International Journal of
Mental Health Promotion

Tech Science Press

http://doi.org/10.32604/ijmhp.2026.078353

ARTICLE

Associations between Mukbang Viewing and Anxiety among Adolescents: A Cross-Sectional Mediation Analysis of High-Caffeine Beverages and Sugar-Sweetened Beverages Intake

Eungyeong Kim*

Faculty of Nursing, Kunsan National University, Gunsan, Republic of Korea
*Corresponding Author: Eungyeong Kim. Email: egkim@kunsan.ac.kr

Received: 30 December 2025; Accepted: 13 February 2026; Published: 28 May 2026

ABSTRACT: Background: Adolescents are highly exposed to digital food-related content, including mukbang videos, yet the psychological consequences of such exposure remain insufficiently understood. This study aimed to examine the association between mukbang viewing and anxiety among adolescents and to investigate the mediating roles of high-caffeine beverages and sugar-sweetened beverages intake. **Methods:** Data from 51,850 adolescents were drawn from the 2022 Korea Youth Risk Behavior Web-based Survey. Parallel mediation analyses were conducted using PROCESS Model 4 with 5000 bootstrap samples to assess whether the frequency of high-caffeine beverages and sugar-sweetened beverages consumption mediated the association between mukbang viewing and anxiety. Analyses were adjusted for academic record, household economic level, grade, and gender. **Results:** Mukbang viewing was positively associated with anxiety ($p < 0.001$). Watching mukbang significantly predicted higher high-caffeine beverages (B = 0.0363, $p < 0.001$) and sugar-sweetened beverages (B = 0.0663, $p < 0.001$). In the mediation model, both high-caffeine beverages intake (B = 0.4064, $p < 0.001$) and sugar-sweetened beverages intake (B = 0.2457, $p < 0.001$) were significantly associated with increased anxiety. The total effect of mukbang viewing on anxiety was significant (B = 0.1053), with both a direct effect (B = 0.0743) and a significant indirect effect through the two mediators (B = 0.0311). Bootstrapped confidence intervals confirmed significant indirect pathways via high-caffeine beverages (B = 0.0148, 95% CI [0.0120, 0.0175]) and sugar-sweetened beverages (B = 0.0163, 95% CI [0.0136, 0.0192]). **Conclusions:** Mukbang viewing is associated with higher anxiety among adolescents, and this relationship is partially mediated by increased high-caffeine beverages and sugar-sweetened beverages intake. These findings suggest that dietary behaviors represent important behavioral pathways linking digital food content exposure to adolescent mental health.

KEYWORDS: Mukbang viewing; adolescents; anxiety; mediation analysis

1 Introduction

Adolescence is a critical developmental period characterized by heightened emotional sensitivity, increased reward responsiveness, and ongoing maturation of self-regulatory neural systems [1,2]. During this stage, adolescents are particularly vulnerable to external environmental influences, including media exposure, which can significantly shape their psychological well-being [3]. With the rapid expansion of digital media platforms, adolescents are increasingly exposed to food-related online content, among which "mukbang" videos—featuring individuals consuming large quantities of food while engaging viewers—have gained substantial popularity [4].

Mukbang content often depicts highly palatable, energy-dense foods and beverages, providing intense visual and auditory stimulation that may activate appetite-related neural and psychological responses [5].

Experimental and observational studies have demonstrated that exposure to visually appealing food cues can increase cravings and subsequent consumption of sugar-sweetened beverages and caffeinated drinks, particularly among adolescents who exhibit heightened reward sensitivity [6,7]. From the perspective of social cognitive theory [8], adolescents may internalize and imitate behaviors modeled by mukbang creators, especially when such behaviors appear pleasurable or socially reinforced. Consequently, frequent exposure to mukbang may encourage increased intake of stimulant and sugary products.

