Studies in Indian Anthropology and Sociology
Vol. 2, No. 2, 2025, pp. 217-239 • ISSN: 2584-2765

URL: http://www.pbjournals.com/siias
Publisher of Open Access Journals

An Anthropological Study of Balanced Diet Awareness and Practices Among Adolescents

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To Cite this Article

Mahesh Krishnan & Vinitha S Babu (2025). An Anthropological Study of Balanced Diet Awareness and Practices Among Adolescents. *Studies in Indian Anthropology and Sociology,* 2: 2, pp. 217-239.

Abstract: Adolescence is an important and critical phase of human growth and development. It is marked by rapid physical, psychological, and social changes, which would demand increased nutritional needs and thereby long-term health implications too. From the anthropologic perspectives, cultural practices influence adolescents' food choices and perceptions towards healthy food. Implicit in it are the sound awareness and practice of a balanced diet during this period, which are essential for optimal growth, cognitive development, and prevention of nutrition-related health problems. In this context, the present study aims to assess the level of awareness on balanced diet among adolescents and to evaluate, if it is reflected in their dietary practices.

A descriptive cross-sectional research design was adopted for the study. Primary data was collected using a structured questionnaire covering socio-demographic details of the participants, awareness on balanced diet, their dietary habits, sources of nutritional information, and suggestions for promoting healthy eating behaviour. Data was analysed using descriptive statistics, an awareness index, and the chi-square test.

Results indicated a high level of awareness among adolescents regarding balanced nutrition and food groups. However, this was not translated to practice, as was evident from the chi-square analysis, which revealed no significant association between awareness on balanced nutrition and dietary practices. Accordingly, the study concluded that awareness alone is insufficient, highlighting the need for supportive family, school, and food environments to promote healthy dietary behaviour among adolescents.

1. INTRODUCTION

Adolescence, generally defined as the age group between 10 and 19 years, represents a critical transitional phase between childhood and adulthood (World Health Organization, 2014). This stage is characterised by rapid physical growth, psychological

Received : 29 July 2025 • **Revised :** 30 August 2025 • **Accepted :** 08 September 2025 • **Published :** 22 September 2025

maturation, emotional changes, and evolving social roles. The transformations that occur during adolescence are multidimensional, encompassing biological, cognitive, emotional, and social domains. These changes collectively influence lifestyle behaviours, including food choices, physical activity, and health-related decision-making, which have long-term implications for adult health and well-being (Sawyer et al., 2012).

From a biological perspective, adolescence is marked by accelerated growth spurts, pubertal development, hormonal changes, and significant increases in height, weight, muscle mass, and bone density. Nearly 20–25 per cent of adult height and up to 45 per cent of adult skeletal mass are acquired during this stage (Spear, 2002). Such rapid growth substantially increases the body's demand for energy, protein, vitamins, and minerals. At the same time, adolescents experience important cognitive developments, including improved abstract thinking, memory, and learning capacity, which further elevate nutritional needs (Das et al., 2017).

Anthropology views adolescence as a culturally defined phase rather than a purely biological stage. Different societies recognise and manage adolescence in diverse ways through rites of passage, food taboos, and dietary prescriptions. In many traditional societies, specific foods are encouraged or restricted during adolescence to promote strength, maturity, and social responsibility. These cultural practices influence adolescents' food choices and perceptions of what constitutes appropriate or healthy food. Anthropology also emphasises the role of power, gender, and socio-economic status in shaping food access and consumption. In some cultural contexts, adolescent girls may face dietary restrictions due to gender norms, leading to nutritional vulnerability. Economic constraints further influence food availability and dietary diversity, affecting adolescents' nutritional status (Counihan & Van Esterik, 2013; Harris, 1985; Mintz & Du Bois, 2002).

Nutrition during adolescence, therefore plays a pivotal role in supporting both immediate and long-term health outcomes. Adequate and balanced nutrition during this stage contributes to optimal physical growth, cognitive development, emotional stability, immune competence, and academic performance. Conversely, inadequate or imbalanced nutrition may result in delayed growth, micronutrient deficiencies, reduced learning ability, fatigue, and increased susceptibility to infections (Black et al., 2013). Notably, nutritional inadequacies during adolescence may have lasting consequences, increasing the risk of chronic non-communicable diseases such as obesity, diabetes, cardiovascular disorders, and osteoporosis in adulthood (Popkin et al., 2012).

The concept of a balanced diet occupies a central place in nutritional science and public health discourse. A balanced diet refers to the consumption of a variety of foods

in appropriate proportions to meet the body's requirements for macronutrients and micronutrients while maintaining energy balance (National Institute of Nutrition [NIN], 2011). For adolescents, a balanced diet ensures adequate intake of carbohydrates for energy, proteins for growth and tissue repair, fats for energy storage and absorption of fat-soluble vitamins, minerals for metabolic regulation and physiological functioning. Dietary diversity and moderation are key principles underlying the concept of a balanced diet.

Despite the recognised importance of balanced nutrition, adolescents worldwide are increasingly exposed to unhealthy food environments. Processes such as urbanisation, globalisation, and technological advancement have transformed traditional food systems and dietary practices. The availability of processed and convenience foods, aggressive marketing strategies, changing family structures, academic pressure, and sedentary lifestyles have significantly altered adolescents' eating habits (Larson & Story, 2009). Traditional diets rich in cereals, pulses, fruits, and vegetables are being replaced by fast foods, packaged snacks, and sugar-sweetened beverages.

