

Nutrition Misconceptions and Behavioural Barriers Among Adolescents: An Evidence-Based Review

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Abstract

Adolescence is the imperative period for the formation of long-term eating habits, but nutritional deficiencies are common among adolescents due to lack of knowledge, inappropriate dietary intake, and behavioural issues. This review paper discusses the primary issues responsible for unhealthy eating habits among adolescents such as prevalent nutrition knowledge deficit, socioeconomic limitations, peer influence, family factors, and time constraints with lifestyle limitations. A review of the literature and current research indicates that few adolescents possess basic knowledge about well-nourished diets, the role of nutrients, and the consequences of poor diet. Behavioural barriers such as skipping meals, reliance on fast food, and excessive TV viewing contribute to the issue. School-based nutrition interventions, dietary behaviour surveys, and public health campaigns targeting adolescent nutrition are methodologies under consideration. The findings underscore the need for holistic strategies to both informational and environmental obstacles. Suggested solutions are include strengthening nutrition education in schools, engaging families and communities, policy-level support for healthier food environments, and taking advantage of digital tools to engage adolescents. Tackling these factors holistically has the potential to markedly improve dietary habits and long-term health outcomes for the adolescent population.

Keywords: eating habits; adolescents; nutrition knowledge; skipping meals; food environments

1.Introduction

Adolescence could be defined as the period of time in life when the person goes through the several changes in the body either it is the psychological, biological or cognitive and even the social characteristics also gets changed in the way that from what is considered like a child to what is considered like an adult. When there are several changes and most of individual characteristics are in this certain stage of changes, one is called as an adolescent. According to UNICEF, Adolescence is a critical phase of accelerated physical, emotional, and cognitive growth, when nutritional needs are substantially increased. Adequate nutrition during this stage of life promotes maximum growth, hormonal equilibrium, immune function, and the establishment of healthy eating habits for a lifetime. (Singh, 2024) Poor dietary intake not only impairs current health but also raises the risk of long-term complications like obesity, diabetes, anaemia, and other non-communicable diseases. Internationally, food habits among teenagers are revealing an alarming trend. There is an increasing incidence of high-calorie, low-nutrient foods, uneven meal frequency, lower intake of fruits and vegetables, and higher consumption of sugary drinks and convenience snacks. Adolescents in most areas, including developing nations, experience a double burden of over- and undernutrition as a result of lifestyle changes,

urbanization, and economic inequality. Regional research also points out that such trends tend to be influenced by food cultural practices, availability, and media and peer group influences.

2.Objective

The purpose of this review is to determine and critique the predominant nutritional knowledge gaps and behavioural barriers that hinder adolescents from using healthy diets. From identifying these challenges, this review hopes to outline evidence – based interventions. (Canavan and Fawzi, 2019)

3.Methodology

The review has developed through an extensive review of academic literature sourced from Trusted databases such as Google Scholar, Pub med, web of science and etc. The search focused on studies published between 2015 and 2025. Key search terms included adolescent nutrition, nutritional assessment, anthropometry, micronutrient deficiency, BMI and public health interventions. This review employed a systematic approach to locate, review, and synthesize existing literature on nutritional knowledge gaps and enablers of healthy eating among adolescents. The methodology adhered to well-established inclusion criteria, rigorous searching strategy, and selective

selection of appropriate types of studies in order to undertake extensive balance overview.

4. Nutritional Requirements in Adolescents

Adolescence is characterized by rapid growth, heightened metabolic functioning, endocrine changes, and the onset of secondary sexual traits. The nutrition requirements at this stage are enormously greater than that of childhood. Adequate uptake of both macro- and micro-nutrients is vital for sustaining growth rushes, bone accrual, neurological development, as well as a general state of well-being. (Mancone et al., 2024)

4.1 Macronutrient Requirements

Macronutrients — carbohydrates, proteins, and fats — provide energy and are the base materials from which the body builds tissues and maintains bodily functions.

