



Contemporary Approaches in Public Health to Promote Nutritious Eating Habits

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ARTICLE INFO		ABSTRACT
Article History:		<i>It is crucial to address unhealthy eating habits in entire groups of people. A significant cause of the global obesity crisis and one of the top preventable causes of death and disability worldwide is eating a lot of processed and energy-dense foods and not getting enough exercise. As countries deal with rising obesity rates, many new and promising policy ideas that could help stop overeating and improve the quality of people's diets are still not being used enough. This review discusses changes in eating habits and their implications for public health, as well as the groups of people most likely to have poor nutrition and the potential effects of public health interventions. We examine several recent policy changes aimed at promoting healthier eating. These include rules that require specific products or practices, financial incentives, limits on food marketing (especially to kids), better nutrition labeling and education, and changes to food environments that make healthier choices the default option.</i>
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Introduction

The world's incidence of diet-related non-communicable diseases (NCDs) such as obesity, type 2 diabetes, cardiovascular disease, and specific cancers continues to escalate, primarily due to unhealthy dietary habits and sedentary lifestyles (Afshin et al., 2019; WHO, 2023). Poor diet has now become the most significant cause of early death and disability around the world, even more so than smoking (GBD 2019 Risk Factors Collaborators, 2020). Governments and public health agencies are in turn responding to this trend by applying policy amendments to change food

environments and promote healthier lifestyles in people. Traditional approaches based purely on personal education and voluntary initiatives in the business sector have not been sufficient to withstand such powerful commercial health determinants, including the intensive marketing of foods, the ubiquitous presence of ultra-processed foods, and economic incentives supporting unhealthy diets (Moodie et al., 2013; Monteiro et al., 2019). The global eating habits have changed drastically over the last 40 years. More people are eating processed and ultra-processed meals that are low in nutrients and high in energy. People are consuming more foods prepared outside the home (such as fast food), and many of these dishes have larger portions, which leads to overeating (Moodie et al., 2013). There has also been a rise in foods from animals, as well as a rise in oils and sugary foods that are high in calories (Glanz et al., 2021). In most places, individuals take too much sodium, unhealthy fats, and added sugars than the recommended ones. Individuals who feed a lot on the unhealthy foods and beverages usually end up failing to have sufficient nutritious diets like the legumes, whole grains, and other vegetables rich in nutrients and low in calories. The number of sugary beverages that people consume has been increasing dramatically within the past few decades (SSBs). The proportion of individuals that consume soda, sports, fruit, and energy drinks increased by three times between 1970 and 2001 in the US alone. Four out of ten Americans (48) say that they consume soda on a daily basis. The current tendencies in the USA show that people slightly reduce the consumption of soda, but they also tend to drink more other SSBs such as sports and energy drinks (Moodie et al., 2013). SSBs continue to be the biggest contributors of added sugar to the American diet, and Countries in Asia, such as China, India, Vietnam, Thailand, and other Southeast Asian nations are rapidly increasing the consumption of SSBs (Glanz et al., 2021).

Over the last few years, there has been a shift in the policies put forward by the public health to take greater account of the structural and systemic factors, which have led to the poor eating habits. They are fiscal actions such as imposing a tax on sugar-sweetened beverages (SSBs) (Colchero et al., 2017; Silver et al., 2023), warning labels displayed on the packaging front (Khandpur et al., 2022), marketing restrictions on unhealthy foods to children (Vandevijvere et al., 2022), mandatory reformulation (Cecchini and Warin, 2016), or urban planning practices that facilitate access to fresh foods (Glanz et al., 2020). There is evidence in countries like Mexico, Chile, and the United Kingdom that properly designed, multi-pronged policy sets can have a great impact on the quality of population diets and the reduction of health inequalities (Taillie et al., 2020; Scarborough et al., 2023). The given paper provides a modern synthesis of the latest perspectives on the policies supporting healthy eating habits, which relies on the empirical research, systematic reviews, and policy analyses, which were published mostly since 2019 and 2024. It discusses the efficacy of different policy instruments utilized, their equity, and any possible problems that can be caused by implementing them (Gearhardt et al., 2021). It focuses on interventions that change the food environment, rather than just changing people's behavior. As the world works toward Sustainable Development Goal 3.4, which aims for a one-third reduction in premature deaths from NCDs by 2030, the implementation of substantial, evidence-based food and nutrition policies is more important than ever.

