



ISSN (E): 2277-7695
ISSN (P): 2349-8242
NAAS Rating: 5.23
TPI 2023; 12(2): 286-291
© 2023 TPI
www.thepharmajournal.com
Received: 21-12-2022
Accepted: 24-01-2023

Soumya Shubham
Department of Nutrition and
Dietetics, Parul Instituted of
Applied Science, Parul
University, Waghodia,
Vadodara, Gujarat, India

Yamee Shah
Department of Nutrition and
Dietetics, Parul Instituted of
Applied Science, Parul
University, Waghodia,
Vadodara, Gujarat, India

Corresponding Author:
Soumya Shubham
Department of Nutrition and
Dietetics, Parul Instituted of
Applied Science, Parul
University, Waghodia,
Vadodara, Gujarat, India

A comprehensive review on factors influencing snack consumption among the college students

Soumya Shubham and Yamee Shah

DOI: <https://doi.org/10.22271/tpi.2023.v12.i2d.18443>

Abstract

Snacking accounts for over one-third of an average person's daily caloric intake in today's culture, yet the majority of foods consumed as snacks are high in calories but low in nutrients. The emergence of new lifestyle trends has led to an increase in the demand for quick-service restaurant snacks, which is only expected to continue growing. This phenomenon is gaining tremendous momentum, particularly within the college student community. The purpose of the study was to examine the characteristics that influence the intake of healthy and unhealthy snacks among college students. After the data was acquired from a variety of reliable sources such as Google Scholar, Research Gate, PubMed, Science Direct amongst others, it was examined and analyzed using various screening approaches. Following the investigation of a variety of reviews written by a large number of authors, it was discovered that there are many factors that influence the consumption of healthy and unhealthy snacks among college students. These factors include economic, physical, biological, psychological, and social factors. It was also shown that college students continue to choose unhealthy snacks over healthy snacks, despite being aware of the negative impacts of unhealthy snacks and the availability of information concerning those effects.

Keywords: Diet, eating habits, snacks, health, nutrition, college students

Introduction

One element that adds to the accelerating pace of contemporary life is the broad availability of foods that are quick and simple to consume. Consumers have a strong desire for quick and simple items to eat that are tasty, healthful, readily accessible, and competitively priced, especially while engaging in other activities. Snacks can satisfy all of these criteria, but they often emphasize only a few of them, which raises questions about how they fit into a diet that emphasizes health.

Any form of food eaten in between regular meals is referred to as a "snack." There are a number of reasons why the majority of individuals have a snack at least once every day. The most frequent reason is hunger. Dropping energy levels is another potential reason, which may be fixed by consuming little snacks. Perhaps the only thing that makes people want to consume a certain snack is its flavor. Numerous studies have been conducted worldwide on young people's snacking patterns, notably among college students^[1]. Unhealthy Snacking has been identified as a major cause of overweight or obese people^[2]. The popular conception of snack meals is that they include a high amount of fat and sugar, which makes them harmful and unsuitable for healthy eating routines^[3]. Most often college students consume snacks, regardless of whether the contents of the snacks are healthy or harmful. Students at higher education institutions are at increased risk for making poor nutritional decisions, which can lead to major health issues. The vast majority of first-year students take their meals in on-campus dining halls, which often include a restricted selection of foods that are considered to be healthful. In addition, students are at risk of experiencing a decline in both their intellectual and physical performance if they do not have the daily nutrients they require.

College Students and Lifestyle

Students in colleges go through major changes in their physical and social environments, which leads to a rise in their levels of independence, autonomy, and responsibility^[4]. It's possible that these changes are contributing to the fact that college students have far greater rates of anxiety and depression than the general community^[5]. A past study highlighted that higher education students' increased food consumption and preference for calorie-dense foods are both correlated with academic stress. In the study, mindfulness was applied to reduce academic stress and, as a result, to encourage better eating habits and decision-making.

