



Does Watching Mukbang and Cookbang Broadcasts Affect Subjective Body Image, Perceived Stress, and Physical Activity Levels among Korean Adolescents?

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Abstract

Background: We investigated whether physical activity, subjective body image, and perceived stress were linked to watching Mukbang and Cookbang broadcasts among Korean adolescents. Adolescents mainly watch Mukbang and Cookbang shows through media platforms such as YouTube and Instagram.

Methods: We examined data on 51,743 Korean adolescents who participated in the Korea Youth Risk Behavior Survey in 2022. Data were evaluated using frequency, chi-square, and multivariate logistic regression analyses. Specifically, the relationship between watching Mukbang and Cookbang broadcasts and physical activity participation, subjective body image, and perceived stress was evaluated through a multivariate logistic regression analysis after adjusting for covariates such as sex, age, school type, and residential area.

Results: The results showed that among Korean adolescents, watching Mukbang and Cookbang broadcasts was significantly related to the negative effects of feeling fatter and more stressed and the positive effect of greater participation in physical activities (possibly to combat feeling fat) ($P < 0.05$). In other words, this study confirms that watching Mukbang and Cookbang broadcasts has the simultaneous effect of increased physical activity participation in conjunction with negative subjective body images. Moreover, it increased perceived stress in adolescents.

Conclusion: Adolescents must be better educated about Mukbang and Cookbang broadcasts and their negative impact on subjective body image and perceived stress (as well as their positive impact on physical activity). Such education can help prevent these shows from creating negative teenage habits that can continue into adulthood. These results can be used as basic data for health education and policies that warn about the potential negative effects of such programs.

Keywords: Adolescent; Cookbang, Mukbang; Physical activity; Perceived stress; Subjective body image

Introduction

Adolescents are commonly labeled as “digital natives” due to their upbringing in the digital age. In 2020, Korean adolescents were found to en-

gage with digital media for an average of 27.6 hours per week, and this duration has been steadily increasing (1). Coupled with social distancing



due to the coronavirus disease 2019, Korean adolescents frequently use smart devices to participate in online classes and communicate with friends through video chats, leading to potentially excessive use of digital media (2). Therefore, adolescents devote their days to their digital devices, exploring a wide range of topics, including knowledge, information, entertainment, and communication with friends. Consequently, their lives have become inextricably linked to their use of digital devices.

With the rise of digital devices, new media platforms, such as YouTube, Instagram, and Facebook, have expanded, resulting in an increased number of people participating in personal broadcasting. Mukbang and Cookbang shows, which are popular on these platforms, involve hosts or broadcast jockeys, who film themselves cooking or eating large amounts of food while chatting and socializing with viewers (3). In a Mukbang broadcast, the host eats food and interacts with the audience, whereas in a Cookbang broadcast, the host cooks food while interacting with the audience. Mukbang and Cookbang are recent Korean trends (4) that effectively promote Korean food traditions as part of the Hallyu or “Korean wave” (5). Due to this influence, as of 2018, 1.6 billion people reportedly watched “Taobao Mukbang” in China (6). Many South Korean mukbang hosts originally started their broadcasting careers on the Korean live video platform AfreecaTV. However, the mukbang phenomenon has rapidly spread on a global level and a large number of mukbang videos could be found on internationally oriented platforms such as YouTube, where they are not necessarily live-streamed. According to Google Trends, mukbang started trending as an online search term in South Korea during Winter 2014 and globally in Autumn 2014 (Google Trends 2018) (7).

Both Mukbang and Cookbang shows have gained popularity, especially among Korean adolescents. Participants aged 15–34 years in Korea spend an average of 2 h/day on YouTube, preferably watching Mukbang and Cookbang videos (6). Research indicates that adolescents watch these shows to acquire information about food or to

derive indirectly pleasure from consuming large quantities of food by observing the eating habits of broadcast jockeys (8). Adolescents’ viewing intentions align with studies showing that Mukbang viewing reduces stress by providing vicarious satisfaction and increased viewing satisfaction (9,10). Children who watch healthy food preparations on these shows are more likely to improve their eating habits (11). Despite the positive effects of Mukbang and Cookbang broadcasts, the Korean government has proposed regulating these programs because of concerns about their contribution to obesity among viewers (12).

