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Association between watching mukbang and cookbang and alcohol use among adolescents

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Abstract

Background The rise of mukbang and cookbang (eating and cooking broadcasts) has generated concerns about their potential influence on eating and drinking behaviors. This study investigated the association between alcohol consumption and watching mukbang and cookbang among adolescents.

Methods Data of 50,111 adolescents from the 2022 Korean Youth Risk Behavior Web-based Survey (KYRBS) were analyzed. Alcohol consumption and watching mukbang and cookbang were measured based on the frequency of use during the past 30 days and 12 months, respectively. Multivariate logistic regression analyses stratified by sex were performed to examine the associations between mukbang and cookbang content viewership and alcohol consumption, adjusting for all covariates. Odds ratio (OR) and confidence interval (CI) were calculated for each association.

Results Over the past 30 days, 14.6% of males and 10.6% of females reported consuming alcohol. Furthermore, watching mukbang and cookbang significantly increased alcohol use among both males (OR: 1.29; 95% CI]: 1.20–1.38) and females (OR: 1.42; 95% CI: 1.26–1.59) compared to the non-watching group. Among males, watching mukbang or cookbang was associated with higher odds of alcohol consumption in the low (OR: 1.16, 95% CI: 1.02–1.33) and middle (OR: 1.43, 95% CI: 1.27–1.60) economic status groups, but not in the high group (OR: 0.80, 95% CI: 0.46–1.39). Among females, significant associations were observed in the low (OR: 1.41, 95% CI: 1.16–1.70) and middle (OR: 1.43, 95% CI: 1.22–1.67) economic status groups, but not in the high group (OR: 1.14, 95% CI: 0.53–2.44). The amount of time spent watching such media was incrementally associated with alcohol use in males and females.

Conclusion A significant association was found between watching mukbang and cookbang and alcohol use among adolescents. The association varied according to economic status, with stronger associations observed in the low and middle economic status groups. These findings suggest that mukbang and cookbang media content may have substantial effects on adolescents' health-related behaviors.

Keywords Adolescent alcohol consumption, Mukbang, Cookbang, Digital media

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Background

Despite its varying prevalence globally, alcohol consumption among adolescents is a serious public health concern worldwide[1]. Underage alcohol consumption is prohibited by law in many countries, including South Korea, the United States, and most European nations [2]. Numerous studies have demonstrated that drinking during adolescence is associated with heightened risks for developing substance use disorders, decline in academic performance, and engagement in risky sexual behaviors[3–6]. Moreover, alcohol consumption during adolescence may disrupt normal developmental processes and have lifelong consequences[7–9].

From 2005 to 2021, adolescent alcohol consumption in South Korea showed a steady decrease, with the prevalence rate declining from around 26.8% in 2005–2008 to 10.5% in 2020–2021. While the decreasing trend continued into the early pandemic years, the rate of decline became less pronounced during this period[10, 11]. This prevalence rate underscores the importance of consistent monitoring and targeted intervention to address adolescent alcohol use.

Previous studies have highlighted several factors associated with alcohol consumption in adolescents[12–16]. Peer influence is a well-documented factor; adolescents are more likely to consume alcohol if their friends do so[17, 18]. Parental drinking behaviors also play a critical role; adolescents with parents who drink are more likely to start drinking themselves[17, 19]. Additionally, exposure to traditional alcohol-related media content, such as advertisements and movies depicting alcohol use[13, 20–23], has been shown to be correlated with higher levels of alcohol consumption among youth[1, 24]. These studies underline the complex interplay between the social and environmental factors that contribute to adolescent drinking behavior.

Despite extensive research on traditional media and alcohol consumption[13, 20–25], there is a paucity of studies investigating the impact of new media forms on adolescent drinking behavior[26, 27]. Mukbang and cookbang are two important types of emerging media. Originating in South Korea, these broadcasts involve individuals preparing and consuming large quantities of food while interacting with online audiences[28]. These broadcasts have become increasingly popular, particularly among adolescents, and their influence has expanded globally through online platforms such as YouTube[29, 30]. While these broadcasts may seem innocuous, emerging research suggests that the consumption of such media may influence viewers' eating and drinking behaviors[29, 31, 32]. For instance, the consumption of mukbang and cookbang can normalize excessive eating and drinking behaviors[33], contributing to unhealthy dietary habits[34]. This phenomenon is particularly concerning given the rise in digital media consumption among youth, making it a critical area of study.