Carbohydrates: Carbohydrates are the main source of energy for teenagers and particularly for active individuals. They must contribute around 50–60% of the calories for the entire day. Complex carbohydrates like whole grains, fruits, and vegetables must be given preference over refined carbohydrates. (Ivaturi et al., 2024)

Proteins: Proteins are used for muscle building as well as the formation of enzymes and hormones. Teenagers need 0.85–1.0 grams of protein per kilogram body weight per day. Sources are lean meats, dairy products, legumes, and nuts. (Sharma, Shukla and Kannan, 2005)

Fats: Fats are required for hormone production and brain growth. Total fat intake should be 25–35% of total calories, with dominance of unsaturated fats from fish, seeds, nuts, and vegetable oils and limitation of saturated and trans fats. (Gupta et al., 2010)

4.2 Micronutrient Requirements:

Micronutrients, although required in small quantities, are required for the physiological growth of adolescents.

Iron: Required for haemoglobin production, especially in women during menstruation. (Ahankari et al., 2017)

Calcium: Essential for bone mineralization and growth. Most of the peak bone mass is attained during the adolescent. (Dietary Patterns with Special Reference to Calcium Intake. : Indian Journal of Public Health, no date)

Vitamin D: It helps in calcium absorption and bone health. (Gupta et al., 2010)

Zinc: It helps in immune function and cell growth.

Folic Acid and Vitamin B12: Facilitates DNA synthesis and neurologic development. (Chakraborty et al., 2018)

4.3 Recommended and Actual Intake

Several studies show a large gap between dietary intake recommended and actual intake among adolescents, both at the global and regional levels.

Carbohydrates: Intake tends to be above recommended levels, particularly from added sugars and refined grains.

Proteins: Intake is usually satisfactory in urban populations but could be inadequate among adolescents from low-income or rural areas.

Fats: High intake of saturated fats and trans fats through fast foods and fried snacks is prevalent.

Iron and Calcium: Deficiencies are common, especially among adolescent girls. Iron deficiency anaemia is the most common nutrient disorder in developing countries.

Fruits and Vegetables: The WHO suggests a minimum of 400 grams per day, but most teenagers eat less than one quarter of that amount.

Fast food and sweet beverages: Commonly consumed, with excessive calorie intake and minimal nutrient content.

This gap can be bridged by education and improved availability of foods with a high nutrient content. Interventions must be adapted to accommodate adolescents' patterns of growth, cultural inclinations, and socio-economic standing.

Here is a comparative table of the Recommended Dietary Allowances {RDAs} for selected nutrients for adult males aged 19 – 30 years, as per the ICMR-NIN 2024 guidelines and the NIH USA Dietary Reference Intakes [DRIs]:

Nutrient	Icmr- nin [india]	Nih usa dri [2020-2025]
Energy	2,320 kcal/day	2,400 – 3,000 kcal/day
Protein	60 g/day	56 g/day
Fat	20-30% of total energy	20-35% of total energy
Carbohydrates	45-65% of total energy	45-65% of total energy
Calcium	1,000 mg/day	1,000 mg/day
Iron	17 mg/day	8 mg/day
Zinc	12 mg/day	11 mg/day
Vitamin A	900 ug/day	900 ug/day
Vitamin C	80 mg/day	90 ug/day
Vitamin D	600 IU/day	600 IU/day
Folate	400 ug/day	400 ug/day
Vitamin B12	2.4 ug/day	2.4 ug/day

5.1 Knowledge Gaps in Adolescent Nutrition

In spite of the increasing focus on healthy consumption, a considerable percentage of teenagers across the globe have poor diets that are based on root shortages of nutritional information. These shortages limit them from making healthy food decisions, consequently influencing their development, growth, as well as long-term health. Insufficient Awareness of Balanced Diets The widest knowledge gap among teenagers is their inadequate understanding of what a balanced diet is. Most teenagers do not know the

elementary food groups, the function within the body, or the acceptable daily intake of basic macronutrients and micronutrients. Studies confirm that adolescents generally think of "healthy eating" in terms of abstract notions such as "less eating" or "not consuming fat" rather than understanding the importance of variety, moderation, and nutrient value in food.

