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Assessment of Nutritional Status of Adolescent Boys and Girls (13-16 Years) in a Select School in North Chennai and the Conduct of a Nutrition Education Program

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Abstract: ***Adolescence is a critical stage of life characterised by rapid growth and development, during which adequate nutrition is essential for achieving optimum health and well-being. Unhealthy food habits, sedentary behaviour, peer influence, and poor nutrition awareness during this period can lead to malnutrition, micronutrient deficiencies, and the early onset of lifestyle-related disorders. The present study was undertaken to assess the nutritional status of adolescent boys and girls aged 13–16 years in a selected school in North Chennai, India and to conduct a Nutrition Education Program. The study included school-going participants from both genders and involved the collection of demographic data, anthropometric measurements such as height, weight, Body Mass Index (BMI), waist circumference, and mid-upper arm circumference. Clinical assessment included the recording of blood pressure, while dietary assessment was carried out using a Food Frequency Questionnaire and a 3-day food record. A pre-test and post-test questionnaire was used to evaluate the effectiveness of the Nutrition Education Program. The findings revealed that the mean Body Mass Index, waist circumference, mid-upper arm circumference, and blood pressure of the participants were within the normal range. However, unhealthy dietary practices such as meal skipping, frequent junk food consumption, and sedentary lifestyle habits were common. Mean intake of energy, calcium, and iron was significantly lower than the recommended dietary allowance, while fat intake was higher than recommended. A statistically significant improvement in nutritional knowledge was observed after the Nutrition Education Programme. Positive correlations were found between energy intake and Body Mass Index, and between energy intake and waist circumference. The study concluded that although anthropometric and clinical parameters were normal, poor dietary practices and nutrient inadequacies were prevalent among adolescents. Early nutritional intervention and continuous school-based nutrition education are essential for promoting healthy dietary habits and reducing the future risk of non-communicable diseases.***

Keywords: Nutritional status, Adolescents, Anthropometry, Dietary assessment, Nutrition Education Program, Malnutrition, Micronutrient deficiency, Lifestyle habits, Community health.

I. INTRODUCTION

Adolescence, derived from the Latin word *adolescere* meaning "to grow to maturity," is a transitional stage characterized by rapid physical, psychological, and social development. According to the World Health Organization, adolescents are individuals aged 10–19 years. This phase represents the transformation from dependence in childhood to self-sufficiency in adulthood and requires appropriate nutrition, guidance, and health support [1].

Globally, there are about 1.3 billion adolescents, accounting for nearly 16 per cent of the world population. India alone has approximately 253 million adolescents. Adequate nutrition during this stage is essential, as adolescents have increased nutrient requirements to support growth and development. However, malnutrition, including both insufficient and excessive nutrition, remains a major public health concern among this age group [2].

Malnutrition includes undernutrition, micronutrient deficiencies, overweight, obesity, and diet-related non-communicable diseases such as diabetes, cardiovascular disease, and certain cancers [3]. Recent evidence indicates that both undernutrition and overnutrition are increasingly prevalent among adolescents, particularly in low- and middle-income countries. In India, changing food habits, rapid urbanization, and sedentary lifestyles have further increased the burden of nutritional problems and associated health risks [2].

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Poor nutrition during adolescence can adversely affect present and future health outcomes. Inadequate dietary intake may lead to delayed growth, reduced immunity, poor academic performance, and increased susceptibility to infections. It may also contribute to the intergenerational cycle of malnutrition, where undernourished adolescent girls are more likely to become undernourished mothers and deliver low birth-weight infants. In addition, unhealthy dietary behaviours during adolescence may predispose individuals to non-communicable diseases later in life [1]. Non-communicable diseases now account for a major proportion of global mortality, with behavioural risk factors such as unhealthy diets, physical inactivity, obesity, and poor lifestyle practices often originating during adolescence. Diets rich in sugar-sweetened beverages, saturated fats, and processed foods significantly increase long-term disease risk. Since behaviours established during adolescence frequently continue into adulthood, early preventive interventions are essential [4].

Assessment of nutritional status is therefore important for identifying health risks and planning suitable interventions. Anthropometric measurements such as height, body weight, body mass index, waist circumference, and mid-upper arm circumference are widely used indicators of growth and nutritional status. Clinical assessments such as blood pressure measurement are also useful for early detection of risk factors such as hypertension and cardiovascular disease [5],[6],[7]. Dietary assessment methods help in understanding food habits, nutrient intake, and their effects on health [8].