This study explored whether frequent exposure to mukbang and cookbang was associated with higher levels of alcohol consumption among adolescents. We believe that insights into how modern digital consumption patterns influence health-related outcomes will contribute to the development of more effective policies and educational programs tailored to the digital age.

Methods

Data

Data were obtained from the 2022 Korean Youth Risk Behavior Web-based Survey (KYRBS)[35]. The KYRBS is an annual, nationwide, cross-sectional survey conducted by the Korean Centers for Disease Control and Prevention (KCDC). Using a complex multistage clustered sampling design, the KYRBS provides a nationally representative sample of South Korean adolescents. The survey collected extensive information on health behaviors including dietary habits, physical activity, substance use, and mental health, all of which are crucial for understanding and addressing adolescent health issues in South Korea.

Study population

The 2022 KYRBS includes data from 54,948 participants. A total of 3,497 respondents had incomplete data on key variables, including mukbang and cookbang, and alcohol consumption; therefore, their data were excluded. Another 1,000 participants with inconsistent or missing values for the control variables were excluded. The final study population consisted of 50,451 adolescents (25,747 males, 24,704 females).

Variables

Alcohol consumption was the primary dependent variable. Alcohol consumption was assessed based on self-reported drinking behavior over the past 30 days. Participants were categorized into two groups: those who did not consume alcohol and those who consumed alcohol at least once during the past 30 days.

The key independent variable was the frequency of mukbang and cookbang consumption over the past 12 months. Responses were initially collected on a scale from 1 (never watched) to 7 (watched daily) and were regrouped into two categories: never or rarely watched versus watched at least once a month. A more detailed categorization included the following: never or rarely watched, watched 1–3 times per month, 1–4 times per week, and 5–7 times per week[36].

Covariates included demographic, socioeconomic, and behavioral factors selected based on prior research on adolescent alcohol consumption[37, 38]. Age was

stratified into six groups, from 13 to 18 years. Residential regions were classified as metropolitan, city, or rural. Economic status were divided into three categories (high, middle, and low). Academic performance over the past 12 months was assessed by asking participants to select their performance level from three categories: high, middle, and low. Behavioral factors included smoking status, physical activity, stress levels, and living arrangements. Smoking status was categorized based on smoking incidence within the past 30 days as no smoking, 1 day, 2–8 days, or >10 days per month. Physical activity was measured by weekly exercise engagement and categorized as none, 1–3 days per week, 4–6 days per week, or daily. Stress was measured using self-reported stress levels and was categorized into three groups (very stressed, moderately stressed, and not stressed). Living arrangements were classified as living with family, living apart, and living in a daycare center or an orphanage.

Body mass index (BMI) was calculated from self-reported height and weight and categorized according to age- and sex-specific percentiles into underweight, normal weight, overweight, and obese using the 2017 Korean Pediatric Growth Chart[39].

Statistical analysis

Descriptive statistics were performed using the chi-square test to assess the distribution of general characteristics within the study population. To evaluate the association between mukbang and cookbang consumption and alcohol use, binary logistic regression modeling was employed, adjusting for all relevant covariates, including age, region, economic status, academic performance, smoking status, physical activity, stress level, living arrangements, and BMI[40]. All analyses were stratified by sex to account for potential differences in behavior and outcomes between males and females[41–44]. Additionally, multivariable logistic regression analyses were performed to examine the associations between mukbang and cookbang viewership and alcohol use in each covariate subgroup. These subgroup analyses aimed to identify possible demographic, socioeconomic, and behavioral factors that influence the relationship between mukbang and cookbang consumption and alcohol use. Odds ratios (ORs) and 95% confidence intervals (CIs) were calculated to compare the likelihood of alcohol use among different groups, enabling comparisons between subgroups. All statistical analyses were conducted using SAS (version 9.4M6; SAS Institute, Cary, NC), considering the complex survey design of the dataset.

Results

Table 1 shows the distribution of key variables by alcohol consumption status, allowing a comprehensive understanding of population characteristics. Data from 50,451 adolescents (25,747 males and 24,704 females) were analyzed. Over the past 30 days, 14.6% of males and 10.6% of females reported consuming alcohol.

