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Factors affecting cultural adaptation stress by gender among multicultural adolescents in Korea

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Purpose: This paper is a descriptive survey research to identify factors that affect acculturation stress in multicultural adolescents, and provide basic information that can be used to develop ways to improve their mental health.
Methods: This study used the data of the 2nd multicultural adolescents panel study provided on December 30, 2022 by the National Youth Policy Institute. The subjects of this study were 1,520 multicultural adolescents in the fourth grade of elementary school and the survey period was from July to November 2020. The dependent variable was acculturation stress, and the explanatory variables were as follows: mother's and father's country of origin, region size, home economic conditions, academic achievement, experience of discrimination, mother's level of education, father's level of education, and number of close friends. Data analysis involved calculation of descriptive statistics, analysis of differences in the level of acculturative stress and general characteristics between male and female adolescents, and multiple regression analysis.
Results: This study found that there are gender differences in significant influencing factors for acculturation stress among multicultural adolescents. For males, factors influencing acculturation stress were identified as regional size, mother's education level, parental support, and teacher support. For females, they were regional size, experience of discrimination, number of close friends, parental support, and self-esteem.
Conclusion: The results of this study suggest that psychiatric nurses should provide psychiatric nursing and counseling to multicultural adolescents in addition to clinical psychiatric nursing. Various mental health programs should be developed for multicultural adolescents, with a focus on counseling, education, and family therapy.

Keywords: Adolescent; Acculturation; Stress, Psychological; Self Esteem, Republic of Korea

Introduction

According to a recent analysis of education statistics published by the Ministry of Education in 2021, the number of students from multicultural families is 131,522 persons, and this figure represents a three-fold increase over the past nine years. In particular, the proportion of multicultural students is reported to be highest in elementary schools at 4.2% [1]. As the inflows of foreign students, foreign workers, and marriage migrant women into Korea increased in the 2000s, this increase of foreign residents in Korea has led to the improvement of perceptions about multicultural families and increased respect for diversity, and national-level efforts for children and adolescents from multicultural families have been gradually expanded with increasing national attention to them [2].

Adolescence is the phase of life during which young people experience rapid and significant physical and psychological changes, and it is also a period when adolescents are greatly influenced

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by the environment, including parents' parenting style, peer relationships at school, and teachers' roles. Young adolescents, such as elementary school students, acquire socialization through school life. They develop problem-solving skills through peer relationships, and in this process, they form values and self-concept and develop the ability to adapt to the social environment [3]. In particular, although it is important for elementary school students to experience and observe various environments, it is crucially required to help them appropriately respond to crises and unfamiliar environments and effectively utilize support resources around them. In a previous study [4], compared to non-multicultural youth, multicultural adolescents were found to have a sense of inferiority in terms of Korean language proficiency and the financial status of the family, and prejudices, cultural conflicts, and confusion in values resulting from biculturalism were shown to naturally lead to negative emotional reactions such as depression, anxiety, psychological withdrawal, and aggression. Multicultural adolescents who undergo confusion due to bicultural situations may experience various types of stress, and the most common stress they experience is acculturation stress. Multicultural families experience a new cultural environment, and go through changes for adaptation in various areas such as values, cultural attitudes, cognition, and behavior. Acculturative stress refers to psychological difficulties arising from undergoing such adaptation [5].

Recently, research has been conducted on acculturation stress in various research fields as a result of increasing interest in the issue, and Berry proposed a model of acculturative stress [6]. According to Berry's model of acculturative stress, the cultural adaptation experienced by individuals is influenced by stress factors, and the acculturation process does not continuously remain a stressful situation, but individuals rather adapt to new environments and cope with acculturative stress through the moderating factors of stress. In the model of acculturative stress, the moderating factors of stress are largely categorized into group-level and individual-level variables. More specifically, among the moderators of stress, group-level factors include multicultural experiences as well as the political context, ethical attitudes, and ideologies of the society in which the individual was born, while individual-level factors are divided into moderators acting before acculturation and those acting during the acculturation process [6].

This study attempted to explore individual-level factors influencing acculturative stress in Korean multicultural adolescents, based on the moderating factors of stress presented in Berry's model of acculturative stress. This study did not analyze group-level factors affecting acculturative stress because multicultural adolescents have not yet fully developed a firm sense of identity, appropriate values, and a stable self-concept, and the investigation of group-level factors such as ideology may cause further confusion in their values. In addition, according to a previous study [6], group-level variables are factors that predict the level of voluntary migration motivation of individuals through a combination of political, economic, and sociodemographic conditions encountered by the individuals in the society where they were born. Therefore, it was thought that since this study intended to examine factors affecting cultural adaptation stress in multicultural adolescents, there would be limitations in exploring group-level factors as influencing factors for acculturative stress.

