



Original Article

# Comparison of oral disease symptoms according to eating habits of adolescents from Korean families and adolescents from multicultural families

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## ABSTRACT

**Objectives:** This study used the 18th Youth Online Health Behavior Data to compare oral disease symptoms according to the eating habits of adolescents from Korean families and adolescents from multicultural families. The total number of subjects was 40,913. **Methods:** The Rao-Scott chi-square test was used to compare general characteristics, eating habits, and experience with oral disease symptoms. In the final multiple logistic regression analysis, general characteristics and eating habits-related characteristics were used as correction variables to investigate eating habits related to oral disease symptoms in Korean adolescents and adolescents from multicultural families. **Results:** In Korean family the experience of oral disease symptoms was found to be lower when sweet drink 5-6 times a week 0.89 times, 3-4 times a week 0.77 times, 1-2 times a week 0.65 times, and 0.56 times when not consuming them than when consuming them daily. In multicultural families, the incidence of experiencing oral disease symptoms was 0.47 times lower in those who sweet drink daily than in those who consumed them 1-2 times a week, and 0.32 times lower in those who did not consume them. **Conclusions:** Based on the above research results, it is thought that customized nutrition education and oral health education programs should be continuously developed and utilized to promote oral health among adolescents from Korean families and multicultural families and to change their eating habits.

**Key Words:** Adolescents, Eating habits, Multicultural families, Oral disease

## Introduction

Adolescence is a transitional period from childhood to adulthood, characterized by significant social, psychological, and physical changes, including puberty [1]. According to a 2023 Ministry of Education survey, the rates of skipping breakfast, beverage consumption, and fast food intake among adolescents have steadily increased, while fruit consumption has shown a declining trend. Moreover, the overall dietary indicators have not improved compared to the previous year [2]. Given that eating habits during adolescence are crucial for physical growth, as well as psychological and emotional development throughout the life cycle, efforts to ensure adequate nutrition and healthy eating habits among adolescents are important [3].

Currently, South Korea is undergoing a significant transformation toward a multi-ethnic and multi-racial society. When comparing the oral health behaviors of adolescents from multicultural families with those from Korean families, adolescents from multicultural families generally exhibit poorer oral health care [4,5]. As adolescents from multicultural families are also important members of society, addressing their nutritional issues and implementing interventions to improve eating and oral health habits are essential to building a healthier society [6].

Oral health management during adolescence is important, as inadequate care can lead to various oral diseases, such as dental caries, gingivitis, and periodontal disease [7]. Dental caries is closely linked to eating habits and the disease causes pain, bad breath, and discomfort in daily life [8,9]. If left untreated, oral diseases can result in more serious sequelae in adulthood, including tooth loss [10]. Therefore, adolescents need to develop self-awareness about their oral health. Fostering proper knowledge, attitudes, and behaviors during this stage can have a lifelong positive impact on their quality of life [11,12]. Although various studies have been conducted on Korean adolescents' dietary and lifestyle habits [6], eating habits and oral symptoms [13,14], and experiences with nutrition education [15], few studies have compared the oral disease symptoms based on the dietary habits of Korean versus multicultural adolescents.

This study aimed to compare oral disease symptoms and eating habits of adolescents from Korean and multicultural families using data from the 18th (2022) Korea Youth Risk Behavior Web-Based Survey (KYRBS) provided by the Korea Disease Control and Prevention Agency (KDCA). The findings may contribute fundamental data for developing nutrition and oral health education programs and policies to promote healthy eating habits and oral health among adolescents.

## Methods

### 1. Study participants

This study was conducted on 40,913 adolescents, including 39,552 from Korean families and 1,361 from multicultural families, who participated in the 18th (2022) KYRBS, a survey conducted by the Ministry of Education, Ministry of Health and Welfare, and KDCA. The KYRBS is a cross-sectional survey designed to collect health information on adolescents in South Korea. Stratified sampling was employed to select 800 sample schools (400 middle schools and 400 high schools), and data were collected anonymously through an online management system.

### 2. Instruments

The general characteristics of the study participants included gender (male, female), education level (7–12th grade), academic performance and economic status (high, medium, low), and parental grade level (middle school or below, high school, college or higher). Living arrangements were categorized as living with family, with relatives, lodging and trace, in a dormitory, childcare facility. Eating habits over one week were assessed including the frequency of breakfast (0 days, 1–3 days, 4–6 days, every day) and consumption of fruit, high-caffeine drinks, sugary beverages, fast food, vegetables, and milk or preprocessed milk (none in the past 7 days, 1–2 times per week, 3–4 times per week, 5–6 times per week, every day). Oral disease-related characteristics included broken or chipped teeth, pain from hot or cold beverages, toothache, gum pain or bleeding, tongue or inner cheek pain, and bad breath were evaluated. Oral disease symptoms were defined as present if any of the following symptoms: pain from hot or cold beverages, toothache, or gum pain/bleeding.