The association between watching mukbang and cookbang and alcohol use is presented in Table 2 and was analyzed using multivariable logistic regression. The results showed that adolescents of both sexes who watched mukbang and cookbang had a statistically significant increase in the likelihood of alcohol consumption. For males, the adjusted odds ratio was 1.29 (95% CI: 1.18–1.41). For females, the adjusted odds ratio was a higher value of 1.42 (95% CI: 1.26–1.59). Furthermore, several covariates showed a statistically significant association with alcohol use. Living in a rural□ area was significantly associated with higher odds of alcohol consumption in both males (OR = 1.33, 95% CI: 1.09–1.63) and females (OR = 1.50, 95% CI: 1.27–1.76). Similarly, smoking was strongly associated with alcohol use; males with low smoking exposure had an OR of 6.63 (95% CI: 4.92–8.92), and females had an even higher OR of 13.68 (95% CI: 9.15–20.47).

Table 3 presents how the association between watching mukbang and cookbang and alcohol use varied across different subgroups. Economic status was significantly associated with watching mukbang and cookbang and alcohol use, whereas no significant association was found among students from higher economic classes. Among males, those who watched mukbang or cookbang had higher odds of alcohol consumption in the low (OR: 1.16, 95% CI: 1.02–1.33) and middle (OR: 1.43, 95% CI: 1.27–1.60) economic status groups, whereas no significant association was observed in the high economic status group (OR: 0.80, 95% CI: 0.46–1.39), compared to non-viewers. Similarly, among females, watching mukbang or cookbang was associated with higher odds of alcohol consumption in the low (OR: 1.41, 95% CI: 1.16–1.70) and middle (OR: 1.43, 95% CI: 1.22–1.67) economic status groups, but not in the high economic status group (OR: 1.14, 95% CI: 0.53–2.44), compared to non-viewers.

Adolescents with severe stress also showed a weakened relationship between watching mukbang and cookbang and alcohol exposure, with the adjusted odds ratio being 1.10 (95% CI: 1.91–1.33) and 1.23 (95% CI: 0.88–1.70) in males and females, respectively. Additionally, extremely overweight adolescents showed a stronger relationship between mukbang and cookbang viewership and alcohol exposure, with the adjusted odds ratio being 1.48 (95% CI: 1.18–1.85) and 1.67 (95% CI: 1.18–2.37) for males and females, respectively.

The association between the frequency of watching mukbang and cookbang and alcohol consumption is