First, based on the individual-level factors presented in Berry's model of acculturative stress [6], this study examined parental support and teacher support as influencing factors for acculturative stress in multicultural adolescents. In this regard, a previous study reported that the social support system is a very important factor for the mental health of adolescents, and that adaptation patterns vary depending on the social support system such as parental support and teacher support [7]. It was also previously found that a higher level of parental support was associated with decreased levels of depression and anxiety in adolescents, and that a higher level of teacher support was linked to a lower level of academic stress in adolescents [8]. In addition, it has been reported that the support system is a factor that acts as a moderator of acculturation stress and reduces social withdrawal, and thus it plays a very important role in adaptation to the social environment during adolescence [9]. These research findings confirmed that parental support and teacher support are important factors affecting acculturation stress because they act as psychological protective factors.

Self-esteem refers to perceiving oneself as a positive being and considering oneself important and valuable regarding one's abilities, attitudes, and thoughts [9]. Self-esteem is closely related to the acculturative stress of multicultural adolescents. According to a previous study, in a situation of self-identity confusion arising from the experience of bicultural situations, a lower level of self-esteem is linked to a higher level of acculturative stress, while a higher level of self-esteem is associated with a higher level of achievement motivation, and performs a positive role in psychological and social adaptation [10]. These previous findings suggest that it is important to appropriately develop and promote the self-esteem of multicultural youth because self-esteem is an important factor that affects acculturative stress in that it is an internal factor in psychological adaptation that enables individuals to protect themselves and cope with unfamiliar environments.

Lastly, this study intended to explore how gender affects the influencing factors for acculturation stress in multicultural adolescents.

According to Berry's model of acculturative stress [6], gender is a moderator of acculturative stress prior to acculturation. Regarding the stress that individuals experience during adolescence, it was previously found that female adolescents generally showed more distinct and sensitive responses to stress, while the level of school-related stress was relatively higher in male students [11]. These results suggest that there may be gender differences in the perceptions of stress according to situations. Another prior study [12] also found that multicultural children in upper elementary grades showed a lower level of adaptation to school life and greater gender differences in psychological and behavioral characteristics [13]. Therefore, identification of the factors affecting acculturative stress in multicultural adolescents through a differentiated approach according to gender is expected to contribute to providing an in-depth understanding of the potential predictors of acculturative stress by gender in relation to the implementation of counseling and the development of educational programs for multicultural adolescents in the future.

This research was conducted using the data from the 2020 Multicultural Adolescents Longitudinal Panel Study conducted by the National Youth Policy Institute. The present study aimed to identify factors influencing acculturative stress by gender in multicultural adolescents in Korea in order to present basic data for the development of health promotion programs for multicultural adolescents and the development of policies for multicultural youth in the future. The specific objectives of this study are as follows:

1) To investigate gender differences in the level of acculturative stress according to general characteristics in multicultural adolescents;
2) to examine the levels of parental support, teacher support, self-esteem, and acculturative stress in multicultural adolescents;
3) to identify factors affecting acculturative stress in multicultural adolescents by gender.

Methods

1. Study design

This study is a secondary analysis study using the data from the 2020 (Second-Year) Multicultural Adolescents Panel Study, and it is a descriptive survey research to identify factors affecting acculturation stress among multicultural adolescents.

2. Participants

This study was conducted with the data from the 2020 (Second-Year) Multicultural Adolescents Panel Study (MAPS) conducted by the National Youth Policy Institute. The data of the 2020 MAPS consists of the data of adolescents and the data of students' parents, and this study used only the data of adolescents. Based on the recent revision of the Ministry of Government Legislation [14] that legally defined youth as young people ages 9 to 24, this study used the data of multicultural adolescents who were fourth-grade students in elementary school as of 2019 as specified in the 2020 MAPS.

In this study, multicultural adolescents were defined as adolescents from multicultural families in which the country of origin of one or both of the parents is not Korea. This study used the data from the 2020 MAPS provided by the National Youth Policy Institute. In the 2020 MAPS, school samples were selected by the stratified random sampling method in the first stage, and the probability-proportional-to-size (PPS) sampling method was applied in the second stage. A total of 2,100 people participated in the sample survey of the 2020 MAPS. In this study, out of the 2,100 respondents, a total of 1,520 people was finally selected as the participants by excluding 580 people with missing data.