High consumption of caffeinated beverages has been associated with increased physiological arousal, disrupted sleep patterns, and elevated anxiety symptoms among youth populations [9,10]. Adolescents are especially susceptible to the anxiogenic effects of caffeine due to ongoing neurodevelopment and heightened sensitivity to stimulants [11]. Similarly, frequent intake of sugar-sweetened foods and beverages has been linked to emotional dysregulation, internalizing problems, and higher levels of anxiety in children and adolescents [12,13]. These findings suggest that dietary behaviors influenced by digital food content may play an important role in shaping adolescent mental health.

Despite growing interest in the psychological effects of mukbang viewing, prior research has largely focused on eating behaviors or body image concerns, with limited attention to mental health outcomes and underlying behavioral mechanisms. In particular, the potential mediating roles of caffeine and sugar consumption in the association between mukbang exposure and anxiety remain insufficiently explored. Understanding these pathways is critical, given the widespread consumption of digital food content among adolescents and increasing public health concerns regarding both anxiety disorders and unhealthy dietary patterns.

Taken together, existing evidence suggests that watching mukbang may influence adolescent anxiety both directly and indirectly through increased consumption of high-caffeine beverages and sugar-sweetened beverages. Therefore, this study aims to examine the associations between mukbang viewing and anxiety among adolescents and to investigate whether high-caffeine beverages and sugar-sweetened beverages intake mediate this relationship using a cross-sectional survey design. By elucidating these behavioral pathways, the present study seeks to contribute to a more comprehensive understanding of how digital food media may affect adolescent mental health.

2 Review and Hypotheses

Based on the literature reviewed above, a conceptual framework was developed to examine the direct and indirect associations between watching mukbang and anxiety among adolescents.

2.1 Conceptual Framework

Based on developmental and media influence theories, this study proposes a conceptual framework in which watching mukbang is associated with adolescent anxiety both directly and indirectly through dietary behaviors. Adolescents are particularly sensitive to rewarding and emotionally salient media stimuli due to ongoing neurodevelopment and heightened reward responsiveness [14,15]. Frequent exposure to mukbang content is expected to increase high-caffeine beverages (Hypothesis 2) and sugar-sweetened beverages consumption (Hypothesis 3) through observational learning and cue-reactivity mechanisms [5,7,16]. In turn, higher intake of high-caffeine beverages and sugar-sweetened beverages is hypothesized to elevate anxiety levels among adolescents, thereby mediating the association between mukbang viewing and anxiety (Hypothesis 4) [10,11,17]. In addition to these indirect pathways, mukbang viewing is expected to have a direct positive association with anxiety, independent of dietary behaviors (Hypothesis 1), potentially

through emotional arousal, parasocial interaction, and social comparison processes [18]. Fig. 1 illustrates the conceptual framework guiding the present study.

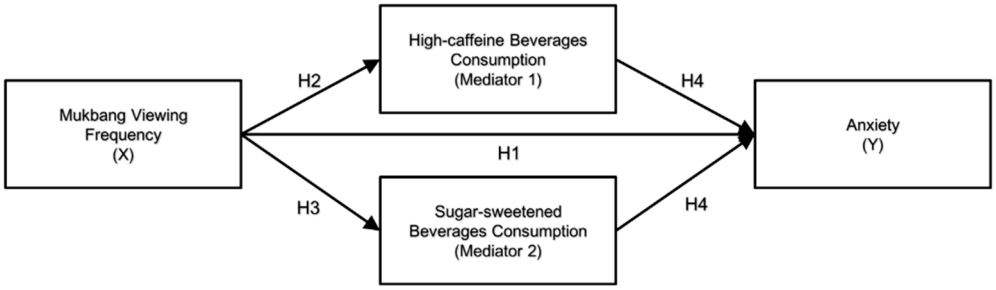

Figure 1: Conceptual framework.

2.2 Hypothesis

Hypothesis 1: *Mukbang viewing is positively associated with adolescent anxiety.*

Adolescence is a critical developmental period characterized by heightened emotional sensitivity, increased reward responsiveness, and incomplete maturation of cognitive control systems [14,15]. These developmental characteristics increase adolescents' vulnerability to external influences, including digital media exposure. Growing evidence suggests that food-related digital content can influence both dietary behaviors and mental health outcomes among adolescents [3–5].

