RESEARCH PAPER

Digital Food Environments and their Association with Dietary Behaviour and Lifestyle Outcomes in College Students

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ABSTRACT
Background: Today, social media is part of people's everyday routines and has a strong influence on their attitudes, behaviors, and health choices. College students frequently turn to platforms such as Instagram, YouTube, and TikTok not only for amusement but also as primary resources for dietary trends, lifestyle inspiration, and health-related guidance. Objective: To examine the influence of social media food vloggers on dietary behavior and lifestyle practices and to evaluate the effectiveness of a Nutritional Counselling Programme (NCP) among college students. Methods: A study comprising a baseline cross-sectional assessment followed by a quasi-experimental intervention design was employed. Data were collected using a structured questionnaire administered through Google Forms to undergraduate students from various arts and science colleges. Results: The findings indicated that Frequent exposure to food vloggers was associated with less favourable eating habits, lower physical activity levels, disrupted sleep patterns, and a higher prevalence of health-related challenges among students. Following the structured nutritional counselling intervention, the experimental group showed significant improvements in dietary habits, physical activity, and overall wellness compared with the control group. Conclusion: The results show that digital platforms have a major effect on how students live and manage their health. This highlights the importance of offering clear, practical nutrition guidance so that they can better understand what they see online and choose healthier habits.
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INTRODUCTION

Social media has become a regular part of daily life, and its influence on overall health and well-being is becoming increasingly significant (1). Social media, in particular, functions as an online platform designed to engage users, facilitate communication, enable information exchange, and support collaboration (2). People of all ages, from school children to older adults, are turning to social media, often influenced by online personalities. Social media influencers are those who use social networking to share content, update people's lives, and inspire others. A wide range of content is now readily available to people to connect and share through widely used platforms such as Instagram, Facebook, WhatsApp, Twitter, and LinkedIn. People increasingly turn to influencers on these platforms for a variety of reasons, including health and nutrition advice, fitness tips, informational content, food trends, and restaurant recommendations. In recent years, the Internet has been dominated by social media accounts. Although social media offers certain benefits, its drawbacks are widely recognized and not universally accepted as harmless (3). Social media influencers tend to focus on health, nutrition, and food as the most popular topics, with users showing a keen interest in these subjects. Although the impact of social media is not well-defined, it affects people's food choices and behaviors (4). Social media influencers play a major role in shaping how people approach their health and lifestyle choices (5).

Aim of the study

To assess the influence of social media food vloggers on the dietary behavior and lifestyle practices of college students and to evaluate the effectiveness of a nutritional counselling intervention.

Objectives

1. To assess baseline dietary habits, lifestyle behaviours, and physical activity patterns among college students.

2. To examine the influence of social media food vloggers on these behaviours.

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3. To evaluate the effect of a nutritional counselling programme on lifestyle and physical fitness outcomes.

Prevalence of Social Media Usage

The Global Digital Overview reports that social media platforms have become a significant part of daily life, with over 4.3 billion users worldwide. These platforms are used most intensively by younger individuals, who tend to spend longer durations and engage more frequently than other age groups (6). Over half of the global population engages with social media daily, dedicating approximately two and a half hours to scrolling, interacting, and sharing content online (7). Social media usage continues to grow, with estimates suggesting that the number of users will exceed 4.4 billion by 2025.

Among social media platforms, Facebook continues to hold the top spot, followed closely by YouTube, both of which have more than 2.5 billion users in 2022. It has close to 2 billion active users. WhatsApp has emerged as one of the most dominant communication tools, used by nearly two billion people worldwide. Platforms such as Instagram, WeChat, and Facebook Messenger also attract massive audiences, with each engaging over a billion regular users globally. Together, these platforms account for nearly 38% of the global online population, which is estimated to be 5.3 billion internet users. In addition, platforms such as Snapchat, Telegram, Pinterest, Twitter, Reddit, and Quora also have a notable presence, each attracting between 300 and 550 million active users.

