocessed foods which contain many of the nutrients that UPFs lack.³⁻⁴ Furthermore, UPFs tend to have higher levels of added sugars, saturated and trans fats, and sodium than recommended.⁵

Excess consumption of these nutrients is linked to increased risks of different health issues:

- Added Sugars: obesity, type 2 diabetes, cardiovascular disease, and cancer.^{4,6,7}
- Saturated and Trans Fats: cardiovascular disease (CVD), CVD death, and obesity.⁸
- Sodium: hypertension and CVD.⁹

With respect to chronic diseases in children, overweight/obesity is of major concern. The childhood obesity rate has steadily risen over the past 45 years, with a 10-fold increase globally.^{2,6} Along with this increase, the percentage of youth's diets composed of UPFs has also risen, especially among Hispanics and African Americans.³ In the US, UPFs comprise the majority of their energy intake, climbing from 61.4% to 67.0% from 1998 to 2018.³ Given obesity's influence on other non-communicable diseases, it is important to identify the factors leading to overconsumption of UPFs to work toward preventing further detriment to children's health.

For more information on UPFs, please see:
Ultra-Processed Foods: A Threat to Public Health.



Ultra-Processed Food Marketing

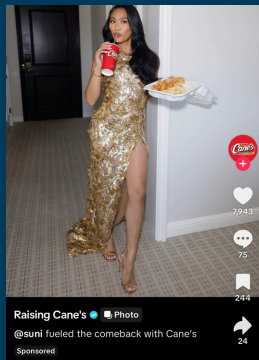
Environmental, social, cultural, and genetic factors are associated with the ongoing health problems and the obesity epidemic. Food marketing of UPFs is a significant contributor to the rise of unhealthy food consumption.¹⁰ Traditional marketing has had an impact on food intake, but the use of digital technologies has amplified this impact even further.¹⁰⁻¹¹

Digital marketing & youth

Digital marketing refers to promotional activities delivered through digital media, such as phones, tablets, laptops, and other devices, which seek to maximize their impact using creative and/or analytical methods.¹² What distinguishes digital marketing from traditional marketing is that it is interactive and accessible, which allows users to engage with content in real time and access it through multiple devices. Due to this, digital marketing's reach and impact have grown across the population, particularly among young people.

Younger generations have grown up in a time when digital media is constantly available, making them vulnerable to its influence due to both frequent exposure and their stage of neurocognitive development.¹³

UPF's marketed in platforms



Tiktok: Olympic gymnast Suni Lee partnered with Raising Cane's, a fast-food restaurant. This type of marketing can mislead consumers by associating unhealthy food with athletic success, promoting products that contribute to poor diet quality.



Instagram: Singer Benson Boone partnered with Crumbl Cookies to promote his new single. This type of marketing blurs the line between entertainment and advertising by using celebrities to draw attention to their product being UPFs.

Measures of exposure & prevalence of advertising

According to studies, 60% of children from the UK and 43% from the US ages 8-12 own mobile devices, which shows that from early years they are given a tool for constant access.¹² The growth of digital marketing is also linked to widespread use of social media platforms that often promote unhealthy food. Youth are regularly exposed to this type of marketing; One study conducted in Canada found that a total of 226 food marketing instances were recorded across participants, with half of its participants aged 6-17 years exposed to at least one. On average, children saw about 2 ads and teenagers about 2.5 ads within 30 minutes.¹⁴

How Ultra-Processed Foods Are Being Advertised Digitally

a. Digital media overview

Digital media functions as an excellent tool for reaching consumers, particularly children and adolescents, and influencing their food choices. Children and adolescents are more susceptible to digital marketing due to their stage of cognitive development, including limited critical thinking, an underdeveloped ability to recognize persuasive intent, and weaker impulse control.¹³⁻¹⁵