Hypothesis 2: *Watching mukbang is positively associated with high-caffeine beverages consumption among adolescents.*

According to social cognitive theory, adolescents are likely to model behaviors displayed by media figures when those behaviors appear enjoyable or socially reinforced [8]. Mukbang content frequently includes the consumption of coffee and energy drinks, often portrayed as enhancing pleasure or endurance during eating. Empirical studies have shown that exposure to food- and beverage-related media increases adolescents' intake of the featured products [16,17].

Hypothesis 3: *Watching mukbang is positively associated with sugar-sweetened beverages consumption among adolescents.*

Visual exposure to sugar-rich, highly palatable foods can activate reward-related neural pathways and increase cravings, particularly during adolescence [4]. Prior research on digital food marketing and influencer-based eating content indicates that such exposure promotes greater consumption of sugar-sweetened beverages and snacks among youth [6,7]. Mukbang videos often emphasize large portions of sweet foods and beverages, reinforcing these consumption patterns.

Hypothesis 4: *High-caffeine beverages and sugar-sweetened beverages consumption mediate the association between watching mukbang and adolescent anxiety.*

Caffeine consumption has been consistently associated with increased physiological arousal, sleep disturbance, and anxiety symptoms among adolescents [9,10]. Adolescents are especially sensitive

to caffeine's anxiogenic effects due to heightened stress reactivity [11]. Similarly, excessive intake of sugar-sweetened foods and beverages has been linked to emotional dysregulation and anxiety in youth populations [12,13]. Given that mukbang viewing may increase both high-caffeine beverages and sugar-sweetened beverages, these dietary behaviors are hypothesized to mediate the association between mukbang exposure and anxiety.

3 Methods

3.1 Materials

This study is a secondary analysis study conducted to prepare countermeasures to prevent adolescent mental health by analyzing original data from the seventeenth Korea Youth Risk Behavior Web-based Survey (KYRBS) in 2022. The sample size of the KYRBS is 400 middle schools and 400 high schools. The sample number of schools is allocated based on the city/province, city size (metropolitan, small, and medium-sized city and county area), group, male/female for middle schools, and male/female and general high school and specialized high school for high schools by applying the proportional allocation method. Two-stage cluster sampling was used for sampling, and the sample school was selected by a systematic sampling method by estimating the sampling interval after sorting the school list of the population by strata for the primary sampling. For the secondary sampling, one class was randomly selected by grade from the selected sample school. Subjects of the survey ranged from first-year middle school students to third-year high school students in 800 sample schools nationwide, and the response rate of the KYRBS in 2022 was 92.9%.

3.2 Research Tools

Watching mukbang was assessed by asking participants how frequently they had watched mukbang content during the past 12 months. Responses were originally measured on a 7-point ordinal scale with the following anchors: 1 = "not at all," 2 = "less than once a month," 3 = "once to three times a month," 4 = "once to twice a week," 5 = "three to four times a week," 6 = "five to six times a week," and 7 = "every day." For analytic purposes, the scale was linearly transformed to a 0–6 metric by subtracting one from each response, such that higher values indicated more frequent mukbang viewing. This transformation did not alter the relative spacing or interpretation of the original response categories. Anxiety symptoms were assessed using the Generalized Anxiety Disorder-7 (GAD-7), which measures the frequency of anxiety-related symptoms over the past two weeks on a 4-point scale ranging from 0 ("not at all") to 3 ("nearly every day"). The GAD-7 has demonstrated good internal consistency in prior research (Cronbach's $\alpha = 0.89$) [19], and reliability was similarly high in the present study (Cronbach's $\alpha = 0.91$).