These changes have contributed to the emergence of a dual burden of malnutrition, particularly in low and middle-income countries such as India. Adolescents may simultaneously experience under-nutrition and micronutrient deficiencies, such as anaemia and calcium deficiency, alongside increasing prevalence of overweight and obesity (WHO, 2020). National surveys indicate that adolescent malnutrition remains a serious public health challenge in India, with substantial proportions of adolescents affected by anaemia, underweight, and unhealthy weight gain (IIPS & ICF, 2021).

Invariably, awareness on balanced diet is often viewed as a foundational step towards adopting healthy dietary practices. Schools, families, health programmes, and media serve as important means for disseminating nutrition-related information. Over the years, various governmental and non-governmental initiatives have aimed to improve nutritional awareness among adolescents (National Institute of Nutrition [NIN], 2011). However, research suggests that awareness alone may not be sufficient to bring about sustained behaviour change (Reddy et al., 2017) Adolescents often possess basic knowledge about healthy eating but fail to render this knowledge into practice due to social, cultural, economic, and environmental constraints (Kumar & Srivastava, 2016; Reddy et al., 2017).

Anthropology perceives food, not as mere source of nutrition, but a powerful cultural symbol that reflects social values, traditions, identity, and relationships. Eating practices are shaped by cultural norms, beliefs, and social structures, and these influences become particularly noteworthy during adolescence, a stage marked by

identity development and social integration (Mintz and Du Bois, 2002). Food habits are also deeply embedded in family and community life. Adolescents often inherit dietary patterns through socialisation within the household, where meals serve as spaces for learning cultural values and behavioural norms. Regular family meals reinforce shared food traditions, while disruptions in family eating patterns may weaken cultural continuity and influence adolescents to adopt external food practices.

Understanding the relationship between awareness and dietary practices is therefore crucial for designing effective nutrition interventions. In this context, the present study was undertaken to assess the level of awareness on balanced diet among adolescents and to examine whether such awareness is replicated in their dietary practices. The study further dwelled upon the awareness level of adolescents regarding the components and importance of balanced diet and the food preferences of adolescents. The study also explored the sources of nutritional information accessed by adolescents and their suggestions for improving healthy eating behaviour. By placing adolescent nutrition within the broader socio-cultural and environmental framework, the study sought to contribute to a comprehensive understanding of the persistent knowledge - practice gap. Overall, it explored this complex relationship and suggested strategies to improve nutrition awareness and ways to promote healthy eating habits.

2. REVIEW OF LITERATURE

Several studies have highlighted the importance of balanced diet for maintaining health and preventing nutritional deficiencies. A balanced diet is defined as one that provides adequate amounts of macronutrients and micronutrients necessary for growth and development (National Institute of Nutrition [NIN], 2011). Nutritional awareness refers to the understanding of food groups, nutrient functions, and healthy eating practices.

Singh and Kaur (2018) conducted a study among school-going adolescents in Punjab to assess awareness of balanced diet. The findings revealed that while a majority of students had heard about balanced diet, only a limited number could correctly identify all food groups and their functions. The study emphasised the need for structured nutrition education programmes in schools.

Similarly, Mishra and Pandey (2022) examined knowledge regarding balanced diet among adolescents in urban India and found moderate to high levels of awareness. However, misconceptions regarding portion size and daily nutritional requirements were common. The authors concluded that awareness alone does not ensure healthy dietary behaviour.

Adolescence is marked by rapid physical and psychological changes that increase nutritional demands. Adequate intake of energy, protein, vitamins, and minerals is essential to support growth spurts and cognitive development (Story & Stang, 2015). Iron and calcium deficiencies are particularly prevalent among adolescents, especially girls.

A study by Kaur, Singh, and Arora (2021) assessed micronutrient intake among adolescent girls and reported a high prevalence of iron deficiency anaemia. The authors highlighted that poor dietary diversity and inadequate awareness regarding nutrient-rich foods contributed to nutritional deficiencies.

Rathi, Riddell, and Worsley (2018) compared dietary patterns of adolescents in India and Australia and found that Indian adolescents consumed lesser quantities of fruits and vegetables. The study stressed the importance of culturally appropriate dietary interventions to improve adolescent nutrition.

Dietary practices among adolescents have undergone significant changes due to urbanisation, lifestyle modifications, and exposure to fast food culture. Skipping meals, frequent consumption of junk food, and low intake of fruits and vegetables are commonly reported dietary behaviours (Goyal & Chauhan, 2020). Joshi and Mehta (2019) studied dietary habits of adolescents in secondary schools and observed that a large proportion of students skipped breakfast regularly. The study linked irregular meal patterns with poor concentration and reduced academic performance.

Sharma and Gupta (2020) examined fast food consumption patterns among adolescents and found that taste preference, convenience, and peer influence were major factors influencing unhealthy eating habits. The authors warned that continued reliance on fast foods could increase the risk of obesity and lifestyle diseases.

One of the most consistent findings in adolescent nutrition research is the gap between awareness and actual dietary practices. While many adolescents possess basic knowledge of balanced diet, this knowledge does not always translate into healthy eating behaviour. Kumar and Srivastava (2016) explored the relationship between nutritional awareness and food practices among adolescents and reported a weak association between knowledge and behaviour. The study concluded that environmental and social factors often override nutritional knowledge.