These numbers highlight the enormous reach of social media and its impact on how people communicate and adopt health-related behaviors worldwide (8). “By 2023, social media had become a part of the everyday lives of more than 4.7 billion people worldwide. On average, individuals spend approximately two and a half hours each day engaging with content, whether browsing feeds, chatting with friends, or watching videos. Platforms such as Instagram, YouTube, and TikTok were especially popular among younger users, giving them significant influence in shaping food choices and lifestyle behaviour (9).”

Impact of social media on Over All Health and Nutritional Status

Evidence from earlier studies shows that social media use can contribute to problems such as distorted body image and disordered eating, challenges that are most noticeable in adolescents and young adults (10). Researchers have also pointed out that frequent engagement with these platforms may encourage poor dietary choices and reinforce negative feelings about physical appearance among young adults (11). Additionally, the prevalence of social media influencers' videos on various social networks may pose a potential health threat to young people, potentially impacting their eating habits and sleep patterns (12). The widespread use of social media has been associated with many behavioral changes in adolescents, most notably dietary habits (13). Many researchers have suggested that eating disorders are more prevalent and are associated with longer periods of social media usage. Adolescent girls often develop irregular or unhealthy eating patterns after spending excessive time on social media platforms (14).

Influence of social media on Health, Eating pattern, Food and Nutrition

Connections with others have a powerful influence on mental health, daily habits, physical condition, and even overall life span (15). In one study from Iran, nearly 80% of young adults reported spending three to four hours per day on social media (16). Likewise, a study in Bengaluru uncovered a range of physical health complaints among regular users, with eye strain being the most common, reported by 38.4% of participants, followed by frequent complaints of neck pain. Interestingly, the occurrence of these symptoms was comparable between male and female participants. Gastritis was the least reported physical symptom by the survey participants (1.9 %).

The study also pointed to psychological effects, with anger being the most commonly reported emotional reaction, experienced by 25.5% of the participants. Sleep problems were common, with more than a quarter of the participants (26.1%) reporting such difficulties (17). In another investigation carried out in the United States among 884 adolescents aged 13 to 17, researchers observed that food promotions on Instagram attracted more attention than traditional advertising. Although earlier studies suggest that social media can serve as a helpful resource for accessing healthy recipes and nutrition tips, it also poses certain risks. A large portion of content shared by users or influencers often focuses on fast food or indulgent meals, which can subtly encourage unhealthy eating habits, especially among young people who are more likely to adopt behaviors based on what they encounter on social media platforms (18).

Need for Study

Like many young people, college students are strongly influenced by social media in their everyday decisions and lifestyle habits. Influencers and food vloggers often share content that affects students’ perceptions of food and nutrition. While some of this content promotes healthy eating, it can also lead to changes in eating habits that are not always good for their health. The frequent use of digital platforms such as YouTube, Instagram, and TikTok by students to learn about food trends has prompted questions about the authenticity and nutritional value of the information provided by these sources.

The impact of social media on students' nutritional status, eating habits, physical activity, and health issues has not been widely studied due to a lack of empirical evidence. However, while nutritional

counselling is known to favor better dietary patterns, it remains under-researched in relation to media-driven food behavior. To bridge this gap, the present study examined how food-related content on social media influences students' health and assessed whether structured nutritional counselling can help reduce its negative effects. This research is crucial because of the increasing prevalence of lifestyle disorders among young people and the integration of digital media into their daily routines. Its purpose is to raise awareness of the need for media and nutrition education among policymakers and health professionals in the social media era.

MATERIAL AND METHODS

a. Materials: Data were collected using a structured, researcher-developed questionnaire designed specifically for this study. The questionnaire included sections on demographic characteristics, patterns of social media use (including exposure to food vloggers), dietary behavior, physical activity levels, and common health-related challenges. The content validity of the tool was established through expert reviews by professionals in nutrition and behavioral sciences. A pilot study was conducted to refine the questions and ensure their clarity and relevance. The reliability of the questionnaire demonstrated good internal consistency, with a Cronbach's alpha of 0.82. The same questionnaire was administered during both the pre- and post-intervention phases to assess changes in behavior and well-being.