This study examines how contemporary food environments exploit biological, psychological, social, and economic weaknesses to induce overeating. Next, we discuss public health measures aimed at accelerating progress in promoting healthier eating habits. We put these policy solutions into six groups: mandates, prohibitions, economic incentives, marketing constraints, information supply, and environmental defaults (Moodie et al., 2013). This assessment solely looks at ways to change the eating environment, even though there are many reasons why people get obese, such as more people not being active (Gearhardt et al., 2021).

Biological Vulnerabilities to Unhealthy Eating

Human biology significantly influences dietary preferences and vulnerability to unhealthy eating behaviors. Evolutionary adaptations that previously supported the consumption of energy-dense, high-sugar, and high-fat meals beneficial for survival in conditions of food scarcity now predispose humans to excessive ingestion of calorie-rich, nutrient-poor foods in the contemporary obesogenic environment (Hall et al., 2019). Neurobiological studies suggest that ultra-processed foods high in sugar, fat, and salt can activate the brain's reward circuitry, particularly the mesolimbic dopamine system, like addictive substances, leading to compulsive consumption and reduced satiety signaling (Gearhardt et al., 2021). Functional MRI studies have demonstrated increased activation in reward-related brain regions (e.g., nucleus accumbens) in response to palatable foods, particularly in patients with obesity or genetic predispositions, such as polymorphisms in the FTO gene (Stice et al., 2020). These biological pathways can counteract deliberate attempts to maintain healthy diets, especially when unhealthy choices are readily available and extensively promoted.

Additionally, variations in taste perception, gut microbiota composition, and metabolic responses further influence susceptibility to bad food choices. For example, genetic differences in taste receptors (such as TAS2R38) might change how sensitive people are to bitter substances, which can change how many vegetables they eat and how healthy their overall diet is (Feeney et al., 2021). Roberto et al. recently wrote about obesity in *The Lancet*, stating that even though people can control their diet, the modern food environment has made it easier to access hyper palatable foods high in sugar, fat, and salt. These foods are more rewarding than non-processed foods. These substances, along with flavor enhancers, food additives, and caffeine, are modified in ways that enhance the taste of foods, making it difficult for the body to regulate the amount of food consumed and the weight gained (Vargas-Garcia et al., 2022). Many processed meals are designed to contain more refined carbs, such as sugar and white flour. These meals also often lack fiber, water, and protein. These are nutrients that make it feel full and slow down the absorption of sugar into the blood. This process allows refined carbs in the body to be absorbed faster leading to an abrupt increase in blood sugar levels. It has been demonstrated by previous research that high-glycemic index foods can rapidly increase blood sugar levels, resulting in excessive hunger, overeating, and biological preference of high-glycemic index foods, which, in its turn, may introduce overeating cycles (Gearhardt et al., 2021). Recent studies also explain that the integrity of gut micro biome is associated with the urge to eat and the level of energy that an individual gains through food. This implies that diet, microbial ecology, and eating behavior have a two-way relationship (Sarkar et al., 2020). These biological determinants do not act in isolation, but they dynamically interact with social, economic, and environmental situations, which in turn increase the risks of particular groups, such as children, adolescents, and people with a low socioeconomic status who are exposed to more unhealthy food environments (Vargas-Garcia et al., 2022). The recognition of these intrinsic weaknesses brings forth the need to have public policies on health which are not based on individual responsibility but rather reforming the food environment to align with human nature instead of taking advantage of it.