Nutrition education programmes are effective tools for improving awareness and encouraging healthy food choices and lifestyle behaviours among adolescents. Although many students are aware of healthy eating concepts, barriers such as peer influence, media exposure, and easy access to unhealthy foods often affect their practices. Structured education can therefore help improve dietary habits and reduce future disease risk [9]. Urban areas such as North Chennai are undergoing a nutrition transition, where adolescents increasingly consume fast foods, skip meals, and engage in sedentary activities. These practices may contribute to both undernutrition and overweight or obesity among school students [10], [11]. This study focuses on adolescent boys and girls aged 13 to 16 years, aiming to assess their nutritional status, identify dietary inadequacies, and understand unhealthy lifestyle practices affecting their growth and health. The findings can guide targeted school-based interventions such as regular nutritional screening, balanced meal planning, health counselling, and physical activity promotion. Integrating nutrition education into school health programmes can strengthen awareness among adolescents, encourage healthier food choices, and reduce the future risk of malnutrition and non-communicable diseases, thereby contributing to a healthier future generation.

II. REVIEW OF LITERATURE

A. *Adolescence and Nutritional Needs*

Adolescence is a crucial stage marked by rapid physical, cognitive, and emotional growth, during which dietary habits and lifestyle patterns are established and often continue into adulthood [12]. It is divided into early and late adolescence, each characterized by major biological and psychological changes that increase nutrient requirements for growth, development, and maturation [13]. Good nutrition during this phase is essential to support physical growth, cognitive performance, reproductive health, and prevention of future nutrition-related disorders [14].

B. *Nutritional Requirements of Adolescents*

Adolescents require higher amounts of energy, protein, calcium, iron, zinc, and vitamins compared to many other age groups because of accelerated growth and hormonal changes. A balanced diet containing carbohydrates, proteins, fats, vitamins, and minerals is necessary for optimal growth and to reduce the risk of diet-related non-communicable diseases later in life [16],[15]. The recommended dietary allowance for Indian adolescents 13-16 years [16] is presented in table I.

Table I
Recommended Dietary Allowance for Indian Adolescents (13–16 years)

Nutrients	Boys (13–15 yrs)	Girls (13–15 yrs)	Boys (16 yrs)	Girls (16 yrs)
Body Weight (kg)	50.5	49.6	64.4	55.7
Energy (kcal/day)	2860	2400	3320	2500
Protein (g/day)	36	35	45	37
Fat (g/day)	45	40	50	35
Fibre (g/day)	43	36	50	38
Calcium (mg/day)	800	800	850	850

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Magnesium (mg/day)	287	282	367	317
Iron (mg/day)	15	17	18	18
Zinc (mg/day)	11.9	10.7	14.7	11.8
Iodine (µg/day)	100	100	100	100
Thiamine (mg/day)	1.6	1.3	1.9	1.4
Riboflavin (mg/day)	2.2	1.9	2.5	1.9
Niacin (mg/day)	16	13	19	14
Vitamin B6 (mg/day)	2.2	1.8	2.5	1.9
Folate (µg/day)	238	204	286	223
Vitamin B12 (µg/day)	2	2	2	2
Vitamin C (mg/day)	60	55	70	57
Vitamin A (µg/day)	430	420	480	400
Vitamin D (IU/day)	400	400	400	400

(ICMR, 2020)

C. Factors Affecting Food Choices in Adolescence

Food choices among adolescents are influenced by taste preferences, peer pressure, school environment, media exposure, convenience, family food habits, socioeconomic status, and food availability. As adolescents gain independence, they tend to consume more processed foods rich in sugar and fat while often neglecting nutrient-rich foods, increasing the risk of poor nutritional outcomes [17],[18].

D. Common Nutritional Problems in Adolescents

Indian adolescents face the double burden of malnutrition, where undernutrition coexists with overweight and obesity. Undernutrition leads to stunting, thinness, infections, poor school performance, and reduced productivity, while overnutrition contributes to obesity, diabetes, hypertension, and cardiovascular diseases [19],[20].

E. Micronutrient Deficiencies

Micronutrient deficiencies are common among adolescents and negatively affect growth, immunity, cognition, and overall health. Iron deficiency anaemia remains highly prevalent, especially among girls due to menstruation and increased growth demands. Deficiencies of vitamin D and calcium are also widespread and can impair bone development and increase future osteoporosis risk [21],[22],[23].