Similarly, Reddy et al. (2017) found that despite high awareness of healthy eating, adolescents frequently consumed sugary beverages and fast foods. The authors suggested that behaviour change strategies should accompany awareness programmes.

Family environment plays a crucial role in shaping adolescents' food choices. Parental food habits, meal patterns, and attitudes towards nutrition strongly influence adolescents' dietary behaviour (Story & Stang, 2015).

Kumar and Kaur (2018) reported that adolescents who regularly consumed meals with their families were more likely to follow healthier diets. Conversely, lack of parental supervision was associated with increased consumption of junk food. Schools are important settings for nutrition education. Joshi and Mehta (2019) observed that students exposed to school-based nutrition education demonstrated better awareness on balanced diet compared to those without such exposure. However, the authors noted that practical application of knowledge was limited.

Adolescence is a nutritionally vulnerable period, as rapid physical growth, hormonal changes, and increased nutritional requirements coincide with evolving dietary behaviours. Inadequate or imbalanced nutrition during this stage can lead to a range of nutritional health issues that may persist into adulthood. Several studies have emphasized that adolescents are increasingly affected by both under-nutrition and over-nutrition, reflecting a dual burden of malnutrition, particularly in developing countries like India (WHO, 2020).

Micronutrient deficiencies are among the most common nutritional health problems observed in adolescents. Iron deficiency anaemia is widely prevalent, especially among adolescent girls, due to increased iron requirements during growth and menstrual blood loss. Studies have steadily reported low intake of iron-rich foods and poor dietary diversity among adolescents, contributing to fatigue, reduced academic performance, and impaired immunity (Kaur et al., 2021; Rao et al., 2015). Deficiencies of calcium and vitamin D are also common and may adversely affect bone growth and peak bone mass acquisition during adolescence (Spear, 2002).

In addition to deficiencies, the rising prevalence of overweight and obesity among adolescents has emerged as a major public health concern. Increased consumption of energy-dense, nutrient-poor foods, along with reduced physical activity, has been identified as key contributors to excessive weight gain. Research indicated that frequent intake of fast food and sugary beverages is strongly associated with overweight, obesity, and early onset of non-communicable diseases such as type 2 diabetes and cardiovascular disorders (Popkin et al., 2012; Rathi et al., 2018).

Poor dietary habits such as meal skipping, irregular eating patterns, and low intake of fruits and vegetables further aggravate nutritional health issues. Skipping breakfast has been linked to inadequate nutrient intake and poor concentration among adolescents (Mishra & Pandey, 2022). Moreover, socio-cultural factors, peer influence, and media exposure play a significant role in shaping unhealthy food choices, often overriding nutritional knowledge (Sharma & Gupta, 2020).

Overall, the literature suggests that nutritional health issues among adolescents are multifactorial and closely linked to changing dietary patterns and lifestyle factors. Addressing these issues requires comprehensive strategies that promote balanced diet

practices, improve food environments, and strengthen nutrition education during adolescence.

Media exposure has emerged as a significant factor influencing adolescents' dietary behaviour. Television advertisements, social media platforms, and digital content often promote high-calorie, low-nutrient foods (Sharma & Gupta, 2020). Fischler (1988) argued that food choices are closely linked to identity formation, particularly during adolescence. Peer groups play a vital role in shaping eating habits, as adolescents often consume food together as part of social interaction.

Anthropological studies emphasise that food is a cultural construct shaped by traditions, beliefs, and social relationships. Harris (1985) cited that food preferences are learned behaviours influenced by cultural and ecological factors. Singh and Verma (2021) found that peer influence significantly affected snack choices among adolescents, often encouraging unhealthy food consumption. The study recommended regulating food advertising targeted at young audiences.

Mintz and Du Bois (2002) viewed food consumption as a social practice that conveys identity and belonging. During adolescence, food choices often serve as expressions of independence and modernity, sometimes conflicting with traditional dietary norms.

Counihan and Van Esterik (2013) noted that globalisation has transformed food cultures, especially among youth. Traditional diets are increasingly replaced by processed foods, affecting nutritional quality. Anthropological perspectives thus provide valuable insights into adolescents' dietary behaviour beyond biological explanations.

India faces a dual burden of malnutrition, with both under nutrition and over nutrition prevalent among adolescents. According to the World Health Organization (2020), adolescent malnutrition remains a major public health concern in India.

National programmes such as Poshan Abhiyaan aim to improve nutritional outcomes; however, awareness and behavioural changes remain uneven. Studies indicate that socio-economic status, education, and access to healthy foods influence adolescents' nutritional awareness and practices (NIN, 2011).

3. MATERIALS AND METHODS

3.1 Research Design

The present study adopted a descriptive cross-sectional research design. This design was considered appropriate as the study aimed to assess the level of awareness on balanced diet among adolescents at a single point time and to examine their dietary practices, sources of nutritional information, and related factors, without affecting any variables.

The study was conducted in the selected educational institutions (schools and colleges) in Kerala. Schools from both government and private sectors were included to ensure a balanced representation. The framework provided an appropriate population of adolescents representing different age groups and educational levels.

The study population comprised adolescents aged between 13 and 19 years.

Both school-going adolescents (Classes 8–12) and college-level adolescents (Graduation students) were included in the study. Inclusion of both groups helped to capture variations in awareness and dietary practices across different stages of adolescence.

A total of 60 adolescents participated in the study. The respondents were selected using a stratified random sampling method. Adolescents who were present at the time of data collection and willing to participate were included in the study. The population was divided into several strata based on gender and type of school (government / private). This was followed by random sampling, within each stratum, to select participants proportionately.