Psychological Vulnerabilities to Unhealthy Eating

Psychological factors play a crucial role in shaping eating behaviors and heightening vulnerability to unhealthy dietary patterns. Cognitive biases, including present bias, the inclination to favor immediate rewards over long-term health benefits, and the "health halo" effect, which causes consumers to overrate the healthiness of foods based on marketing signals, frequently result in suboptimal food choices, despite the availability of nutritional information (Crosetto et al., 2022). Emotional states such as stress, anxiety, boredom, and sadness can trigger hedonic eating,

characterized by the consumption of high-calorie, palatable foods for mood regulation a phenomenon associated with "emotional eating" (van Strien, 2020). Executive function deficits, especially in impulse control and delayed gratification, correlate with increased consumption of ultra-processed foods and challenges in following dietary guidelines, particularly in adolescents and individuals with attention-deficit/hyperactivity disorder (ADHD) (Nederkooft et al., 2021). Food marketing capitalizes on psychological vulnerabilities by employing persuasive techniques that target subconscious desires, social norms, and identity. Advertisements for unhealthy foods often employ vibrant packaging, cartoon characters, and celebrity endorsements to establish potent affective associations, particularly targeting children whose cognitive defenses are still underdeveloped (Harris et al., 2023). Habit formation is significant; consistent exposure to energy-dense foods, particularly in specific contexts such as watching television or frequenting fast-food establishments, can lead to the automation of unhealthy eating behaviors, making them difficult to alter consciously (Reimers et al., 2022). The psychological mechanisms are intensified in digital environments, where algorithms tailor food advertising according to user behavior, thereby reinforcing cravings and consumption patterns. Public health policies must consider cognitive and emotional drivers by designing interventions that "nudge" behavior through default options, reduce exposure to manipulative marketing, and support self-regulation strategies, especially in vulnerable populations. Research suggests that more than half of consumer's grocery store purchase decisions are unplanned and made in-store (Gearhardt et al., 2021). This leaves consumers vulnerable to subtle environmental influences that encourage the consumption of less healthy foods in settings such as supermarkets and restaurants. Examples of such environmental influences include large portion sizes at restaurants, which encourage overeating through changing consumption norms; blatant placement of sugary drinks on supermarket end caps and candy in the check-out aisles, which makes these items salient and increases impulse purchases; and child-targeted marketing using athletes or licensed characters, which can shape taste and snack preferences, and form brand loyalty at early ages (Gearhardt et al., 2021). Part of the problem is that incentives are misaligned. Food companies are under immense pressure to maximize profits over maximizing the health outcomes of consumers. Thus, they create and promote foods that capitalize on the aforementioned biological vulnerabilities to increase sales (Vargas-Garcia et al., 2022). Consequently, they develop and market foods that exploit the previously mentioned biological vulnerabilities to enhance product sales.

Economic and Social Risks Associated with Unhealthy Eating

Socioeconomic status (SES) has a significant influence on dietary quality. Research consistently indicates that individuals from lower-income households tend to consume fewer fruits, vegetables, and whole grains, while ingesting greater quantities of energy-dense, nutrient-poor foods compared to those from higher-income households (Darmon & Drewnowski, 2023). The disparity arises from the elevated cost per calorie of nutritious foods, restricted access to full-service grocery stores in low-income areas, commonly referred to as "food deserts," and time limitations that prioritize convenient, ultra-processed alternatives (Monsivais et al., 2022). Economic insecurity increases stress and diminishes cognitive capacity, which negatively affects the essential skills of planning and self-regulation necessary for adequate meal preparation and dietary adherence (Mani et al., 2023). In numerous high- and middle-income nations, such as Malaysia, the disparity in affordability between healthy and unhealthy diets has increased, rendering nutritious eating a privilege rather than a universal entitlement. These economic barriers are made worse by social factors. Social norms, cultural preferences, and peer influences significantly impact food choices from a young age, often promoting the consumption of traditional or convenience foods that are high in sugar, salt, or unhealthy fats (Story et al., 2023). Marginalized groups, such as ethnic minorities, rural populations, and single-parent households, experience intersecting vulnerabilities

stemming from systemic inequities in education, employment, and healthcare access, which hinder their capacity to utilize available nutrition information (Vargas-Garcia et al., 2022).

