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Original Article

Relationship between mental health and oral symptoms in youths of multicultural families

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ABSTRACT

Objectives: This study aimed to determine the relationship between mental health and oral symptoms in the youths of multicultural families. **Methods:** Our data source was from an online survey on youth health behaviors, mental health-examined stress, depression, and suicidal ideation, and oral symptoms-examined trauma, pain, and bleeding general characteristics, and the relationship between mental health and oral symptoms was analyzed using complex sample logistic regression. **Results:** Stress and depression were associated with pain and bleeding, and suicidal ideation was associated with trauma. **Conclusions:** Oral health plans should be prepared based on the mental health of adolescents from multicultural families.

Key Words: Mental health, Multicultural, Oral symptoms, Youth

Introduction

With the increase in the number of multicultural families, the number of children born in these families is also increasing; the youth population of general families is gradually decreasing, whereas the number of youths in multicultural families continues to increase, exceeding 100,000 in 2017 [1].

Although adolescence is more important than other periods because physical and emotional changes are evident and youths undergo many changes [2], adolescents from multicultural families often drop out because of cultural adjustment stress, negative school adjustment, and bad school experiences, such as prejudice and bullying among students [3]; these negative events lead to critical psychological problems [4]. Lim et al. [5] reported that mental health issues such as depression and suicidal ideation among adolescents from multicultural families were approximately 10% higher than among adolescents from general families, and the happiness index was lower at 3.06 points among adolescents from multicultural families than among adolescents (3.38 points) from general families [6]. Thus, attention should be paid to the mental health of adolescents from multicultural families.

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In addition, poor mental health during adolescence has a negative effect on oral health by increasing the morbidity of oral diseases and risk behaviors of oral health [7,8]. Negative mental health leads to poor eating habits and worsening oral hygiene, and causes various oral diseases such as gum swelling, bad breath, and oral mucosa disease [9]. In particular, adolescents had worse mental and oral health than other age groups [9,10]. Since adolescents from multicultural families have worse mental and oral health than adolescents from general families [10], it seems necessary to identify the relationship between oral health and mental health of adolescents from multicultural families, as management of both oral and mental health was judged necessary. However, most previous studies were conducted on adolescents from general families [11] or investigated stress only in the context of mental health [12], and few studies have been reported on adolescents from multicultural families. As a result, various aspects of mental health have not been addressed.

Adolescents who have correctly formed knowledge, behaviors, and perceptions of oral health can continue into subsequent periods and have good oral health throughout their lives [13]. Hence, adolescence is a critical period for developing the ability to maintain a healthy oral cavity.

Based on the data of the Korea Youth Risk Behavior Web-based Survey, this study aims to develop plans and measures for improving oral health among adolescents from multicultural families by investigating the mental health of adolescents from multicultural families in various ways and determining the relationship between stress, depression and suicidal ideation, and self-perceived oral symptoms.

Methods

1. Study subject

This study used data from the 15th Korea Youth Risk Behavior Web-based Survey (2019). Among the 57,303 students who participated in the survey from 800 schools (400 middle schools and 400 high schools), 749 adolescents, either of whose parents was not of Korean nationality, were classified as adolescents from multicultural families and selected as subjects for this study. The Korea Youth Risk Behavior Web-based Survey is a government-approved statistical survey (approval number 117,058) conducted on the basis of the National Health Promotion Act (Article 19).

2. Survey variables

In general characteristics, gender was classified into 'male' and 'female', and grade was classified into 'middle school' and 'high school'. Both academic achievement and economic status were reclassified as 'upper' for upper and upper-middle, 'middle' for middle, and 'lower' for lower-middle and lower, and residence type was reclassified as 'with family' and 'others' for a relative's house, boarding house, single-person household, dormitory, and nursery facilities. In the category of mental health, stress was reclassified as 'yes' if the person often or occasionally felt extreme

stress, and 'no' if the person did not feel stress much and not at all with respect to the prevalence of perceived usual stress. Depression experiences were classified as 'yes' if the person had felt sad or hopeless enough to interrupt their daily life for two weeks in the previous 12 months, and 'no' if they had not, and suicidal ideation was classified as 'yes' if the person had had severe suicidal ideation in the previous 12 months and 'no' if they had not. Self-perceived oral symptoms, subjective symptoms in the previous 12 months, were classified as 'trauma' when teeth cracked or broke; 'pain' when teeth hurt while drinking or eating cold or hot drinks or food; 'ulorrhagia' when gums hurt or bled; 'yes' if the person had experienced trauma, pain, and ulorrhagia; and 'no' if not.