### 3. Data analysis

The study data were analyzed using the IBM SPSS program (ver. 27.0; IBM Corp., Armonk, NY, USA). The general characteristics, dietary habits, and oral disease symptoms of adolescents from Korean and multicultural families were compared using the Rao-Scott chi-square test. The multiple logistic regression analysis adjusted for general characteristics and dietary habits as covariates to examine the factors associated with oral disease symptoms in Korean and multicultural adolescents. The statistical significance level was set at 0.05.

## Results

### 1. Comparison of general characteristics between adolescents from Korean and multicultural families

The study sample consisted of 39,552 adolescents from Korean families and 1,361 adolescents from multicultural families. Among the Korean adolescents, 48.2% were male and 51.8% were female, while 48.1% of multicultural adolescents were male and 51.9% were female. Most Korean adolescents (18.4%) and multicultural adolescents (26.5%) were in the 7th grade (1st year of middle school) ( $p<0.001$ ). Academically, 40.1% of Korean adolescents were in the high-performance group, while 40.6% of multicultural adolescents were in the low-performance group ( $p<0.001$ ). Most Korean fathers completed college education or higher (76.0%), while most fathers of multicultural families completed high school (48.2%) ( $p<0.001$ ). Conversely, most mothers from Korean and multicultural families completed college education or higher (Korean 73.1% vs. multicultural 43.0%;  $p<0.001$ ). Most adolescents from both Korean families (96.5%) and multicultural families (93.0%) lived with their families ( $p<0.001$ ) <Table 1>.

**Table 1.** General adolescent characteristics

Characteristics	Total	Korean family	Multi cultural family	Unit: N(%) $p^*$
Gender	40,913(100.0)	39,552(96.7)	1,361(2.3)	0.967
Male	19,477(48.2)	18,833(48.2)	644(48.1)	
Female	21,436(51.8)	20,719(51.8)	717(51.9)	
Grade level				<0.001
Middle school grade 1	8,173(18.6)	7,763(18.4)	410(26.5)	
Middle school grade 2	7,696(17.9)	7,405(17.8)	291(17.9)	
Middle school grade 3	7,514(18.3)	7,242(18.2)	272(19.6)	
High school grade 1	6,474(16.0)	6,328(16.1)	146(12.5)	
High school grade 2	5,818(14.3)	5,693(14.5)	125(9.5)	
High school grade 3	5,238(15.0)	5,121(15.0)	117(12.2)	
Academic performance				<0.001
High	16,201(39.7)	15,813(40.1)	388(28.0)	
Medium	12,224(30.0)	11,789(30.0)	438(31.3)	
Low	12,488(30.2)	11,953(29.9)	535(40.6)	
Economic status				<0.001
High	17,455(43.7)	17,102(44.2)	353(26.6)	
Medium	18,957(45.7)	18,233(45.6)	724(52.1)	
Low	4,501(10.5)	4,217(10.2)	284(21.3)	
Paternal education level				<0.001
≤Middle school or below	528(1.4)	408(1.1)	120(14.9)	
≤High school	8,073(23.5)	7,639(22.9)	434(48.2)	
≥College or higher	23,599(75.1)	23,296(76.0)	303(36.9)	
Maternal education level				<0.001
≤Middle school or below	458(1.2)	340(0.9)	118(15.0)	
≤High school	9,134(26.3)	8,804(26.0)	330(42.0)	
≥College or higher	23,609(72.5)	23,284(73.1)	325(43.0)	
Living arrangements				<0.001
With family	39,186(96.4)	37,904(96.5)	1,282(93.6)	
With relatives	138(0.3)	131(0.3)	7(0.5)	
Lodging, trace	180(0.4)	171(0.4)	9(0.8)	
Dormitory	1,357(2.8)	1,305(2.7)	52(4.0)	
Childcare facility	52(0.1)	41(0.1)	11(1.0)	

\*by Rao-Scott chi-square test

## 2. Comparison of eating habits between adolescents from Korean and multicultural families

Considering eating habits, 27.5% of Korean adolescents reported having breakfast every day, while 27.5% of multicultural adolescents reported having breakfast 1-3 days per week ( $p<0.01$ ). For fast food consumption in the past week, 57.4% of Korean adolescents and 56.0% of multicultural adolescents consumed fast food 1-2 times per week ( $p<0.001$ ). In terms of vegetable consumption, 35.3% of Korean adolescents and 32.7% of multicultural adolescents reported consuming vegetables at least once per day ( $p<0.01$ ). For milk or processed milk consumption, 29.3% of Korean adolescents and 27.8% of multicultural adolescents consumed it 1-2 times per week ( $p<0.05$ ) <Table 2>.