Additionally, billboards, social media, and in-store promotions that aggressively market unhealthy foods tend to target low-SES communities more frequently than others, which can make unhealthy eating habits seem normal (Potvin Kent et al., 2023). These social and economic conditions foster environments in which unhealthy eating is not merely an individual choice but a structurally reinforced consequence. To be effective, public health policies must deal with these upstream factors. For example, they could provide people with money to purchase healthy foods, improve cities as places to access food, and limit the targeted marketing of unhealthy foods to individuals who are more likely to buy them.

Guidelines to Speed up Progress on Healthy Eating

As people learn more about the biological, psychological, social, and economic factors that influence eating behavior, they recognize that modern food environments often hinder individuals' ability to make food choices that are beneficial for their long-term health, even when they intend to eat well (Gearhardt et al., 2021). This understanding underscores the crucial role of public policy in transforming these environments to facilitate, rather than hinder, informed decision-making. Conventional public health approaches have focused on identifying environmental risk factors that lead to adverse health outcomes and subsequently implementing population-wide interventions to mitigate exposure to those risks. Today's evidence-based dietary policies can be put into six main groups. Each group differs in its effectiveness in the real world, its ease of garnering political support, and its level of intrusion.

1. **Mandates:** Policies that require specific actions, such as banning trans fats in food production or requiring nutrition standards in school meals, aim to eliminate or reduce exposure to harmful dietary components.
2. **Restrictions:** These limit access to unhealthy options, for example, by prohibiting the sale of sugar-sweetened beverages in schools or restricting fast-food outlets near educational institutions.
3. **Economic incentives:** Fiscal tools, such as taxes on sugary drinks or subsidies for fruits and vegetables, aim to align market prices with health outcomes, making healthier choices more affordable and less healthy ones relatively more expensive.
4. **Marketing limits:** Regulations that restrict the advertising, sponsorship, or promotion of unhealthy foods, especially those targeting children, aim to reduce the persuasive influence of commercial messaging.
5. **Information provision:** Public education campaigns, front-of-package warning labels, and mandatory nutrition labeling empower consumers with clearer, more accessible health information to guide their choices.
6. **Environmental defaults:** These "nudge"-style interventions redesign choice architecture, such as making water the default beverage in kids' meals or placing healthier foods at eye level in cafeterias so that the healthier option becomes the easier, more automatic choice without restricting freedom.

Mandates

Government mandates are among the strictest policy tools available, and they can be highly effective in changing the behavior of businesses and consumers. However, they often run into more political and public opposition than less intrusive measures because they limit the freedom of individuals or businesses (Monsivais et al., 2022). A notable example from South Asia is the

Indian government's 2018 rule, which was established by the Food Safety and Standards Authority of India (FSSAI). It said that all edible oils and processed foods must have no more than 5% trans fats by 2018 and no more than 2% by 2022. There was strong scientific evidence linking eating trans fats to a higher risk of heart disease, stroke, and early death. This was especially concerning in South Asia, which has one of the highest rates of cardiovascular disease in the world. The government could have chosen less stringent methods, such as asking industries to voluntarily reduce their use of trans fats or requiring packaged foods to display labels indicating the amount of trans fat they contain. However, these methods may not have been as effective (Potvin Kent et al., 2023).

On the other hand, the regulatory mandate ensured a consistent and enforceable standard across the food supply. This effectively eliminated artificial trans fats from many everyday foods, such as vanaspati ghee, biscuits, and fried snacks. Food companies have made changes by using healthier oils, such as palm oil or high-oleic oils, in their products. This had little effect on taste or how well consumers liked the products. This case demonstrates how robust government action can enhance public health in South Asia, where diet-related chronic diseases are on the rise (Cecchini & Warin, 2016). This is something that voluntary or informational measures alone may not be able to do. The government could have taken gentler steps, such as asking businesses to pledge to reduce trans fats or requiring packaged foods to have labels indicating the amount of trans fat they contain. However, these steps would likely not have been as practical (Monsivais et al., 2022).

On the other hand, the regulatory mandate ensured a consistent and enforceable standard across the food supply. This effectively eliminated artificial trans fats from many everyday foods, such as vanaspati ghee, biscuits, and fried snacks. Food manufacturers made changes by reformulating their products with healthier options, such as palm oil or high-oleic oils. These changes had little impact on taste or consumer acceptance (Potvin Kent et al., 2023). This case demonstrates that robust government action can enhance public health in South Asia, where diet-related chronic diseases are on the rise, in ways that voluntary or informational measures alone may not be sufficient.

