



UNHEALTHY FOOD CONSUMPTION PATTERNS AND THEIR ASSOCIATION WITH HEALTH AMONG SCHOOLERS IN A METROPOLITAN CITY: DEVELOPMENT OF A DIGITAL HEALTH GUIDE

Nursing Science

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ABSTRACT

Background: Unhealthy food consumption among school-aged children is an increasing public health concern, contributing to nutritional imbalance and adverse health outcomes. **Objectives:** (1) To identify unhealthy food consumption patterns among schoolers, (2) to determine the association between unhealthy food consumption and health indicators, and (3) to develop a digital health guide, "Snack Right, Stay Bright," to promote healthy eating habits. **Methods:** A descriptive, quantitative, non-experimental study was conducted among 210 schoolers (Classes 5–10) selected through stratified random sampling from a metropolitan school. Data were collected using a semi-structured questionnaire and a modified Food Frequency Questionnaire (FFQ). Descriptive statistics and chi-square tests were used for analysis. **Results:** Most schoolers (85.23%) demonstrated a moderate level of unhealthy food consumption. Breakfast skipping (45.67%), food cravings, and irregular fruit and vegetable intake were common. A significant association was observed between BMI and consumption of unhealthy main dishes ($\chi^2 = 145, p < 0.001$) and condiments ($\chi^2 = 113, p < 0.001$), while side dishes, beverages, and desserts showed no significant association with BMI. **Conclusion:** Core meal components and condiments have a stronger influence on BMI than occasional snacks. The findings highlight the need for targeted, engaging digital nutrition education. The "Snack Right, Stay Bright" digital guide was developed to address identified gaps and promote sustainable healthy eating practices among schoolers.

KEYWORDS

Unhealthy food consumption, schoolers, BMI, digital health education, snack habits, adolescent nutrition

INTRODUCTION

Unhealthy dietary habits formed during adolescence can negatively influence long-term health. Factors such as urbanization, easy availability of processed foods, peer influence, and limited nutrition awareness contribute to poor eating practices among school-aged children, leading to adverse health outcomes. Although evidence links unhealthy diets to excess weight gain, the impact varies by food type and consumption frequency. Digital platforms offer promising opportunities for nutrition education; however, limited research in metropolitan Indian school settings has addressed both dietary patterns and culturally appropriate digital interventions. This study therefore aimed to assess unhealthy food consumption patterns among schoolers, examine their association with health indicators, and develop the digital health guide "Snack Right, Stay Bright" to promote healthy eating habits.

METHODS

Study Design and Setting: A descriptive, quantitative, non-experimental survey design was adopted. The study was conducted in a selected metropolitan school. **Participants and Sampling:** The study population comprised schoolers studying in Classes 5 to 10. A sample size of 210 schoolers was determined using RaoSoft sample size calculation. Stratified random sampling was employed, with grade level as the stratification variable, to ensure proportional representation across age groups. **Data Collection Tool:** Data were collected using a semi-structured questionnaire comprising four sections: **Demographic and Health Profile:** Age, gender, dietary pattern, family characteristics, BMI, recent illnesses, and oral health status. **Unhealthy Food Consumption Pattern:** A modified Food Frequency Questionnaire (FFQ) covering main dishes, side dishes, beverages, desserts, and condiments, rated on a 5-point Likert scale. **Health and Eating Practices:** Breakfast habits, fruit and vegetable intake, food cravings, binge eating, snack sources, and nutrition awareness. **Factors Influencing Food Choices:** Taste preference, cost, peer influence, barriers to healthy eating, and suggestions for improvement.

Ethical Considerations: Ethical approval was obtained from the Institutional Ethical Committee. Permission was secured from school authorities, and informed assent was obtained from all participants.

Confidentiality and anonymity were ensured in accordance with ICMR and nursing research ethical guidelines.

Data Analysis: Data were coded and analyzed using descriptive statistics (frequency and percentage). The chi-square test was applied to examine associations between BMI categories and unhealthy food consumption patterns. A significance level of $p < 0.05$ was considered statistically significant.

RESULTS

Demographic Characteristics: Most participants were aged 12–15 years, with slightly higher male representation. The majority belonged to nuclear families and middle-income households. Most schoolers followed a non-vegetarian diet and regularly carried homemade tiffin. While the majority had normal BMI, a considerable proportion were underweight, indicating potential nutritional inadequacies.