Here, Is A Survey that Took Place in India About Intake of Different Macronutrients and Micronutrients by Adolescents

Year of Survey	Nutrient Name	Respondent	Outcome
2005	Energy	148 student class of 6 th – 8 th in Government and private school of Delhi, India	The daily calorie intake was found to be lower than the recommended dietary allowance.
2005	Protein	148 student class of 6 th – 8 th in Government and private school of Delhi, India	The daily Protein intake was found to be lower than the recommended dietary allowance. Student of govt school were more deficit comparing to Private schools.
2013	Fat	1236 was the sample size of 11-15 aged group of school, colleges of metro cities, India	High total fat and SFA intake and a low intake of MUFAs and omega 3 PUFAs showed imbalanced nutrition.
2024	Carbohydrates	450 student aged group 11-13yrs from Delhi, India	The % of E from CHO and fat was lower than that in diets of other countries.
2017	Calcium	220 was the sample size of aged group of 10-16yrs from Pune, India.	Majority of children had cereal – pulse based dietary pattern By replacing foods from existing dietary pattern with calcium- rich foods.
2018	Vitamin D	1352 students among different states of India.	High Prevalence of vit D deficiency among adolescent. Some public health interventions needed such as fortification of foods to address deficiency.
2018	Vitamin B12	2043 students of aged group 11-17yrs from Haryana, India.	Deficiency was higher among rural school going adolescent. Boys had higher than Girls.
2016	Iron	Adolescents aged group of 11-17yrs of 34 villages from Maharashtra, India.	Anaemia prevalence was extremely high among adolescent girls in rural areas of Maharashtra.

5.2 Poor Understanding of Portion Control

Portion control is something that is widely misunderstood or under-emphasized. Adolescents will under-eat due to body image problems or over-eat high-calorie, low-nutrient foods, especially at social events or times Super-size portions, fast food culture, and snacking habits result in uncontrolled caloric intake. Few adolescents are instructed on reading food labels, understanding serving sizes, or recognizing the difference between hunger and routine eating. (Jia et al., 2022)

5.3 Limited Understanding of the Nutritional Value of Common Foods

Teenagers tend to consume processed foods without a clue regarding their nutritional content. Sweets, salt, and saturated foods are usually favourite due to their taste, ease of use, and peer influence. There is minimal knowledge of There is little awareness of healthier options or the long-term effects of ultra-processed food overconsumption. Fundamentals like the amount of iron found in leafy greens, dairy calcium, or fibre in whole grains are often not known. (Canavan and Fawzi, 2019)

5.4 Influence of Misinformation from Peers and social media

In the age of the internet, social media is now a significant source of health and nutrition information among adolescents — frequently unregulated, anecdotal, and misleading. Diet trends like "detoxes," "zero-carb diets," or "eating clean" are endorsed by peers and celebrities with no scientific backing. Misinformation is rapidly spread, and adolescents, with limited critical thinking abilities, are vulnerable to adopting unsustainable or unsafe eating behaviours based on social media influences.(Wang and Togher, 2024)

5.5 Gender, Socioeconomic Status, and Education Level Disparities in Nutritional Knowledge

Gender: Girls are only a little more concerned about diet and body image, but this manifests as unhealthy eating or consumption of unproven health information. Boys might pay less heed to the quality and more to the quantity of food, particularly when it comes to gaining muscle.

Socioeconomic status: Low-income adolescents might have less access to nutrition education and fewer options for healthy food choices, making applied nutrition information more difficult to use. (Dapi et al., 2009)

Education level: Pupils attending schools with non-existent or limited health education programmes are less inclined to be taught healthy eating habits. The lack of formalised nutrition education has been responsible for the long-

prevailing myths and misinformation. Closing these knowledge gaps is critical for enabling adolescents to adopt healthier diets. Culturally relevant, interactive, and evidence-based nutrition education needs to be incorporated into schools, communities, and online spaces where adolescents spend most of their time. (Dapi et al., 2009)

6. Behavioral and Environmental Barriers

Although nutritional knowledge is central to adolescents' eating, behaviour and environmental factors tend to pose major obstacles for the uptake of healthy diets. These factors include peer pressure, the accessibility and affordability of nutritious foods, family eating habits, and broader societal influences. Understanding these barriers is essential for developing strategies to improve adolescent nutrition on a large scale.(Story, Neumark-Sztainer and French, 2002)