Restrictions

Governments can implement specific restrictions that only apply to publicly funded institutions, such as schools, hospitals, government offices, and prisons. They do not have to make rules for everyone. In South Asia, these kinds of rules could mean that these places must follow national dietary guidelines for the food they serve or refrain from selling certain unhealthy foods, such as sugar-sweetened beverages (SSBs), deep-fried snacks, or ultra-processed foods. For example, in 2021, the Food Safety and Standards Authority of India (FSSAI) suggested limiting the sale and advertisement of high-fat, high-sugar, and high-salt (HFSS) foods to 50 meters from school grounds (Potvin Kent et al., 2023). This was done to protect children from being exposed to unhealthy foods all the time while they were in school. Similarly, several Indian state governments and Pakistani provinces have initiated "healthy canteen" programs in public schools and hospitals. These programs replace sugary drinks and packaged snacks with fruits, nuts, traditional whole-grain snacks, and water. People often pay extra attention to kids because they are more susceptible to the influence of marketing and environmental cues when it comes to food.

For a long time, South Asia has limited the sale of alcohol and tobacco to minors. Recently, however, policy talks have also included unhealthy foods. For instance, in 2022, the Indian state of Kerala implemented rules banning the sale of junk food and carbonated soft drinks in all government schools (Monsivais et al., 2022). This was done because of worries about rising rates of childhood obesity and dental cavities. No South Asian country has yet implemented an age-

based ban on energy drinks, unlike Lithuania, which introduced such a ban in 2014. However, public health advocates are pushing for such measures more and more, mainly since caffeinated, sugary drinks are being marketed aggressively to teens. Some experts have suggested new ways to address SSBs, such as limiting the number of SSBs a person can purchase at once or prohibiting their sale near schools during school hours. Schools are significant places for shaping children's eating habits for the rest of their lives because they spend a significant amount of time there. Bangladesh and Nepal are two countries that have begun to incorporate nutrition standards into their school meal programs. They focus on using locally grown fruits, vegetables, lentils, and fortified staples. In Sri Lanka, school canteens are increasingly required to display "traffic light" labels (green for healthy, red for unhealthy), helping students make informed choices (Potvin Kent et al., 2023). Initial assessments indicate that these interventions enhance dietary intake within educational settings and diminish the consumption of sugary snacks. However, further longitudinal studies are required to evaluate their effects on overall diet quality, eating behaviors outside of school, and long-term health outcomes, including obesity and metabolic risk, especially in diverse South Asian populations where under nutrition and over nutrition frequently coexist (Cecchini & Warin, 2016).

Economic Incentives to Promote Healthy Eating

One of the most widely studied and utilized policy tools for changing the diets of large groups of people is the use of economic incentives, which alter the prices of healthy and unhealthy foods. These policies work on the idea that people will buy more of something if it costs less: lowering the price of healthy foods (for example, by giving people money) or raising the price of unhealthy foods (for example, by taxing them) can encourage people to make healthier choices. A well-known example is the tax on sugar-sweetened beverages (SSBs), which has been used in more than 50 countries, including India (through the Goods and Services Tax framework) and Thailand in South Asia. Strong evidence from Mexico, the first large middle-income country to implement a national SSB tax in 2014, shows that SSB purchases have dropped by 7–12% over five years. The most significant declines were observed in low-income households (Colchero et al., 2022; Silver et al., 2023). Similar results have been observed in South Africa, the UK, and the Philippines, where tax policies have not only reduced the use of certain goods but also generated revenue that can be used to fund public health programs.