The key variables assessed in this study included dietary behavior, physical activity, nutritional intake, and health-related challenges. Higher scores indicate healthier dietary practices, nutritional intake, and physical activity, whereas lower scores reflect fewer health-related challenges.

b. Methods: This study consisted of two components. The first component involved a baseline cross-sectional assessment to examine dietary behavior, lifestyle practices, and physical activity patterns influenced by the social media food content among college students. The second component involved a structured nutritional counselling intervention to assess changes in these variables after the programme. The research was conducted among undergraduate students in Chennai, Tamil Nadu, India. A total of 200 students from five arts and science colleges were selected using stratified random sampling. Participants were randomly assigned to an Intervention Group (n = 100), which received structured nutritional counselling, and a Control Group (n = 100), which continued their usual social media use without additional support. The nutritional counselling intervention was carried out over three months and consisted of six sessions conducted once every fortnight. The sessions focused on healthy eating practices, balanced diet principles, mindful food choices, promotion of physical activity, and awareness of the influence of social media food content on dietary behavior.

Data were collected using a validated questionnaire before and after the intervention. Statistical analyses were performed using SPSS and AMOS software. Descriptive statistics were used to summarize participant characteristics, while inferential analyses included t-tests, one-way ANOVA, regression analyses, and correlation tests. Statistical significance was set at $P < 0.05$. The study protocol was reviewed and approved by the Institutional Ethics Committee of Meenakshi Medical College Hospital & Research Institute, Tamil Nadu, India (IEC Reference No: MMCH & RI IEC/PhD/02/JUNE/23) on July 27, 2023. Written informed consent was obtained from all participants prior to data collection, and confidentiality and anonymity were maintained throughout the study.

RESULTS

The findings of this study shed light on how social media shapes the nutritional habits, physical activity levels, and health-related issues faced by college students in Chennai. To explore these patterns, the data were carefully examined, focusing on the participants' demographics, social media usage trends, and the specific impact of food vloggers on their diet and lifestyle choices. The demographic analysis revealed an equal gender split among respondents, with 50% identifying as male and 50% as female respondents. In terms of academic standing, the majority (58%) were first-year undergraduate students, and 42% were in their second year. This distribution offered a well-rounded understanding of how students at different academic stages interact with food and health content online. Descriptive statistics were used to identify the most frequently used social media platforms for seeking food-related information. The mean scores reported in **Table 1** reflect the frequency with which each platform was used by students to explore dietary content.

Table 1: Social Media Usage Pattern of Students

Sl. No.	Social Media	Mean	SD
1.	Facebook	3.54	1.248
2.	X	3.17	1.344
3.	Instagram	3.84	0.953
4.	What's app	3.42	1.212
5.	Telegram	3.29	1.347
6.	Snapchat	3.32	1.340
7.	You tube	3.63	1.320

[Source: Primary Data]

Based on the mean scores in **Table 1**, Instagram was the most frequently used platform for food-related content (M = 3.84), likely because of its visually engaging format. YouTube followed closely (M = 3.63), reflecting the popularity of video content such as recipes and nutrition tips. Platforms such as Facebook (3.54), WhatsApp (3.42), Snapchat (3.32), and Telegram (3.29) showed moderate use, whereas Twitter had the lowest mean score (3.17), possibly

because of its text-heavy nature, which may be less appealing for food-focused browsing.