6.1 Peer Pressure and Eating Trends

Adolescents are especially susceptible to peer pressure as they establish social identity and group dynamics. Peer pressure is likely to play a major role in eating behaviour, with adolescents often conforming to group food norms. This can involve visiting fast food chains, consuming sugary snacks, or following new food fashions endorsed by peers. Additionally, the prevalence of social media has increased peer influence, with dieting fads or food fads becoming increasingly trendy, by means of misinformation or unattainable ideals of beauty. Adolescents will adopt unhealthy patterns of eating, like skipping meals or eating by means of rigid diets, as a way to meet the desire to belong or attain a specific body ideal.(Chung et al., 2021)

6.2 Accessibility and Affordability of Healthy Food

In most regions, particularly rural or low-income neighbourhoods, there is a lack of fresh, healthy foods leading to unhealthy eating habits. Food deserts—locales where healthy foods such as fruits, vegetables, and whole grains aren't easy to find—present a major obstacle to teenage nutrition. In such places, teenagers will be more apt to turn to processed food, which tends to be less expensive, easier to acquire, and more readily available. Even if better choices are available, they could be cost-prohibitive for poor households. Expensive fresh fruits and vegetables, lean meats, and milk can discourage families from consuming healthier options, resulting in dependence on lower-cost, high-calorie foods. (Shearer et al., 2015)

6.3 Family Eating Habits Influence

Dietary practices in the home are an important determinant of food intake among adolescents. Adolescents tend to pattern their eating practices after

those of their parents or guardians. Where the practice at home is poor food choices—frequent fast food, sweets, and snacks intake—adolescents will tend to develop the same food habits. Moreover, parents' time or knowledge constraints in preparing nutritious meals can result in the ease of pre-packed or fast foods. Family life, such as hectic schedules, working parents and poor cooking ability, can also lower the demand for home-cooked, nutritious meals, so adolescents become reliant on processed and takeaway meals.(Videon and Manning, 2003)

6.4 School and Community Environmental Constraints

Schools and the community environment also have a central role in modelling adolescents' diets. Yet schools struggle to teach healthy eating with limited resources or restrictive food environments. Vending machines that stock sugary treats, soft drinks, and processed foods are typical in most schools, providing convenient access to unhealthy foods. The lack of good school nutrition programs or education efforts also accounts for why teenagers do not know a lot about eating well. In addition, physical activity spaces, like playgrounds or sports facilities, can be non-existent or underutilized, encouraging physical inactivity. In others, school cafeterias may offer unappealing and unaffordable healthy food, causing students to turn to unhealthy foods. (Ozer and Weinstein, 2004)

6.5 Food Preferences and Cultural Norms

Cultural beliefs and food preferences can significantly influence the dietary choices of adolescents. Traditional foods and meal patterns can be deeply ingrained in most cultures and sometimes may not be as consistent with current nutritional recommendations. Diets, for instance, could be high in high-fat or high-carbohydrate food that is of cultural importance but less favourable when it comes to sustaining a healthy diet. In certain areas, liking certain meats, snacks, or sweets may take precedence over the incorporation of fruits, vegetables, and whole grains. Although cultural foods play a significant role in adolescents' identity, the dilemma is to modify traditional recipes to incorporate healthier, more balanced alternatives without losing cultural preference. The behavioural and environmental barriers adolescents face in achieving a healthy diet are multifaceted and interrelated with social, economic, and cultural determinants. Interventions aimed at enhancing adolescent nutritional improvement must combat these barriers by constructing favourable environments at home, in school, and among communities. Strategies could involve encouraging healthier food availability, reinforcing nutritional education among families, enhancing positive influence by peers, and ensuring respect for cultural inclinations while encouraging balanced and nutrient-rich diets. (Neumark-Sztainer et al., 1999)

7. Media and Marketing Role

With the onset of the digital era, marketing and media have an overwhelming influence on teenagers' attitudes and behaviours toward food intake. Traditional advertisement as well as the emerging role of social media websites have immense influences on teenagers' diet, attitudes toward nutrition, and relationship with food.(Neumark-Sztainer et al., 1999)