On the other hand, subsidies for whole grains, fruits, and vegetables have been shown to improve dietary quality, especially among low-income groups. Randomized trials, including the U.S.-based "Healthy Incentives Pilot," demonstrated that offering SNAP participants a 30% discount on fruits and vegetables increased their consumption of these foods (Olsho et al., 2021). In low- and middle-income areas, such as certain parts of India and Bangladesh, pilot programs utilizing public distribution systems to offer price breaks on fortified staples or pulses have resulted in measurable improvements in micronutrient intake and dietary diversity (Gillespie et al., 2023). However, implementing subsidies remains challenging on a long-term and large-scale basis, especially in health systems that lack sufficient resources. Recent modeling studies suggest that integrating sugar-sweetened beverage (SSB) taxes with targeted subsidies for nutritious foods yields superior health outcomes and equity advantages compared to implementing either policy in isolation (Afshin et al., 2023). Consequently, well-structured economic incentives rooted in behavioral economics and equity principles are progressively regarded as vital elements of holistic food and nutrition policy frameworks.

Marketing Limits to Promote Healthy Eating

Limiting the advertising of unhealthy foods, especially to children, has become an important public health strategy to combat the significant impact that commercial messages have on people's eating habits. Every year, food and drink companies spend billions of dollars on advertising unhealthy foods and drinks that are high in sugar, salt, and bad fats. They do this through TV, digital platforms, social media, in-store displays, and product packaging that features celebrities, cartoons, and toys. These strategies are especially effective for children because their brains are still developing, and they often struggle to distinguish between advertisements and entertainment (Harris et al., 2023). As a result, many countries have put strict rules on marketing. In 2016, Chile implemented strict rules that banned child-directed marketing (such as cartoon characters and toys) on foods high in calories, sugar, sodium, or saturated fat. This led to significant reformulation by the industry and a 37% decrease in children's exposure to ads for unhealthy foods (Taillie et al., 2022). Mexico, Peru, and Uruguay have all adopted similar rules. In Southeast Asia and South Asia, where digital food marketing to young people is growing quickly, the movement is gaining speed. Recent evidence highlights the unequal targeting of unhealthy food advertising at susceptible populations, such as low-income communities and ethnic minorities, both online and offline (Potvin Kent et al., 2023). Digital platforms present novel regulatory challenges owing to personalized, algorithm-driven advertisements that are challenging to oversee and frequently circumvent conventional advertising protections. The World Health Organization (WHO) has recommended mandatory, legal rules instead of voluntary industry codes to effectively limit the power and reach of unhealthy food marketing (WHO, 2022). New rules now go beyond broadcast media to include limits on influencer marketing, advergames, and branded content on social media. A 2023 systematic review found that legal limits on marketing are consistently linked to reduced exposure to ads for unhealthy foods and improved eating habits in children, especially when combined with warning labels on the front of packages and nutrition standards in schools (Sadeghirad et al., 2023). As food marketing evolves in the digital age, robust, enforceable, and comprehensive marketing regulations are necessary to protect public health, particularly among the most vulnerable and impressionable groups.

Information Provision to Support Healthy Eating

One of the most important aspects of public health strategies aimed at helping people make healthier food choices is providing them with clear, easy-to-understand, and actionable nutrition information. Back-of-package nutrition facts panels and other traditional methods have often failed because they are too complicated and fail to capture people's interest. In response, recent policy efforts have shifted toward front-of-package labeling (FOPL) systems that utilize simple, easy-to-understand formats to indicate a product's healthiness quickly. Warning labels, like Chile's black stop-sign icons for high sugar, sodium, saturated fat, or calories, and traffic-light systems, like the UK's red/amber/green scheme, are two of the most effective. A meta-analysis from 2023 found that interpretive FOPLs make it much easier for consumers to find healthier options, make them less likely to buy unhealthy products, and even encourage manufacturers to change their recipes (Khandpur et al., 2023). India put forward draft rules in 2022 that would require warning labels on the front of packages for high-fat, high-sugar, and high-salt (HFSS) foods. This was in line with WHO recommendations and trends in Thailand and Nepal. In addition to labeling, public information campaigns help to shape dietary norms and behaviors. Mass media initiatives like Mexico's "Chécate, Mídete, Muévete" (Check Yourself, Measure Yourself, Move) or Malaysia's "Eat Wise, Be Healthy" campaign—have shown small but important effects on awareness and self-reported dietary changes, especially when they last over time and are used with other policy measures (Cediel et al., 2022). Digital platforms now offer new ways to send personalized

nutrition messages, but concerns persist about the dissemination of false information and unequal access. The efficacy of information-driven strategies is significantly influenced by health literacy, socioeconomic status, and the overarching food environment. Evidence indicates that the provision of information alone is improbable to diminish health inequities; however, when integrated with structural interventions such as marketing restrictions, economic incentives, or school nutrition standards it can enhance public health outcomes (Vargas-Garcia et al., 2023). So, while information is important, it works best when it is part of a complete policy ecosystem that makes the healthy choice the easy one.