3. Data analysis

In this study, using the complex sample analysis method, which is the sample design of the Korea Youth Risk Behavior Web-based Survey, a complex sample chi-square test was conducted for mental health and self-perceived oral symptoms according to general characteristics. After adjusting for the subject's confounding variables (general characteristics), a complex sample logistic regression analysis was performed to identify the relationship between mental health and self-perceived oral symptoms. IBM SPSS Statistics 21.0 was used for the analysis, with a significance level of 0.05 for the statistical test.

Results

1. Mental health according to general characteristics

With respect to mental health according to general characteristics, stress was higher among women, and lower grades, depression experiences, and suicidal ideation were higher among women, the middle class, and those living with family <Table 1>.

Table 1. Mental health according to characteristics of subject

Unit : N(%)

Characteristics	Division	Total	Stress		χ^2 (p^*)	Depression		χ^2 (p^*)	Suicidal ideation		χ^2 (p^*)
			No	Yes		No	Yes		No	Yes	
Sex	Boy	358 (49.3)	96 (12.2)	262 (37.1)	10.56 (0.002)	291 (39.5)	67 (9.9)	33.70 (<0.001)	320 (43.3)	38 (6.0)	8.79 (0.014)
	Girl	391 (50.7)	61 (7.7)	330 (42.9)		253 (30.7)	138 (20.0)		313 (40.4)	78 (10.3)	
Grade	Middle school	523 (63.7)	121 (14.7)	402 (49.0)	8.45 (0.006)	391 (46.2)	132 (17.5)	3.64 (0.136)	441 (53.5)	82 (10.2)	0.05 (0.854)
	High school	226 (36.3)	36 (5.2)	190 (31.1)		153 (23.9)	73 (12.4)		192 (30.2)	34 (6.1)	
Academic achievement	High	222 (31.4)	46 (6.0)	176 (25.3)	0.51 (0.826)	175 (23.5)	47 (7.9)	4.09 (0.259)	185 (25.6)	37 (5.8)	2.02 (0.462)
	Middle	223 (26.5)	46 (5.7)	177 (20.8)		153 (17.6)	70 (8.9)		189 (23.0)	34 (3.5)	
	Low	304 (42.1)	65 (8.1)	239 (34.0)		216 (29.0)	88 (13.1)		259 (35.1)	45 (7.0)	
Economic status	High	192 (27.1)	39 (5.1)	153 (22.0)	5.58 (0.090)	143 (20.1)	49 (7.0)	14.64 (0.006)	165 (23.8)	27 (3.4)	13.47 (0.006)
	Middle	381 (47.9)	85 (11.1)	296 (36.8)		285 (35.2)	96 (12.6)		332 (41.1)	49 (6.8)	
	Low	176 (25.0)	33 (3.7)	143 (21.3)		116 (14.8)	60 (10.2)		136 (18.8)	40 (6.2)	
Stay with family	Yes	704 (93.1)	151 (18.9)	553 (74.2)	0.90 (0.433)	518 (66.6)	186 (26.5)	9.71 (0.017)	604 (79.7)	100 (13.4)	27.34 (<0.001)
	No	45 (6.9)	6 (1.0)	39 (5.8)		26 (3.5)	19 (3.4)		29 (4.0)	16 (2.9)	
Total			157 (19.9)	592 (80.1)		544 (70.1)	205 (29.9)		633 (83.7)	116 (16.3)	

*by chi-square test

2. Self-perceived oral symptoms according to general characteristics

Trauma and pain were higher among women in the category of self-perceived oral symptoms according to general characteristics, and ulorrhagia was the highest among the middle class <Table 2>.