Table 2: Factors Contributing to the Usage of Social Media for Food and Nutrition Insight

Sl. No.	Factors	Mean	SD
1.	To get full-fledged information on food.	3.40	1.231
2.	To know about food varieties, price list and ratings of restaurant.	3.31	1.213
3.	To aware of healthy and dietary food.	3.47	1.215
4.	To view customers' feedback to prefer the restaurant.	3.21	1.328
5.	To get information on promotional tools offered by restaurants.	3.42	1.188
6.	To follow food vloggers.	3.51	1.280
7.	To share information with my friends regarding food and its benefits.	3.19	1.345
8.	To try new dishes.	3.44	1.137

[Source: Primary Data]

As shown in Table 2, following food vloggers was the most frequently reported reason for seeking food-related information on social media (M = 3.51). Interest in learning about healthy eating (M = 3.47) and trying new recipes (M = 3.44) were the next most commonly reported reasons. Other factors included seeking detailed food information (M = 3.40) and updates on restaurant promotions (M = 3.42). Practical reasons, such as checking price lists and reviews (M = 3.31), reading customer feedback (M = 3.21), and sharing food-related information with friends (M = 3.19), were reported to a lesser extent.

Table 3: Health Related Challenges

Sl. No.	Health Related Challenges	Mean	SD
1.	Sleep disturbance	4.08	0.772
2.	Fall sick after eating outside	3.92	0.847
3.	Unable to do physical activity.	3.86	0.827
4.	Feel tired and fatigue while doing routine work.	3.78	0.857
5.	Used to have sedentary lifestyle.	3.90	0.880
6.	Addicted to social media.	3.86	0.897
7.	Face obesity problems	3.74	0.936
8.	Having trouble with indigestion	3.96	0.801
9.	Getting hunger during late night.	4.00	0.919
10.	Often facing stress	4.00	0.897

[Source: Primary Data]

As shown in Table 3, students reported multiple health-related concerns, with mean scores above 3.70 for all variables. Sleep difficulties were the most frequently reported concerns (M = 4.08), followed by late-night

hunger (M = 4.00) and frequent stress (M = 4.00). Other commonly reported issues included digestive discomfort (M = 3.96), illness after consuming food from outside (M = 3.92), and a sedentary lifestyle (M = 3.90). Moderate levels were observed for inability to exercise regularly (M = 3.86), social media addiction (M = 3.86), fatigue (M = 3.78), and obesity-related concerns (M = 3.74).

Table 4: Healthy Lifestyle and Physical Fitness Before and After the Intervention in Control Group

Healthy Lifestyle and Physical Fitness	Pre Test Score		Post Test Score		t value	P value
	Mean	S.D	Mean	S.D		
Eating Habit	36.68	14.48	36.58	11.81	0.13	0.897
Dietary Food	38.68	15.66	39.44	10.96	0.78	0.439
Nutritional Consumption	27.64	10.36	27.56	6.93	0.13	0.899
Physical Activity	29.48	11.89	29.88	8.19	0.55	0.587
Health Related Challenges	38.60	5.11	38.84	4.15	0.40	0.691

[Source: Primary Data] [p value >0.05]

To examine changes in the absence of counselling, a paired-sample t-test was conducted for the control group. As shown in Table 4, no statistically significant differences were observed between the pre- and post-test scores for any of the assessed variables, including Eating Habits (t = 0.13, p = 0.897), Dietary Factors (t = 0.78, p = 0.439), Nutritional Consumption (t = 0.13, p = 0.899), Physical Activity (t = 0.55, p = 0.587), and Health-Related Challenges (t = 0.40, p = 0.691). The mean scores remained largely unchanged from the pre-to post-test across all variables.

Table 5: Healthy Lifestyle and Physical Fitness Before and After Intervention in Experimental group

Healthy Lifestyle and Physical Fitness	Pre Test Score		Post Test Score		t value	P value
	Mean	S.D	Mean	S.D		
Eating Habit	36.20	14.70	58.62	7.30	14.74	<0.001**
Dietary Food	38.44	14.03	63.60	8.00	16.81	<0.001**
Nutritional Consumption	28.24	8.60	44.38	5.37	17.13	<0.001**
Physical Activity	30.08	11.27	48.70	6.28	14.16	<0.001**
Health Related Challenges	39.60	6.20	15.54	5.95	29.71	<0.001**

*[Source: Primary Data] [**p<0.001]*

To evaluate the effect of the nutritional counselling program on the experimental group, a paired-sample t-test was performed. As presented in Table 5, statistically significant improvements were observed across all assessed variables, with p-values of less than 0.001. Significant increases were noted in eating habits (t = 14.74), dietary food choices (t = 16.81), nutritional intake (t = 17.13), and physical activity (t = 14.16), whereas a significant reduction was observed in health-related challenges (t = 29.71). The post-intervention mean scores for eating habits increased from 36.20 to 58.62, and health-related challenges decreased from 39.60 to 15.54.