F. Non-Communicable Diseases and Lifestyle Risks

Behavioural risk factors for non-communicable diseases such as unhealthy diet, physical inactivity, obesity, smoking, and poor sleep often begin during adolescence.

These lifestyle patterns increase the future burden of diabetes, hypertension, cardiovascular diseases, and other chronic disorders if not corrected early [24],[25].

G. Assessment of Nutritional Status

Nutritional status can be assessed through anthropometric, clinical, biochemical, and dietary methods. Common anthropometric measures include height, weight, body mass index (BMI), waist circumference, and mid-upper arm circumference. Dietary tools such as food frequency questionnaires and food records help evaluate food intake patterns and nutrient adequacy [5],[26].

H. Nutrition Education Programme

Nutrition education during adolescence is effective in improving knowledge, attitudes, and dietary behaviours. Since adolescents spend much of their time in schools, school-based programmes using lectures, discussions, and roleplay are considered ideal strategies to promote balanced diets, regular physical activity, and healthy lifestyle habits [27],[28].

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III. METHODOLOGY

The present study was carried out to assess the nutritional status of adolescent boys and girls aged 13–16 years in a selected school in North Chennai and to conduct a Nutrition Education Program. The study focused on evaluating the participants' demographic profile, socio-economic status, dietary habits and nutritional awareness. A Cross-Sectional research design was adopted for the study.The sample consisted of 200 adolescents, including 100 boys and 100 girls, selected through purposive sampling from Dr. Radhakrishnan Matriculation Higher Secondary School, Kondungaiyur, North Chennai. The study was conducted during the period from November 2025 to March 2026. Prior to data collection, approval was obtained from the Institutional (Independent) Ethics Committee of Women's Christian College, Chennai. Informed assent from students and parental consent were obtained before participation.

Data were collected using structured tools, including a questionnaire to gather information on demographic details, family history of diseases, physical activity and dietary habits. Anthropometric measurements such as height, body weight, Body Mass Index (BMI), waist circumference and Mid-Upper Arm Circumference (MUAC) were recorded using standard procedures. Clinical assessment included measurement of blood pressure using a digital sphygmomanometer. Dietary assessment was carried out using a Food Frequency Questionnaire and a 3-day food record.

A pre-test questionnaire was administered to assess the participants' nutritional knowledge regarding nutrients, balanced diet, deficiency diseases, healthy eating habits, hydration, sleep and physical activity. Following this, a Nutrition Education Program was conducted using lectures, PowerPoint presentations and pamphlets. The programme emphasized the importance of balanced diet, basic food groups, prevention of nutritional deficiencies, harmful effects of junk foods, benefits of regular physical activity and adequate sleep. After completion of the programme, a post-test questionnaire was administered to evaluate the improvement in nutritional knowledge.

For data analysis, descriptive and inferential statistical methods such as arithmetic mean, standard deviation, Student's t-test and Karl Pearson's coefficient of correlation were used. The findings of the study are expected to provide valuable insights into the nutritional status of adolescents and highlight the importance of school-based nutrition education programmes in promoting healthy lifestyles and preventing nutrition-related disorders.

IV. RESULTS AND DISCUSSION

A. Results

Descriptive and Inferential statistical results are presented in the following tables:

1) Descriptive Results

TABLE II
DEMOGRAPHIC PROFILE OF PARTICIPANTS

S. No	Study Design	Statistical Analysis	ample Size	Variable	Observation		Interpretation
					Boys	Girls	
1	Cross-Sectional research design	Descriptive statistics (Mean, standard deviation, percentage)	N = 200	Sex Distribution	50%	50%	Equal distribution
2				Age 13-16 years	13.86 ± 0.86	13.97 ± 0.91	Adolescents
3				Education	Class VIII: (32%), Class IX: (41%), Class X: (27%)	Class VIII:(25%) Class IX: (42%) Class X: (33%)	Majority of boys and girls were in class IX.
4				Income	Very low income:(20%) Low income:(54%) Middle income I:(20%) Middle income II:(6%)	Very low income:(16%) Low income: (44%) Middle income I:(24%) Middle income II: (16%)	Economic limitation
5				Family Type	Majority of boys belong to nuclear families (boys 64%)	Majority of girls belong to nuclear families (67%)	Common pattern