High-caffeine beverage consumption was measured using a single item assessing intake frequency during the past 7 days, with response options ranging from 1 ("did not consume during the past 7 days") to 7 ("three or more times per day"). Participants were asked, "During the past 7 days, how often did you consume high-caffeine beverages?" Sugar-sweetened beverage consumption was assessed using an identical 7-day recall period and response scale. Different reference periods were used to reflect the conceptual nature of each construct. Mukbang viewing was measured over 12 months to capture habitual exposure, anxiety symptoms were assessed over the past two weeks following the GAD-7 guidelines, and dietary behaviors were measured using a 7-day recall period to reduce recall bias.

Demographic covariates included gender, grade, academic record, and household economic level. Respondents were divided into 'males' and 'females'. In order to see the difference according to the school grade, it was classified into two categories, middle and high schools, and their academic record and

household economic level were measured on the 5-point Likert scale of high (5), mid-high (4), middle (3), mid-low (2), and low (1).

3.3 Data Analysis

Data were analyzed using SPSS Statistics version 21.0 (IBM Corp., Armonk, NY, USA). In this study, the survey employed a stratified, clustered, and weighted sampling design. Individual sampling weights, stratification variables, and primary sampling unit (PSU) cluster variables provided in the raw data were applied in the computation of descriptive statistics to reflect the complex survey design. In contrast, inferential analyses were conducted using standard statistical procedures that did not fully incorporate the complex sampling structure. In the raw data, response options such as "not applicable," "don't know," and "no response" were treated as non-informative and recoded as missing values prior to analysis. The total sample comprised 51,850 respondents, with negligible missing data for variables. Analyses were conducted using valid responses, and the effective sample size remained 51,850.

Survey-weighted descriptive statistics were computed to summarize the characteristics of the study variables. Pearson's correlation coefficients were calculated to examine the associations among watching mukbang, high-caffeine beverage consumption, sugar-sweetened beverage consumption, and anxiety. The internal consistency of the anxiety measure (GAD-7) was assessed using Cronbach's α coefficient. Mediation analyses were conducted to test whether high-caffeine beverage consumption and sugar-sweetened beverage consumption mediated the relationship between watching mukbang and anxiety. Parallel mediation analyses were performed using PROCESS Model 4 with 5000 bootstrap samples, adjusting for demographic covariates including academic record, household economic level, grade, and gender. Unstandardized coefficients (B), standard errors, and 95% confidence intervals were reported.

4 Results

4.1 Descriptive Statistics and Correlation Analysis

Table 1 presents the descriptive statistics for all study variables. Participants reported an average anxiety score of 4.20 (SD = 4.65), with scores ranging from 0 to 21. The mean frequency of watching mukbang content was 2.22 (SD = 1.91), ranging from 0 to 6. Caffeine consumption showed a mean of 1.89 (SD = 1.24), and sugar-sweetened beverage consumption had a mean of 1.19 (SD = 0.85), each ranging from 1 to 7. Regarding the distribution of mukbang viewing frequency, 14,781 participants (29.4%) reported not watching mukbang at all, 5326 (10.3%) reported watching less than once a month, 9580 (18.3%) reported watching once to three times a month, 9195 (17.5%) reported watching once to twice a week, 5957 (11.3%) reported watching three to four times a week, 2575 (4.8%) reported watching five to six times a week, and 4418 (8.3%) reported watching mukbang every day. The mean academic record score was 3.12 (SE = 0.01), and the mean household economic level was 3.43 (SE = 0.01). The average grade level of participants was 3.47 (SE = 0.24). In terms of gender, 51.6% of the sample were male and 48.4% were female.

Table 2 displays the correlations among the main study variables. Anxiety scores exhibited a small but significant positive correlation with watching mukbang content (r = 0.07, $p < 0.01$), high-caffeine beverages consumption (r = 0.13, $p < 0.01$), and sugar-sweetened beverages consumption (r = 0.09, $p < 0.01$). Watching mukbang content was also positively correlated with high-caffeine beverages consumption (r = 0.06, $p < 0.01$) and sugar-sweetened beverages consumption (r = 0.09, $p < 0.01$). In addition, high-caffeine beverages consumption was moderately correlated with sugar-sweetened beverages (r = 0.28, $p < 0.01$). These results indicate that higher engagement in mukbang watching and greater intake of high-caffeine beverages and sugar-sweetened beverages are each associated with higher levels of self-reported anxiety.