**Table 2.** Comparison of eating habits between adolescents from Korean families and adolescents from multicultural families  
Unit: N(%)

Variables	Korean family	Multicultural family	$p^*$
Breakfast			0.002
No	8,549(21.5)	329(24.4)	
1-3 days / weekly	9,849(24.7)	376(27.5)	
4-6 days / weekly	10,392(26.2)	318(23.6)	
Every day	10,758(27.5)	338(24.5)	
Fruit			0.134
No	4,144(10.2)	159(11.5)	
1-2 times / weekly	12,639(31.9)	424(30.6)	
3-4 times / weekly	11,669(29.3)	404(30.5)	
5-6 times / weekly	4,277(11.0)	162(11.9)	
≥1 times / day	6,808(17.6)	210(15.4)	
High caffeine drink			0.099
No	20,944(52.4)	696(50.8)	
1-2 times / weekly	10,336(26.1)	390(29.0)	
3-4 times / weekly	4,592(11.8)	140(10.1)	
5-6 times / weekly	1,562(4.1)	62(4.4)	
≥1 times / day	2,118(5.6)	73(5.8)	
Sugary beverage			0.431
No	2,591(6.5)	82(5.7)	
1-2 times / weekly	12,050(30.2)	443(32.3)	
3-4 times / weekly	13,543(34.3)	460(33.9)	
5-6 times / weekly	5,667(14.5)	180(13.4)	
≥1 times / day	5,701(14.6)	196(14.7)	
Fast food			<0.001
No	6,487(16.2)	313(21.3)	
1-2 times / weekly	22,731(57.4)	763(56.0)	
3-4 times / weekly	8,457(21.7)	216(17.3)	
5-6 times / weekly	1,286(3.3)	43(3.3)	
≥1 times / day	591(1.5)	26(2.1)	
Vegetable			0.004
No	1,608(4.1)	79(6.2)	
1-2 times / weekly	7,318(18.4)	270(19.7)	
3-4 times / weekly	10,806(27.4)	376(27.1)	
5-6 times / weekly	5,885(14.8)	187(14.3)	
≥1 times / day	13,935(35.3)	449(32.7)	
Milk or processed milk			0.010
No	6,786(17.3)	226(17.7)	
1-2 times / weekly	11,478(29.3)	363(27.8)	
3-4 times / weekly	9,357(23.9)	288(20.8)	
5-6 times / weekly	4,598(11.4)	191(13.4)	
≥1 times / day	7,333(18.0)	293(20.4)	

\*by Rao-Scott chi-square test

### 3. Comparison of oral disease symptoms between adolescents from Korean and multicultural families

Regarding oral disease symptoms, 8.5% of Korean adolescents and 12.1% of multicultural adolescents reported experiencing broken or chipped teeth ( $p<0.001$ ). Pain from hot or cold beverages was reported by 34.2% of Korean adolescents and 31.4% of multicultural adolescents ( $p<0.05$ ). Bad breath was experienced by 23.0% of Korean adolescents and 28.0% of multicultural adolescents ( $p<0.001$ ) <Table 3>.

**Table 3.** Oral disease symptoms among adolescents from Korean and multicultural families Unit: N(%)

Variables	Korean family	Multicultural family	$p^*$
Broken or chipped teeth			<0.001
No	36,141(91.5)	1,197(87.9)	
Yes	3,411(8.5)	164(12.1)	
Pain from hot or cold beverages			0.043
No	26,151(65.8)	923(68.6)	
Yes	13,401(34.2)	438(31.4)	
Toothache			0.232
No	30,952(77.9)	1,051(76.4)	
Yes	8,600(22.1)	310(23.6)	
Gum pain or bleeding			0.613
No	32,083(80.9)	1,091(80.3)	
Yes	7,469(19.1)	270(19.7)	
Tongue or inner cheek pain			0.351
No	34,986(88.1)	1,216(89.0)	
Yes	4,566(11.9)	145(11.0)	
Bad breath			<0.001
No	30,512(77.0)	974(72.0)	
Yes	9,040(23.0)	387(28.0)	