TABLE III
LIFESTYLE AND HEALTH BEHAVIOURS

S. No	Study Design	Statistical Analysis	ample Size	Variable	Major Observation		Interpretation
					Boys	Girls	
1	Cross-Sectional research design	Descriptive statistics (Mean, standard deviation, percentage)	N = 200	Regular Sleep Pattern	Yes (66%)	Yes (57%)	Majority followed a regular sleep routine indicating structured sleep behaviour
2				ours of Sleep	6–7 hrs (31%)	6–7 hrs (37%)	Most participants slept 6–7 hours, slightly below recommended levels
3				Sleep Quality	Sound and refreshing (61%)	Sound and refreshing (65%)	y experienced good quality sleep
4				Physical Activity	Majority of boys (45%) were involved in Jogging	Majority of girls (31%) were involved in Yoga	based preference observed
5				Leisure Activity	(64%) were watching TV/mobile	(69%) were watching TV/mobile	ntary lifestyle was predominant
6				Family History of Disease	Hypertension (27%), Diabetes (26.5%), CHD (24%)	Diabetes (50%), Hypertension (47%), CHD (20%)	Family history of chronic diseases was prominent, especially diabetes and hypertension
7				Personal History of Disease	No disease	Ulcer (1%)	Majority were free from diagnosed diseases

Table IV Diet History

S. No	Study Design	Statistical Analysis	Sample Size	Variable	Major Observation	Interpretation
1	Cross-Sectional research design	Descriptive statistics (Mean, standard deviation, percentage)	N = 200	Diet Type	Majority non-vegetarian (boys 60% and girls 66%)	Participants predominantly followed a non-vegetarian diet
2				Food Appetite	Majority reported good e (boys 68% and girls 67%)	Indicates stable eating behaviour
3				Meal Skipping	Majority of boys (60%) girls (63%) were skipping meal	evalence of meal skipping among both groups
4				pe of Meal Skipped	Breakfast is most commonly skipped (boys 62% and girls 55%)	g breakfast may affect energy balance
5				Frequency of Eating Outside	Majority of the boys (36%) and girls (34%) consumed outside food occasionally, followed by boys (35%) and girls (56%) who consumed food outside once or twice a week	This indicates that outside food consumption is common among both boys and girls, though mostly limited to occasional or weekly intake rather than daily consumption.
6				Food Allergy	Negligible in both groups	Food allergy not common

7				Water Consumption	Majority drink 6-8 glasses (boys:59% and girls 44%)	hydration among majority
8						
9				everage Intake	Majority of them consume tea (boys 46% and girls 52%)	ke of caffeinated beverages
10						
11				Cooking Oil	Sunflower oil is the most common (boys 76% and girls 77%)	This indicates that sunflower oil is the most preferred cooking oil among participants, while the use of other oils like groundnut and gingelly oil is comparatively low.
12				Frequency of Junk Food Consumption	Majority of the boys (54%) and girls (40%) consumed junk food 1-2 times a week	Junk food consumption is common among both boys and girls, but mostly limited to weekly intake rather than daily consumption
13				Junk Food with Friends/Alone	Majority of the boys (84%) and girls (72%) consumed junk food with friends	Junk food consumption is largely influenced by social interactions, with most participants preferring iends rather than alone.
14				ting Junk Food	A considerable proportion of boys (38%) and girls (44%) expressed a desire to limit junk food consumption, while the majority of boys (62%) and girls (56%) did not.	A considerable proportion of boys and girls expressed a desire to limit junk food consumption, while the majority did not.
15				Concern about the health effects of eating junk foods	A higher percentage of boys (41%) and girls (26%) had thought about the health effects of junk food but had not tried to change, while many boys (37%) and girls (53%) were not concerned.	This indicates that although some awareness exists, it does not lead to behavioral change, and overall concern about health effects is low among participants.

2) Inferential Statistical Analysis

Table V Anthropometric And Clinical Findings

S. No	Study Design	tatistical Analysis	mple Size	Variable	Observation		Interpretation
					Boys	Girls	
1	Cross-Sectional research design	Descriptive statistics (Mean, standard	N = 200	BMI	20.16 ± 3.63	20.23 ± 3.70	BMI of both boys and girls falls within normal range
2				Waist Circumference	72.95 ± 10.09	74.04 ± 10.20	Waist circumference within normal limits
3				MUAC	22.48 ± 2.98	22.51 ± 2.97	MUAC normal in boys; slightly above normal in girls
4				Systolic BP	110.75 ± 16.45	111.68 ±11.25	Systolic BP within normal range
5				Diastolic BP	78.76 ± 12.70	80.11 ± 9.08	Diastolic BP within normal range