Table 1 General characteristics of the study population

Variables	Alcohol Use													
	Male							Female						
	Total		No		Yes		*P-value*	Total		No		Yes		*P-value*
	N	%	N	%	N	%		N	%	N	%	N	%	
Total (N=50,451)	25,747	100.0	21,980	85.4	3,767	14.6		24,704	100.0	22,075	89.4	2,629	10.6	
Watching Eating Contents							<0.001							<0.001
No	11,969	46.5	10,469	87.5	1,500	12.5		7,628	30.9	6,998	91.7	630	8.3	
Yes	13,778	53.5	11,511	83.5	2,267	16.5		17,076	69.1	15,077	88.3	1,999	11.7	
Age							<0.001							<0.001
13	4,644	18.0	4,442	95.7	202	4.3		4,393	17.8	4,218	96.0	175	4.0	
14	4,619	17.9	4,248	92.0	371	8.0		4,479	18.1	4,190	93.5	289	6.5	
15	4,589	17.8	4,095	89.2	494	10.8		4,584	18.6	4,190	91.4	394	8.6	
16	4,136	16.1	3,412	82.5	724	17.5		4,097	16.6	3,618	88.3	479	11.7	
17	4,066	15.8	3,088	75.9	978	24.1		3,701	15.0	3,117	84.2	584	15.8	
18	3,693	14.3	2,695	73.0	998	27.0		3,450	14.0	2,742	79.5	708	20.5	
Region							<0.001							<0.001
Metropolitan	11,020	42.8	9,504	86.2	1,516	13.8		10,649	43.1	9,653	90.6	996	9.4	
City	12,764	49.6	10,897	85.4	1,867	14.6		12,342	50.0	10,944	88.7	1,398	11.3	
Rural	1,963	7.6	1,579	80.4	384	19.6		1,713	6.9	1,478	86.3	235	13.7	
Economic state							<0.001							<0.001
Low	518	2.0	403	77.8	115	22.2		388	1.6	312	80.4	76	19.6	
Middle	13,685	53.2	11,662	85.2	2,023	14.8		14,515	58.8	12,906	88.9	1,609	11.1	
High	11,544	44.8	9,915	85.9	1,629	14.1		9,801	39.7	8,857	90.4	944	9.6	
Academic achievement							<0.001							<0.001
Low	8,062	31.3	6,553	81.3	1,509	18.7		7,604	30.8	6,494	85.4	1,110	14.6	
Middle	7,460	29.0	6,420	86.1	1,040	13.9		7,699	31.2	6,951	90.3	748	9.7	
High	10,225	39.7	9,007	88.1	1,218	11.9		9,401	38.1	8,630	91.8	771	8.2	
Smoke							<0.001							<0.001
None	24,263	94.2	21,502	88.6	2,761	11.4		24,078	97.5	21,896	90.9	2,182	9.1	
Low	244	0.9	117	48.0	127	52.0		144	0.6	53	36.8	91	63.2	
Moderate	200	0.8	71	35.5	129	64.5		131	0.5	44	33.6	87	66.4	
High	1,040	4.0	290	27.9	750	72.1		351	1.4	82	23.4	269	76.6	
Physical exercise							<0.001							0.049
None	6,485	25.2	5,671	87.4	814	12.6		10,181	41.2	9,079	89.2	1,102	10.8	
Low	10,631	41.3	9,071	85.3	1,560	14.7		10,909	44.2	9,765	89.5	1,144	10.5	
Moderate	6,010	23.3	5,049	84.0	961	16.0		2,792	11.3	2,517	90.2	275	9.8	
High	2,621	10.2	2,189	83.5	432	16.5		822	3.3	714	86.9	108	13.1	
Stress							<0.001							<.0001
None	5,351	20.8	4,696	87.8	655	12.2		3,215	13.0	2,963	92.2	252	7.8	
Moderate	11,268	43.8	9,728	86.3	1,540	13.7		9,921	40.2	9,050	91.2	871	8.8	
Severe	9,128	35.5	7,556	82.8	1,572	17.2		11,568	46.8	10,062	87.0	1,506	13.0	
Residential status							<0.001							<.0001
Living with parents	24,285	94.3	20,879	86.0	3,406	14.0		23,701	95.9	21,278	89.8	2,423	10.2	
Living apart from family	1,388	5.4	1,044	75.2	344	24.8		946	3.8	758	80.1	188	19.9	
daycare center	74	0.3	57	77.0	17	23.0		57	0.2	39	68.4	18	31.6	
BMI							0.012							<.0001
Underweight	1,927	7.5	1,680	87.2	247	12.8		2,428	9.8	2,204	90.8	224	9.2	
Normal	16,945	65.8	14,487	85.5	2,458	14.5		18,074	73.2	16,207	89.7	1,867	10.3	
Overweight	2,779	10.8	2,370	85.3	409	14.7		1,966	8.0	1,729	87.9	237	12.1	
Extremely Overweight	4,096	15.9	3,443	84.1	653	15.9		2,236	9.1	1,935	86.5	301	13.5	

Table 2 Association between alcohol use and demographic, socioeconomic, and behavioral variables

Variables	Male				Female			
	Alcohol Use				Alcohol Use			
	OR	95% CI			OR	95% CI		
Watching Eating Content								
No	1.00				1.00			
Yes	1.29	(1.18	-	1.41)	1.42	(1.26	-	1.59)
Age								
13	1.00				1.00			
14	1.66	(1.35	-	2.06)	1.55	(1.22	-	1.96)
15	2.26	(1.81	-	2.82)	2.05	(1.64	-	2.56)
16	3.56	(2.84	-	4.46)	2.86	(2.31	-	3.55)
17	5.56	(4.44	-	6.96)	3.94	(3.14	-	4.94)
18	6.04	(4.84	-	7.53)	5.78	(4.66	-	7.16)
Region								
Metropolitan	1.00				1.00			
City	1.08	(0.96	-	1.21)	1.23	(1.09	-	1.38)
Rural	1.33	(1.09	-	1.63)	1.50	(1.27	-	1.76)
Economic state								
Low	1.00				1.00			
Middle	0.87	(0.79	-	0.95)	0.96	(0.86	-	1.07)
High	0.98	(0.73	-	1.33)	0.95	(0.68	-	1.31)
Academic achievement								
Low	1.00				1.00			
Middle	1.03	(0.93	-	1.15)	1.18	(1.04	-	1.34)
High	1.19	(1.07	-	1.33)	1.55	(1.38	-	1.75)
Smoke								
None	1.00				1.00			
Low	6.63	(4.92	-	8.92)	13.68	(9.15	-	20.47)
Moderate	11.46	(8.11	-	16.19)	15.30	(10.17	-	23.02)
High	12.07	(10.26	-	14.21)	27.60	(20.74	-	36.72)
Physical exercise								
None	1.00				1.00			
Low	0.80	(0.56	-	1.13)	0.62	(0.48	-	0.81)
Moderate	1.00	(0.73	-	1.36)	0.71	(0.55	-	0.93)
High	1.00	(0.73	-	1.37)	0.79	(0.59	-	1.06)
Stress								
None	1.00				1.00			
Moderate	1.21	(1.08	-	1.36)	1.46	(1.24	-	1.72)
Severe	1.05	(0.94	-	1.17)	1.08	(0.90	-	1.29)
Residential status								
Living with parents	1.00				1.00			
Living apart fromfamily	1.26	(1.04	-	1.53)	1.32	(1.03	-	1.70)
daycare center	0.86	(0.40	-	1.86)	1.62	(0.79	-	3.35)
Subjective health awareness								
Very healthy	1.00				1.00			
Healthy	1.26	(1.04	-	1.53)	1.26	(1.04	-	1.53)
Normal	0.86	(0.40	-	1.86)	0.86	(0.40	-	1.86)
Unhealthy	0.90				0.90			
Not very healthy	0.83	-(0.25	-	2.19)	0.83	-(0.25	-	2.19)
BMI								
Underweight	0.90	(0.76	-	1.08)	0.81	(0.68	-	0.96)
Normal	1.00				1.00			
Overweight	0.96	(0.83	-	1.10)	1.11	(0.93	-	1.32)
Extremely Overweight	0.97	(0.86	-	1.09)	1.09	(0.92	-	1.29)