Environmental Defaults to Nudge Healthier Eating

Environmental defaults often referred to as "choice architecture" interventions, aim to make healthier eating choices the simplest, and most convenient or automated option without compromising people's freedom to choose. Based on behavioral economics, these strategies use minor adjustments in the physical or digital food environment to steer behavior in expected directions. Some common tactics are putting healthier foods at eye level in cafeterias, making water the default drink in kids' meals, offering reduced portion sizes as the regular option, or pre-selecting fruits and vegetables in online meal kits. A 2022 systematic review found that these "nudges" consistently lead to more people choosing and eating healthy foods in various settings, including schools, workplaces, and restaurants. The effect sizes range from small to large, depending on the extent to which they are implemented effectively (Arno & Thomas, 2022). For example, an extensive study in UK workplace cafeterias found that increasing the availability of vegetarian meals led to a 40–80% increase in plant-based meal sales without reducing overall sales. This shows how changing defaults can change norms and behavior on a large scale (Hollands et al., 2023). In low- and middle-income countries, such as parts of South Asia, environmental defaults are becoming increasingly common in government programs. The Mid-Day Meal Scheme in India, which feeds over 100 million schoolchildren, has begun to incorporate millets, pulses, and seasonal vegetables as regular components of the meals. This means that for millions of people, nutrient-dense foods are now the default option. Similarly, hospital canteens in Kerala and Tamil Nadu now offer water or buttermilk instead of sweet drinks, unless requested otherwise. Digital food settings also provide new possibilities. For example, food delivery applications in Malaysia and Bangladesh have attempted to use "healthy meal" labels and default sorting by nutritional rating to gently guide users toward healthier choices (Lim et al., 2023). Critics argue that defaults alone may not lead to long-term changes in diet. However, new research suggests that they are most effective when combined with other policy tools, such as price incentives or marketing limitations, and when implemented with cultural relevance and fairness in mind. Because of this, environmental defaults are a low-cost, scalable, and politically realistic instrument that can be effectively integrated into a comprehensive public health nutrition policy.

Future Prospective

The future of public health nutrition policy lies in integrated, multi-component strategies that address the complex interplay of biological, psychological, social, economic, and environmental drivers of unhealthy eating. New evidence suggests that policy "packages," which combine measures such as taxes on sugary drinks, warning labels on the front of packages, limits on marketing, and healthy defaults, are more effective than single interventions (Afshin et al., 2023; WHO, 2023). Digital technologies present novel opportunities, such as AI-driven personalized nutrition guidance and the regulation of algorithmic food marketing; however, they also introduce risks concerning data privacy and inequality. In South Asia and other low- and middle-income regions, future policies must prioritize fairness by ensuring that healthy foods are not only

promoted but also accessible, affordable, and readily available, particularly for women, children, and those living in rural areas. Additionally, climate change and sustainability issues are becoming increasingly important in shaping dietary policy goals. The merging of public health and planetary health goals is sparking interest in "double-duty" actions that improve nutrition while having a reduced environmental impact. Examples include promoting plant-rich diets, reducing food waste, and supporting local, sustainable food systems (Swinburn et al., 2023). Strengthening governance, improving collaboration across sectors (e.g., between health, agriculture, trade, and urban planning), and fostering political will continue to be significant challenges. Countries are working to achieve global goals, such as the WHO's Global Nutrition Targets 2030 and the UN's Sustainable Development Goals. To change food systems for the health of people and the planet, food policies based on evidence that take into account the specific needs of each country and are fairly enforced will be necessary.

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