Table 1: Descriptive statistics of variables (n = 51,850).

Variable	Values	Skewness	Kurtosis
Anxiety score, Mean ± SD (range)	4.20 ± 4.65 (0–21)	1.47	1.93
Watching mukbang, Mean ± SD (range)	2.22 ± 1.91 (0–6)	0.44	0.84
High-caffeine beverages consumption, Mean ± SD (range)	1.89 ± 1.24 (1–7)	1.78	3.22
Sugar-sweetened beverages consumption, Mean ± SD (range)	1.19 ± 0.85 (1–7)	0.87	0.58
Watching mukbang, *n* (weighted %)			
Not at all	14,781 (29.4)	/	/
Less than once/month	5326 (10.3)	/	/
1–3/month	9580 (18.3)	/	/
1–2/week	9195 (17.5)	/	/
3–4/week	5957 (11.3)	/	/
5–7/week	2575 (4.8)	/	/
Every day	4418 (8.3)	/	/
Academic record, Mean ± SE	3.12 ± 0.01	/	/
Household economic level, Mean ± SE	3.43 ± 0.01	/	/
Grade, Mean ± SE	3.47 ± 0.24	/	/
Gender, *n* (weighted %)			
Male	26,397 (51.6)	/	/
Female	25,453 (48.4)	/	/

Note: SD, standard deviation; SE, standard error.

Table 2: Correlation of variables.

Variable	1	2	3	4
1. Anxiety score	1			
2. Watching mukbang	0.07**	1		
3. High-caffeine beverages consumption	0.13**	0.06**	1	
4. Sugar-sweetened beverages consumption	0.09**	0.09**	0.28**	1

Note: **p < 0.01.

4.2 Mediation Analysis

A parallel multiple mediation analysis was conducted using PROCESS Model 4 to examine indirect associations between mukbang viewing and anxiety through high-caffeine beverage intake and sugar-sweetened beverage intake. Gender, academic record, household economic level, and grade were included as covariates (Tables 3 and 4).

Mukbang viewing was positively associated with higher reported consumption of high-caffeine beverages (b = 0.036, β = 0.15, p < 0.001) and sugar-sweetened beverages (b = 0.066, β = 0.14, p < 0.001). In the model predicting anxiety, both high-caffeine beverage intake (b = 0.406, β = 0.18, p < 0.001) and sugar-sweetened beverage intake (b = 0.246, β = 0.12, p < 0.001) were positively associated with anxiety scores. Mukbang viewing remained significantly associated with anxiety after accounting for the mediators (b = 0.074, β = 0.13, p < 0.001), and the total association between mukbang viewing and anxiety was also significant (b = 0.105, β = 0.19, p < 0.001).

The indirect association via high-caffeine beverage intake was statistically significant (B = 0.0148, 95% CI for B [0.0120, 0.0175]), as was the indirect association via sugar-sweetened beverage intake (B = 0.0163, 95% CI for B [0.0136, 0.0192]). The total indirect association was also statistically significant (B = 0.0311, 95% CI for B [0.0271, 0.0352]). Because all 95% confidence intervals for the unstandardized coefficients (B) did not include zero, both indirect pathways were statistically supported. Overall, the models explained a modest proportion of variance. Mukbang viewing and covariates accounted for 2.9% of the variance in

high-caffeine beverage consumption and 2.1% of the variance in sugar-sweetened beverage consumption. In the mediation model, the predictors explained 5.6% of the variance in anxiety, indicating small effect sizes despite statistical significance. Accordingly, these findings reflect modest statistical associations rather than strong practical or causal effects, and no causal inferences can be drawn from these cross-sectional data.

Table 3: PROCESS Model 4 regression results of watching mukbang on high-caffeine beverages and sugar-sweetened beverages consumption.