7.1 Effect of Advertisement on Consumption of Junk Foods

Advertising, especially television commercials and online ads, has a significant effect on teenagers' food selection. The food industry aggressively promotes high-sugar, high-fat, high-sodium foods—so-called junk food. These products are apt to be promoted by good packaging, jingles, and endorsement by popular celebrities or cartoon characters to render them appealing among youth. Advertisements are more likely to stress convenience, taste, and immediate satisfaction rather than health benefits, thus rendering such foods desirable and pleasurable for adolescents. promotes foods that are rich in sugars, fats, and sodium—what is popularly known as junk foods. Adolescents are particularly susceptible to the marketing of food because of their developmental status, which renders them more impressionable and less able to critically evaluate marketing messages. Frequent exposure to advertisements of junk foods is linked with greater consumption of unhealthy foods, including excessive calorie consumption, obesity, and low nutrient quality in their diets. In addition, the incidence of online food commercials, particularly on video-sharing

websites and social networking sites, is increasing continuously and enhancing the issue further.(Neumark-Sztainer et al., 1999)

7.2 The Double-Edged Nature of social media to Promote Health or Misinformation

Social media sites such as Instagram, TikTok, YouTube, and Twitter are major sources of information among adolescents, including dietary and nutrition information. While social media is potentially useful for marketing health eating, it also has an active role to play in propagating misinformation and contributing to bad diet trends. Social media sites such as Instagram, TikTok, YouTube, and Twitter are major sources of information among adolescents, including dietary and nutrition information. While social media is potentially useful for marketing health eating, it also has an active role to play in propagating misinformation and contributing to bad diet trends.(Neumark-Sztainer et al., 1999)

On the positive side, social media is a channel for passing health life messages and is thus proving an effective way of persuasion. For health care providers, public health agencies, and wellness bloggers, social media may serve as a platform to make adolescents aware of diet climate eat healthily and that it's important to have sane leisure. There are many social media platforms covering eating for fitness, healthy recipes, debunking popular myths about diets. Also, having big-name stars stand behind healthy living and positive attitudes is in no time likely to get children.(Neumark-Sztainer et al., 1999)

Negative Impact: On the other hand, social media really shows its less good face when it comes to broadcasting unrealistic body ideals and untested health trends. Diet bloggers and influencers do the same thing, giving these sorts of diets (fad or worse), regimens that take off 10 pounds in "just 7 days", and whatever latest purportedly healthy food products without any scientific basis or professional qualifications—other than affiliation with a marketing agency. These fashions — things like detox teas and unrestricted short-term fasting, as well as turn-of-the-century carbohydrate diets — may be bad for the health of teenagers. They nurture eating disorders, cause malnutrition in vulnerable groups owing to a lack of good diet through ignorance or want among parents (or those otherwise responsible for the kids' welfare), and even lead to over-focusing on weight control that is near obsession which can't be broken.(Neumark-Sztainer et al., 1999)

Pressure to conform to idealized body images and "perfect" eating behaviours, often exercised through representations of "diet" or "fit" food, can result in negative food and body image relationships. In addition, peer-reviewed evidence has illustrated that nutrition and food misinformation spreads more quickly than accurate, evidence-based content, creating adolescent confusion when they may not have the instruction to distinguish fact from fiction. (Neumark-Sztainer et al., 1999)

8. Interventions and Educational Programs

Solving the nutritional problems that confront adolescents necessitates multi-pronged approaches involving education, behavioural changes, and environmental change. Adolescents can be assisted to enhance their nutritional knowledge and eating behaviours through interventions and education programs that have the capacity to markedly enhance their dietary practices and nutritional knowledge. The programs can be delivered within schools, communities, using electronic means, and with the active participation of parents and healthcare workers. (Mancone et al., 2024)

