

# A Cross-Sectional Study on the Impact of Social Media Food Advertising Exposure on Adolescents' Eating Habits and Body Mass Index

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## Introduction

Teen obesity is now a major global public health issue that affects both rich and poor countries. The World Health Organization says that the number of overweight and obese children and teens has gone up a lot in the last several decades. This trend is getting worse because people are eating less healthful foods, exercising less, and spending more time sitting down. Adolescence is a critical developmental phase characterised by swift physical growth, hormonal fluctuations, and psychological maturation, rendering youths especially susceptible to environmental effects.

During adolescence, enhanced autonomy in dietary selections and heightened media exposure substantially influence eating behaviours. As teenagers become more independent, they often choose what to eat without their parents' help. At the same time, adolescents spend a lot of time on digital platforms, which have a big impact on their tastes, attitudes, and way of life.

The quick growth of digital platforms like Instagram and YouTube has led to new ways to market food to specific groups of people. Unlike ads on TV, social media ads are interactive, tailored to each user, and fit right in with the entertainment material. Influencers, sponsored posts, and short films regularly promote meals that are high in calories but low in nutrients in ways that are not obvious but nevertheless convincing.

Seeing ads for processed meals that are rich in calories may change how people like to eat, make them crave such things more, and make them consume without thinking. Nonetheless, there is a paucity of nursing research investigating the direct correlation between exposure to digital food marketing and body mass index in teenagers, especially in the Indian context, underscoring the necessity for targeted inquiry.

## Methods

**Study Design:** A descriptive cross-sectional research design was adopted to assess the relationship between social media food advertising exposure, eating patterns, and BMI among adolescents.

**Setting and Sample:** The study was conducted among adolescents aged 13–17 years in selected secondary schools. A total of 300 participants were selected using stratified random sampling to ensure adequate representation across age and gender groups.

**Variables:** The independent variable was social media food advertising exposure. The dependent variables were eating patterns and Body Mass Index (BMI).

**Data Collection Tools:** Data were collected using a demographic proforma, Social Media Food Advertising Exposure Scale (assessing frequency, duration, and engagement), Adolescent Eating Pattern Questionnaire, and anthropometric measurements (height and weight). BMI was calculated and classified according to WHO BMI-for-age percentile charts.

**Data Analysis:** Descriptive statistics (mean, standard deviation, percentage), Chi-square test, and Pearson correlation coefficient were used. The level of significance was set at  $p < 0.05$ .

## Results

The results showed that most teens saw a lot of food ads on social media sites. Of the 300 people who took part, (70.7%) said they saw food-related ads every day, and (19.3%) said they saw them 3–4 times a week. Almost 186 teens (62%) followed at least one food influencer, and 144 teens (48%) said they liked, shared, or commented on food ads on a regular basis. The average score for exposure to food ads on social media was  $38.6 \pm 6.4$  (possible range 15–50), which means that people were moderately to very interested. The most prevalent places where people said they saw food ads were Instagram and YouTube. Also, 68% of the people who took part said they saw ads for fast food, sugary drinks, and packaged snacks more often than ads for healthier items. These results indicate that internet platforms constitute a substantial source of food marketing exposure for adolescents, potentially affecting their food preferences and daily dietary choices.

The analysis of eating patterns revealed that adolescents in the high-exposure group ( $n = 150$ ) exhibited significantly more fast-food intake compared to the low-exposure group ( $n = 150$ ). In the high-exposure group, (68%) said they ate fast food more than three times a week, whereas just (36%) in the low-exposure group said the same. A total of (78.7%) of the teens who actively interacted with food ads reported snacking often, while only 49 (32.7%) of the teens who didn't interact with food ads said the same thing. The average eating pattern score that showed unhealthy habits was much higher in the high-exposure group ( $27.4 \pm 4.8$ ) than in the low-exposure group ( $21.2 \pm 3.9$ ). Adolescents with higher levels of interaction with advertisements also drank more sugar-sweetened drinks and snacked late at night, which suggests that exposure to digital marketing can change behaviour.

In terms of nutritional status, BMI testing showed that participants (32%) were overweight and (14%) were obese, based on WHO BMI-for-age percentiles. Adolescents who spent more than three hours a day in front of a screen were far more likely to be overweight or obese. Of the 168 people who spent a lot of time on screens, (46.4%) were either overweight or obese. Of the 60 people who spent less than 3 hours a day on screens, only (28.6%) were overweight or obese. The high-exposure group's average BMI was  $24.8 \pm 3.6$  kg/m<sup>2</sup>, while the low-exposure group's average BMI was  $22.1 \pm 2.9$  kg/m<sup>2</sup>. These results suggest a correlation between increased body weight status in adolescents and heightened exposure to digital food marketing and extended screen time.