Table 3 Results of subgroup analysis stratified by covariates

	Male					**Female**				
	Alcohol Use									
	Watching Eating Content					**Watching Eating Conent**				
	No	**Yes**				**No**	**Yes**			
	OR	**OR**	**95% CI**			**OR**	**OR**	**95% CI**		
Age										
13	1.00	1.39	(0.93	-	2.07)	1.00	0.89	(0.60	-	1.32)
14	1.00	1.25	(0.98	-	1.59)	1.00	1.22	(0.89	-	1.67)
15	1.00	1.33	(1.04	-	1.71)	1.00	1.43	(1.07	-	1.92)
16	1.00	1.24	(1.03	-	1.51)	1.00	1.23	(0.95	-	1.60)
17	1.00	1.37	(1.16	-	1.63)	1.00	1.40	(1.07	-	1.83)
18	1.00	1.21	(1.01	-	1.44)	1.00	1.82	(1.45	-	2.28)
Region										
Metropolitan	1.00	1.33	(1.16	-	1.51)	1.00	1.37	(1.17	-	1.61)
City	1.00	1.24	(1.18	-	1.40)	1.00	1.48	(1.24	-	1.77)
Rural	1.00	1.44	(1.03	-	2.02)	1.00	1.18	(0.78	-	1.78)
Economic state										
Low	1.00	1.16	(1.02	-	1.33)	1.00	1.41	(1.16	-	1.70)
Middle	1.00	1.43	(1.27	-	1.60)	1.00	1.43	(1.22	-	1.67)
High	1.00	0.80	(0.46	-	1.39)	1.00	1.14	(0.53	-	2.44)
Academic achievement										
Low	1.00	1.36	(1.18	-	1.57)	1.00	1.39	(1.14	-	1.70)
Middle	1.00	1.22	(1.03	-	1.43)	1.00	1.46	(1.17	-	1.83)
High	1.00	1.28	(1.11	-	1.47)	1.00	1.40	(1.15	-	1.70)
Smoke										
None	1.00	1.32	(1.20	-	1.45)	1.00	1.41	(1.25	-	1.60)
Low	1.00	0.63	(0.33	-	1.21)	1.00	3.51	(1.26	-	9.79)
Moderate	1.00	1.14	(0.53	-	2.45)	1.00	1.11	(0.37	-	3.40)
High	1.00	1.25	(0.93	-	1.70)	1.00	1.18	(0.63	-	2.21)
Physical exercise										
None	1.00	1.36	(1.15	-	1.62)	1.00	1.40	(1.18	-	1.66)
Low	1.00	1.27	(1.11	-	1.44)	1.00	1.41	(1.18	-	1.67)
Moderate	1.00	1.36	(1.15	-	1.62)	1.00	1.34	(0.96	-	1.86)
High	1.00	1.11	(0.83	-	1.49)	1.00	2.34	(1.11	-	4.92)
Stress										
None	1.00	1.35	(1.18	-	1.53)	1.00	1.54	(1.31	-	1.81)
Moderate	1.00	1.34	(1.18	-	1.51)	1.00	1.31	(1.09	-	1.58)
Severe	1.00	1.10	(0.91	-	1.33)	1.00	1.23	(0.88	-	1.70)
Residential status										
Living with parents	1.00	1.31	(1.20	-	1.43)	1.00	1.41	(1.25	-	1.60)
Living apart from family	1.00	0.99	(0.73	-	1.35)	1.00	1.43	(0.90	-	2.29)
daycare center	1.00	2.96	(0.45	-	19.34)	-	-	-	-	-
BMI										
Underweight	1.00	1.29	(0.94	-	1.77)	1.00	1.30	(0.88	-	1.92)
Normal	1.00	1.18	(1.06	-	1.32)	1.00	1.43	(1.24	-	1.64)
Overweight	1.00	1.87	(1.41	-	2.48)	1.00	1.28	(0.88	-	1.88)
Extremely Overweight	1.00	1.48	(1.18	-	1.85)	1.00	1.67	(1.18	-	2.37)