8.1 School-based Nutrition Programs and Their Effectiveness

Schools are an important environment for engaging adolescents and have a special responsibility to influence their eating habits through formal nutrition education and intervention. School programs can provide explicit instruction to rectify adolescent nutrition knowledge gaps through education in balanced diets, portion management, and the significance of healthy eating. A number of studies have established that school-based nutrition programs have been very effective at altering the food attitudes and food behaviors of teenagers. Programs which combine classroom learning with experiential activities—like cooking classes, nutrition workshops, and gardening activities—tend to be more effective in motivating students. For example, the "Healthy Schools Program" of the Alliance for a Healthier Generation in the United States has

shown improvement in students' dietary intake, especially with regard to fruit and vegetable consumption. In addition, incorporating nutrition into the school lunchroom by offering healthier meal choices and limiting the access to junk food can support the learning that occurs in the classroom. A whole school environment that encourages healthy eating, physical activity, and emotional health is more likely to support sustained behaviour change. Yet, the success of school-based initiatives depends on various factors, including resource availability, school administration support, and the socio-cultural environment of the area. It is crucial that such programs are adequately funded and made accessible to students from all socioeconomic levels if their impact is to be optimized.(Mancone *et al.*, 2024)

8.2 Parents', Teachers', and Healthcare Providers' Role

Parent, teacher, and healthcare provider involvement is important to facilitate the reinforcement of healthy eating habits and ensure that adolescents are provided with equivalent nutrition education in multiple settings.

Parents: As guardians and role models, parents exert the greatest influence over adolescents' eating habits. Parent education programs that include meal planning, healthy food budgeting, and cooking skill instruction can equip families with the knowledge to make improved dietary choices. Parents who practice healthy eating habits at home are also more likely to have children with corresponding habits. Programs promoting meals with family can also promote healthier eating habits.

s: Teacher : Teachers can be great allies to nutrition education in school and to a healthy relationship with food. By incorporating nutrition into more holistic educational courses—like biology, health, or physical education—teachers can involve adolescents in the science of eating well. Teachers can also be role models by paying for healthy snacks in school and promoting physical activity.

Healthcare Workers: Pediatricians, nutritionists, and other healthcare workers can offer valuable recommendations on adolescent diet. Check-ups offer an opportunity to screen for diet-related disease (e.g., obesity, anemia) and provide individualized dietary counseling. Healthcare workers can also engage schools and communities to support nutrition-focused interventions and promote awareness about diet's contribution to long-term health.(Mancone *et al.*, 2024)

8.3 Digital and Mobile-based Educational Tools

Today's digital era is facilitated by mobile and digital platforms that offer innovative and new avenues to reach out to adolescents in nutrition education. Mobile applications, websites, and social media initiatives can offer information in interactive and bite-sized formats that are technologically appealing to adolescents. Mobile Applications: Numerous mobile applications have been created for tracking food consumed, learning nutrition, and gaining age, weight, and activity level specific information. Applications such as MyFitnessPal and Fooducate allow one to read barcodes from packaged foods and find nutritional information, portion control, and improved choices. Teenagers can be encouraged by such applications to keep an eye on their diet and take better choices regarding food.

Social Media Campaigns: Social media platforms like Instagram, YouTube, and TikTok can be utilized to spread good health messages and interactive content like cooking challenges, food swapping, and exercise routines. These platforms provide health organizations, nutritionists, and influencers a platform through which they are capable of reaching a large number of people with information content that tries to inform and inspire.

Interactive Websites: Web sites and websites that feature quizzes, videos, and study materials can help adolescents learn about nutrition in a highly interactive way. Websites like "Eat Move Grow" offer evidence-based content that helps teens learn healthy eating habits and long-term benefits of nutrition. The benefit of digital tools is that they are accessible, scalable, and can be utilized to reach large numbers of adolescents in a variety of settings. Yet digital literacy and smartphone or internet access are critical considerations for making these tools available to underserved populations. Successful interventions and education programs addressing adolescent

nutrition need to be multi-dimensional and all-encompassing. There can be important roles for school-based programs, family engagement, healthcare provider support, and digital interventions in enhancing adolescents' knowledge of healthy eating and inspiring them to eat more healthily. Through the application of these strategies and their incorporation into everyday life, it is likely that the information gaps and behavioural barriers which presently prevent adolescents from adopting healthier diets can be minimized.(Chung *et al.*, 2021)