When compared to the control group, intention-to-treat analyses showed that mindfulness had a non-significant effect on boosting the consumption of nutritious foods but aided in a decline in the consumption of unhealthy foods. The primary analyses showed that when mindfulness reduced stress (i.e., by utilizing the anxiety assessments as a manipulation check), students ate more nutritious foods and less junk food. Dietary choices are a problematic aspect of lifestyle choices that need to be addressed [6]. According to research conducted on college students, they are at an increased risk for having eating disorders and exhibiting signs of eating disorders, in addition to substance use problems [7]. Adopting eating practices that are detrimental to one's health throughout this period can result in an increase in weight, the development of related chronic illnesses, and the engagement in dangerous health behaviors such as the usage of substances [8].

According to a previous study researchers looked at the reasons behind college students' snacking behavior. 865 college students from Mangaluru participated in the cross-sectional study. Data were collected using a pretested pro forma, and SPSS version 11.5 was used for analysis. 52.4 percent of the population were female, 47.6 percent were male, and 76.8 percent were under 20. 54.3 percent of participants snacked in between meals. 78.7 percent of people reported not having snack time. 31.9 percent of students snacked while studying, while 51.1 percent munched while watching T.V. Breakfast was the meal that people skipped the most frequently (26.2 percent), and 123 of them (71.9 percent) said they had problematic snacking habits [9]. Similarly, in an earlier study researchers learned more about how college students deal with stress by looking at their eating habits and exercise routines. Dietary patterns were also analyzed in relation to students' demographics. Cronbach's alphas were calculated, and exploratory factor analysis determined the reliability of the individual measurement components. Students' eating habits and exercise routines varied by academic year, dorm type, and sex. Several eating habits were drastically different amongst students with low and high reported stress levels [10].

Healthy Snacks

If a snack's contents align with the dietary-specific suggestions and guidelines that have been established, then that snack is likely to be a healthy option. These suggestions and guidelines encourage diets that include a greater quantity of fruit, vegetables, and whole grains and a lower quantity of total fat (especially solid fats), sodium, and refined sugars. Nevertheless, in spite of the fact that there is widespread interest among people in the concept of consuming more nutritious foods and snacks, ready-to-eat snacks that are highly processed are becoming both more readily available and more widely consumed [11]. According to a previous study the Researchers examined students' attitudes on choosing and consuming nutritious snacks. A poll was created to gauge what students thought about munching on healthy snacks. According to the findings, students thought eating wholesome snacks improved their health and helped them control their weight. Time management, motivation, preparation requirements, and bad taste were listed as obstacles to choosing and consuming nutritious snacks [12].

Even though the effects of frequent eating on health are still largely unknown, choosing healthy snacks may help to lessen any potential negative effects of snacking and may aid in

promoting and enabling nutrient-dense and health-promoting diets among college students [13]. Snacking is still an occasion for people to eat, during which they consume energy and nutrients.

Unhealthy snacks

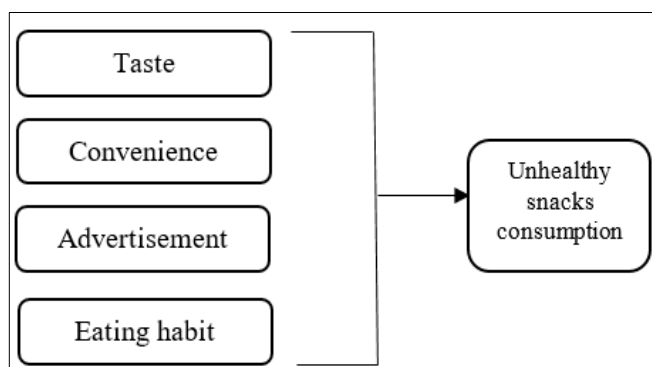
Unhealthy snacks are often taken between meals, and they often consist of foods that are rich in fat, sugar, and overall calories, such as chocolate and potato chips. College students have a penchant for snacking on junk food. Inconsistent eating patterns can be traced back to a number of causes, including social pressure, parental attitudes, and the introduction of western cuisine. Snacking between meals too often might make students less likely to eat meals at regular intervals [14]. Numerous "non-communicable diseases (NCDs)," such as cancer, obesity, high blood pressure, cardiovascular illnesses, and diabetes, are at risk because of unhealthy eating practices and habits [15]. In Some past studies it was examined that the difference between trait and state CHBs as they relate to individuals' propensity to regularly indulge in unhealthy snacking situations. Daily unhealthy snack eating was shown to be substantially correlated with both trait and state CHBs. Among CHBs, compensating with increased physical activity had more positive impacts than increased eating. The study demonstrated that CHBs, both state and trait, have a significant role in the habitual overeating of unhealthy snacks [16].