3. Measures

1) General characteristics

The general characteristics of the participants were examined using 9 questions on the following variables: mother's country of origin, the father's country of origin, regional scale, home economic conditions, academic achievement, discrimination experience, the mother's education level, the father's education level, and the number of close friends.

2) Acculturative stress

Acculturative stress was assessed using a modified version of the SAFE (Social, Attitudinal, Familial, and Environmental Acculturative Stress) scale developed by Hovey & King [15]. The modified version used in the 2020 MAPS was presented by Hong [17], and it was created by remodifying a modified version of the SAFE scale made by Noh [16]. This scale consists of 10 questions in the data from the First-Year MAPS, but it contains 9 questions in the data from the 2020 (Second-Year) MAPS because the following tenth item has been deleted: 'I will live better in Korean than in the countries where my parents were born.' Each item is rated on a 4-point Likert scale ranging from 1 point (= 'Not at all') to 4 points (= 'Very much'). Higher scores indicate higher levels of acculturative stress. Hovey & King [15], Noh

[16], and Hong [17] reported the value of Cronbach's α as .89, .76, and .85, respectively. The value of Cronbach's α was calculated as .88 in this study.

3) Parental support

Parental support was measured using a tool presented by the National Youth Policy Institute, and this instrument was a scale for parents' educational support and expectations developed by Kim [18]. This instrument consists of a total of 6 questions. Each item is assessed on a 4-point Likert scale ranging from 1 point (= 'Not at all') to 4 points (= 'Very much'). Higher scores indicate higher levels of parental support. The value of Cronbach's α was reported as .83 by Kim [18] , and it was calculated as .88 in this study.

4) Teacher support

Teacher support was measured using the tool presented by the National Youth Policy Institute. This scale contains 3 questions, and it was created by reducing, modifying and supplementing the perceived social support scale developed by Han [19]. The original version proposed by Han [19] consists of 8 questions. Each item is rated on a 5-point Likert scale ranging from 1 point (= 'Not at all') to 5 points (= 'Very much'), and higher scores indicate higher levels of teacher support. The value of Cronbach's α was reported as .83 by Han [19] , and it was calculated as .85 in this study.

5) Self-esteem

Self-esteem was assessed using a modified Korean version of the self-esteem scale developed by Rogenberg [20]. This modified version was presented and used by the Comprehensive Survey of Korean Youth [21]. This scale contains a total of 3 questions, and each item is rated on a 4-point Likert scale ranging from 1 point (= 'Not at all') and 4 points (= 'Very much'). Higher scores indicate higher levels of self-esteem. Regarding the reliability of the tool, the value of Cronbach's α was reported as .77 by Rogenberg [20], and it was calculated as .81 in this study.

6) Data collection

This study was conducted using the data from the 2020 (Second-Year) Multicultural Adolescents Panel Study (MAPS) presented on the website of the National Youth Policy Institute. The researcher submitted a permission request document regarding the data use, and directly downloaded and used the data sent via email by the National Youth Policy Institute. Regarding the data collection of the 2020 MAPS conducted by the National Youth Policy Institute, schools participating in the MAPS sent home letters and informed consent forms regarding survey participation to the families of the target students, and collected the informed consent forms. Then, the recruitment of households and panel formation were carried out, and a survey was conducted anonymously by a self-administered survey method.

7) Data analysis

In this study, the analysis of complex sample survey data was performed using SPSS/WIN 23.0. Gender differences in the level of acculturation stress in the participants were analyzed by calculating the mean, standard deviation, frequency, and percentage. The influence of each variable on acculturation stress by gender was analyzed using the mean and standard deviation. The 2020 (Second-Year) Multicultural Adolescents Panel Study (MAPS) presented on the website of the National Youth Policy Institute is a complex sample design analysis. In this study, the analysis of the survey data was performed by calculating and applying longitudinal weights. Multiple regression analysis was conducted to identify factors influencing acculturation stress in Korean multicultural adolescents by gender. The level of significance was set at $p < .05$.

8) Ethical considerations

The data used in this study received approval (202009-HR-고유-011) from the IRB of the National Youth Policy Institute, and this study was conducted after receiving an exemption determination from the IRB of Kwangju Women's University (1041465-202305-HR-002-12).