Statistical study corroborated a substantial correlation between exposure to food advertising on social media and unhealthy eating behaviours. The Chi-square test indicated a statistically significant correlation between elevated advertisement exposure and frequent fast-food intake. A positive association was found between advertisement exposure scores and BMI ( $r = 0.41$ ,  $p < 0.001$ ), showing that the two are moderately related. Moreover, screen time exhibited a strong correlation with overweight and obesity status. These findings corroborate the hypothesis that heightened exposure to social media food marketing is substantially associated with detrimental eating practices and elevated BMI in adolescents.

## Discussion

The results of this study indicate that internet food marketing significantly influences adolescents' eating habits. Social media ads sometimes use attractive pictures, catchy phrases, limited-time discounts, and endorsements from friends to promote meals that are high in calories and low in nutrients. Influencer marketing makes this effect even stronger because teens are more likely to believe and copy online personas they look up to. In this study, a significant number of participants indicated heightened appetites and an eagerness to consume items soon following exposure to promotional material. These kinds of marketing make people feel good about fast food, fizzy drinks, and packaged snacks. Over time, frequent exposure may slowly change what people like to eat and what they want to buy. Social media ads are more effective than traditional ads because they are personalised and interactive. This makes them harder to spot as marketing content and gives them a stronger effect on behaviour.

Teenagers are especially susceptible to the impacts of digital food advertising since their cognitive, emotional, and social development is still occurring. At this period of development, kids are still learning how to make decisions, regulate their impulses, and think critically. Because of this, teens may not be as good at figuring out what ads are trying to get them to do. Seeing ads for unhealthy foods over and over might make eating fast food and munching too much seem normal and acceptable. This effect is much stronger when culinary

trends go viral online and people want to fit in with their peers. Stress, boredom, or comparing yourself to others can also make you eat impulsively when you see an ad that looks good. Over time, these behaviours may lead to bad eating habits, more calories consumed, and progressive weight gain, which raises the chance of being overweight or obese during adolescence.

From a nursing standpoint, the results underscore the significance of early detection of behavioural risk factors linked to obesity. School nurses are in a good position to see changes in how pupils eat, how much time they spend on screens, and how much weight they have. Routine health checks, keeping an eye on BMI, and giving advice on how to live a healthy life will assist find teens who are at risk. Nurses can also work with teachers and parents to deal with environmental factors that lead to bad habits. Nurses can give better health education when they know how digital marketing exposure works. School health experts can take a more comprehensive approach to preventing obesity by looking at both media use and eating habits. Early intervention in schools can have a big impact on long-term health and encourage teens to make healthier choices.

Teaching teens how to think critically is important, and one way to achieve so is to include media literacy in school health programs. Students can make better choices if they learn how ads are made to affect their feelings and buying decisions. Interactive seminars, group conversations, and sessions led by peers can help people learn more about digital marketing. Also, encouraging balanced meals, frequent exercise, and less time spent in front of screens should be important parts of any school health program. Nurses can support rules that prohibit the marketing of harmful foods in schools and promote healthier options. Nursing professionals can significantly reduce the harmful effects of social media food promotion on adolescent health outcomes by integrating education, behavioural coaching, and supportive school policies.

### Nursing Implications

- Include digital media awareness in health education
- Come up with ways to decrease obesity in schools
- Hold programs to raise parents' awareness
- Push for rules that limit digital food marketing aimed at teens

### Conclusion

This study shows that teens who see food ads on social media are more likely to eat unhealthy foods and have a higher Body Mass Index (BMI). Individuals with elevated advertisement exposure indicated a higher frequency of fast-food consumption, increased snacking, and augmented intake of sugar-sweetened beverages. A favourable link between exposure scores and BMI further substantiates the impact of digital marketing on weight status. These findings underscore the significant influence of the digital environment on adolescents' dietary habits and lifestyle choices.

To fight the growing problem of obesity among teens, we need to deal with these digital environmental factors. Nursing professionals must broaden their responsibilities beyond conventional lifestyle counselling to encompass digital health literacy initiatives. Teaching teens about persuasive marketing techniques, encouraging them to think critically about what they see online, and encouraging them to spend time on screens in a balanced way can all help with prevention. Adding digital awareness to school health programs could have a big effect on making people make healthier choices and getting better long-term results.

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