In general, adolescents are among those most readily influenced by the media. Furthermore, several studies have suggested that adolescents who watch TV tend to snack more frequently and eat diets high in fat (13,14). Adolescents exposed to fast-food videos also reportedly consume more high-calorie, low-nutritive foods (15). Brain magnetic resonance imaging of adolescents viewing food photos and videos revealed a 24% increase in brain metabolism within areas associated with pleasure (16), implying that adolescents derive pleasure from watching Mukbang and Cookbang broadcasts, which may result in impulsive food consumption and binge-eating behaviors. Higher frequencies of watching Mukbang and Cookbang shows among adolescents negatively affected their eating habits (16). Watching Mukbang and Cookbang shows for longer periods is associated with a higher body mass index, which significantly increases the risk of obesity (17). These shows promote specific restaurants, contributing to consumption and ultimately benefiting the economy (18). Mukbang and Cookbang programs are based on food themes covering daily dietary energy needs (16), establishing a clear connection between watching these shows and heightened viewer appetites.

Despite the popularity of Mukbang and Cookbang broadcasts beyond Korea (4,5), research on their influence on eating habits and obesity is scarce. Previous studies primarily focused on college students (9, 16–19), warranting a broader investigation into the realm of eating and cooking

programs. Specifically, further exploration of how these factors affect adolescents' lives is needed. Adolescence marks a crucial stage of rapid physical, mental, and social development, with lifestyle habits established during this period significantly shaping adulthood (20). Further research is essential to assess comprehensively the influence of Mukbang and Cookbang broadcasts on adolescent health. Our study explored the connection between watching these shows and adolescent physical activity, subjective body image, and perceived stress in a nationally representative sample of 51,743 Korean adolescents. Our findings add to the growing academic interest in youth health and provide data for education and policies.

Materials and Methods

Design and participants

We analyzed data from the 2022 Korea Youth Risk Behavior Survey (KYRBS), administered by the Korea Disease Control and Prevention Agency (KDCA). In Korea, the KYRBS serves as essential policy data to enhance the health of adolescents, relying on the International Physical Activity Questionnaire, a standardized tool for assessing and comparing physical activity across different global populations (21). KYRBS covers physical activity, dietary habits, mental health, and adolescent smoking and drinking patterns. The KDCA organized the survey and distributed it to 400 middle schools and 400 high schools. Furthermore, each of the 17 regions had a minimum of five middle schools and five high schools. Stratified cluster sampling was then performed. During the initial sampling, the schools were chosen using permanent random number sampling. In the subsequent stage, one class per grade was randomly selected from these schools, and all the students in the selected classes participated in the survey.

The KDCA explained the intention of the KYRBS to the participants who voluntarily participated in the study. Consent was also obtained from the participants and their parents (approval

number: 117058). The KYRBS was first administered in October 2022. The adolescents participating in the survey used computers or mobile devices at school and used a self-assessment writing method. The survey results are available on a website for academic purposes with the participant ID numbers. No specific data that could identify the students was included, such as their name, home address, mobile phone number, or email address

(<https://www.kdca.go.kr/yhs/home.jsp>). The bioethics committee of the KDCA exempted this study from ethical approval owing to the use of the KYRBS data. In our study, we collected data from 51,743 adolescent participants after excluding 107 incomplete surveys. The raw data were obtained from the KDCA website solely for this study. Demographic characteristics of the participants included sex (categorized as male or female), age (using the original data from KYRBS survey participants), school level (categorized as middle or high schools), and residential area (categorized as large, mid-sized, or small-sized cities).

Measures

Independent variables

Our independent variable covers whether the adolescent watches Mukbang and Cookbang broadcasts. The question asked was, "How often have you watched Mukbang and Cookbang in the last 12 months?" The survey evaluates responses on a scale of 1 (not at all) to 7 (daily). We categorized these raw data into a binary scale of adolescents who did not watch at all (1: not at all) and adolescents who watched (2: less than once a month–7: daily).

Dependent variables

The dependent variables were physical activity participation, subjective body image, and perceived stress. We measured participation in physical activity based on the question, "How many days have you walked for at least 10 minutes at a time in the last 7 days?" Responses to each question were evaluated on an 8-point Likert scale, where 1 was not at all, and 8 was 7 days per week. We categorized these raw data into a 4-point

scale of not at all (1 point), 1 to 2 days per week (2 points), 3 to 4 days per week (3 points), and >5 days per week (4 points); the higher the score, the higher the activity level.