Results

1. The level of acculturation stress according to sociodemographic characteristics

The results of examining the level of acculturation stress according to sociodemographic characteristics are presented below (Table 1).

Regarding the mother's country of origin, 'Southeast Asia' accounted for the largest proportion among both males (51.5%, 396 persons) and females (53.2%, 395 persons). For males, the level of acculturative stress was highest when the mother's country of origin was 'Southeast Asia' (1.25 ± 0.02 points). For females, the level of acculturative stress was highest when the mother's country of origin was China (Korean-Chinese) (1.26 ± 0.05 points) for females. However, there was no statistically significant difference according to the mother's country of origin in both males and females ($p = .119$, $p = .865$). As for the

father's country of origin, 'Korea' took up the largest proportion among both males (93.7%, 736 persons) and females (92.4 %, 661 persons). For both males and females, the level of acculturative stress was highest when the father' country of origin was China (Han-Chinese). In this case, the mean score was 1.41 ± 0.25 points for males and 1.43 ± 0.19 points for females. However, there was no statistically significant difference in acculturative stress according to the father' country of origin in both males and females (p = .679, p = .664). In terms of regional scale, students living in 'small and medium cities' accounted for the largest proportion among both males (56.7%, 407 persons) and females (54.0%, 368 persons). The mean score for acculturative stress was highest in the group living in 'big cities' for both males and females. The level of acculturative stress in the group living in 'big cities' was 1.30 ± 0.03 points for males and 1.25 ± 0.03 points for females, and there was a statistically significant difference according to regional scale (p = .008, p < .001). With respect to home economic conditions, students with 'moderate' home economic conditions took up the largest proportion among both males (61.2%, 491 persons) and females (66.1%, 464 persons). For males, the group with 'poor' home economic conditions showed the highest level of acculturative stress (1.28 ± 0.03 points). For females, the group with 'moderate' home economic conditions showed the highest level of acculturative stress (1.23 ± 0.02 points). There was no statistically significant difference in acculturative stress according to home economic conditions. In terms of academic achievement, students who reported their academic achievement as 'medium' took up the largest proportion with 53.7% (419 persons) among males and 53.2% (386 persons) among females. For males, the group with 'low academic achievement' showed the highest level of acculturative stress (1.36 ± 0.06 points). For females, the group with 'medium academic achievement' showed the highest level of acculturative stress (1.24 ± 0.02 points). There was a statistically significant difference in acculturative stress according to academic achievement only in males (p = .003). As for discrimination experience, people without discrimination experience accounted for 97.5% (774 persons) among males and 98.7% (719 persons) among females. The level of acculturative stress was higher in the group with discrimination experience for both males and females. The mean scores for acculturative stress in the group with discrimination experience were 1.42 ± 0.11 points for males and 1.44 ± 0.11 points for females. but the difference was significant only in females (p = .037). Regarding the mother's education level, 'high school or below' accounted for 75.8% (591 persons) in males and 79.3% (577 persons) in females, so 'high school or below' took up the largest proportion in both males and females. When the mother's education level was 'high school or below,' the level of acculturative stress was highest, and the mean score was 1.25 ± 0.02 points for males and 1.22 ± 0.02 points for females. However, there was a significant difference according to the mother's education level only in male students (p < .001). With respect to the father's education level, 'high school or below' accounted for 73.6% (598 persons) among male students and 73.5% (545 persons) among female students, so 'high school or below' took up the largest proportion in both males and females. In the level of acculturative stress according to the father's education level, for both males and females, the level of acculturative stress was highest when the father's education level was 'high school or below.' In this case, the mean score was 1.24 ± 0.02 points for males and 1.23 ± 0.02 points for females. However, there was a significant difference according to the father's education level only in male students (p < .041). Lastly, regarding the number of close friends, the group with 5 or fewer (≤ 5) close friends accounted for the largest portion among both males (56.5%, 440 people) and females (66.2%, 481 people). For both male and female students, the level of acculturative stress was highest in the group with ≤ 5 close friends, and there was a significant difference in both groups. In the group with ≤ 5 close friends, the mean score of acculturative stress was 1.28 ± 0.02 points for males and 1.25 ± 0.02 points for females (p = .002, p < .001)(Table 1).