Table 2. Oral symptoms according to characteristics of subject Unit : N(%)

Characteristics	Division	Trauma		χ^2 (p^*)	Pain		χ^2 (p^*)	Bleeding		χ^2 (p^*)
		No	Yes		No	Yes		No	Yes	
Sex	Boy	318 (43.5)	40 (5.8)	0.27 (0.662)	238 (32.7)	120 (16.7)	15.54 (<0.001)	263 (36.2)	95 (13.1)	5.33 (0.055)
	Girl	340 (44.1)	51 (6.6)		214 (26.4)	177 (24.3)		276 (33.2)	115 (17.4)	
Grade	Middle school	458 (55.5)	65 (8.2)	0.31 (0.624)	324 (38.5)	199 (25.2)	1.06 (0.382)	384 (44.9)	139 (18.8)	0.71 (0.487)
	High school	200 (32.1)	26 (4.2)		128 (20.5)	98 (15.8)		155 (24.5)	71 (11.8)	
Academic achievement	High	200 (27.7)	22 (3.7)	1.37 (0.570)	129 (18.2)	93 (13.2)	0.38 (0.849)	156 (21.2)	66 (10.1)	5.72 (0.130)
	Middle	196 (23.7)	27 (2.8)		138 (16.1)	85 (10.4)		173 (20.2)	50 (6.3)	
	Low	262 (36.2)	42 (5.9)		185 (24.8)	119 (17.3)		210 (28.0)	94 (14.1)	
Economic status	High	172 (24.2)	20 (2.9)	2.01 (0.438)	118 (15.9)	74 (11.3)	0.95 (0.684)	146 (20.5)	46 (6.6)	10.29 (0.029)
	Middle	334 (42.2)	47 (5.7)		234 (29.1)	147 (18.8)		279 (33.7)	102 (14.2)	
	Low	152 (21.2)	24 (3.8)		100 (14.1)	76 (10.9)		114 (15.2)	62 (9.8)	
Stay with family	Yes	621 (81.9)	83 (11.3)	0.71 (0.514)	428 (55.0)	276 (38.1)	0.00 (0.948)	508 (64.7)	196 (28.5)	0.00 (0.992)
	No	37 (5.8)	8 (1.1)		24 (4.0)	21 (2.8)		31 (4.8)	14 (2.1)	
Total		658 (87.6)	91 (12.4)		452 (59.0)	297 (41.0)		539 (69.4)	210 (30.6)	

*by chi-square test

3. Relationship between mental health and self-perceived oral symptoms

Regarding the relationship between mental health and self-perceived oral symptoms, the group with stress suffered pain levels that were 2.09 times higher and ulorrhagia levels that were 1.94 times higher than the group without stress. The group with depression experiences suffered pain levels that were 1.52 times and ulorrhagia levels that were 1.61 times higher than the group without depression experiences. The group with suicidal ideation suffered trauma levels that were 2.40 times higher than those of the group without suicidal ideation <Table 3>.

Table 3. Related of oral symptoms and mental health

Characteristics	Division	Trauma		Pain		Bleeding	
		OR	95% Cl	OR	95% Cl	OR	95% Cl
Stress	No	Ref.		Ref.		Ref.	
	Yes	0.65	0.35-1.20	2.09	1.32-3.31	1.94	1.12-3.38
Depression	No	Ref.		Ref.		Ref.	
	Yes	1.31	0.72-2.37	1.52	1.00-2.30	1.61	1.06-2.44
Suicidal ideation	No	Ref.		Ref.		Ref.	
	Yes	2.40	1.28-4.47	1.07	0.62-1.84	1.47	0.90-2.41

*Multiple logistic regression analysis adjusted for sex, grade, academic achievement, economic status, stay with family

OR: odds ratio , Cl: confidence interval

Discussion

It has been reported that adolescents from multicultural families have worse mental health than those from general families, and this state of psychological instability can also be a risk factor for oral health [14,15]. Hence, this study identified the relationship between mental health and self-perceived oral symptoms of adolescents among multicultural families.

Adolescents from multicultural families felt the greatest mental health stress; female students were more likely to be stressed, depressed, and have suicidal ideation than male students. This is the same result as derived for the study of adolescents from general families [16,17], which is thought to be because female students experience more negative mental health effects than male students [18]. Further, within the residence category, multicultural youth living with their families were more likely to have suicidal ideation, compared with the youth of general families [19]. It is believed that authoritarian parental education, authoritative parenting attitudes, and family-environmental influences among other factors affect the mental health of multicultural adolescents [20], and measures for mental health management are needed considering that the influence factors applied to adolescents from multicultural families differ from those of general families.