Predictor	B	SE	β	*p*-value
M1: High-Caffeine Beverages Consumption				
Watching mukbang	0.036	0.003	0.15	<0.001
Academic record	−0.026	0.005	−0.07	<0.001
Household economic level	0.036	0.007	0.05	<0.001
Grade	0.115	0.003	0.31	<0.001
Gender	−0.034	0.011	−0.04	0.002
M2: Sugar-Sweetened Beverages Consumption				
Watching mukbang	0.066	0.003	0.14	<0.001
Academic record	−0.044	0.005	−0.11	<0.001
Household economic level	0.014	0.007	0.03	0.037
Grade	0.039	0.004	0.12	<0.001
Gender	−0.266	0.012	−0.29	<0.001

Note: The model fit (R^2) of M1 is 0.029, and M2 is 0.021. B, unstandardized coefficient; SE, standard error; β, standardized coefficient.

Table 4: Direct and indirect effects of watching mukbang on anxiety score through high-caffeine beverages and sugar-sweetened beverages consumption.

Effect	B	SE	BoostSE	β	95% CI for B
Total Effect	0.1050	0.0110	-	0.1900	0.0843, 0.1263
Direct Effect	0.0740	0.0110	-	0.1300	0.0534, 0.0951
Indirect Effect	0.0311	0.0020	0.0020	0.0600	0.0271, 0.0352
Indirect via high-caffeine beverages consumption	0.0148	0.0010	0.0010	0.0300	0.0120, 0.0175
Indirect via sugar-sweetened beverages consumption	0.0163	0.0010	0.0010	0.0300	0.0136, 0.0192

Note: For the anxiety outcome, the total-effect model explained 3.6% of the variance (R^2 = 0.036), whereas the mediation model explained 5.6% of the variance (R^2 = 0.056). B = unstandardized coefficient; SE = standard error; BootSE = bootstrapped standard error; β = standardized coefficient; CI = confidence interval. All 95% confidence intervals reported in this table refer to the unstandardized coefficients (B) and were obtained using bootstrapping procedures.

5 Discussion

The present study tested four hypotheses concerning the associations among mukbang viewing, beverage consumption, and anxiety in adolescents. Overall, the findings supported the proposed hypotheses. Consistent with Hypothesis 1, more frequent mukbang viewing was positively associated with higher anxiety scores. In line with Hypotheses 2 and 3, mukbang viewing was also positively associated with greater consumption of both high-caffeine and sugar-sweetened beverages. Furthermore, supporting Hypothesis 4, both types of beverage consumption demonstrated statistically significant indirect associations linking mukbang viewing and anxiety in the parallel mediation model. Taken together, these results indicate that adolescents who view mukbang more frequently also tend to report higher levels of anxiety, with beverage consumption emerging as a significant behavioral correlate within this association. Specifically,

high-caffeine and sugar-sweetened beverages consumption were identified as statistical pathways through which mukbang viewing and anxiety were indirectly related.

Consistent with prior research documenting associations between exposure to food-related digital media and eating behaviors or emotional states [18], mukbang viewing was associated with greater beverage intake. Existing studies suggest that digital food media—including short-form videos and livestream eating content—may heighten attentional focus on food cues, normalize frequent consumption, and reinforce consumption-related motivations [4]. Within this context, the present findings suggest that beverage consumption may represent a behavioral correlate statistically linking mukbang viewing and adolescent anxiety, rather than a confirmed causal mechanism.

Both high-caffeine and sugar-sweetened beverages intake were positively associated with anxiety, aligning with prior evidence linking caffeine consumption to heightened physiological arousal and sugar intake to mood instability and internalizing symptoms [20–22]. While the observed indirect associations suggest that beverage consumption may partially account for the relationship between mukbang viewing and anxiety, the standardized effects were small and the explained variance was limited. Given the large sample size, statistical significance was expected even for modest associations; thus, these findings should be interpreted as reflecting weak-to-moderate statistical relationships rather than strong clinical effects at the individual level.