2. The levels of parental support, teacher support, self-esteem, and acculturative stress by gender

In this study, the mean score for parental support was 3.25 ± 0.02 points in male students and 3.27 ± 0.02 points in females, and there was no statistically significant difference between two groups. The mean score for teacher support was 3.68 ± 0.03 points in males and 3.80 ± 0.03 points in females, and there was a statistically significant difference between two groups. The mean score for self-esteem was 3.22 ± 0.02 points in males and 3.25 ± 0.02 points in females, and there was no statistically significant difference between two groups. The level of acculturative stress was 1.24 ± 0.01 points in males and 1.22 ± 0.01 points in females, and there was no statistically significant difference between two groups (Table 2).

3. Factors affecting acculturative stress in multicultural adolescents

In order to identify significant influencing factors for acculturation stress among the participants, multiple regression analysis was performed using independent variables, such as parental

Table 1. Acculturation Stress by Demographic Characteristics (*N*=1,520)

Variables	Categories	Male (n=791)			Female (n=729)		
		n (%)	M±SE	*p*	n (%)	M±SE	*p*
Mother's country of origin	Korea	13 (1.7)	1.24±0.05	.119	17 (2.5)	1.22±0.06	.865
	China (Han Chinese, other ethnic groups)	153 (21.0)	1.25±0.04		111 (20.7)	1.23±0.04	
	China (Korean-Chinese)	86 (8.5)	1.17±0.03		90 (8.7)	1.26±0.05	
	Southeast Asia	396 (51.5)	1.25±0.02		395 (53.2)	1.20±0.02	
	Japan	55 (4.3)	1.17±0.04		41 (4.5)	1.20±0.04	
	Others	88 (13.0)	1.22±0.03		75 (10.5)	1.24±0.05	
Father's country of origin	Korea	736 (93.7)	1.23±0.01	.679	661 (92.4)	1.21±0.01	.664
	China (Han Chinese, other ethnic groups)	5 (1.6)	1.41±0.25		7 (2.8)	1.43±0.19	
	China (Korean-Chinese)	25 (1.6)	1.25±0.05		20 (1.4)	1.23±0.07	
	Southeast Asia	23 (3.0)	1.19±0.04		39 (3.3)	1.23±0.05	
	Japan	2 (0.2)	1.14±0.12		2 (0.1)	1.36±0.15	
	Others	0 (0.0)	-		-	-	
Regional scale	Big cities	249 (29.4)	1.30±0.03	.008	226 (27.4)	1.25±0.03	<.001
	Small and Medium	407 (56.7)	1.22±0.02		368 (54.0)	1.23±0.02	
	Towns and Villages	135 (14.0)	1.17±0.03		135 (18.6)	1.12±0.02	
Home economic conditions	Poor	231 (28.5)	1.28±0.03	.082	209 (25.7)	1.21±0.02	.139
	Moderate	491 (61.2)	1.23±0.02		464 (66.1)	1.23±0.02	
	Wealthy	69 (10.3)	1.18±0.03		56 (8.2)	1.16±0.03	
Academic achievement	Low	75 (9.5)	1.36±0.06	.003	68 (8.6)	1.22±0.04	.078
	Medium	419 (53.7)	1.25±0.02		386 (53.2)	1.24±0.02	
	High	297 (36.8)	1.18±0.02		275 (38.1)	1.18±0.02	
Discrimination experience	Yes	17 (2.5)	1.42±0.11	.103	10 (1.3)	1.44±0.11	.037
	No	774 (97.5)	1.23±0.01		719 (98.7)	1.21±0.01	
Mother's education	≤ High school	591 (75.8)	1.25±0.02	<.001	577 (79.3)	1.22±0.02	.669
	University or college	190 (22.7)	1.20±0.03		142 (19.2)	1.19±0.03	
	Graduate school	10 (1.5)	1.08±0.02		10 (1.5)	1.22±0.08	
Father's education	≤ High school	598 (73.6)	1.24±0.02	.041	545 (73.5)	1.23±0.02	.496
	University or college	177 (24.5)	1.23±0.03		170 (24.4)	1.19±0.03	
	Graduate school	16 (1.9)	1.12±0.04		14 (2.1)	1.20±0.05	
Close friends (Num)	≤ 5	440 (56.5)	1.28±0.02	.002	481 (66.2)	1.25±0.02	<.001
	6-10	232 (29.3)	1.18±0.02		189 (26.6)	1.17±0.02	
	More than 11	119 (14.2)	1.18±0.03		59 (7.3)	1.11±0.02	

support, teacher support, and self-esteem, and the general characteristics that were found to be statistically significant variables. Among the general characteristics, regional size, academic achievement, the mother's education level, the father's education level, and the number of close friends (people) were entered into multiple regression analysis for male adolescents, while regional size, discrimination experience, and the number of close friends were entered for female adolescents.