To assess subjective body image, we assessed the answers to the question, “What do you think about your body image?” Responses were evaluated on a 5-point Likert scale ranging from 1 (very skinny) to 5 (very fat). We then categorized the raw data into skinny (1 point), normal (2 points), and fat (3 points). Finally, for perceived stress, we evaluated the answers to the question, “How much stress do you usually feel?” Responses were evaluated on a 5-point Likert scale ranging from 1 (a lot) to 5 (not at all). We categorized the raw data into a binary scale of no stress (1 point) and no stress (2 points).

Statistical analysis

SPSS (version 23.0; IBM Corp., Armonk, NY, USA) was used for data analysis. We initially conducted a demographic frequency analysis

covering factors like sex, age, school type, and residential area. Next, we employed chi-square analysis to detect variances in participant characteristics concerning physical activity, subjective body image, and perceived stress based on Mukbang and Cookbang show viewing habits. Subsequently, multivariate logistic regression analyses were conducted to explore the associations between physical activity participation, subjective body image, and perceived stress while adjusting for covariate variables. Adolescents who did not watch Mukbang and Cookbang broadcasts served as the reference group in these regression analyses. The results are presented as odds ratios (ORs). Statistical significance was set at $P < 0.05$.

Results

Participant characteristics

The demographic characteristics of the participants are presented in Table 1.

Table 1: Participant characteristics (n=51,743)

| <i>Characteristics</i> | <i>Categories</i> | <i>n (%)</i> |
|------------------------|--------------------|---------------|
| Sex | Male | 26,335 (50.9) |
| | Female | 25,408 (49.1) |
| Age(yr) | 12 | 2,376 (4.6) |
| | 13 | 9,216 (17.8) |
| | 14 | 9,498 (18.4) |
| | 15 | 9,124 (17.6) |
| | 16 | 8,288 (16.0) |
| | 17 | 7,770 (15.0) |
| | 18 | 5,471 (10.6) |
| School type | Middle school | 27,974 (54.1) |
| | High school | 23,769 (45.9) |
| Residential area | Large cities | 25,538 (49.4) |
| | Mid-sized cities | 23,183 (44.8) |
| | Small-sized cities | 3,022 (5.8) |

Chi-square analysis

We used chi-square analyses to assess differences in the ratios of participant characteristics depending on whether they watched Mukbang and Cookbang shows. Table 2 displays the results, revealing significant distinctions in demographic traits, physical activity, subjective body image,

and perceived stress between viewers and non-viewers of Mukbang and Cookbang shows. Our results were statistically significant for all participant characteristics. Significant differences were observed in sex, age, school type, residential area, physical activity participation, subjective body image, and perceived stress among groups.

Table 2: Chi-square analysis results

| Characteristics | Categories | Mukbang and Cookbang watching group: n(%) (n=37,006) | Non-Mukbang and Cookbang watching group: n(%) (n=14,737) | χ^2 (P) |
|---------------------------------|----------------------|--|---|-------------------------|
| Sex | Male | 16,867 (45.6) | 9,468 (64.2) | 1469.585 (<0.001***) |
| | Female | 20,139 (54.4) | 5,269 (35.8) | |
| Age(yr) | 12 | 1,686 (4.6) | 690 (4.7) | 18.213 (0.006**) |
| | 13 | 6,629 (17.9) | 2,587 (17.6) | |
| | 14 | 6,845 (18.5) | 2,653 (18.0) | |
| | 15 | 6,556 (17.7) | 2,568 (17.4) | |
| | 16 | 5,997 (16.2) | 2,291 (15.5) | |
| | 17 | 5,475 (14.8) | 2,295 (15.6) | |
| School type | Middle school | 20,135 (54.4) | 7,839 (53.2) | 6.290 (0.012*) |
| | High school | 16,871 (45.6) | 6,898 (46.8) | |
| Residential area | Large cities | 17,929 (48.4) | 7,609 (51.6) | 54.477 (<0.001***) |
| | Mid-sized cities | 16,797 (45.4) | 6,386 (43.3) | |
| | Small-sized cities | 2,280 (6.2) | 742 (5.1) | |
| Physical activity participation | No | 1,303 (3.5) | 870 (5.9) | 158.575 (<0.001***) |
| | 1–2 days per week | 2,555 (6.9) | 1,045 (7.1) | |
| | 3–4 days per week | 3,902 (10.6) | 1,390 (9.4) | |
| | Over 5 days per week | 29,246 (79.0) | 11,432 (77.6) | |
| Subjective body image | Skinny | 9,252 (25.0) | 4,380 (29.7) | 133.075 (<0.001***) |
| | Normal | 13,366 (36.1) | 5,198 (35.3) | |
| | Fat | 14,388 (38.9) | 5,159 (35.0) | |
| Perceived stress | No | 5,730 (15.5) | 3,060 (20.8) | 208.369 (<0.001***) |
| | Yes | 31,276 (84.5) | 11,677 (79.2) | |