Notably, mukbang viewing remained directly associated with anxiety even after accounting for beverage consumption, indicating that additional mechanisms may contribute to this relationship. These may include parasocial interactions with content creators [23], social comparison processes [24], overall screen time [25], sleep disruption [26], or body image concerns [27,28]. Furthermore, alternative directional explanations warrant careful consideration to address the limitations of the mediation framework. Adolescents experiencing higher levels of anxiety may proactively seek out mukbang content as a coping strategy—for example, for distraction, emotional regulation, or perceived social connection—rather than mukbang viewing serving as a precursor to anxiety. From this perspective, anxiety may precede mukbang viewing, with beverage consumption emerging as a co-occurring behavioral response within a broader coping context. Given the cross-sectional nature of the data, reciprocal or bidirectional associations cannot be ruled out.

Several methodological considerations further qualify these findings. While descriptive statistics incorporated sampling weights to reflect the complex survey design, inferential analyses did not fully account for stratification and clustering. Consequently, standard errors and p-values may be underestimated, and statistical significance should be interpreted with caution. Additionally, mukbang viewing was assessed via a general frequency measure, which may mask the substantial heterogeneity in content format, tone, and food types. These variations likely exert differential effects on psychological and dietary outcomes that were not captured in the present analysis.

Despite these limitations, this study contributes to the literature on digital food media and adolescent mental health by documenting significant associations in a large, national sample. Rather than implying causation, the findings highlight potential correlates and pathways that warrant further investigation. Future research should employ longitudinal or experimental designs, apply fully survey-adjusted analytic approaches, and incorporate more granular measures of content characteristics and coping motives to clarify temporal ordering and underlying mechanisms.

6 Conclusions

This study demonstrates that watching mukbang is associated with increased anxiety among adolescents, both directly and indirectly through greater high-caffeine beverages and sugar-sweetened

beverages consumption. These findings highlight the importance of addressing unhealthy digital food media exposure and its influence on dietary habits and emotional well-being. The results contribute to understanding the behavioral mechanisms linking online food content consumption to mental health and underscore the need for interventions promoting healthier viewing and food consumption patterns.

Acknowledgement: Not applicable.

Funding Statement: The author received no specific funding for this study.

Availability of Data and Materials: The data that support the findings of this study are available from the corresponding author.

Ethics Approval: Not applicable.

Conflicts of Interest: The author declares no conflicts of interest.