9. Policy and Public Health Strategies

Teen nutrition is not merely an issue of personal choice but necessitates robust policy environments and public health interventions to tackle the population-level and environmental determinants shaping eating habits. Governments, public health agencies, and communities have to work together to make the environment conducive where healthy food choices are accessible, affordable, and culturally suitable for teens. Successful policy interventions can assist in lessening the influence of unhealthful food marketing, enhance the food environment in schools, and support nutrition education at a wider level.(Jia *et al.*, 2022)

9.1 Government Guidelines on Adolescent Nutrition

Most nations have established government policy to encourage eating well and disease prevention through dietary means among youths. Such guidelines usually emphasize eating balanced diet, restricting sugar, fat, and salt, and the regular consumption of vegetables, fruits, and whole foods. The U.S. Department of Agriculture (USDA) provides special recommendations for teenagers in its Dietary Guidelines for Americans. The guidelines highlight nutrient-dense foods and beverages, physical activity, and the need to reduce the intake of sugar-sweetened.(Bae *et al.*, 2012)

9.2 Community and School Food Policies

School and food community policies play a crucial role in shaping adolescents' eating habits, particularly since they spend most of their time there. Schools in particular offer an opportunity to make interventions that can directly affect students' nutrition.

School Meal Regulations: The majority of nations have enacted policies establishing standards for what is consumed at school. The majority of these regulations aim to enhance the visibility of healthy food options such as fruit, vegetables, and whole grain and limit access to snack foods and sugary beverages. The United States National School Lunch Program (NSLP) has, for example, been designed to provide nutritious meals to students in a bid to meet daily nutritional requirements.(Bae *et al.*, 2012)

Food Availability in Schools: School policy may also limit the sale of food in vending machines and through a la carte services to require that unhealthy foods be restricted or eliminated. Some states have implemented "food environments" in schools by limiting the sale of junk foods and sweetened beverages.

Community Initiatives: Communities are also able to institute programs including farmers' markets, urban agriculture initiatives, and mobile food stalls providing cheap nutritious meals, enhancing access to wholesome foods. Local governments can motivate businesses to promote healthy eating by offering tax relief or subsidies for the provision of healthy food choices on their premises. The policies are highly likely to enhance teen diets when fortified with nutrition education programs and backed by national and local governments. The policies must, however, be adequately funded, backed by political will, and with continuous community involvement to be successful.

9.3 Recommendations for Future Policy Improvements

To enhance adolescent nutrition, several policy changes can be considered at the national, regional, and global levels.

Improved Control Over Food Marketing to Adolescents: Marketing unhealthy food to kids and adolescents should be more effectively controlled. Governments can impose restrictions on the use of cartoon characters, celebrities, and social media personalities as a part of campaigns to market junk foods. Introducing plain packaging of food packs containing

information regarding the nutritional value of the food may also help adolescents make more informed food choices.

Increased Investment in Nutrition Education: All governments have the responsibility to make an investment in nutrition education on every level, starting with the schools, in order to familiarize adolescents with the principles of healthy food habits, portioning, and how poor diet takes its toll later. Nutrition education needs to become part of school curricula and have experiential learning lessons such as cookery classes, gardening activities as part of lessons to enhance learnability.

Promote Healthy Food Environments in Low-Income Communities: Healthy food access is a major barrier for low-income and rural youth. Public health efforts should aim to enhance food accessibility, including food subsidies, opening full-service grocery stores in underserved neighbourhoods, and providing healthy, affordable meals through community-based programs.

Stronger Inter-Stakeholder Collaboration: Governments must collaborate with non-governmental organizations, health service providers, the private sector, and schools to conceptualize and formulate policies that are aimed at boosting adolescent nutrition. Multi-sectorality is crucial so that interventions addressing nutrition are multifaceted and impactful.

Integrate Digital Technologies into Public Health Campaigns: With the pervasiveness of digital technology and social media in the lives of young people, public health efforts must now make use of these media to promote health. Governments can collaborate with digital technology companies, influencers, and digital health practitioners to deliver healthy eating messages through digital campaigns, apps, and online interactive materials.