3.2. Data Collection Procedure

Permission was sought prior to data collection, from the concerned school and college authorities. The consent from the parents were collected for the participants below the age of 18. The purpose of the study was explained to the respondents, and informed consent was taken. Confidentiality and anonymity of responses were assured.

Primary data was collected using a structured questionnaire developed specifically for the study. The questionnaire was designed after reviewing relevant literature and study objectives. It consisted of the following sections:

1. Socio-demographic details (age, gender, class)
2. Awareness on balanced diet (knowledge of food groups, importance of balanced diet, role of diet in growth and concentration)
3. Dietary habits and practices (meal patterns, fruit and vegetable intake, fast food and sugary drink consumption)
4. Sources of nutritional information
5. Suggestions for improving balanced diet practices

The questionnaire included both close-ended and multiple-choice questions to facilitate easy understanding and analysis.

3.3. Statistical Analysis

The collected data were coded, entered into Microsoft Excel, and analysed using Statistical Package for Social Sciences (SPSS) by IBM Inc.

The following methods were employed:

- Descriptive statistics such as frequency and percentage to describe demographic variables, awareness levels, and dietary practices
- Chi-square test to examine the association between awareness of balanced diet and dietary practices. The level of significance was set at $p < 0.05$.

4. RESULTS

4.1. Demographic Profile

4.1.1. Gender Distribution

Table 1 showed that out of the total 60 respondents, 32 (53.3%) were females and 28 (46.7%) were males. This indicated a slightly higher participation of female adolescents in the study. However, the gender distribution was balanced, ensuring adequate representation of both male and female respondents for meaningful analysis.

Table 1: Gender Distribution

Gender	*Frequency*	*Percentage*
Male	28	46.7%
Female	32	53.3%
Total	**60**	100%

4.1.2. Age distribution

Table 2 showed that the participants belonged to the age group of 13 to 19 years, representing early to late adolescence. The highest proportion of respondents was in the

Table 2: Age Distribution

Age (Years)	*Frequency*	*Percentage*
13	2	3.3%
14	7	11.7%
15	9	15.0%
16	7	11.7%
17	19	31.7%
18	11	18.3%
19	5	8.3%
Total	**60**	100%

17-year age group (31.7%), followed by those aged 18 years (18.3%). Lesser representation was observed among younger adolescents aged 13 years. This distribution indicated that the study included a larger number of middle and late adolescents, who are more likely to make independent dietary choices, thereby strengthening the relevance of the findings.

4.2. Awareness on Balanced Diet

All 60 respondents (100%) reported that they had heard about the concept of a balanced diet. This reflects a high level of basic awareness regarding nutrition among adolescents.

4.3. Dietary Practices of Adolescents

Although awareness was universal, only a very small proportion (8.3%) actually followed a balanced diet regularly. This clearly highlights a gap between awareness and practice. The data is shown in Table 3.

Table 3: Dietary Practices of Adolescents

Practice of Balanced Diet	*Frequency*	*Percentage*
Yes	5	8.3%
Sometimes	3	5.0%
No	52	86.7%
Total	60	100%

4.4. Awareness Index

An Awareness Index was constructed to measure the overall level of awareness regarding balanced diet among adolescents. The Awareness Index revealed that a large majority of respondents (83.3%) possessed high level of awareness regarding balanced diet. Only a small proportion (3.3%) showed moderate awareness, while none of the respondents fell under the low awareness category. This indicated that adolescents in the study area were well informed about the concept, components, and importance of a balanced diet. The score, classification of awareness levels and distribution of respondents by awareness level are shown in Tables 4, 5 and 6 respectively.

Table 4: Construction of Awareness Index

Component	*Maximum Score*
Heard about balanced diet	1
Correct meaning of balanced diet	1
Knowledge of food components (7 items)	7
Correct balanced meal choice	1
Awareness of impact on physical growth	1
Awareness of influence on concentration	1
Correct number of meals per day	1
Total Possible Score	12

Table 5. Classification of Awareness Levels

Score Range	*Awareness Level*
0 – 4	Low
5 – 8	Moderate
9 – 12	High

Table 6: Distribution of Respondents by Awareness Level

Awareness Level	*Frequency*	*Percentage*
High	50	83.3%
Moderate	2	3.3%
Low	0	0.0%
Total	60	100%

4.5. Relationship between Awareness and Dietary Practice

Chi-square test was conducted to examine the relationship between awareness on balanced diet and dietary practice. The calculated Chi-square value ($\chi^2 = 0.000$) with a p-value of 1.000 is greater than the level of significance (0.05). Hence, the null hypothesis was accepted. Cross-tabulation of Awareness vs Practice and Chi-Square Test Results are demonstrated in Table 7 and 8.

This indicated that there is no statistically significant relationship between awareness of balanced diet and actual dietary practices among the respondents. Although all adolescents were aware of the concept of a balanced diet, the majority did not practice it regularly. This finding highlighted a clear gap between knowledge and practice, suggesting that factors other than awareness - such as taste preference, time constraints, peer influence, and easy availability of fast food - played a more decisive role in shaping dietary behaviour.