Digital marketing of ultra-processed food can harm children and adolescents, causing negative physical, mental, and emotional health consequences.^{13,15} Seeing these ads makes kids and teens more likely to eat unhealthy foods like fast food, sugary drinks, and salty or sweet snacks. Over time, this can lead to poor eating habits, weight gain, and a higher risk of health problems like obesity, type 2 diabetes, and heart disease. It can also affect their mental and emotional health, leading to issues like low self-esteem, poor body image, and unhealthy relationships with food.¹²⁻¹⁴

Digital media platforms (e.g., Instagram, TikTok, Facebook, YouTube) function fundamentally differently from traditional media (e.g., television, radio, newspapers) in how advertisements are created, delivered, and received.^{12-13, 15}

Digital platforms allow users to engage with advertisements by giving likes and comments, unlike traditional media, which offers limited interaction. Digital platforms are also dynamic, interactive, and constantly updated, allowing brands to test and adjust campaigns in real time using the users' data on social media.

Digital platforms collect real-time user data (e.g., browsing behavior, location, viewing time) and use it to deliver highly targeted advertisements. The digital platforms have an algorithmic system that can promote specific types of content and ads based on users' behavior and preferences, keeping them continuously engaged. Children tend to get more UPF advertisements per hour than adolescents.^{12, 16-17}



The main UPF marketing strategies used on digital platforms are designed to specifically engage and persuade children and adolescents to consume the advertised product. They utilize influencers, famous characters, celebrities, and sports personalities to better engage with the audience, making the young people more susceptible to purchasing the advertised product.¹²⁻¹³

b. Marketing tactics in digital media

Influencers: Brands collaborate with influencers to promote ultra-processed foods through content that blends entertainment and advertising. The influencers make use of a natural advertisement style, where they place the advertisement in the middle of their regular content.¹⁵⁻¹⁷ These contents often include product placement in lifestyle videos and posts.¹⁵ This method can be more successful than the traditional marketing media's tactics since it has been shown that people may not recognize they are viewing an advertisement and might be more susceptible to buying the product being promoted by the influencers.¹⁵

Character,celebrity, or sports endorsements: Companies use well-known figures, including animated characters, celebrities, and athletes, to promote UPFs. These endorsements are often embedded into youth-oriented content. The use of these familiar figures can strengthen the feelings of social identity by reinforcing cultural norms and values. This endorsement increases the sense of belonging, making this marketing tactic effective toward the target audience^{17,18}. For example, kids might think that eating a certain snack will make them more like their favorite athlete or cartoon character. This kind of marketing plays into their need to fit in and feel accepted. It also makes eating unhealthy foods seem normal and even cool. Because of this, these endorsements can shape what kids like, what they ask their parents to buy, and what they eat, often without them realizing that it's all part of advertising.^{17,19}

Economic advantages: Digital platforms offer financial incentives such as app-only coupons, flash sales, free delivery, and loyalty rewards that make UPFs more affordable and appealing. These types of promotions are often timed to align with when children and adolescents are most active online (e.g., after school or late evening).^{15,16}

Social media engagement/post features: UPF brands use interactive features like hashtags, polls, viral challenges, and user-generated content to boost engagement. These tactics turn marketing into a social activity and increase brand visibility through peer-to-peer sharing.^{15,17,19}

Advergaming: UPF branding is embedded directly into online games, apps, and virtual environments targeted at children. These “advergaming” promote repeated exposure to branded content in playful settings, reinforcing positive associations with the product.^{15,16}

c. Digital vs. Traditional

Topics	Digital Media	Traditional Media
Audience Targeting	Customized ^{15, 16}	Broad ^{15, 16}
Content Delivery	Personalized ^{15, 16}	Fixed ^{15, 16}
Time of Exposure	On-demand ^{15, 16}	Pre-determined ^{15, 16}
Engagement Style	Interactive ^{15, 16}	Passive ^{15, 16}
Influencer Integration	Highly embedded ^{15, 16}	Limited ^{15, 16}
Format Flexibility	Adaptable ^{15, 16}	Sporadic ^{15, 16}
Content Virality Potential & Social Pressure	Highly ^{15, 16}	Minimal ^{15, 16}
Ad Recognition	Embedded ^{15, 16}	Identifiable ^{15, 16}
Real-Time Data Collection & Feedback	Immediate ^{15, 16}	Delayed ^{15, 16}

Consequences for Digital Marketing of Ultra-Processed Foods on Youth

Physical Health

Digital marketing of UPFs also has consequences for physical health. Children and adolescents who are exposed to persuasive, targeted food advertising are more likely to develop unhealthy eating patterns that result in immediate and long-term problems.