Table VI
Nutrient Intake Compared to RDA

S. No	Study Design	tatistical Analysis	mple Size	Nutrient	RDA		Mean Intake±S.D		't' value		Level of Significance	Interpretation
					Boys	Girls	Boys	Girls	Boys	Girls		
1	Cross-Sectional research design	One sample t-test	N = 200	Energy	2860	2400	1960.97 ± 419.16	2038.09 ± 356.75	21.44	10.14	P < 0.001	Energy intake is significantly lower than RDA in both boys and girls, indicating inadequate calorie consumption
2				Protein	45	43	40.38 ± 8.54	50.88 ± 13.67	5.4	5.76	P < 0.001	Boys have slightly inadequate protein intake, ile girls have adequate to higher intake compared to RDA
3				Fat	45	40	67.24 ± 28.95	68.77 ± 22.45	7.68	8.36	P < 0.001	Fat intake is higher than RDA in both groups, indicating excessive fat consumption
4				Calcium	1000	1000	412.86 ± 141.61	605.52 ± 262.61	41.46	15.02	P < 0.001	Calcium intake is significantly lower than RDA in both boys and girls, indicating poor intake of calcium-rich foods
5				Iron	22	30	11.14 ± 3.88	14.79 ± 5.32	27.95	28.56	P < 0.001	Iron intake is significantly elow RDA in both groups, indicating risk of iron deficiency

TABLE VII NUTRITION EDUCATION IMPACT

S. No	Study Design	Statistical Analysis	ample Size	Test	Mean Score ± S.D	't' value	Level of Significance	Interpretation
1	Cross-Sectional research design	Paired t-test	N = 200	Boys (Pre-test)	4.80 ±2.17	38.59	p < 0.001	Low baseline knowledge
2				Boys (Post-test)	15.93±2.20			Significant knowledge gain
3				Girls (Pre-test)	5.13 ± 2.38	39.13	p < 0.001	ow baseline knowledge
4				Girls (Post-test)	15.94±2.06			Significant knowledge gain

B. Discussion

The discussion section aims to interpret the findings of the present study in the light of existing literature and recommended dietary guidelines. It provides a deeper understanding of the nutritional status, dietary habits, lifestyle practices, and health indicators observed among the adolescent participants. Furthermore, this section highlights the importance and effectiveness of the Nutrition Education Programme conducted as part of the study, and how it improved the participants' nutritional knowledge and awareness. Based on the findings, important observations are discussed to draw meaningful conclusions and suggest future measures for promoting adolescent health.

C. Highlights of the Research Study

The study revealed that many participants had inadequate intake of important food groups such as fruits, green leafy vegetables, pulses, and milk products, which are essential sources of vitamins, minerals, fibre, and protein needed for growth, immunity, and healthy development during adolescence.

1) A common dietary pattern observed among the participants was frequent consumption of junk foods, fried snacks, bakery foods, sugar-sweetened beverages, and outside foods. These foods are rich in unhealthy fats, salt, and empty calories, which may increase the risk of obesity, metabolic disorders, and future cardiovascular diseases.
2) Many participants consumed tea, coffee, soft drinks, and other beverages regularly. Excessive intake of caffeinated or sugary beverages may interfere with appetite, nutrient absorption, hydration balance, and overall diet quality.
3) Skipping meals, especially breakfast, was a common behaviour among the participants. Irregular meal patterns may reduce concentration, lower energy levels, affect academic performance, and promote overeating later in the day.
4) Although some participants were involved in physical activities such as jogging, yoga, and sports, a large proportion spent leisure time watching television or using mobile phones. Sedentary behaviour combined with poor diet may contribute to unhealthy weight gain and poor fitness.
5) Anthropometric findings showed that the mean BMI, waist circumference, and mid-upper arm circumference of participants were within normal limits. However, unhealthy dietary habits during adolescence may increase future health risks if not corrected early.
6) Blood pressure levels of both boys and girls were within the normal range. A weak positive correlation between BMI and blood pressure suggests that increased body weight may gradually influence cardiovascular health over time.
7) Dietary analysis revealed that mean intake of energy, calcium, and iron was lower than the recommended dietary allowances among many participants. Inadequate intake of these nutrients during adolescence may affect bone growth, haemoglobin levels, immunity, and physical performance.
8) Mean fat intake exceeded recommended levels among many participants, indicating higher consumption of fried foods, processed snacks, and poor-quality fats. This may increase the risk of obesity and metabolic complications.
9) The Nutrition Education Programme conducted as part of the study was found to be highly effective in improving participants' nutritional knowledge and awareness. The sessions helped them understand balanced diet principles, healthy food choices, hydration, breakfast importance, and physical activity.
10) As a result of the education programme, participants became better informed and motivated to adopt healthier dietary and lifestyle practices. These positive behavioural changes can contribute to improved growth, better academic performance, and reduced long-term disease risk.