* $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$

Note: The analysis verified whether the differences in participant characteristics, participation in physical activities, subjective body image, and perceived stress depended on whether they watched Mukbang and Cookbang videos

Multivariate logistic regression analyses

Prior to the multivariate logistic regression analysis, we assessed covariate variables, which encompassed sex, age, school type, and residential area. After accounting for these factors, our reference group consisted of 14,737 adolescents who did not watch Mukbang or Cookbang shows. Table 3 displays the outcomes of the multivariate logistic regression analysis. Regarding physical activity participation, Table 3 shows that Korean adolescents are more likely to en-

gage in physical activities if they watch Mukbang and Cookbang shows. For subjective body image, it shows that Korean adolescents who watch Mukbang and Cookbang shows are more likely to feel fat. For perceived stress, the average OR between watching Mukbang and Cookbang shows and perceived stress was 1.311, implicating that Korean adolescents who watch Mukbang and Cookbang shows are more likely to feel stressed.

Table 3: Multivariate logistic regression analysis results

| <i>Characteristics</i> | <i>Categories</i> | <i>Odds ratio</i> | <i>95% confidence interval</i> | <i>P</i> |
|---------------------------------|----------------------|-------------------|--------------------------------|-----------|
| Physical activity participation | No | Reference | | <0.001*** |
| | 1–2 days per week | 1.523 | 1.359–1.707 | |
| | 3–4 days per week | 1.775 | 1.595–1.976 | |
| | Over 5 days per week | 1,671 | 1.527–1.829 | |
| Subjective body image | Skinny | 0.915 | 0.871–0.961 | <0.001*** |
| | Normal | Reference | | |
| | Fat | 1.138 | 1.087–1.192 | |
| Perceived stress | No | Reference | | <0.001*** |
| | Yes | 1.311 | 1.248–1.378 | |

*** $P < 0.001$, adjusted for sex, age, school type, and residential area

Analyses of physical activity participation, body image, and perceived stress of individuals who watch versus those who do not watch Mukbang and Cookbang videos.

Discussion

Our findings revealed significant differences among adolescents who watched Mukbang and Cookbang shows concerning their physical activity, subjective body image, and perceived stress. Notably, increased viewership of these shows was linked to a self-perception of being overweight, which, in turn, correlated with heightened stress levels. Paradoxically, it also contributed to increased engagement in physical activities. Consequently, a noteworthy connection between watching these shows and increased physical activity was observed. This aligns with a study by Marques (22) suggesting that Internet use by older adults improves their quality of life and encourages physical activity. Conversely, prior research indicates that TV and smartphone usage contributes to sedentary behavior, leading to reduced physical activity, increased body mass index, unhealthy eating habits, and adolescent obesity (23).

Watching Mukbang and Cookbang shows influenced adolescents' subjective body images, leading to a significant association with self-perceptions of being overweight. Jin and Hwang (9) echo these findings in university students, suggesting that increased viewership of these shows corresponds to heightened negative perceptions of obesity. Media exposure shapes our

body image, with repeated exposure ingraining an idealized body image (24). Adolescents who consume more media often view themselves as overweight and attempt weight loss (25). Extended media exposure in adolescence is linked to body dissatisfaction and negative body image perceptions (26). In essence, increased media consumption correlates with a more negative subjective body image, as observed in adolescents who watch Mukbang and Cookbang shows. The hormone that promotes appetite, ghrelin, is reportedly released when a person is exposed to food videos or photos, stimulating the brain to induce food-eating behavior (15,17). Because watching Mukbang and Cookbang shows leads to imitative behavior, eating the food that appears in the shows could lead to weight gain (19). Therefore, watching Mukbang and Cookbang shows might have affected the subjective body image of adolescents as their food intake and weight increased.