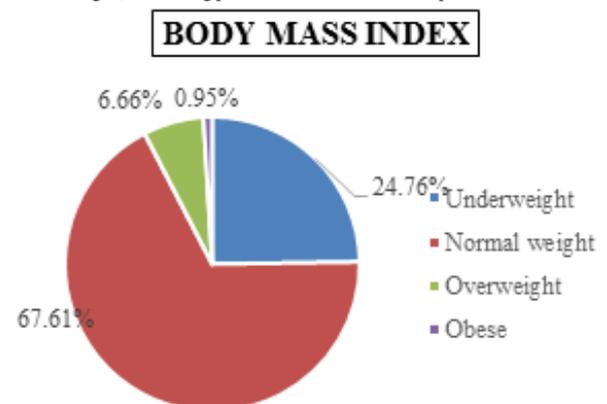


Figure 1: Distribution of subjects as per their BMI

Unhealthy Food Consumption Patterns: Most unhealthy foods were consumed on a weekly rather than daily basis. Overall, 85.23% of schoolers demonstrated a moderate level of unhealthy food consumption, 11.42% showed low consumption, and 3.33% reported

high consumption.

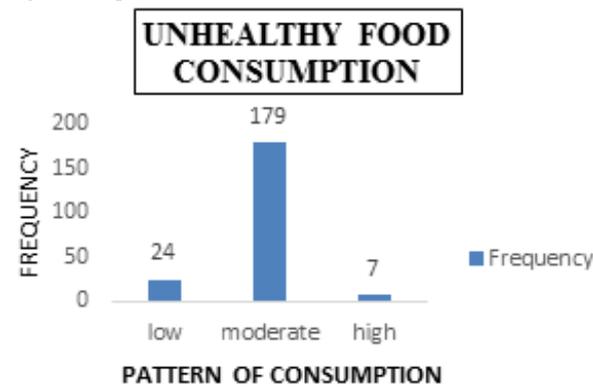


Figure 2: Distribution of subjects as per their unhealthy food consumption habit

Health and Eating Practices: More than half of the schoolers reported experiencing physical complaints such as fatigue, indigestion, headaches, or poor appetite. Breakfast skipping was prevalent among 45.67% of participants. Although approximately half consumed fruits and vegetables daily, many reported irregular intake, frequent cravings, and binge-eating tendencies.

Factors Influencing Food Choices: Taste emerged as the primary determinant of food choice, followed by cost and peer influence. Personal preference and time constraints were the most commonly reported barriers to healthy eating.

Association Between Unhealthy Food Consumption and BMI: Statistically significant associations were found between BMI and: **Main dish consumption** ($\chi^2 = 145, p < 0.001$) **Condiment consumption** ($\chi^2 = 113, p < 0.001$)

DISCUSSION

The present study indicates that although unhealthy foods are commonly consumed among schoolers, their impact on BMI varies by food category. Significant associations between BMI and consumption of main dishes and condiments suggest that calorie-dense core meal components contribute more to weight status than occasional snacks or beverages. These findings are consistent with Rousham et al. (2022), who reported a link between regular intake of energy-dense foods and increased adiposity in children. The lack of association for desserts and beverages supports evidence that infrequent consumption may not consistently affect BMI. Behavioral concerns such as breakfast skipping, cravings, and taste-driven choices underscore the need for engaging nutrition education. Evidence from Seid et al. (2024) further supports the use of interactive digital interventions to improve dietary behaviors among children and adolescents.

CONCLUSION

The study concludes that most schoolers exhibit a moderate level of unhealthy food consumption, with breakfast skipping, irregular fruit and vegetable intake, and food cravings contributing to inconsistent nutrition. Main dishes and condiments showed a significant association with BMI, indicating that core meal components have a greater impact on weight status than snacks or beverages. The “*Snack Right, Stay Bright*” digital health guide offers an evidence-based, age-appropriate strategy to enhance nutrition awareness and promote healthier eating behaviors among school-aged children.

The “*Snack Right, Stay Bright*” digital health guide



<https://docs.google.com/forms/d/13-7BsE1gcccOmjLzFDDqoWt1TK9meCEV7C1XXXzvO8g/edit>

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