V. CONCLUSIONS

The present study provided valuable insights into the nutritional status, dietary habits, lifestyle practices, and health awareness among adolescent boys and girls aged 13–16 years studying at Dr. Radhakrishnan Matriculation Higher Secondary School, Kondungaiyur, North Chennai.The findings revealed that although the anthropometric and clinical parameters such as body mass index, waist circumference, mid-upper arm circumference, and blood pressure were within normal limits, the dietary habits of many participants were not fully satisfactory. Meal skipping, especially breakfast skipping, frequent consumption of junk foods and outside foods, regular intake of beverages, and low intake of nutrient-rich foods were commonly observed.

The mean nutrient intake of energy, calcium, and iron was significantly lower than the recommended dietary allowances among both boys and girls. Protein intake was lower among boys, while fat intake was higher than recommended levels in both groups. Such imbalanced food intake during adolescence may lead to nutrient deficiencies, poor growth, reduced immunity, and increased risk of non-communicable diseases in adulthood.

Although a considerable number of participants engaged in physical activities such as jogging and yoga, many also spent leisure time in sedentary activities like mobile phone usage and television watching. Therefore, strengthening healthy lifestyle habits along with proper nutrition is essential during adolescence.

Importantly, the Nutrition Education Programme conducted as part of this study served as an effective intervention. It significantly improved the participants' knowledge regarding balanced diet, My Plate concept, healthy food choices, water intake, breakfast consumption, and the importance of physical activity. The programme empowered adolescents to make healthier decisions for their present and future well-being. Hence, the present study clearly indicates that early nutritional intervention and continuous nutrition education among adolescents are highly important for promoting healthy eating habits, preventing nutrient deficiencies, and reducing long-term health risks. By improving nutritional awareness during adolescence, a healthier future generation can be developed

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REFERENCES

[1] Jaleel, A., Chilumula, M., Chukkala Satya, S. G., Singnale, P., Telikicherla, U. R., and Pandurangi, R. (2024) The Assessment of Nutritional Status of Adolescents Aged 15-18 Years Using BMI Cutoffs and BMI Z Scores: A Secondary Analysis of National Family Health Survey-5 (2019-21) Data. Cureus, 16(5): e59800.

[2] Ferozi, S., Taneja, A. G., and Bakshi, N. (2024) Assessment of nutritional status, physical fitness and physical activity of school going adolescents (12-15 years) in Delhi. BMC pediatrics, 24(1): 331.

[3] World Health Organization. (2024, March 1) Malnutrition [Fact sheet].

[4] Joshi, K., Panchani, R. V., Bera, O. P., & Modi, A. (2024). Non-communicable diseases among youth in India: A critical public health challenge. Journal of the Epidemiology Foundation of India, 2(2), 50–55.

[5] Gibson, R. S. (2025) Principles of Nutritional Assessment (3rd ed.). Oxford University Press, Inc.

[6] Riley, M., and Bluhm, B. (2012) High blood pressure in children and adolescents. American family physician, 85(7): 693-700..

[7] Vasudevan, A., Thomas, T., Kurpad, A., and Sachdev, H. S. (2022) Prevalence of and factors associated with high blood pressure among adolescents in India. JAMA Network Open, 5(10): e2239282-e2239282.

[8] Bailey R. L. (2021) Overview of dietary assessment methods for measuring intakes of foods, beverages, and dietary supplements in research studies. Current opinion in biotechnology, 70: 91–96.

[9] Story, M., Neumark-Sztainer, D., and French, S. (2002) Individual and environmental influences on adolescent eating behaviors. Journal of the American Dietetic Association, 102(2): S40–S51.

[10] Kaur, S., Kumar, R., and Kaur, M. (2025) Nutritional assessment of adolescents: A cross-sectional study from public schools of North India. PLoS ONE, 20(1): e0316435

[11] Falak, F., Ahmad, A. M. R., Mahmood, H., Malik, Z. I., Shah, S. H. B. U., Abid, J., and Irfan, M. (2025) Diet quality and its associated factors among adolescents in high schools of Rawalpindi and Islamabad. Frontiers in Public Health, 13: 1651903.