We found a significant relationship between adolescents watching Mukbang and Cookbang shows and perceived stress, consistent with that reported by Kim et al. (18), who found that watching Mukbang and Cookbang shows had a significant relationship with the life stress of female college students. In their study (18), female college students who had versus had not watched Mukbang shows for 1 month had higher stress levels. This

result is also consistent with the results of Choi and Ko (27), who found that adolescents' media watching negatively affected their daily stress levels. In contrast, other studies have reported that media watching reduces viewer stress (8,15). In fact, Jin and Hwang (9) argued that the more often Korean university students watched Mukbang and Cookbang shows, the greater their happiness, in contrast to the results of our study. Thus, these contrasting results imply that the relationship between watching Mukbang and Cookbang shows and perceived stress varies based on the individual, living environment, and situation, indicating the need for additional research to examine this in further detail.

We found that 37,006 of the 51,850 adolescents in our sample watched Mukbang or Cookbang shows. This substantial percentage underscores the significant prevalence of Korean adolescents watching Mukbang and Cookbang shows. Consequently, the role of Mukbang and Cookbang shows in globalizing Korean cuisine by introducing Korean ingredients and recipes worldwide comes as no surprise (28). The Mukbang and Cookbang phenomena are on the rise both domestically and globally as media content. These broadcasts exert substantial social and economic influence, generating additional profits through their expansion (4,5,18). Given the economic implications, the Korean government should prioritize health education on Mukbang and Cookbang viewing for adolescents and college students instead of imposing regulations based on concerns about their potential contribution to obesity.

Habits that form during adolescence are likely to continue into adulthood. Adolescence is a period of active physical and emotional development, and forming healthy eating habits during this period is important as it leads to proper growth. Concurrently, adolescents access an enormous amount of information through the Internet, which they may trust without questioning; imitating the words and actions of people in the videos they watch. Thus, adolescents who watch Mukbang and Cookbang shows should be cautioned (29). As reported, over 70% of our adolescent sample watched Mukbang and Cookbang broad-

casts, and studies consistently link these shows to negative effects on teenage eating habits. Therefore, prudent management of exposure of teenagers to Mukbang and Cookbang programs is essential, necessitating health education (15,22–23,26).

The Korean Ministry of Education has formulated nutrition and dietary education guidelines for youth health education. They have also designed educational programs and materials aligned with these guidelines, which are subsequently distributed to schools. Schools then adapt these educational activities to suit the individual needs of adolescents. Consequently, researchers propose that the Korean Ministry of Education and schools should create and implement nutrition and dietary education initiatives tailored for adolescents, incorporating information related to Mukbang and Cookbang. Informing adolescents about the potential health impact of watching these shows is essential to mitigate negative effects and promote appropriate actions. Meanwhile, because nutrition and eating habits are influenced by the people around them, such as family and friends, parents should also be educated (30). Parents should receive targeted education on the influence of Mukbang and Cookbang shows on adolescents to prevent adverse behavioral reactions. Our research findings, which indicate that viewing these shows is linked to increased perceived stress in adolescents, can help create mental health programs for this age group. These results can also help educate adolescents about leading healthy lives, highlighting the positive aspects of Mukbang and Cookbang broadcasts and providing guidance on avoiding the negative consequences.

This study had certain limitations. First, due to its cross-sectional nature, we established interrelationships rather than definitive causal evidence (31). Second, we did not utilize all KYRBS variables. Hence, further research is necessary to investigate the relationship between adolescents watching Mukbang and Cookbang shows and their sedentary behaviors, health awareness, and efforts toward weight control. Third, the surveys were conducted online; therefore, Mukbang and

Cookbang watching, physical activity participation, subjective body image, and perceived stress were not measured directly and were self-recorded by the participants. Despite these limitations, we used the national statistics of 51,743 adolescents across Korea. Therefore, our sample is representative of Korea's national adolescent population for evaluating the association between Korean adolescents watching Mukbang and Cookbang shows and their physical activity, subjective body image, and perceived stress.

Conclusion

Watching Mukbang and Cookbang shows was related to adolescents being more physically active, feeling fatter, and being more stressed. In other words, we confirmed that watching Mukbang and Cookbang shows positively affected their participation in physical activity, although negatively affected their subjective body image and perceived stress. This trend suggests that directly restricting adolescents from watching Mukbang and Cookbang shows is difficult. Therefore, education regarding the relationship between watching Mukbang and Cookbang shows that these factors, such as negative subjective body image and perceived stress, as well as positive participation in physical activity, are required.

Journalism Ethics considerations

Ethical issues (Including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc.) have been completely observed by the authors.

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Conflict of interest

The author declares no conflicts of interest.

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