People's diets have a major impact on their health. The student's understanding of the dangers of their unhealthy eating habits does not correspond with their actual behavior. Students need to be educated about the risks associated with eating too many snacks [17]. In a previous study it was examined that the variables influencing teenagers' unhealthy snacking in order to support a more efficient "Iranian Health Promoting School (IHPS) program." Information on unhealthy snacking habits was collected using a qualitative adaptation of the "Food Frequency Questionnaire (FFQ)." Negative parenting styles, affluence, family dynamics, inappropriate societal norms pressure, and students' lack of knowledge and self-efficacy are only some of the individual, sociocultural, and physical-environmental variables that contribute to unhealthy snacking [18].

A significant number of school-aged youngsters and college students in developed countries have reported consuming less during meals and increasing the frequency with which they consume snacks. Breakfast, which is the first healthy meal of the day and should be had on a regular basis, is beneficial to one's health and enables one to maintain a positive state of health. Skipping breakfast is associated with negative health outcomes and also raises the likelihood of engaging in unhealthy snacking behavior. Children and adolescents living in developing countries have been observed engaging in snacking behavior that is strikingly similar to developing countries. This shift is also taking place in India, where an increasing number of young people, particularly college students and teenagers, are adopting western eating trends and snacking behaviors, which are typically energy-dense. A prior study found that 62.1% of teenagers regularly ate between meal snacks [19]. Adolescent snacking is affected by a number of variables, including parental behavior and socioeconomic position. Adolescents whose homes with two working parents are more likely to engage in unhealthy behaviors including frequent snacking and meal skipping. Young people's

snacking and eating habits are known to be significantly impacted by stress [20].

Taste, convenience, advertising, and eating habits are the most common elements identified among college students, and these are the reasons that stimulate the consumption of unhealthy snacking among college students.



Snack Foods and Satiety

One of the essential factors in preventing excessive intake, which can lead to overweight and obesity, is satiety, which is defined as the sense of fullness that lasts for some time after eating. It is essential to encourage more beneficial eating behaviors to identify eating patterns and foods that enhance satiety without significantly increasing overall calorie intake. In spite of the fact that a study has been conducted on this phenomenon in relation to particular foods and nutrients, and despite the fact that, to the best of the knowledge, there has not yet been an examination of the findings collectively, eating snacks in between meals has the potential to increase satiety and reduce overeating at the subsequent meal. Many school-aged children, teenagers, and young adults in third-world nations report eating less and snacking more [22-24]. In an earlier it was found that Nepal is no exception to the general trend that young children in poor and medium-income nations eat a disproportionate share of harmful snack items. Snacking habits and the social and environmental factors that shape them were the focus of quantitative cross-sectional research of 259 college students. The study's primary findings show that nearly 89 percent of students regularly partake in school snacks. A large percentage of these snacks are unhealthy options such as commercially prepared junk foods purchased from local vending machines and grocery stores, or deep-fried snacks food prepared in the school canteen [25].

Nutritional knowledge and snacks preferences of College Students

Students who have recently entered college are beginning their transition towards independent living. In most cases, students' patterns of sedentary behavior and dietary habits solidify or shift throughout these years. It is also important to develop healthy eating routines throughout this period since these behaviors frequently remain into adulthood and may be quite hard to modify once they have been established. As they adjust to life on campus, college students will invariably be forced to navigate unfamiliar territory in terms of the planning, preparation, and consumption of their meals. Many college students understand the need to maintain healthy nutritional levels, yet this understanding and outlook may prevent them from taking the necessary steps to do so. Despite widespread awareness of the need to reach daily

dietary requirements for good health, many college students choose to ignore or put off doing so.