shown in Fig. 1. Multivariable logistic regression analysis showed that higher viewing frequency was associated with higher odds of alcohol use in both males and females. Among males, the adjusted odds ratios for alcohol consumption were 1.10 (95% CI, 0.97–1.25) for monthly viewers, 1.33 (95% CI, 1.21–1.47) for weekly viewers, and 1.47 (95% CI, 1.28–1.68) for daily viewers, compared to non-viewers. For females, the adjusted odds ratios were 1.26 (95% CI, 1.10–1.45) for monthly viewers, 1.31 (95% CI, 1.14–1.50) for weekly viewers, and 1.86 (95% CI, 1.60–2.18) for daily viewers, compared to non-viewers. These results demonstrated a trend of increasing

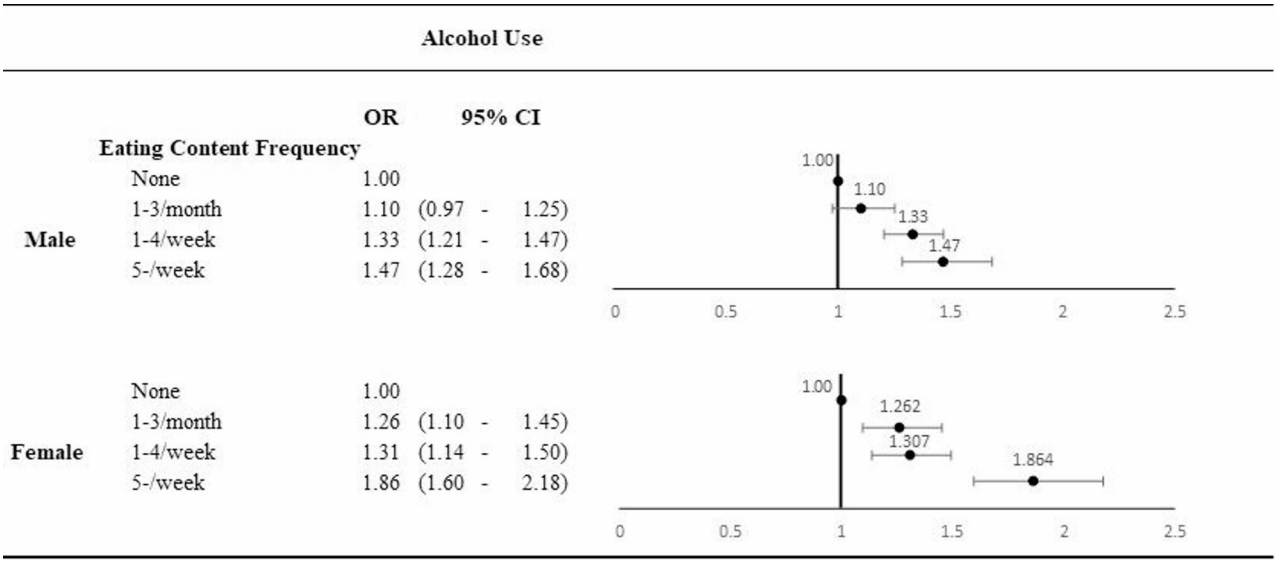

Fig. 1 Association between watching eating contents and alcohol use in adolesecents

odds of alcohol consumption with a greater frequency of watching mukbang and cookbang in both sexes.

Discussion

The current study underscores the high overall alcohol consumption rates among Korean adolescents and suggests that the amount of exposure to mukbang and cookbang is incrementally associated with the risk of alcohol consumption. This relationship persisted even after adjusting for covariates such as age, region, economic status, academic performance, smoking status, physical activity, stress level, living arrangements, and BMI. The increased risk of alcohol use among mukbang and cookbang viewers suggests a significant association between digital media consumption and adolescent health behaviors and warrants social interest and policy development.