[12] Hargreaves, D., Mates, E., Menon, P., Alderman, H., Devakumar, D., Fawzi, W., Greenfield, G., Hammoudeh, W., He, S., Lahiri, A., Liu, Z., Nguyen, P. H., Sethi, V., Wang, H., Neufeld, L. M., & Patton, G. C. (2022). Strategies and interventions for healthy adolescent growth, nutrition, and development. Lancet (London, England), 399(10320), 198–210. https://doi.org/10.1016/S0140-6736(21)01593-2.

[13] Carrasco-Luna, J., Gombert, M., Carrasco-García, A., and Codoñer-Franch, P. (2018) Adolescent feeding: Nutritional risk factors. Journal of Child Science, 8(1): e99-e105. Georg Thieme Verlag KG Stuttgart · New York.

[14] Diksha, Saluja, N., Choudhary, S., Pandey, S. M., Kundu, M., and Singh, M. (2020) Assessment of nutritional status of school going adolescent girls in a rural block of Haryana, India. International Journal of Community Medicine And Public Health, 7(3): 1051–1054.

[15] Indian Council of Medical Research–National Institute of Nutrition. (2024) Dietary guidelines for Indians (Revised ed.) ICMR–National Institute of Nutritio.

[16] Indian Council of Medical Research–National Institute of Nutrition. (2020) Short report of nutrient requirements for Indians: Recommended dietary allowances (RDA) and estimated average requirements (EAR) – 2020. ICMR–National Institute of Nutrition.

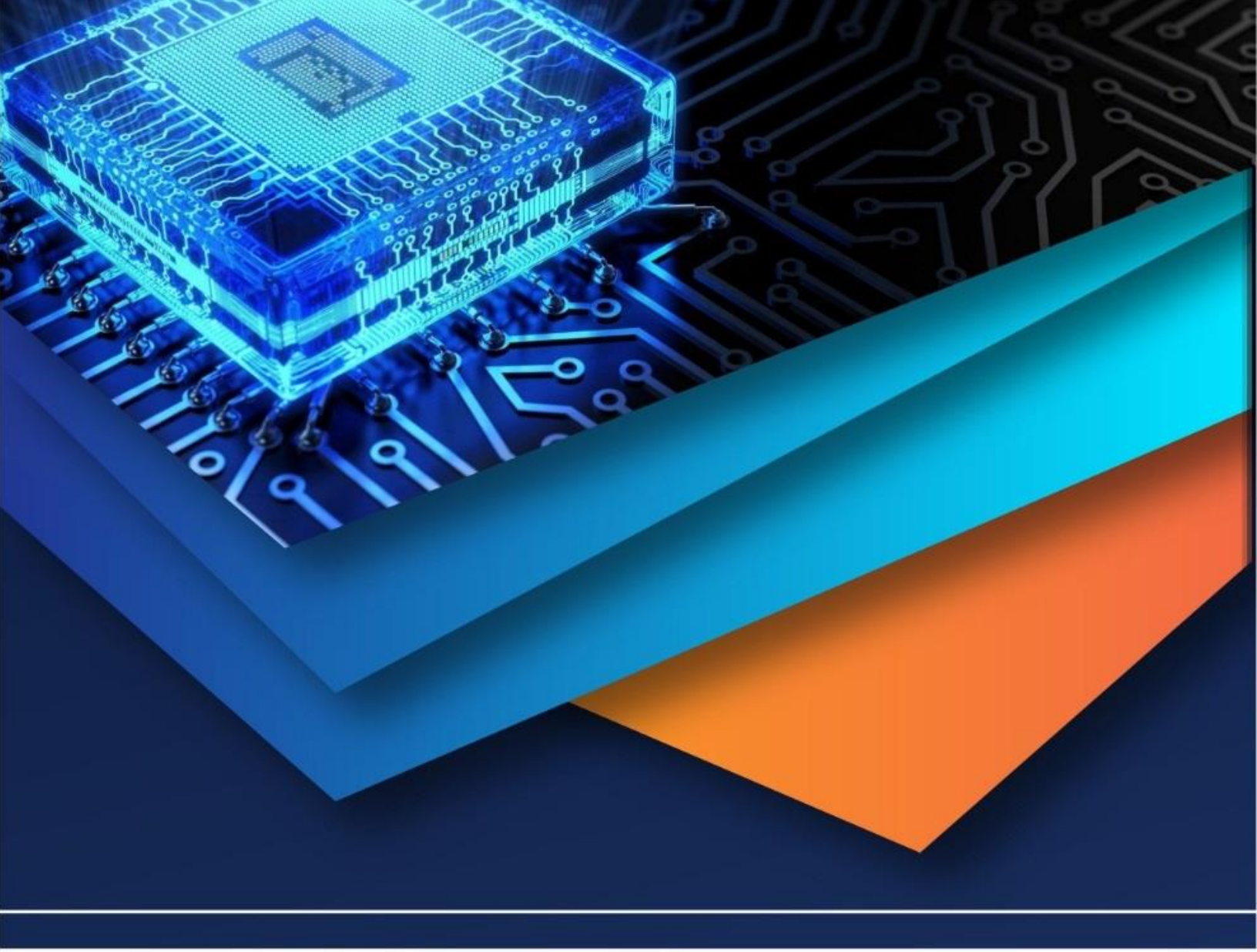
[17] Sree, S., Palanisamy, B., and Sivakumar, S. P. (2025) Understanding the influencing factors of adolescents' (12–17) healthy and unhealthy food choices and experiences in Tamil Nadu, India: A socioecological perspective. Appetite, 214: 108164