References

1. Steinberg L. Age of opportunity: Lessons from the new science of adolescence. Boston, MA, USA: Houghton Mifflin Harcourt; 2014.
2. Casey BJ. Beyond simple models of self-control to circuit-based accounts of adolescent behavior. Annu Rev Psychol. 2015;66:295–319. [CrossRef].
3. Twenge JM. Increases in depression, self-Harm, and suicide among U.S. adolescents after 2012 and links to technology use: Possible mechanisms. Psychiatr Res Clin Pract. 2020;2(1):19–25. [CrossRef].
4. Sung J, Hong JY, Kim J, Jung J, Choi S, Kang JY, et al. Mukbang and Cookbang watching and dietary behavior in Korean adolescents. Nutr Res Pract. 2024;18(4):523–33. [CrossRef].
5. Spence C, Okajima K, Cheok AD, Petit O, Michel C. Eating with our eyes: From visual hunger to digital satiation. Brain Cogn. 2016;110:53–63. [CrossRef].
6. Boyland EJ, Halford JCG. Television advertising and branding effects on eating behavior. Appetite. 2013;62:236–41. [CrossRef].
7. Folkvord F, van Riet J. The persuasive effect of advergames promoting unhealthy foods among children: A meta-analysis. Appetite. 2018;129:245–51. [CrossRef].
8. Bandura A. Social cognitive theory of mass communication. Media Psychol. 2001;3:265–99. [CrossRef].
9. Richards G, Smith A. Caffeine consumption and self-assessed stress, anxiety, and depression in secondary school children. J Psychopharmacol. 2015;29(12):1236–47. [CrossRef].
10. Temple JL, Bernard C, Lipshultz SE, Czachor JD, Westphal JA, Mestre MA. The safety of ingested caffeine: A comprehensive review. Front Psychiatry. 2017;26(8):80. [CrossRef].
11. Temple JL. Caffeine use in children: What we know, what we have left to learn, and why we should worry. Neurosci Biobehav Rev. 2009;33(6):793–806. [CrossRef].
12. Ejtahed HS, Mardi P, Hejrani B, Mahdavi FS, Ghoreshi B, Gohari K, et al. Association between junk food consumption and mental health problems in adults: A systematic review and meta-analysis. BMC Psychiatry. 2024;24(1):438. [CrossRef].
13. Guo J, Luo S, Su Z, Fu J, Ma J, Zhong X, et al. Consumption patterns of sugar-sweetened beverages and association with undernutrition among children aged 9-17 years in Guangzhou, China: A cross-sectional study. Nutrients. 2024;16(5):650. [CrossRef].
14. Casey BJ, Jones RM, Hare TA. The adolescent brain. Ann N Y Acad Sci. 2008;1124:111–26. [CrossRef].
15. Steinberg L. A social neuroscience perspective on adolescent risk-taking. Dev Rev. 2008;28:78–106. [CrossRef].
16. Harris JL, Bargh JA, Brownell KD. Priming effects of television food advertising on eating behavior. Health Psychol. 2009;28:404–13. [CrossRef].
17. Lee S, Lee SA, Park EC. Association between energy drink consumption, depression and suicide ideation in Korean adolescents. Int J Soc Psychiatry. 2020;66:335–43. [CrossRef].

18. Kim JH, Kim J, Jang SY, Park EC. Association between watching eating broadcasts like mukbang and cookbang and generalized anxiety disorder among Korean adolescents. BMC Psychiatry. 2024;24(1):536. [CrossRef].
19. Spitzer RL, Kroenke K, Williams JB, Löwe B. A brief measure for assessing generalized anxiety disorder: The GAD-7. Arch Intern Med. 2006;166:1092–7. [CrossRef].
20. Cho JA, Kim S, Shin H, Kim H, Park EC. The association between high-caffeine drink consumption and anxiety in korean adolescents. Nutrients. 2024;16(6):794. [CrossRef].
21. Javadi Arjmand E, Bemanian M, Vold JH, Skogen JC, Sandal GM, Arnesen EK, et al. Emotional eating and changes in high-sugar food and drink consumption linked to psychological distress and worries: A cohort study from Norway. Nutrients. 2023;15(3):778. [CrossRef].
22. Lee SJ, Na Y, Lee KW. Association between the consumption of sugar-sweetened beverages and high-caffeine drinks and self-reported mental health conditions among Korean adolescents. Nutrients. 2025;17(16):2652. [CrossRef].
23. Sanzari CM, Gorrell S, Anderson LM, Reilly EE, Niemiec MA, Orloff NC, et al. The impact of social media use on body image and disordered eating behaviors: Content matters more than duration of exposure. Eat Behav. 2023;49:101722. [CrossRef].
24. Horton D, Wohl RR. Mass communication and para-social interaction: Observations on intimacy at a distance. Psychiatry. 1956;19(3):215–29. [CrossRef].
25. Twenge JM, Martin GN, Campbell WK. Decreases in psychological well-being among American adolescents after 2012 and links to screen time during the rise of smartphone technology. Emotion. 2018;18(6):765–80. [CrossRef].
26. Hale L, Guan S. Screen time and sleep among school-aged children and adolescents: A systematic literature review. Sleep Med Rev. 2015;21:50–8. [CrossRef].
27. Fiuza A, Rodgers RF. The effects of brief diet and anti-diet social media videos on body image and eating concerns among young women. Eat Behav. 2023;51:101811. [CrossRef].
28. Hogue JV, Mills JS. The effects of active social media engagement with peers on body image in young women. Body Imag. 2019;28:1–5. [CrossRef].