As mentioned above, multiple regression analysis was conducted to identify influencing factors for acculturative stress. Tables 3 and 4 show the analysis results about factors influencing acculturative stress among the participants.

For male adolescents, residing in big cities in terms of regional scale (β=.18, p=.001, 95% CI, 0.06 to 0.22), high school or below in the mother's education level (β=.26, p<.001, 95% CI, 0.10 to 0.31), university or college in the mother's education level (β=.24, p<.001, 95% CI, 0.09 to 0.29), parental support (β=-.11, p=.016, 95% CI, -0.13 to -0.01), and teacher support (β=-.10, p=.033, 95% CI, -0.09 to -0.01) were found to have a significant effect on acculturation stress (Table 3).

Table 2. Parental Support, Teacher Support, Self-esteem, and Acculturation Stress by Gender

Variable	Male (n = 791)	Female (n = 729)	*p*
	M ± SD	M ± SD	
Parental support	3.25 ± 0.02	3.27 ± 0.02	.567
Teacher support	3.68 ± 0.03	3.80 ± 0.03	.008
Self-esteem	3.22 ± 0.02	3.25 ± 0.02	.429
Acculturation stress	1.24 ± 0.01	1.22 ± 0.01	.359

For female adolescents, residing in big cities in terms of regional scale (β = .22, *p* = .001, 95% CI, 0.07 to 0.23), residing in small or medium cities (β = .22, *p* < .001, 95% CI, 0.08 to 0.19), the presence of discrimination experience (β = .12, *p* < .001, 95% CI, 0.16 to 0.45), 5 or fewer close friends in the number of close friends (β = .21, *p* < .001, 95% CI, 0.07 to 0.20), 6~10 close friends (β = . 10, *p* = .027, 95% CI, 0.01 to 0.13), parental support (β = -.09, *p* = .020, 95% CI, -0.10 to -0.01), and self-esteem (β = -.09, *p* = .034, 95% CI, -0.10 to -0.01) were identified as influencing factors for acculturation stress (Table 4).

Table 3. (Male) Influencing Factors on Acculturation Stress

Variable	Category	B	β	95% CI	*p*
(Constant)		1.37	-	1.05~1.65	< .001
Regional scale	Big cities	0.14	.18	0.06~0.22	.001
	Small and Medium-sized	0.05	.08	-0.02~0.12	.146
	Towns and Villages	Ref			.
Academic achievement	Bad	0.09	.08	-0.02~0.20	.102
	Normal	0.02	.03	-0.03~0.08	.434
	Good	Ref			.
Mother's education	≤ High school	0.21	.26	0.10~0.31	< .001
	University or college	0.19	.24	0.09~0.29	< .001
	Graduate school	Ref			.
Father's education	≤ High school	0.07	.09	-0.04~0.19	.212
	University or college	0.10	.12	-0.02~0.21	.092
	Graduate school	Ref			.
Close friends (Num)	≤ 5	0.07	.10	-0.01~0.15	.064
	6-10	-0.01	-.01	-0.08~0.07	.841
	More than 11	Ref			.
Parental support		-0.07	-.11	-0.13~-0.01	.016
Teacher support		-0.05	-.10	-0.09~-0.01	.033
Self-esteem		-0.03	-.05	-0.09~0.03	.260

Table 4. (Female) Influencing Factors on Acculturation Stress

Variable	Category	B	β	95% CI	*p*
(Constant)		1.46	-	1.27~1.64	< .001
Regional scale	Big cities	0.15	.22	0.07~0.23	.001
	Small and Medium-sized	0.13	.22	0.08~0.19	< .001
	Towns and Villages	Ref			
Discrimination experience	Yes	0.31	.12	0.16~0.45	< .001
	No	Ref			
Close friends (Num)	≤ 5	0.14	.21	0.07~0.20	< .001
	6-10	0.07	.10	0.01~0.13	.027
	More than 11	Ref			
Parental support		-0.05	-.09	-0.10~-0.01	.020
Teacher support		-0.03	-.08	-0.07~0.01	.076
Self-esteem		-0.05	-.09	-0.10~-0.01	.034

Discussion

In adolescents, there may be gender differences in stress perceptions and the patterns of responses to perceived stress. This study attempted to explore factors affecting acculturative stress by gender in multicultural adolescents in order to identify the psychological and behavioral characteristics of multicultural adolescents and contribute to the development of differentiated intervention programs for acculturation stress.