[18] Bundy, D. A. P., de Silva, N., Horton, S., Jamison, D. T., and Patton, G. C. (Eds.) (2017) Child and adolescent health and development (3rd ed.) World Bank.

[19] Pandurangi, R., Mummadi, M. K., Challa, S., Reddy, N. S., Kaliaperumal, V., Khadar Babu, C., Telikicherla, U. R., Pullakandham, R., Geddam, J. J. B., and Hemalatha, R. (2022) Burden and Predictors of Malnutrition Among Indian Adolescents (10-19 Years): Insights From Comprehensive National Nutrition Survey Data. Frontiers in public health, 10: 877073.

[20] Balasubramanya, B., Johnson, A. R., and Sulekha, T. (2024) Double burden of malnutrition among adolescents: Evidence from a cross-sectional study among school-going adolescents in Bangalore city. Indian Journal of Health Sciences and Biomedical Research (KLEU), 17(3): 224–229.
[21] Chauhan, S., Kumar, P., Marbaniang, S. P., Srivastava, S., and Patel, R. (2022) Prevalence and predictors of anaemia among adolescents in Bihar and Uttar Pradesh, India. Scientific reports, 12(1): 8197.
[22] Khadilkar, A., Kajale, N., Oza, C., Oke, R., Gondhalekar, K., Patwardhan, V., Khadilkar, V., Mughal, Z., and Padidela, R. (2022) Vitamin D status and determinants in Indian children and adolescents: A multicentre study. Scientific Reports, 12(1): 16790.
[23] Singh, A., Kelkar, N., Natarajan, K., and Selvaraj, S. (2021) Review on the extraction of calcium supplements from eggshells to combat waste generation and chronic calcium deficiency. Environmental Science and Pollution Research International, 28: 46985 - 46998.
[24] Puwar, T., Saxena, D., Yasobant, S., and Savaliya, S. (2018) Noncommunicable Diseases among School-going Adolescents: A Case Study on Prevalence of Risk Factors from Sabarkantha District of Gujarat, India. Indian Journal of Community Medicine : Official Publication of Indian Association of Preventive and Social Medicine, 43: S33 - S37.
[25] Choudhary, N., and Bahl, R. (2025) Prevalence and distribution of behavioural risk factors for non communicable diseases among students in 15 to 25 year age group in Jammu, Jammu and Kashmir. International Journal Of Community Medicine And Public Health, 12(4): 1793–1800.
[26] Rai, A., Gupta, S., Rikhari, A., Akansha, and Mayura, N. K. (2025) Clinical nutritional assessment: Advances, challenges, and future directions in screening and diagnosis. Journal of Current Research in Food Science, 6(2): 12–17.
[27] Fahrizki, D. D., and Dwiriani, C. M. (2025) Digital-based nutrition education on nutrition knowledge and behaviors in adolescents: A systematic review. BIO Web of Conferences, 153: 02009.
[28] Collado-Soler, R., Alférez-Pastor, M., Torres, F. L., Trigueros, R., Aguilar-Parra, J. M., and Navarro, N. (2023) A systematic review of healthy nutrition intervention programs in kindergarten and primary education. Nutrients, 15(3): 541.

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