Female adolescents in multicultural families experienced more trauma and pain within the category of self-perceived oral symptoms than did male adolescents, and ulorrhagia was higher within the middle and lower economic classes than among the upper class. This was the same result, as this study covered not only multicultural families but also adolescents from general families [21]. The economic status of adolescents is not related to oral health conditions and incidence of diseases and plays a vital role in predicting their health conditions [21,22]. However, since adolescents in multicultural families experience more unfavorable conditions such as low economic status and a poor environment for oral health than those in general families, more attention should be paid to multicultural adolescents, and oral health education and programs should be provided.

Stress and depression were related to pain in the category of self-perceived oral symptoms, indicating the same results as in Won et al. [23], and suicidal ideation was related to trauma in the category of self-perceived oral symptoms. Such mental health phenomena as stress, depression, and suicidal ideation among adolescents can be considered in relation to the study [24], which showed that they affected oral health behaviors and conditions. Stress, in particular, is reported to be considered in the category of mental health in oral care because many previous studies showed that a higher level of stress was associated with higher incidence of gum swelling, oral mucosa disease, and dental caries, and had negative effects on oral health behavior [25,26]. In addition, the decayed, missing, and filled teeth (DMFT) index was higher among the group with depression experiences than among the group without depression experiences, indicating a worse oral condition [11]. It can be speculated that this was because subjects who had not engaged in good oral care might have experienced various symptoms related to oral diseases, potentially leading to poor mental health [13].

The above results showed that mental health and self-perceived oral symptoms among adolescents from multicultural families were related and showed different self-perceived oral symptoms depending on stress, depression, and suicidal ideation. Therefore, it is necessary to develop a customized oral health plan and management measures considering factors appropriate to the mental health only for adolescents from multicultural families.

This study has a limitation in that causality cannot be explained clearly through a cross-sectional study. However, it is meaningful that Korea Youth Risk Behavior Web-based Survey data that can represent Korean adolescents elucidate the relationship between mental health and self-perceived oral symptoms among adolescents from multicultural families. Based on this study, it is expected that a study using adolescents from general families as a control group or a multifaceted study using various variables, such as oral health factors, will be needed in the future.

Conclusions

Based on the 15th Korea Youth Risk Behavior Web-based Survey (2019), this study investigated the relationship between mental health and self-perceived oral symptoms among adolescents from multicultural families.

1. In the category of mental health according to general characteristics, stress was higher among women and those with lower grades, and depressive experiences and suicidal ideation were higher among women, the middle class, and those living with family.

2. In the category of self-perceived oral symptoms according to general characteristics, trauma and pain were higher among women, and ulorrhagia was the highest among the middle class.

3. Regarding the relationship between mental health and self-perceived oral symptoms, the group with stress suffered pain levels that were 2.09 times higher and ulorrhagia levels that were 1.94 times higher than those without stress. The group with depression experiences suffered pain levels that were 1.52 times higher and ulorrhagia levels that were 1.61 times higher than the group that had not experienced depression. The group with suicidal ideation suffered trauma levels that were 2.40 times higher than the group without suicidal ideation.

The results of this study show that oral health plans and measures for oral health should be prepared according to mental health among adolescents from multicultural families.

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Conflict of Interest

The author declared no conflict of interest.

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다문화 가정 청소년의 정신건강과 구강자각증상과의 관련성

초록

연구목적: 본 연구는 다문화가정 청소년의 정신건강과 구강자각증상과의 관련성을 알아보고자 한다. **연구방법:** 청소년건강행태 온라인 조사의 자료를 바탕으로 정신건강은 스트레스, 우울, 자살생각을 조사하였고, 구강자각증상은 외상, 통증, 잇몸출혈을 조사하였다. 일반적 특성에 따른 정신건강, 구강자각증상은 복합표본 교차분석을 시행하였고, 정신 건강과 구강자각증상의 관련성은 복합표본 로지스틱회귀분석을 시행하였다. **연구결과:** 스트레스와 우울은 통증과 잇몸출혈이 관련성이 있었고, 자살생각은 외상과 관련이 있었다. **결론:** 본 연구결과, 다문화가정 청소년의 정신건강에 따른 구강건강을 위한 구강보건계획 및 방안이 마련되어야 할 것이다.

색인: 구강자각증상, 다문화, 정신건강, 청소년