As a result, for males, regional scale, the mother's education level, parental support, and teacher support were identified as factors affecting acculturative stress. For females, regional scale, discrimination experience, the number of close friends, parental support, and self-esteem were identified as influencing factors for acculturative stress.

The results of this study showed that acculturation stress was influenced by regional scale in both male and female multicultural adolescents. A prior study [22] also reported that the level of perception of negative emotions such as depression among multicultural adolescents was higher in the group residing in big cities and in female adolescents. These results seem to suggest that acculturation stress is influenced by various environmental factors related to regional size and gender differences in sociodemographic characteristics.

The above findings suggest that there is a need to analyze factors that may affect acculturation stress from a multidimensional perspective by taking into account the environments of various regional characteristics in the future.

In this study, another factor affecting acculturation stress in multicultural youth was the mother's education level, and it was a statistically significant variable only in male adolescents. According to Berry's model of acculturative stress [6], education level is closely related to problem analysis and problem solving when individuals are faced with a situation, and thus it can help individuals to achieve a higher level of adaptation in a stressful environment. In addition, a previous study [23] reported that the mother's education level was closely related to children's resilience and parenting behavior, and a higher education level of the mother was associated with warmer and receptive parenting attitudes toward children and greater resilience in children. These research results demonstrated that the mother's education level is an important factor influencing positive adaptation to stress as well as personality traits such as children's resilience. However, it is difficult to make a direct comparison of study findings because there are few prior studies showing that the education level of the mother who was a foreign national influences acculturation stress only in male multicultural adolescents. Thus, further research should be conducted to investigate various variables that may be associated with gender differences regarding acculturation stress in multicultural adolescents according to parents' education level.

In this study, discrimination experience was found to be a factor significantly affecting acculturation stress in female multicultural adolescents, and these results suggest that there is a need to explore methods for reducing acculturative stress caused by discrimination. In this regard, a previous study [7] found that negative situations caused by social withdrawal was closely related to acculturation stress. In particular, it was found that discrimination experience due to appearance or cultural alienation may lead to the experience of social withdrawal [7]. These research results suggest that female multicultural adolescents are more sensitive to such discrimination than males. In other words, the above findings indicate that the level of perceived discrimination according to gender may affect acculturation stress. Furthermore, factors affecting cultural adaptation stress depending on gender may include various factors related to temporal, environmental, and situational aspects. Thus, it is necessary to further investigate various factors that may influence acculturative stress more sensitively or more prominently in female multicultural adolescents, and such investigations are expected to contribute to the development of nursing interventions that can reduce various negative emotions such as depression, anxiety, and alienation.

Meanwhile, the number of close friends was found to be a factor affecting acculturation stress only in female multicultural adolescents. In a previous study [13], the path from peer relationships to depression was found to be stronger in female students than male students, and the path from peer relationships to suicidal thoughts was also stronger in female students, suggesting that peer relationships have a greater impact on overall negative emotions in female students. In agreement with these findings, the results of this study also indicated that female students may more sensitively exhibit the effect of the number of close friends on acculturative stress than male students, and that the number of close friends is also a factor affecting negative emotions such as acculturation stress in female students. In follow-up studies, it is necessary to identify various factors related to peer relationships that may affect acculturative stress by gender, and provide basic data for the development of peer promotion programs that can be utilized in school counseling centers and multicultural family support centers.

In this study, parental support was found to be a factor positively affecting acculturative stress in both male and female multicultural adolescents. A previous study [23] found that a higher

level of positive involvement and support of parents is associated with adolescents' more successful cultural integration and more resilient behavior in unfamiliar environments through pioneering and exploring new environments by using their parents as a safe coping resource in unfamiliar environments. Another prior study [24] also reported that regardless of gender, a higher level of parental support is more likely to influence positive emotions such as self-efficacy and happiness in adolescents. These findings are thought to suggest that supportive parental involvement is important in emotional regulation during adolescence. Taken together, the above research results showed that factors arising from the support system of the home environment of adolescents, such as parental support, are factors that have a significant impact on acculturative stress regardless of gender. In the future, these findings are expected to contribute to the development of a family counseling therapy program using parent participation as an intervention for multicultural adolescents who need the nursing interventions of community nurses.