A significant number of college students tend to pick meals based more on factors such as convenience, flavor, amount of time, and cost than on nutritional benefits. There was a tendency among many college students to select alternatives that were both quick and tasty, and these selections were typically accessible from vending machines [26]. A past study observed that the U.S. is facing health issues related to obesity and overweight. Investigating barriers and facilitators to healthy eating among U.S. college students required a qualitative research technique, which was applied in the exploratory study. Healthy eating is frequently hampered by time constraints, excessive unhealthy snacking, stress, high-calorie convenience food, and the affordability of junk food. The study emphasized the need to incorporate college students when implementing healthy eating interventions (such as labeling healthier food options and information campaigns) and addressing individual-level traits and socio-ecological aspects [27].

Factors Influencing the Healthy and Unhealthy Snacks Consumption

In a previous study a group of researchers used a qualitative strategy and conducted 13 focus groups in addition to 25 student interviews. The study indicated that Students' eating habits and dietary intake are influenced by a variety of factors, including personal traits (cooking abilities, food preferences, taboos, knowledge, and perceptions), societal traits (peer influence and social norms), university traits (campus culture, frequency of exams), and environmental traits (cooking resources and facilities, food costs) [28]. The following is a list of the factors that have been shown to impact the intake of both healthy and unhealthy snacks among college students.

Economic determinants such as cost, income, availability

The economic factor is one of the primary reasons that contribute to the shift of college students' attention toward the intake of snacks. The vast majority of college students do not have any source of money; as a result, they have expressed a desire to consume food that is both inexpensive and readily accessible. They always try to decrease their travel and food expenditures by selecting to have a cheap snack, and as a result, they wind up snacking on unhealthy foods because healthy snacks tend to be more expensive. An unhealthy diet may be explained as the result of a complex adaptive system that promotes a food culture in which unhealthy options are more widely available, accessible, affordable, and socially acceptable [29].

Physical determinants such as access, education, skills (e.g., cooking) and time

The choice of college students to consume snacks rather than regular meals is also influenced by physical attributes. While preparing food takes a lot of time, college students find that eating snacks is preferable because it frees up their time to focus on academics. Snacks are conveniently accessible at any nearby restaurants and shops. In a previous study a group researchers examined how gender moderated the relationships between eating healthy and unhealthy meals and feelings of depression in young individuals. In general, compared to young women, young men were more likely to have

unhealthy eating habits. Fruits and vegetables were among the healthy foods that showed a substantial inverse link to the mental health condition of depression [30].

Biological determinants such as hunger, appetite, and taste

Every human being has an inherent requirement for food to continue living and surviving. In order to maintain their lives, people require a steady flow of energy and certain nutrients, and they can sense and respond to shifts in the degree to which they are hungry (satisfaction of appetite, state of no hunger between two eating occasions). Even though it is of the utmost importance for college students to ensure that they consume an adequate amount of nutrients, it is clear that the majority of college students are only concerned with trying to satisfy their hunger and do not give any thought to whether they are consuming healthy or unhealthy snacks. The flavor of snacks, rather than typical healthy meals, is another element that encourages college students to consume unhealthy and cheap snacks instead of healthy food. An item's tastiness is directly correlated with how much fun you have snacking on it. That's why factors like how tasty, aromatic, and appetizing meals are to you are so important. There is no denying the allure of sugary and fatty meals. There have been a lot of research looking at how palatability affects people' hunger and how much they eat. Increasing the food's palatability causes a rise in consumption [31].

Psychological determinants such as mood, stress and guilt

These days, it is known that a person's emotional state greatly affects what they decide to eat. It's more common among college students. As a stress response, eating habits might be altered. Research on the relationship between stress and food consumption consistently reveals that some people eat more than usual, and others eat far less while under duress. In a prior study it was being observed that students at universities often make the shift from living at home to more independent living, which may cause changes in their dietary habits. The study aimed to investigate the impact of psychosocial variables on the eating behaviors of college students. According to the findings, psychosocial variables were significant markers of food habits among the student population [32]. Snacking behavior was shown to be influenced by food cravings, with a negative correlation between self-efficacy and cravings. To put it another way, eating "preyed" on the hunger sensations that followed, eradicating them thereafter [33].