Unlike earlier studies that focused on general digital media or social media use, we focused on a specific type of media, mukbang and cookbang, to uncover a novel aspect of the association between media exposure and alcohol usage. Since mukbang and cookbang often involve alcohol consumption, these findings provide additional insights into the possible mechanisms by which digital media content affects adolescent behavior.

A higher percentage of males consumed alcohol, whereas the level of association between mukbang and cookbang and alcohol consumption was higher in females. This higher association could be attributed to females' greater susceptibility to social media influence and peer dynamics, leading to imitation of behaviors depicted in mukbang and cookbang videos[32, 45, 46]. Recent evidence indicates that digital media use, including social media exposure, has a more pronounced impact on psychological well-being and risk behaviors among adolescent females compared to males[47]. Additionally, the subgroup analysis indicated that economic status played a significant role in this association. Adolescents from higher economic backgrounds appeared to be less affected by the relationship between mukbang and cookbang and alcohol use. This may be due to stricter monitoring and restrictions of exposure to harmful substances, whereas adolescents from lower economic backgrounds may lack such oversight, resulting in increased vulnerability to alcohol and other harmful substances [37, 38].

The mechanisms by which the consumption of mukbang and cookbang influence alcohol use are not yet fully understood, but several hypotheses have been proposed. One possibility is that adolescents are prone to engage in similar behaviors after watching content that provides a vicarious experience[15, 48]. Previous studies have demonstrated that exposure to alcohol-related content on social media is associated with drinking behaviors among adolescents. This relationship has been explained through Social Learning Theory and the Media Practice Model. According to the Social Learning Theory, adolescents learn behaviors by observing and imitating the actions and outcomes of peers and celebrities. The Media Practice Model emphasizes that adolescents do not passively consume media content but actively select media that interest them and integrate this content into their own realities, creating personal meaning. Therefore, when alcohol consumption is frequently depicted in food-related media such as mukbang and cookbang, adolescents may connect such portrayals with their own lives, thereby strengthening motives to imitate or accept drinking behaviors[49].

Mukbang and cookbang hosts are often seen as celebrities, which may further increase the risk of imitative behavior. These broadcasts frequently depict drinking, which could normalize and promote excessive eating and drinking among adolescents, thereby increasing the risk of alcohol use. Additionally, watching hosts consume alcohol may lead adolescents to associate drinking with a comfortable and enjoyable atmosphere, encouraging them to perceive alcohol as a coping mechanism for stress or boredom [16].

According to a previous study, about 2.7% of mukbang videos show alcohol consumption, often labeled as sulbang (broadcasting drinking alcohol), freely accessible without adult certification[50]. Most mukbang videos feature consumption of delivered or restaurant food rather than cooking, frequently depicting overeating or consuming spicy foods, which are associated with higher viewer engagement. However, specific quantitative data on the frequency of hosts' alcohol consumption and differences by program type were not analyzed in our study and remain underexplored.

Severe obesity was not directly associated with alcohol use but strengthened the relationship between mukbang and cookbang viewership and alcohol use. A possible explanation for this phenomenon is the potential for social isolation experienced by adolescents with obesity[51–53]. To these adolescents, such content and online communities may provide a sense of connection with hosts or other viewers who share similar experiences of social exclusion. If these adolescents watch content that involves alcohol consumption, they may become more susceptible to mimicking these behaviors[54]. This peer-like influence may increase the likelihood of alcohol use and reinforce drinking behaviors. These hypotheses provide a framework for understanding the complex relationship between watching mukbang and cookbang and alcohol use among adolescents.

Some data require further investigation for robust interpretation. For example, severe stress was not associated with increased alcohol consumption in our study. One possible explanation is that highly stressed adolescents may rely on alternative coping mechanisms[55], such as problematic internet use or other maladaptive behaviors, rather than alcohol consumption. While previous research has documented that high stress levels can directly increase alcohol use as a coping mechanism, potentially attenuating the independent effect of media exposure on drinking behavior, it is also important to consider that stress-related mechanisms may dominate alcohol use behaviors in highly stressed individuals[56]. This could result in a diminished relative contribution of media exposure in this subgroup.