Support Research and Data Collection: There should be sound data to inform future policy on teen nutrition. Governments and global organizations must sponsor studies that assess adolescent food consumption patterns, establish knowledge deficiencies in nutrition, and assess the effectiveness of current interventions. Policy and public health interventions are to be used in a crucial way for creating an environment which fosters the healthy eating habits of teenagers. By enhancing government advice, enhancing school and community food policy, and encouraging future policy improvements, it can be incredibly improved that teenagers have a better nutritional status and diet-related diseases decrease. Evidence-based, comprehensive, and integrated policies, supported by all segments of society, are needed for the development of long-term improvements in the health of adolescents. (Bae *et al.*, 2012)

10. Discussion

The implications of this review synthesize the complex interrelationship between the knowledge deficits of adolescents about nutrition, behavioural constraints, and the more general environmental and social determinants that result in unhealthy food intake.

10.1 Synthesis of Findings: Synthesis of Knowledge Gaps and Barriers in Interlinking

Adolescents' food selection is not only a function of ignorance, but of a mix of cognitive, behavioural, and environmental factors. Gaps in knowledge in regard to elementary concepts of nutrition, including the need for balanced foods, regulation of portion size, and nutritional content in readily available foods, are extensive among adolescents.

Environmental Barrier: Lower socioeconomic adolescents can have restricted access to healthy foods because of financial limitations or food deserts, and thus cannot apply nutrition knowledge. More importantly, the widespread advertising and promotion of unhealthy foods through social media and advertisements make it even more challenging to resist eating unhealthy foods. (Canavan and Fawzi, 2019)

10.2 Impact on Long-term Health: Obesity, Diabetes, Anemia, and More

The poor eating habits developed during adolescence can have long-term effects on health. Adolescence is a period of development and growth, and unhealthy nutrition can contribute to a number of different types of health

problems, many of which persist into adulthood. **Obesity:** The most extreme among the numerous issues brought on by poor teenage nutrition is obesity. Teenagers who consume high-calorie, low-nutrient foods have a higher likelihood of becoming obese or overweight. Teenage obesity has been linked to an increased risk of adult-onset diseases such as heart disease, hypertension, and type 2 diabetes. In addition, obesity has some psychological effects, which are felt almost instantaneously, like low self-esteem, depression, and stigmatization.

Diabetes: Poor diet, particularly excessive consumption of sweet foods and drinks, is one of the reasons that have placed type 2 diabetes at the forefront of emerging epidemics among adolescents. The condition, previously rare among young people, has increasingly been diagnosed due to poor diets, physical inactivity, and obesity. Adolescents with type 2 diabetes will spend their whole lives dealing with the condition and have a high risk of developing other complications, such as kidney disease, neuropathy, and heart disease. (Chakraborty *et al.*, 2018)

11. Conclusion

Adolescence represents a critical window for establishing lifelong dietary habits, yet it is also a period fraught with significant nutritional vulnerabilities. The review underscores that many adolescents lack foundational nutritional knowledge and fail to understand the importance of balanced diets, portion control, and the long-term consequences of poor eating habits. These knowledge gaps are further exacerbated by behavioral influences, including peer pressure, time constraints, and media-driven misinformation, which often lead to the normalization of unhealthy food consumption patterns. Environmental barriers such as food deserts, economic limitations, and inadequate school or community support further hinder access to nutritious food choices. Effective improvement in adolescent nutrition requires a comprehensive, multi-tiered approach. School-based programs must be reinforced with culturally relevant and engaging curricula that teach practical nutrition skills. Family involvement is crucial, as parents set the precedent for eating behavior and food availability. Furthermore, healthcare providers, policymakers, and educators must work collaboratively to create supportive environments that prioritize adolescent health. Public health strategies—such as regulating unhealthy food marketing, improving access to affordable nutritious foods, and leveraging digital tools—can play a transformative role in reaching youth at scale. Ultimately, bridging the nutritional knowledge gaps and mitigating behavioral and environmental barriers will require coordinated and sustained effort. Empowering adolescents with the knowledge, skills, and resources to make healthier dietary choices will not only improve their immediate well-being but also reduce the burden of non-communicable diseases in adulthood, securing a healthier, more resilient future generation.

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