Social determinants such as culture, family, peers and meal patterns

The foods that individuals consume are shaped and restricted by situations that are fundamentally social and cultural, particularly in the life of a college student. Cultural influences cause differences in the customary intake of particular foods and in the traditions of preparation, and in some instances, can lead to dietary limitations such as the elimination of specific items from a person's diet, such as meat and milk. The term "social impacts on food intake" refers to the impact that one or more people have on the eating behavior of others. This impact might be direct (purchasing food), indirect (learning from peer's conduct), conscious (transfer of beliefs), or subconscious (learning from other people's behavior). Even when a person is eating by himself, social variables still have

an impact on their food choice. This is due to the fact that attitudes and habits are formed via interaction with other people, and it is extremely common to see this in college life. Research that analyzed the connection between teenage snacking habits and socio - economic status found a modest but possible association between the two. There seemed to be differences in these eating habits across sexes and between countries with varying levels of prosperity [21].

Conclusion

Snacks ingested alter the total nutritional value of the diet since they add to the daily energy and nutrient intake. The current review study concluded that college students have been consuming snacks at a rising rate in recent years after examining and analyzing earlier studies on the factors influencing the consumption of healthy and unhealthy snacks among college students. The study demonstrates that even though the majority of college students are aware of the negative consequences of consuming unhealthy snacks, they still favor bad snacks over healthy ones. The study highlighted the primary elements that impacted the snack choices of college students and illustrated the value of understanding students' eating behaviors. The study also revealed the important factors that influence the snack choices of college students. College students' choices of snacks are also impacted by mental health issues such as anxiety and despair. It is possible to draw the conclusion that unhealthy eating behaviors and habits are risk factors for a number of "non-communicable diseases (NCDs)," such as cancer, obesity, high blood pressure, cardiovascular diseases, and diabetes. On the other hand, the consumption of healthy snacks contributes to a healthy and balanced lifestyle for college students.

Acknowledgement

At the opening of my research paper, I would like to express my profound gratitude to everyone who has assisted me in this quest. I would like to express my heartfelt gratitude to our research supervisor '.....' for providing me the opportunity to create this review paper on the topic 'A comprehensive review on factors influencing Snack consumption among the college students' which allowed me to conduct extensive study and learn about many new things. I also express my heartfelt thanks to my parents and family members who have always morally and financially supported me. Last but not least, my thanks go to all of my friends who provided excellent advice and direction for the completion of my review paper. Cooperation and constructive criticism were beneficial to them. Finally, I Would like to thank everyone who has already been recognized.

Funding and Sponsorship

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Declarations of Interest

We wish to confirm that there are no known conflicts of interest associated with this publication.

References

1. Kumar R, Chambers E. Understanding the Terminology for Snack Foods and Their Texture by Consumers in Four Languages: A Qualitative Study. *Foods*. 2019;8(10):484.