Table 7: Cross-tabulation: Awareness vs Practice

Awareness of Balanced Diet	*Follow Balanced Diet Yes*	*Sometimes*	*No*	*Total*
Yes	5	3	52	60
No	0	0	0	0
Total	5	3	52	60

Table 8: Chi-Square Test Results

Statistic	*Value*
Chi-square (χ^2)	0.000
Degrees of Freedom (df)	2
p-value	1.000
Level of Significance	0.05

4.6. Distribution of Dietary Habits among Adolescents

Figure 1 depicts selected dietary habits of adolescents. A considerable proportion of respondents reported consuming breakfast daily, while adequate intake of fruits was lesser. Vegetable intake was better than fruit intake. At the same time, frequent consumption of fast food and sugary beverages were observed among a notable number of respondents. This pattern indicated unhealthy dietary practices, despite high awareness on balanced diet.

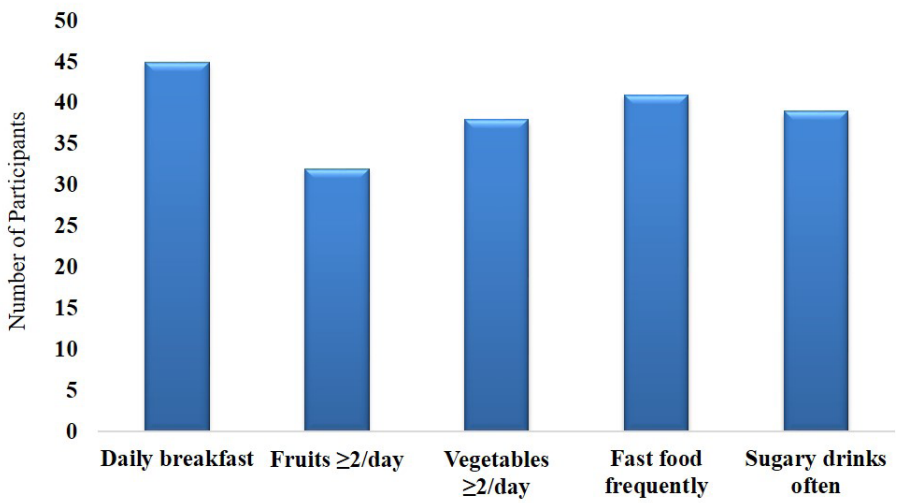

Figure 1: Dietary Habits among Adolescents

4.7. Sources of Nutritional Information

The data indicated that adolescents received nutritional information from multiple sources, including family, school, and media. Digital platforms such as social media and the internet play an increasingly important role, highlighting the need for accurate and responsible online nutrition messaging. The diagrammatic representation is shown in Figure 2.

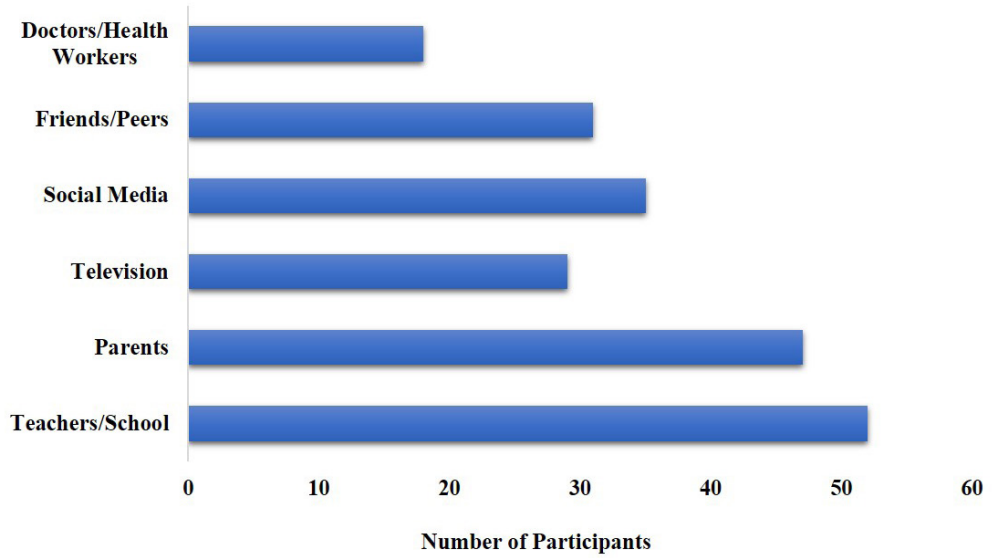

Figure 2: Sources of Nutritional Information

4.8. Suggestions for improving balanced diet practices

The pie diagram (Figure 3) illustrated respondents' suggestions for improving balanced diet practices among adolescents. Greater emphasis was placed on school-based nutrition education and awareness programmes, followed by parental guidance and availability of affordable healthy food options in school canteens. Suggestions related to regulating fast-food outlets near schools and promoting healthy content through social media were also emphasized, indicating the need for a multi-sectoral approach to improve adolescent nutrition.

Respondents strongly favoured school-based nutrition education and awareness programmes as effective measures to improve dietary practices. Parental guidance and availability of healthy food options were also considered important, indicating the need for a multi-level intervention approach.