DISCUSSION

The present study demonstrates the substantial role that social media, particularly food vloggers and digital influencers, play in shaping the dietary behaviors and health-related decisions of college students. Platforms such as Instagram and YouTube have emerged as the most frequently accessed sources of food-related content, likely because of their visually rich format and continuous flow of updates. Previous research has similarly shown that food blogs and influencer-driven content tend to appeal more to emotions and aesthetics than to nutritional value, thereby influencing food preferences and eating behaviors among young adults (19, 20). Students in the current study reported using social media not only for entertainment but also to explore new recipes, follow emerging food trends, and seek information related to healthy eating. Following

food vloggers emerged as the most common reason for accessing food-related content, followed closely by interest in healthy eating and culinary experimentation: This finding suggests that social media plays a dual role: while it can increase exposure to nutrition-related information, it may also promote misleading or promotional content that lacks scientific credibility. Earlier studies have highlighted that exposure to idealized images and influencer content can contribute to unhealthy comparisons, body image dissatisfaction, and emotional distress, particularly among young women (21).

The study also revealed a high prevalence of health-related challenges among students, including poor sleep quality, elevated stress levels, digestive discomfort, fatigue, and sedentary behavior. These concerns appear to be linked to excessive screen time, irregular daily routines, and unplanned eating patterns, which are often reinforced by constant engagement with digital media. Supporting these observations, previous research has reported that prolonged digital exposure can disrupt sleep cycles, increase stress, and negatively affect dietary behaviors in adolescents and young adults (22, 23). Excessive media use has also been associated with reduced physical activity and increased emotional strain, especially in the absence of reliable health guidance (24). Importantly, the findings of the intervention phase highlighted the effectiveness of structured nutritional counselling in addressing these challenges. Students who participated in the counselling programme demonstrated clear improvements in their eating habits, nutritional intake, physical activity, and overall lifestyle practices, while the control group showed little to no positive change. This contrast emphasizes that reliance on digital content alone is insufficient for promoting healthy behaviors. Consistent with earlier studies, structured and theory-driven nutrition counselling has been shown to supports meaningful and sustained behavior change among college students (25, 26). Furthermore, personalized interventions delivered by trained professionals appear to be particularly effective in helping young adults translate general health intentions into practical and sustainable habits. Previous research has indicated that targeted counselling programmes can significantly improve dietary practices, physical activity levels and overall well-being among university students (27). In contrast, passive consumption of influencer content, especially when reinforced through peer interactions online, may increase the risk of adopting unhealthy behaviors without critical evaluation (28).

Overall, the findings underscore the importance of evidence-based nutritional guidance in reducing the potential harm associated with unfiltered social media food content. While social media remains a powerful tool for information dissemination, there is a clear need to equip young adults with critical thinking skills that enable them to evaluate online health information effectively. Integrating nutrition education with digital literacy may help students navigate the online food environment more responsibly and develop sustainable and healthy lifestyle habits in the digital era (29, 30).

CONCLUSION

The findings of this study clearly show that social media plays a major role in shaping the dietary habits and health behaviors of college students. Students often turn to platforms such as Instagram and YouTube for food and nutrition content, but these sites can sometimes encourage habits that harm both physical and mental health. However, the positive changes observed in the experimental group highlight the value of guided nutritional counselling. Those in the counselling group showed clear progress in maintaining a healthier diet, increasing physical activity, and enhancing overall health. As students continue to depend on social media for health and nutrition advice, it is becoming increasingly important to introduce media literacy and nutrition education into academic settings.

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Conflict of interest

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Clinical Trial Registration

This study did not involve any clinical trials.

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