- DOI: 10.3390/foods8100484
2. Almorai NM, Saqaan R, Alharthi R, Alamoudi A, Badh L, Shatwan IM. Snacking patterns throughout the life span: potential implications on health. *Nutrition Research*. 2021;91:81-94. DOI: 10.1016/j.nutres.2021.05.001
 3. Hajivandi L, Noroozi M, Mostafavi F, Ekramzadeh M. Food habits in overweight and obese adolescent girls with Polycystic ovary syndrome (PCOS): A qualitative study in Iran. *BMC Pediatrics*. 2020;20(1):1-7. DOI: 10.1186/s12887-020-02173-y
 4. Mueller M, Blondin S, Korn A, Bakun P, Tucker K, Economos C. Behavioral Correlates of Empirically-Derived Dietary Patterns among University Students. *Nutrients*. 2018;10(6):716. DOI: 10.3390/nu10060716.
 5. Finan LJ, Ohannessian CM, Gordon MS. Trajectories of depressive symptoms from adolescence to emerging adulthood: The influence of parents, peers, and siblings. *Developmental Psychology*. 2018;54(8):1555-1567. DOI: 10.1037/dev0000543
 6. Dutt S, Keyte R, Egan H, Hussain M, Mantzios M. Healthy and unhealthy eating amongst stressed students: considering the influence of mindfulness on eating choices and consumption. *Health Psychology Report*. 2018;7(2):113-120. DOI: 10.5114/hpr.2019.77913
 7. Valbrun LP, Zvonarev V. The Opioid System and Food Intake: Use of Opiate Antagonists in Treatment of Binge Eating Disorder and Abnormal Eating Behavior. *Journal of Clinical Medicine Research*. 2020;12(2):41-63. DOI: 10.14740/jocmr4066
 8. Zawadzki MJ, Boals A, Mathews N, Schuler K, Southard-Dobbs S, Smyth JM. The relationship between perseverative cognitions and mental health and physical health complaints among college students. Walla P, ed. *Cogent Psychology*. 2018;5(1):1475878. DOI: 10.1080/23311908.2018.1475878
 9. Mithra P, Unnikrishnan B, Thapar R, *et al.* Snacking Behaviour and Its Determinants among College-Going Students in Coastal South India. *Journal of Nutrition and Metabolism*. 2018;2018:1-6. doi:10.1155/2018/6785741
 10. Choi J. Impact of Stress Levels on Eating Behaviors among College Students. *Nutrients*. 2020;12(5):1241. DOI: 10.3390/nu12051241
 11. Voinea L, Popescu DV, Bucur M, Negrea TM, Dina R, Enache C. Reshaping the Traditional Pattern of Food Consumption in Romania through the Integration of Sustainable Diet Principles. A Qualitative Study. *Sustainability*. 2020;12(14):5826. DOI: 10.3390/su12145826
 12. Lambert LG, Mann G, Partacz M, Jurss MA. Measuring university students' beliefs toward healthy snack selection. *Journal of American College Health*. 2020;70(1):191-198. DOI: 10.1080/07448481.2020.1732987
 13. Asbridge SCM, Pechey E, Marteau TM, Hollands GJ. Effects of pairing health warning labels with energy-dense snack foods on food choice and attitudes: Online experimental study. *Appetite*. 2021;160:105090. DOI: 10.1016/j.appet.2020.105090
 14. Choi J. Impact of Stress Levels on Eating Behaviors among College Students. *Nutrients*. 2020;12(5):1241. DOI: 10.3390/nu12051241
 15. Upadhyay RK. Chronic Non-communicable Diseases: Risk Factors, Disease Burden, Mortalities and Control. *Acta Scientific Medical Sciences*. Published online April 1, 2022;6(4):153-170. DOI: 10.31080/asms.2022.06.1227
 16. Amrein MA, Scholz U, Inauen J. Compensatory health beliefs and unhealthy snack consumption in daily life. *Appetite*. 2021;157:104996. DOI: 10.1016/j.appet.2020.104996
 17. Abraham S, Martinez M, Salas G, Smith J. College student's perception of risk factors related to fast food consumption and their eating habits. *Journal of Nutrition and Human Health*. 2018;02(01):18-21. DOI: 10.35841/nutrition-human-health.2.1.18-21
 18. Yazdi Feyzabadi V, Keshavarz Mohammadi N, Omidvar N, Karimi-Shahanjarini A, Nedjat S, Rashidian A. Factors Associated With Unhealthy Snacks Consumption Among Adolescents in Iran's Schools. *International Journal of Health Policy and Management*. 2017;6(9):519-528. DOI: 10.15171/ijhpm.2017.09
 19. Shalini. K, G. Rohini, P. Vishal, Sridevi. Polasi. Analytical Hierarchy Process (AHP): A Steady Method for Quality Decision Making: A Case Study in Snack Food Industry. *Journal of Pharmaceutical Negative Results*. Published online October 12, c2022, p. 1787-1798. DOI: 10.47750/pnr.2022.13.s06.235
 20. Almorai NM, Saqaan R, Alharthi R, Alamoudi A, Badh L, Shatwan IM. Snacking patterns throughout the life span: potential implications on health. *Nutrition Research*. 2021;91:81-94. DOI: 10.1016/j.nutres.2021.05.001.
 21. Williamson V, Dilip A, Dillard J, Morgan-Daniel J, Lee A, Cardel M. The Influence of Socioeconomic Status on Snacking and Weight among Adolescents: A Scoping Review. *Nutrients*. 2020;12(1):167. DOI: 10.3390/nu12010167
 22. Jayawardena R, Ranasinghe P, Wijayabandara M, Hills AP, Misra A. Nutrition Transition and Obesity among Teenagers and Young Adults in South Asia. *Current Diabetes Reviews*. 2017;13(5):444-451. DOI: 10.2174/1573399812666160808100211
 23. Sönmez MO, Nazik F. Changing nutrition habits: snack consumption, meal skipping and anthropometric parameters of university students in Turkey. *Southeast Asian Journal of Tropical Medicine and Public Health*. 2019;50(1):180-190. <https://www.tm.mahidol.ac.th/seameo/2019-50-1/19-7535-5-180.pdf>
 24. Suhadi R, Hendra P, Virginia DM, Setiawan CH. Eating behavior affects cardio-metabolic risk in high school teenagers in a developing country. *Medical Journal of Indonesia*. 2020;29(1):71-81. DOI: 10.13181/mji.oa.193494
 25. Upreti YR, Bastien S, Bjonness B, Devkota B. Socio-ecological Factors Associated with Snacking Behaviors of Basic School Students in Nepal. *Current Research in Nutrition and Food Science Journal*. 2020;8(3):774-784. DOI: 10.12944/crnfsj.8.3.10
 26. Racine EF, Schorno R, Gholizadeh S, *et al.* A College Fast-Food Environment and Student Food and Beverage Choices: Developing an Integrated Database to Examine Food and Beverage Purchasing Choices among College Students. *Nutrients*. 2022;14(4):900. DOI: 10.3390/nu14040900
 27. Sogari G, Velez-Argumedo C, Gómez M, Mora C.