\*by Rao-Scott chi-square test

### 4. Oral disease symptoms according to eating habits between adolescents from Korean and multicultural families

Korean adolescents who consumed breakfast 4–6 days per week had 1.10 times higher odds ( $p<0.05$ ), and those who consumed breakfast 1–3 times a week had 1.10 times higher odds ( $p<0.05$ ) of experiencing oral disease symptoms, compared to those who consumed breakfast every day. Adolescents who consumed fruit 5–6 times per week had 1.10 times higher odds of experiencing oral disease symptoms compared to those who consumed fruit every day ( $p<0.05$ ). Conversely, the likelihood of oral disease symptoms was lower for adolescents who consumed sugary drinks 5–6 times per week (OR 0.89,  $p<0.05$ ), 3–4 times per week (OR 0.77,  $p<0.001$ ), 1–2 times per week (OR 0.65,  $p<0.001$ ), and those who did not consume sugary drinks at all (OR 0.56,  $p<0.001$ ) compared to those who consumed sugary drinks every day. The likelihood of oral disease symptoms was higher with fast food consumption 5–6 times per week (OR 1.31,  $p<0.01$ ) and 3–4 times per week (OR 1.37,  $p<0.05$ ) compared to everyday consumption. Compared to adolescents who consumed vegetables every day, the likelihood of oral disease symptoms was 1.07 times higher for those consuming vegetables 3–4 times per week, 1.17 times for 1–2 times per week, and 1.30 times for those who did not consume vegetables at all ( $p<0.001$ ). Compared to daily milk consumption, the likelihood of oral disease symptoms was 1.13 times higher for those consuming milk or processed milk 1–2 times per week ( $p<0.01$ ) and 1.19 times higher for those who did not consume milk at

all ( $p<0.001$ ). Among multicultural adolescents, the likelihood of oral disease symptoms was 0.47 times lower for those consuming sugary drinks 1-2 times per week ( $p<0.05$ ) and 0.32 times lower for those who did not consume sugary drinks at all ( $p<0.01$ ) <Table 4>.

**Table 4.** Oral disease symptoms according to eating habits among adolescents from Korean and multicultural families

Variables	Korean family	$p^*$	Multicultural family	$p^*$
Breakfast (ref.= every day)				
No	1.01(0.94-1.08)	0.869	0.97(0.57-1.67)	0.913
1-3 days / weekly	1.10(1.02-1.17)	0.008	0.71(0.43-1.19)	0.197
4-6 days / weekly	1.10(0.13-1.16)	0.004	0.70(0.43-1.14)	0.147
Fruit (ref.= $\geq 1$ times)				
No	1.01(0.92-1.12)	0.789	1.95(0.89-4.29)	0.097
1-2 times / weekly	1.05(0.98-1.13)	0.145	1.47(0.81-2.67)	0.211
3-4 times / weekly	1.04(0.96-1.11)	0.346	1.60(0.90-2.85)	0.107
5-6 times / weekly	1.10(1.01-1.21)	0.031	1.54(0.82-2.89)	0.179
High caffeine drinks (ref.= $\geq 1$ times)				
No	0.96(0.56-1.07)	0.457	0.63(0.28-1.43)	0.265
1-2 times / weekly	0.99(0.88-1.11)	0.819	0.87(0.38-2.04)	0.755
3-4 times / weekly	1.00(0.88-1.14)	0.982	0.82(0.31-2.17)	0.694
5-6 times / weekly	0.93(0.79-1.08)	0.341	0.89(0.30-2.64)	0.828
Sugary beverage (ref.= $\geq 1$ times)				
No	0.56(0.49-0.63)	<0.001	0.32(0.13-0.75)	0.009
1-2 times / weekly	0.65(0.60-0.70)	<0.001	0.47(0.25-0.89)	0.021
3-4 times / weekly	0.77(0.72-0.84)	<0.001	1.00(0.54-1.84)	0.990
5-6 times / weekly	0.89(0.82-0.98)	0.014	1.07(0.52-2.20)	0.862
Fast food (ref.= $\geq 1$ times)				
No	1.12(0.90-1.40)	0.305	2.95(0.77-11.31)	0.115
1-2 times / weekly	1.23(0.99-1.54)	0.060	2.16(0.57-8.11)	0.255
3-4 times / weekly	1.37(1.10-1.70)	0.005	2.39(0.61-9.36)	0.212
5-6 times / weekly	1.31(1.02-1.69)	0.034	4.25(0.72-25.21)	0.111
Vegetable (ref.= $\geq 1$ times)				
No	1.30(1.14-1.49)	<0.001	0.53(0.20-1.43)	0.208
1-2 times / weekly	1.17(1.09-1.26)	<0.001	0.97(0.57-1.64)	0.898
3-4 times / weekly	1.07(1.00-1.13)	0.040	0.76(0.49-1.20)	0.239
5-6 times / weekly	1.05(0.98-1.13)	0.181	0.86(0.51-1.44)	0.564
Milk or processed milk (ref.= $\geq 1$ times)				
No	1.19(1.09-1.29)	<0.001	1.20(0.71-2.05)	0.494
1-2 times / weekly	1.13(1.05-1.21)	0.002	0.86(0.52-1.40)	0.531
3-4 times / weekly	1.04(0.97-1.13)	0.264	0.77(0.46-1.27)	0.305
5-6 times / weekly	1.07(0.98-1.17)	0.114	0.94(0.50-1.79)	0.861