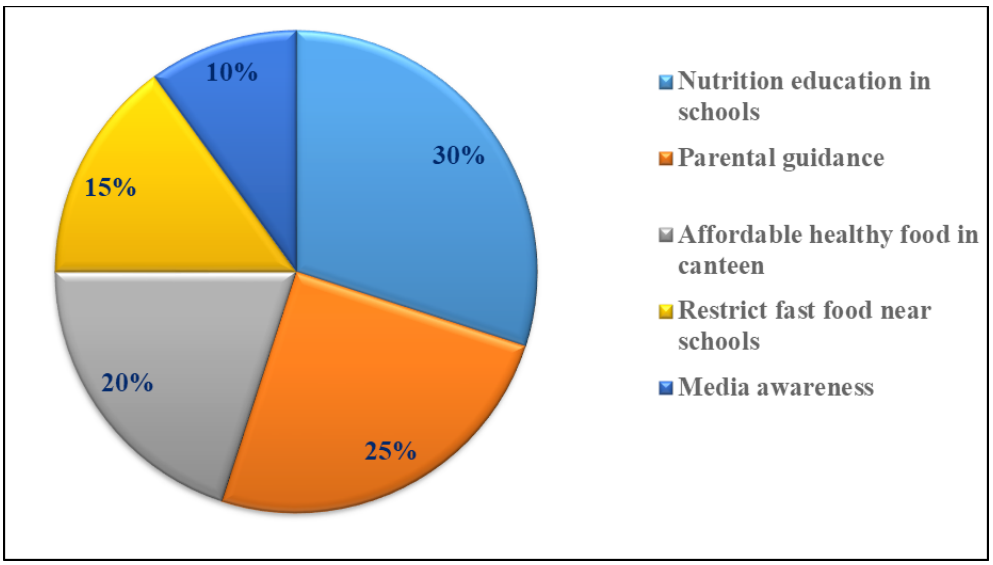

Figure 3: Suggestions to Improve Balanced Diet Practices

5. DISCUSSION

The present study sought to assess the level of awareness regarding balanced diet among adolescents and to examine whether such awareness is present in their dietary practices. The findings of the study provided valuable insights into the nutritional knowledge, eating behaviours, and contextual factors influencing food choices among adolescents. By analysing socio-demographic characteristics, awareness levels, dietary habits, sources of nutritional information, and perceived suggestions for improvement, the study contributed to a comprehensive understanding of adolescent nutrition, within the selected context.

The socio-demographic profile of the respondents revealed a balanced representation of male and female adolescents, which strengthened the applicability of the findings. Gender-balanced samples are particularly important in nutrition research, as dietary practices and nutritional vulnerabilities often differ between males and females during adolescence. Previous studies have reported gender-based differences in food intake and nutritional deficiencies, especially among adolescent girls who are at greater risk of iron deficiency anaemia due to biological and socio-cultural factors (Kaur et al., 2021). However, the equal participation in the present study allowed for an inclusive interpretation of awareness and practices across genders.

The age-wise distribution of respondents, ranging from early to late adolescence, is significant in understanding dietary behaviour. The age range of the respondents

included early, middle, and late adolescence, with a higher representation of older adolescents. Adolescents in the higher age groups, particularly those aged 17 - 19 years, constituted a substantial proportion of the sample. This age group demonstrated greater independence in food choices due to increased mobility, exposure to external food environments, and reduced parental control. Studies have shown that older adolescents are more likely to consume fast foods and sugary beverages and to skip meals compared to younger adolescents (Rathi et al., 2018). Therefore, the predominance of middle and late adolescents in the sample may partly explain the observed dietary practices.

The inclusion of both school-going and college-level adolescents further strengthened the study. Transition from school to college is often accompanied by changes in lifestyle, peer networks, and eating patterns. College students frequently eat outside the home and rely on canteens or street food, which may not always offer nutritionally balanced options. Earlier research has indicated that college-going adolescents tend to have irregular meal patterns and higher consumption of energy-dense foods (Joshi & Mehta, 2019). The present study's findings must thus be interpreted in light of these transitional stages.

Adolescence is a period marked by rapid physical growth, hormonal changes, and increased cognitive development, all of which significantly warrant higher nutritional requirements. Adequate intake of energy, proteins, vitamins, and minerals during this stage is essential to support growth spurts, muscle development, bone maturation, and neurological functioning. Studies have emphasized that insufficient intake of key nutrients such as protein, calcium, iron, and vitamin D during adolescence can impair linear growth, delay sexual maturation, and reduce peak bone mass, thereby increasing vulnerability to health problems later in life (Das et al., 2017; Spear, 2002). The findings of the present study, indicated irregular dietary practices, despite high awareness, suggesting that many adolescents may not be meeting these increased nutritional demands.

Inadequate nutrition during adolescence has been strongly linked with a range of nutritional deficiency disorders and health issues. Iron deficiency anaemia remains as one of the most prevalent conditions among adolescents, particularly among girls, and is associated with fatigue, reduced physical capacity, and impaired academic performance. Evidence from Indian and global studies indicates that poor dietary diversity and low consumption of iron-rich foods contribute significantly to this problem (Kaur et al., 2021; Rao et al., 2015). The dietary patterns observed in the present study, including low intake of fruits and vegetables, may increase the risk of micronutrient deficiencies among adolescents.

At the same time, the growing prevalence of diet-related non-communicable diseases among adolescents reflected a shift in disease patterns linked to changing food environments. Increased consumption of energy-dense, processed foods and sugary beverages has been associated with overweight, obesity, insulin resistance, and early markers of cardiovascular disease (Popkin et al., 2012). Research suggested that unhealthy dietary habits established during adolescence often persist into adulthood, thereby increasing long-term risk of chronic diseases such as type 2 diabetes and hypertension (Sawyer et al., 2012). The frequent consumption of fast food reported by respondents in the present study underscored this emerging public health concern.