Some consequences include:

- Repeated exposure to ads leads to immediate behavioral responses such as cravings and impulsive purchases.²⁴ The promotion of calorie-dense and nutrient-poor foods, digital marketing contributes to nutritional imbalances that impact both physical and cognitive development^{10,24}
- Digital marketing of UPF leads to increased consumption²⁵, which is linked to poor diet quality and excess intake of sugar, fat, and sodium. With time these dietary patterns contribute to obesity, which is a risk factor for developing Diabetes type 2 and hypertension.¹³

Mental Health

Digital marketing of ultra-processed foods (UPFs) plays a significant role in shaping behavior and mental health, especially among children and adolescents. Repeated exposure to UPF ads on digital platforms like social media, gaming apps, and video streaming sites can glamorize unhealthy products, by using emotional appeal and personalization to increase engagement, which can normalize unhealthy eating habits, increase cravings, and lead to increased consumption of UPFs.

Higher intake of UPFs has been linked to negative mental health outcomes:

- Increased UPF consumption is related to depression, anxiety, and common mental disorders. Constant exposure to ads that promote UPFs contribute to higher intake of nutrient poor foods which has been linked to poor mental health outcomes.²²
- Marketing strategies can portray UPFs as rewarding and can encourage emotional eating. This can contribute to addictive eating behaviors and a reliance on UPFs to cope with stress or other factors.²²
- Digital marketing drives UPF intake, which normally includes high sugars, unhealthy fats, and additives. These ingredients are associated with biological mechanisms like inflammation, oxidative stress, and disruption of the gut-brain axis, all of which can impact negatively brain function and emotional regulation.²³

Ethical concerns

The digital marketing of UPFs raises ethical concerns, particularly regarding children, since they are especially vulnerable due to their developmental stage¹². Marketing strategies exploit children's cognitive and emotional vulnerabilities, leading to long-term health consequences without informed consent. These practices are considered unethical because they prioritize profit over public health and manipulate vulnerable audiences that have limited ability to critically assess or resist content.^{10,12}

Concerns include:

- Impediments to children's ability to resist the influence of unhealthy food marketing. Repeated exposure to food marketing in the form of entertainment or rewards creates positive associations with brands and products.¹⁹
- Adolescents are vulnerable to the effects of unhealthy food marketing due to their sensitivity to rewards, influence of peers, and their reduced ability to inhibit impulsive behavior and resist social pressures.¹⁹
- Marketing to young children is unfair since those under 12 do not have the cognitive ability to recognize the persuasive effects of marketing.¹⁹
- Children and adolescents report positive attitudes and high levels of engagement with food marketing.¹²
- The use of influencers makes UPFs marketing more effective, authentic, and relatable.²⁶
- Youth have growing autonomy and spending power, making them prime targets for manipulation.¹²

Digital Marketing Policies

To counter the considerable influence of digital marketing on youth's health and growth, some countries have enacted or plan to enact policies to limit digital marketing to youth. Unfortunately, there are very few countries yet that explicitly regulate newer digital food marketing aimed at children, leaving policies open to loopholes. With newer tactics and platforms becoming more prevalent, it is important that countries put their best effort forward to counteract these marketing strategies.