- College Students and Eating Habits: A Study Using An Ecological Model for Healthy Behavior. *Nutrients*. 2018;10(12):1823. DOI: 10.3390/nu10121823
28. Kabir A, Miah S, Islam A. Factors influencing eating behavior and dietary intake among resident students in a public university in Bangladesh: A qualitative study. Wieringa F, ed. *PLOS ONE*. 2018;13(6):e0198801. DOI: 10.1371/journal.pone.0198801
29. Sawyer ADM, van Lenthe F, Kamphuis CBM, *et al.* Dynamics of the complex food environment underlying dietary intake in low-income groups: a systems map of associations extracted from a systematic umbrella literature review. *International Journal of Behavioral Nutrition and Physical Activity*. 2021;18:1. DOI: 10.1186/s12966-021-01164-1
30. Lee J, Allen J. Gender Differences in Healthy and Unhealthy Food Consumption and Its Relationship with Depression in Young Adulthood. *Community Mental Health Journal*. 2020;57(5):898-909. DOI: 10.1007/s10597-020-00672-x
31. Latha R, Thegaleesan T. Complexity of food choice and statistical techniques. *International Journal of Innovative Studies in Sociology and Humanities*. 2019;4(2):90-95. <https://ijissh.org/storage/volume4/issue2/ijissh-040215.pdf>
32. Cheikh Ismail L, Osaili TM, Mohamad MN, *et al.* Psychosocial factors affecting dietary habits of university students: A cross-sectional study. *Heliyon*. 2022;8(6):e09768. DOI: 10.1016/j.heliyon.2022.e09768
33. Luo X, Hu Y. The competitive interaction between food cravings and unhealthy snacking: an application of the predator-prey model in psychology. *Current Psychology*. Published Online November 8, 2022. DOI: 10.1007/s12144-022-03848-8