One of the most notable findings of the study is the universal awareness on the concept of a balanced diet. All respondents reported having heard about a balanced diet, and a higher awareness index indicated that most of the participants possessed higher levels of awareness. This finding showed the increasing reach of nutrition-related information through school curricula, public health campaigns, and media. Similar high awareness levels have been reported in other Indian studies, suggesting that basic nutrition concepts are widely disseminated among adolescents (Singh & Kaur, 2018; Mishra & Pandey, 2022).

The high awareness index scores showed that adolescents are not only familiar with the term "balanced diet" but also have knowledge of food groups, essential nutrients, and the role of diet in physical growth and concentration. Such awareness is an encouraging aspect from a public health perspective, as knowledge is a prerequisite for informed decision-making. However, the findings also raise critical questions regarding the effectiveness of awareness in shaping or implementing a prudent dietary behaviour.

Notwithstanding the high awareness levels, most respondents did not report regular practice of a balanced diet. This discord between knowledge and behaviour represented the central theme of the study. The persistence of unhealthy dietary practices in the presence of high awareness highlights a well-documented phenomenon in nutrition research - the knowledge - practice gap. Several studies have observed that while adolescents may know what constitutes healthy eating, their actual food choices are influenced by factors such as taste preference, convenience, cost, and social environment (Kumar & Srivastava, 2016; Reddy et al., 2017).

The chi-square analysis further reinforced this interpretation by demonstrating no statistically significant association between awareness on balanced diet and dietary practice. The acceptance of the null hypothesis indicated that the awareness does not predict behaviour in this sample. This finding is consistent with previous research, which reported weak or non-significant relationships between nutritional knowledge and

dietary behaviour among adolescents (Joshi & Mehta, 2019). Such reports reinforces the limitations of awareness-based interventions, that do not address behavioural and environmental determinants.

The analysis of dietary habits revealed several patterns that warrant attention. While a proportion of adolescents reported regular breakfast consumption, intake of fruits and vegetables was suboptimal, and frequent consumption of fast food and sugary beverages was common. These findings align with national trends indicating inadequate consumption of protective foods and high intake of processed foods among adolescents (World Health Organization, 2020). Skipping or inadequately consuming nutrient-dense foods can compromise micronutrient intake, immunity, and overall health.

The relatively higher intake of vegetables compared to fruits may reflect cultural food practices, where vegetables are routinely included in main meals, whereas fruits are often consumed occasionally or considered non-essential. However, the low fruit intake observed in the study is concerning, as fruits are important sources of vitamins, minerals, and dietary fibre. Previous studies have similarly reported low fruit consumption among Indian adolescents, attributing it to cost, availability, and preference towards processed snacks (Rathi et al., 2018).

The frequent consumption of fast food and sugary drinks observed in the study highlights the growing influence of modern food environments. Easy availability of fast food outlets, aggressive marketing, and peer norms contribute to the popularity of such foods among adolescents. Sharma and Gupta (2020) noted that adolescents often associate fast food with convenience, taste, and social enjoyment, which can overshadow health considerations. These findings suggest that unhealthy dietary practices are deeply embedded in adolescents' daily routines and social interactions.

The examination of sources of nutritional information provided important inputs for understanding awareness levels. Schools and teachers emerged as the primary source of nutritional information, followed by parents. This highlighted the critical role of formal education and family environment in shaping adolescents' knowledge base. School-based nutrition education has been recognised as an effective means of improving awareness, particularly when integrated into the broader health education curricula (Story & Stang, 2015). However, the limited translation of awareness into practice observed in the present study suggests that knowledge acquired through formal education may remain theoretical, unless reinforced by practical experiences.

Parents as a major source of information showed the influence of household food practices and parental guidance. Adolescents who grew up in households that prioritise

balanced meals and regular eating patterns are more likely to develop healthy habits. Conversely, when parents themselves rely on convenience foods or have limited nutrition knowledge, adolescents may adopt similar practices (Kumar & Srivastava, 2016).

The role of media and digital platforms as sources of nutritional information illustrates changing information - seeking behaviours among adolescents. While media can serve as a valuable tool for health promotion, it also exposes adolescents to conflicting or vested viewpoints. Advertising of unhealthy foods, celebrity endorsements, and social media trends related to dieting and body image can influence adolescents' perceptions and choices (Sharma & Gupta, 2020). The dual role of media dual role of media both as information source and a risk factor brought out the need for regulation and responsible news making. The suggestions offered by respondents for improving balanced diet practices provide further insight into their understanding of structural and environmental influences. The emphasis on school-based nutrition education and awareness programmes indicated that adolescents recognise the importance of institutional support. These findings align with the evidences suggesting that comprehensive, participatory school programmes that include practical components like meal planning and cooking demonstrations are more effective than purely informational approaches (Joshi & Mehta, 2019).

Suggestions related to parental guidance, affordable healthy food options in school canteens, and regulation of fast-food outlets near educational institutions shows adolescents' awareness on environmental constraints. These points demonstrate that healthy eating is not solely an individual responsibility, but is shaped by availability, affordability, and environmental. Public health literature increasingly emphasises the importance of creating supportive food environments to facilitate healthy choices (WHO, 2020).

From an anthropological viewpoint, the results exemplify the complex interplay between culture, identity, and food choices during adolescence. Adolescents may possess awareness rooted in traditional and educational frameworks, yet their daily practices are influenced by peer culture, modern food symbols, and social norms, with reference to certain foods. Food consumption during adolescence often serves as a means of social bonding and self-expression, which can override nutritional considerations (Mintz & Du Bois, 2002). This perception explains, why high awareness, does not necessarily result in healthy practices.