For the countries with policies that regulate digital marketing, there is no consensus between countries on what age qualifies someone as a child. Policies like the Children's Online Privacy and Protection Act (COPPA) in the US and the Consumer Protection Act in Quebec classify children as under the age of 13.^{27, 28} On the other hand, Portugal's Law No. 30/2019 protects children under 16 and Norway's "Regulations Prohibiting the Marketing of Certain Food Particularly Aimed at Children" law goes even further, protecting all children under 18.^{29, 30}

The World Health Organization recommends that policies regulating the marketing of foods high in saturated fat, added sugar, and sodium define children as under 18 years old, as studies have shown that policies recognizing only children under 13 have more unwanted than wanted effects on the power and exposure of food marketing.³¹ Inconsistencies among countries leave companies with more leeway to market their unhealthy products to those vulnerable.

For the most part, current food marketing policies apply marketing restrictions to foods that are high in saturated and trans fats, salt, and added sugars or energy dense, nutrient poor foods — many of which are UPFs — but no law has yet specifically targeted food based on degree of processing.^{16, 29, 30, 32, 33} Certain countries require warning labels on unhealthy foods and beverages (Front-of-Package Labeling) and use the nutrient thresholds that require warning labels to inform whether a food item can be marketed to children or not.

- Ley 20.606 in Chile: products with at least one warning label cannot be advertised to children under 14.¹⁶
- Ley No. 30021, Law to Promote Healthy Eating for Children and Adolescents in Peru: HFSS foods can be advertised to children, but items with warning labels must have the warning labels shown in the ad and at a certain size.¹⁶
- Law N 27,642 "Promotion of healthy eating" in Argentina: Prohibits advertising of items with one or more warning labels to children and adolescents under 16 years of age.¹⁶
- General Health Regulatory Code on Advertising in Mexico: Prohibits marketing of packaged products with at least one octagonal warning label from using celebrities or characters or interactive elements, like digital downloads, to appeal to children.¹⁶

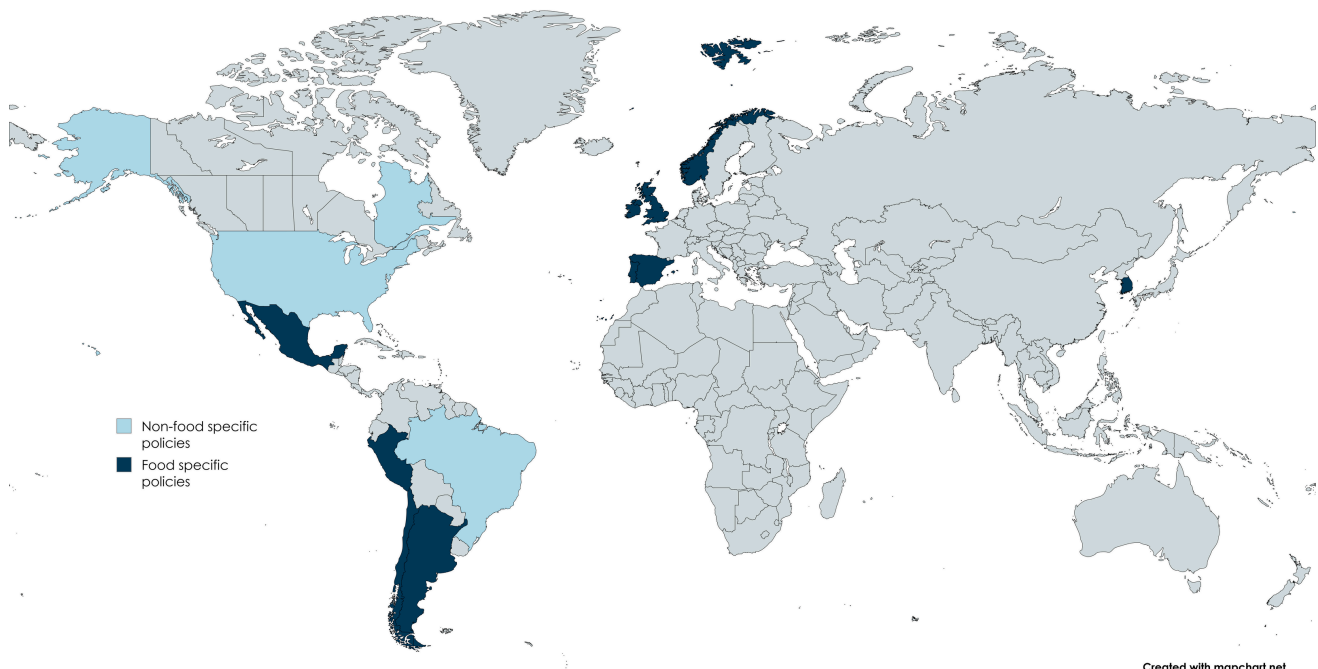
Other policies go further than regulating food and beverage marketing to restrict all advertising to children:

- Consumer Protection Act in Quebec: restricts all commercial advertising to children under 13 years of age, including digital marketing.²⁸
- Resolution No. 163, 2014 in Brazil: resolution banning advertising of all types of products that attempt to appeal to children and adolescent, which includes all children under 18.¹⁶

Global Differences in Digital Marketing Policies

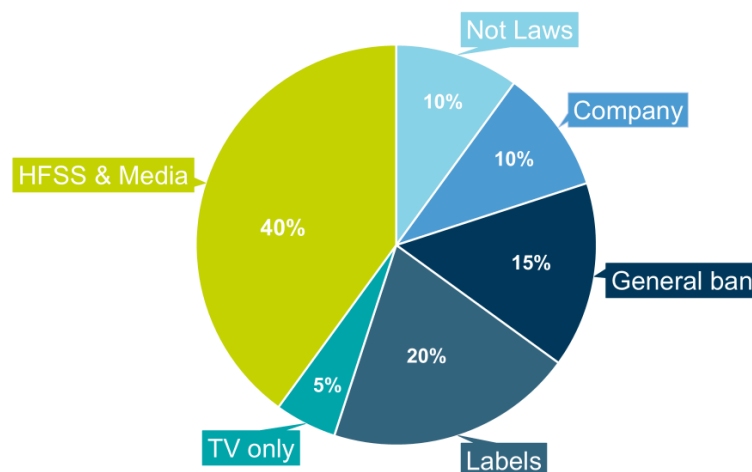
Most of the digital food marketing policies are found in North and South America and Europe, showing a disparity surrounding Asian and African countries. Though there were two food marketing policies found in Asia, the Special Act on Safety Management of Children's Dietary Lifestyle in South Korea focuses on TV advertisements and includes little digital marketing regulations, while the Act Governing Food Safety and Sanitation in Taiwan only regulates TV.^{32,33}

In Africa, there are no digital marketing policies in place, likely due to relatively newer growth in internet and mobile phone usage.³⁴ In fact, many countries in Africa are looking to expand digital marketing to improve the region's economy, leaving little incentive to put policies in place that restrict marketing.^{34,35}



World map displaying the countries with policies that regulate to some extent digital marketing of food and non-alcoholic beverages to children.

Different Types of Bans in Policies Addressing Unhealthy Food Marketing to Youth



A total of 20 policies or bans related to food marketing are represented in this chart. “Company” refers to company-led initiatives to limit food marketing. “General ban” refers to policies that ban advertising to children but are not specific to food. “Labels” refers to policies mandating warning labels on certain foods, which in turn govern marketing restrictions. “TV only” refers to policies restricting food marketing to youth on television. “HFSS & Media” refers to policies that restrict marketing of foods high in fat, sugar, or sodium to youth. “Not laws” refer to restrictions that are not enforced by a governing body.

Recommendations

For countries that do plan to implement digital marketing laws, the World Health Organization has recommendations for how countries should enact them and what they should include¹⁵:

- Acknowledge the government’s duty to protect children online
- Extend offline protections online
- Define legal age and define marketing towards children
- Draw on existing legislation, regulation, and regulatory agencies
- Develop appropriate sanctions and penalties
- Devise international responses/strategies

Following these recommendations should allow countries to have more consistent regulations, enhancing children’s health across the world.