Data are expressed as the adjusted odds ratios (95% confidence intervals).

\*by multiple logistic regression

Model adjusted for gender, grade, learning achievement, economic status, father's education, mother's education, and the type of residence.

## Discussion

The eating habits of adolescents in Korea have increasingly shifted towards a westernized diet, with rising consumption of sugar-laden drinks, carbonated beverages, and instant foods. Notably, knowledge and attitudes toward oral health are insufficient, while susceptibility to oral diseases remains high [16].

Given the strong link between eating habits and oral health, it is crucial to address these dietary issues and implement oral health preventive measures among adolescents [14]. Thus, this study compared oral disease symptoms and eating habits between Korean and multicultural adolescents.

Our findings revealed that most Korean adolescents had breakfast every day, while most multicultural adolescents ate breakfast 1–3 days per week. Both groups demonstrated similar results regarding fast food consumption in the past week (1–2 times per week), vegetable intake (at least once daily), and milk consumption (1–2 times per week). Consuming fruits and vegetables more frequently than cariogenic foods was associated with fewer experiences of oral disease symptoms [7,17]. Youn and Kim [18] reported that low breakfast and fruit consumption was associated with higher periodontal disease incidence. Therefore, developing appropriate nutrition programs to promote healthy dietary habits and oral health among adolescents is critical.

Regarding oral disease symptoms between the two groups of adolescents, multicultural adolescents showed higher rates of broken or chipped teeth and unpleasant breath. However, Korean adolescents had a higher incidence of sensitivity to hot beverages.

Sim and Hong [19] stated that poor toothbrushing is associated with bad breath, emphasizing the importance of proper toothbrushing and healthy oral hygiene habits, particularly among adolescents from multicultural families. Multicultural adolescents often lack access to dental care [20] and may have a lower oral health awareness. These contribute to and increase risk of untreated oral problems [4]. Thus, it is critical to increase both oral health awareness and oral care motivation.

Considering oral disease symptoms according to eating habits, we found that the odds for oral disease symptoms were lower with fewer sugary drink consumption per week (7 days). Among Korean adolescents, less frequent consumption of vegetables and milk or processed milk was associated with a higher risk of oral disease symptoms compared to more than once-daily consumption.

Han [13] reported that higher fruit consumption was associated with lower rates of tooth pain and gum bleeding. Park [21] found that adolescents who consumed fruit at least once daily had fewer oral disease symptoms. Additionally, Lee and Lee [14] identified sugary and carbonated drinks, fast foods, and instant foods as significant contributors to the increased risk of oral disease symptoms. Park [21] reported that adolescents from multicultural families were at higher risk of oral health symptoms compared to their counterparts from non-multicultural families, and emphasized the need to provide targeted oral health programs, particularly for multicultural adolescents, to mitigate these risks. This study confirmed that healthy dietary habits among Korean adolescents reduced the risk of oral disease symptoms. Additionally, the impact of dietary habits on oral disease symptoms was not as pronounced among multicultural adolescents. Nonetheless, multicultural adolescents reported higher rates of oral disease symptoms and poorer dietary habits overall. Given that eating habits among adolescents impact their oral health, it is important to develop and implement systematic programs and education to promote healthy eating habits and improve oral health.

Although this study focused on comparing oral disease symptoms based on dietary habits, future research should include a comparison of adolescents' oral health examination results to gain a more objective understanding the impact on oral health.