Overall, the findings of the study reinforce the view that adolescent nutrition is a multifaceted issue requiring holistic interventions. Awareness of balanced diet is necessary but not sufficient to ensure healthy eating behaviour. Behavioural change

requires supportive family environments, school-based interventions, regulation of food marketing, and improved access to healthy food options. By elucidating the gap between awareness and practice, the present study contributes to the growing body of evidences calling for integrated approaches as far as adolescent nutrition is concerned.

Further, the analysis of dietary habits revealed several concerns too. While some adolescents reported regular breakfast consumption, intake of fruits and vegetables was generally low. At the same time, frequent consumption of fast food and sugary beverages was observed among a considerable proportion of respondents. These dietary patterns showed the growing influence of modern food environments, convenience foods, and taste preferences. Such practices may increase the risk of nutritional deficiencies, overweight, and lifestyle-related health problems.

Respondents' suggestions for improving balanced diet practices provided valuable insights into perceived solutions. Adolescents emphasised the importance of school-based nutrition education, awareness programmes, parental guidance, and the availability of affordable healthy food options. Suggestions related to regulating fast food outlets near schools and promoting healthy content through media platforms indicated an emerging understanding on the broader environmental and structural factors influencing dietary behaviour.

To sum up, findings of the study highlighted the complexities involved in adolescent dietary behaviour. While awareness of balanced diet is high, actual practice remains poor due to multiple interacting factors. The study underscored the need for comprehensive interventions that go beyond information dissemination and address behavioural, social, and environmental determinants of food choice. By focusing on awareness, practices, and contextual influences, the study contributes to a deeper understanding of adolescent nutrition and provides a foundation for developing effective strategies to promote healthy eating habits.

6. CONCLUSION

The present study concluded that the awareness of balanced diet among adolescents is high; however, this awareness does not translate into healthy dietary practices. The findings clearly demonstrated gaps between knowledge and behaviour, indicating that awareness alone is insufficient to bring about meaningful changes in adolescents' eating habits. In spite of understanding the concept and importance of a balanced diet, most adolescents do not follow it in their daily lives.

The lack of a significant relationship between awareness and dietary practice highlights the influence of external factors such as peer pressure, availability of fast food,

convenience, and lifestyle changes. Modern food environments and social influences appear to outweigh nutritional knowledge in shaping adolescents' food choices. This situation underlines the need for interventions that address not only individual awareness but also the broader social and environmental context.

Anthropological theories emphasise that eating practices are learned through socialisation within families, communities, and institutions. During adolescence, a stage marked by identity formation and increasing independence, food choices often become expressions of selfhood and social affiliation. The preference for fast food and packaged snacks observed in the study may therefore be interpreted as akin to modern lifestyles, peer bonding, and participation in global youth culture, rather than a simple rejection of nutritional knowledge. This cultural dimension explains why awareness of balanced diet does not automatically translate into healthy eating behaviour.

Family food practices further exemplify the cultural involvement on diet. Anthropological research has long viewed family meals as important sites of cultural transmission, where values, norms, and habits related to food are learned. Changes in family structures, time constraints, and reliance on convenience foods may weaken these traditional mechanisms of dietary socialisation, influencing adolescents' eating behaviour, despite high awareness. Similarly, schools function not only as centres of education but also as cultural spaces where food practices are shaped through peer interaction and institutional norms.

In conclusion, the findings of the study suggested that improving adolescent nutrition requires moving beyond information-based approaches to adopt culturally informed and context-sensitive strategies. Interventions must recognise adolescents as social actors whose food choices are shaped by culture, identity, peer relations, and structural conditions. An anthropological approach to adolescent nutrition emphasises the need to transform food environments, strengthen family and community food cultures, and engage adolescents in meaningful ways that align healthy eating with their social realities. Addressing adolescent nutrition through such a holistic lens is essential for bridging the gap between awareness and practice and for promoting sustainable, culturally appropriate dietary behaviours.

7. SUGGESTIONS FOR IMPROVEMENT

Based on the findings of the present study, several recommendations are proposed to improve awareness and practice of balanced diet among adolescents. Although awareness levels were found to be high, the gap between knowledge and actual dietary behaviour indicated the need for comprehensive changes and practical interventions.

Schools should strengthen nutrition education by incorporating activity-based learning, such as meal planning exercises, demonstrations of balanced meals, and discussions on healthy food choices. Nutrition education should not remain theoretical but should focus on developing practical skills that can help adolescents apply their knowledge in daily life.

Parents should be actively involved in promoting healthy eating habits at home. Encouraging regular family meals, providing balanced home-cooked food, and serving as positive role models can significantly influence adolescents' dietary behaviour. Parental guidance is especially important in limiting the consumption of fast food and sugary beverages.

Availability of affordable and healthy food options in school and college canteens should be ensured. Educational institutions may collaborate with local authorities to regulate the sale of unhealthy foods near campuses.

Media and social media platforms should be utilised responsibly to promote accurate and positive nutrition messages targeted at adolescents. Public health agencies can use digital platforms to disseminate simple, engaging, and culturally appropriate nutrition information.

Therefore, a multi-pronged approach involving schools, families, communities, and policymakers is essential to promote healthy dietary practices among adolescents.

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