Research limitations on UPF regulations

Digital marketing changes constantly

Digital marketing changes quickly, so studies can become outdated. This is because social media and apps keep changing how they look and what trends are popular. An ad that works well on one app might not work on another, since the users and the way content is made can be different.³⁻⁵

Hard to measure exposure

It is hard to know exactly how much digital marketing young people see because it happens on many platforms and is personalized. It is also hard to measure how many hours and advertisements children and adolescents are exposed to by their age.^{1,2,6}

Not enough proof of cause and effect

Most studies just observe what happens at one time, and more research is still needed to understand the health consequences of digital marketing, so it is still being studied if digital marketing causes changes in diet or health.¹³ However, there is a study that found evidence of a causal relationship between children's exposure to food marketing and higher rates of obesity.^{12,14}

Focus on short-term results

Research usually looks at immediate effects, like how well people remember a brand or if they want to buy something, rather than long-term health outcomes like eating habits or obesity.¹⁵

Limited focus on certain groups:

- The majority of research is done in high-income countries and in children and adolescents, so we know less about how the digital market affects young people in less wealthy countries or from different backgrounds.^{14,16} Culture can affect how young people see and respond to ads. For example, what foods are considered normal, how media is used, or how much trust people place in advertising.¹² Socioeconomic status also plays a big role: Children from lower-income families may be more exposed to online ads, may not have access to healthier food choices, and may be more influenced by marketing that promotes cheap, unhealthy foods.^{9,10}
- Researchers studying food marketing often define it in different ways; for example, some focus only on TV ads, while others include online content.^{13, 15} They also use different tools and approaches to measure how much marketing people are exposed to and how it affects their behavior, such as tracking screen time, analyzing ad content, or using surveys and experiments. Because of these differences, it can be hard to compare findings or understand the full impact of marketing across different studies.^{15,17}

Policy Limitations

Even though more people are recognizing how harmful digital food marketing can be for kids, the rules to protect them still have a lot of gaps. In many countries, there are no clear laws that cover newer types of digital marketing, such as ads on social media, YouTube videos, or influencer content, so companies often find ways to get around the rules.^{27,30} Even when there are laws, countries do not agree on who counts as a child. Some protect kids under 13, like in the U.S. and Quebec, while others, like Portugal or Brazil, extend protections up to age 16 or 18.^{28,19} This means a teenager might be protected in one place but not in another. Most policies focus only on the amount of sugar, salt, or fat in a product, not how processed it is. Thus, many ultra-processed foods still get advertised, just by tweaking the ingredients. Some countries do require warning labels on unhealthy products, and if a food has one, it cannot be marketed to kids, but even then, not all products are labeled, and some companies find ways around the rules.²⁷ A few places, like Quebec and Brazil, take stronger action by banning all ads aimed at kids, not just food-related ones.^{28, 30} But overall, there is still no global agreement or shared standards, which makes it easier for companies to keep targeting kids, especially online.

Conclusion

The digital marketing of UPFs has become a growing threat to children, both mentally and physically, by exploiting their developmental vulnerabilities and shaping unhealthy habits. While some countries have started to regulate food marketing, efforts remain inconsistent and leave children vulnerable to persuasive marketing techniques across different platforms. It is important that countries take necessary action to protect youth from the exploitative strategies of corporations. In addition to enforcing existing regulations, governments should expand and introduce marketing policies that cover digital media, social platforms, and influencer marketing. To support such efforts, researchers must also identify and address the gaps in current literature.

Next steps should include:

- Updating national policies to define digital marketing broadly.
- Aligning protections for all youth under 18, as recommended by the WHO, to ensure consistent global standards.
- Target marketing is based on processed foods, not just nutrient content, to better address the health risks of UPFs.
- Developing media literacy programs to empower children and families to recognize and resist marketing strategies.

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