Despite these limitations, this study utilized data from the nationally representative 18th (2022) KYRBS and presented valuable insights for developing strategies to improve adolescents' oral health. Efforts should focus on changing adolescents' beliefs about oral health, especially among multicultural adolescents, through policy changes and the development of tailored and engaging oral health programs that are easily accessible.

## Conclusions

This study compared the oral disease symptoms of Korean and multicultural adolescents according to their eating habits using the raw data of the 18th KYRBS, and the results are as follows.

1. Significant differences were observed between Korean and multicultural adolescents in terms of grade level ( $p < 0.001$ ), academic performance ( $p < 0.001$ ), economic status ( $p < 0.001$ ), and parental education levels ( $p < 0.001$ ).

2. There were significant differences in eating habits between Korean and multicultural adolescents, including breakfast consumption ( $p<0.01$ ), fast food ( $p<0.001$ ), vegetable ( $p<0.01$ ), and milk or processed milk intake ( $p<0.05$ ).

3. Oral disease symptoms in Korean adolescents differed significantly from those experienced by multicultural adolescents, with higher rates of broken or chipped teeth ( $p<0.001$ ), sensitivity to hot or cold beverages ( $p<0.05$ ), and bad breath ( $p<0.001$ ).

4. Among Korean adolescents, compared to daily consumption of sugary drinks, the likelihood of oral disease symptoms was 0.89 times lower for those consuming sugary drinks 5–6 times per week ( $p<0.05$ ), 0.77 times lower for 3–4 times per week ( $p<0.001$ ), 0.65 times lower for 1–2 times per week ( $p<0.001$ ), and 0.56 times lower for those not consuming sugary drinks at all ( $p<0.001$ ). In multicultural households, the likelihood was 0.47 times lower for consuming sugary drinks 1–2 times per week ( $p<0.05$ ) and 0.32 times lower for no consumption ( $p<0.01$ ).

These findings highlight the need to develop and implement accessible tailored and engaging nutrition and oral health education programs to improve oral health and dietary habits of Korean and multicultural adolescents.

## Notes

### Author Contributions

The author fully participated in the work performed and documented truthfully.

### Conflicts of Interest

The author declared no conflicts of interest.

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### Ethical Statement

None.

### Data availability

Data can be obtained from the corresponding author.

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## 한국 가정 청소년과 다문화 가정 청소년의 식습관에 따른 구강질환 증상 비교

### 초록

**연구목적:** 본 연구는 한국 가정 청소년과 다문화 가정 청소년의 식습관에 따른 구강질환 증상 비교하였다. 연구 자료는 제18차 청소년 온라인 건강행태 자료를 활용하였으며, 연구의 참여한 총 대상자는 40,913명이었다. **연구방법:** 연구 대상자의 특성에 따른 식습관, 구강질환 증상 경험을 비교하기 위해 Rao-Scott 카이제곱 검정 분석을 시행하였다. 또한, 한국 청소년과 다문화 가정 청소년의 구강질환 증상 관련 요인을 파악하기 위해 일반적 특성과 식습관을 보정 변수로 하여 복합표본 다중 로지스틱 회귀분석을 실시하였다. **연구결과:** 한국 청소년에서 단맛나는

음료를 매일 1번 이상 섭취하는 경우를 기준으로 주 5-6회는 0.89배, 주 3-4회는 0.77배, 주 1-2회는 0.65배, 7일 동안 없는 경우 0.56배 구강질환 증상을 경험이 낮았으며, 다문화 가정 청소년의 경우 주 1-2회는 0.47배, 7일 동안 없는 경우 0.33배 구강질환 증상 경험이 낮게 나타났다. 또한, 채소를 매일 1번 이상 섭취하는 경우 한국가정 청소년은 주 3-4회 1.06배, 주 1-2회 1.17배, 7일 동안 없음 1.30배로 구강질환 증상 경험이 높게 나타났다. 마지막으로 흰 우유 또는 가공우유를 매일 1번 이상 섭취하는 경우 주 1-2회 1.13배, 7일 동안 없음 1.19배 높게 구강질환 증상 경험이 높게 나타났다. **결론:** 우리나라 청소년들의 구강건강증진을 위하여 구강건강에 대한 동기부여와 청소년들의 눈높이에 맞는 맞춤형 영양교육과 구강보건교육 프로그램이 계속적으로 개발되고 활용되어야 할 것으로 사료된다.

**색인:** 청소년, 식습관, 다문화 가정, 구강질환