Unexpectedly, higher academic achievement was linked to greater alcohol consumption in both sexes, which contradicts the findings of previous studies that generally report a negative association between alcohol use and academic performance[57]. One possible explanation is that the high academic pressure prevalent in Korea may prompt some high-achieving students to use alcohol as a way to relieve stress associated with intense educational demands, high-stakes examinations, and long study hours. Stress and coping mechanisms are well-established predictors of adolescent risk behavior[58]. Additionally, methodological factors such as the use of self-reported grades may introduce bias in measuring academic achievement. Further research using objective academic records and considering context-specific stressors is recommended to clarify these findings.

Given the rapidly evolving digital media landscape and its significant influence on adolescent health behaviors, prospective studies should investigate the longitudinal impacts of exposure to specific types of food-related digital content, such as mukbang and cookbang, on alcohol consumption trajectories. Furthermore, additional research is needed to clarify the causal pathways underlying these associations and to examine how moderators including socioeconomic status, gender, and psychological factors may modulate adolescents' susceptibility to media influences.

Moreover, future studies should explore the dissemination dynamics of alcohol related content within adolescent online communities and develop evidence based strategies to mitigate the associated risks. Interventional studies leveraging digital platforms for targeted prevention and media literacy promotion represent another critical avenue. Collectively, these focused research endeavors will facilitate translating observational insights into actionable public health policies and interventions aimed at reducing alcohol related harms among youth populations.

Our study has several limitations. First, a cross-sectional study cannot guarantee causality, and additional longitudinal studies are required to further understand the relationship between watching mukbang and cookbang and alcohol use. Second, important factors that influence adolescent alcohol consumption, including family history of alcoholism, personality traits, cognitive functioning levels, social relationships, and expectancy of alcohol usage [19, 58] could not be considered because they were not included in the survey. Third, the data were self-reported using a survey, which is prone to false responses and recall and social desirability bias. Fourth, the data were collected only for 2022, limiting the ability to investigate trends over time. Fifth, we could not determine whether the adolescents watched mukbang that featured alcohol consumption, preventing us from gaining nuanced insights into the specific content elements that drive alcohol use. Sixth, social isolation was not

directly measured, which limits our ability to empirically evaluate its role in the relationship between obesity, mukbang and cookbang viewership, and alcohol use. Future studies incorporating validated social isolation measures are needed to clarify these complex interactions. Finally, data on the behaviors of adolescents while consuming this content, such as engagement levels or viewership patterns, could provide further insights into the behaviors of these adolescents. These gaps highlight the need for more detailed data collection and analysis in future studies. In addition, the alcohol consumption variable was assessed based on the past 30 days, whereas media exposure was measured over the past 12 months due to the pre-existing survey design. This temporal mismatch limits the ability to establish temporal relationships and causality between the variables and introduces potential for reverse causation or simultaneous influence. However, because the longer media exposure period includes and precedes the alcohol consumption period, exploring associations under these constraints remains informative. Future research using longitudinal designs and harmonized measurement periods is encouraged to clarify these relationships.

Despite these limitations, our study has several strengths. The utilization of a large, nationally representative sample of South Korean adolescents, along with the use of robust statistical methods, enabled this study to provide comprehensive insight into the relationship between mukbang and cookbang consumption and alcohol exposure. This study is among the first to investigate this specific association among adolescents and contributes to a growing body of literature on the impact of digital media on adolescent health behaviors. As adolescents increasingly utilize novel online media, a robust understanding of how these new digital media influence adolescent health is crucial for the development of effective interventions and policies.

Conclusion

A significant association was found between mukbang and cookbang viewership and alcohol consumption among adolescents. Additionally, this study demonstrated that media content such as mukbang and cookbang may have varying effects on adolescents' health behaviors, depending on factors such as economic status, stress, and BMI. Therefore, attention and social awareness regarding media content consumption during adolescence are necessary, and these factors should be considered in future policies and educational interventions.

Abbreviations

BMI	body mass index
CIs	confidence intervals
KCDC	Korean Centers for Disease Control and Prevention
KYRBS	Korean Youth Risk Behavior Web-based Survey
ORs	odds ratios

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Authors' contributions
Eun-Cheol Park and Taejun Shim designed the research; Haegyu Oh, Taejun Shim, and Jisu Ko participated in writing; Taejun Shim, Haegyu Oh, and Eun-Cheol Park participated in data analysis and revision; Taejun Shim, Haegyu Oh, Jisu Ko reviewed and revised the manuscript.

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Data availability
The KYRBS dataset is a open public database, established by the Korean Center for Disease Control and Prevention (CDC).

Declarations

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Not applicable.

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Competing interests
The authors declare no competing interests.

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