A noteworthy finding of this study is that although teacher support was identified as a factor affecting acculturative stress, it had a significant effect on acculturative stress only in male multicultural adolescents. In this regard, Berry's model of acculturative stress emphasized the establishment of support system as an important strategy for adaptation to a stressful situation. This claim is supported by the findings of a previous study that a higher level of teacher support was associated with better adaptation to school life, coping more smoothly with discrimination or language conflicts, and a lower level of acculturative stress in multicultural adolescents [25]. In particular, another previous study reported that compared to non-multicultural adolescents, multicultural adolescents are more likely to have a psychologically and mentally vulnerable school life in childhood, and teachers' positive and supportive attitudes are likely to contribute to the positive psychological and mental development of multicultural youth [26]. Therefore, teacher support can be seen as an important factor affecting acculturative stress among multicultural adolescents. In particular, in a previous research on factors influencing happiness by gender among adolescents [24], teacher support was found to have a statistically significant effect on happiness in male students, but it did not have a statistically significant impact in female students, and the peer relationship was rather found to have a statistically significant effect on happiness in females. These results suggest that male students are more influenced by teacher support in terms of psychological aspects. However, another prior study [27] reported that a higher level of teacher support is more likely to lead to the reduction of psychological maladjustment in female students than male students, and female students showed a higher level of psychological well-being. In view of this disagreement in research results, there is a need to more carefully examine gender differences regarding factors that may affect acculturation stress.

Lastly, self-esteem was identified as a factor affecting cultural adaptation stress in multicultural adolescents, and it was found to have no significant effect in male multicultural adolescents. According to Berry's model of acculturative stress, among individual-level factors presented as the moderators of stress in the acculturation process, personality aspects such as self-efficacy and self-esteem are important factors in the acculturation process. In other words, a prior study argued that people with higher self-esteem are likely to be more active and confident about the future and express positive emotions, whereas lower self-esteem is linked to higher self-dissatisfaction and expression of more negative emotions toward others, so people with lower self-esteem are likely to have more difficulties in coping with crisis situations [28]. In this connection, a previous study reported that the level of self-esteem was higher in male multicultural adolescents than females, and a higher level of self-esteem was linked to the decreased impact of acculturation stress on the level of depression [22]. However, in this study, female adolescents showed a lower level of acculturative stress, and these results are presumed to show that female multicultural adolescents responded more sensitively to negative emotional states such as acculturation stress than males. In future studies, it is necessary to develop positive psychological coping mechanisms, such as self-esteem, conduct a multidimensional analysis of the patterns of responses to negative emotional reactions by gender, and explore the methods to utilize the research results in the development of emotion regulation strategies.

This study has the following limitations.

First, this study was conducted using data from the Second Multicultural Adolescents Panel Study conducted in 2020, so there are limitations in generalizing the results of this study to all the multicultural adolescents. In future research, it is necessary to derive and verify statistically significant results by including more regions in the research and acquiring the data of more samples.

Second, although various negative emotional factors such as depression and anxiety are thought to affect cultural adaptation stress, there were limitations in conducting a multidimensional analysis of variables by using the data of the Second (2020) Multicultural Adolescents Panel Study. In follow-up studies, it is necessary to explore factors affecting cultural adaptation stress by including more diverse variables in the analysis.

Third, this study is a secondary analysis study using data from the Multicultural Adolescents Panel Study, and there is a possibility that an imbalance in the frequency of data by category occurred in the data selection process. In order to overcome these limitations of panel data, it is necessary to perform a data sampling process for optimizing the data of minor categories in future studies.

Lastly, because acculturation stress may be influenced by various cultural, situational, and environmental factors, it is thought that quantitative research would have limitations in exploring the acculturation stress of multicultural adolescents. In future research, there is a need to conduct a more realistic and in-depth investigation through qualitative research. In addition, this study did not investigate the relationship between peer support and acculturation stress. In this regard, there are some disagreements in previous research findings regarding social support. In particular, a previous study reported that a higher level of perceived peer support among the subdomains of social support was associated with lower levels of depression and psychosis among adolescents [8]. However, another previous study found that family support had the greatest influence on adaptation to school life among multicultural adolescents [12]. Based on the research findings of a previous study [12] showing that more active support and intervention from superiors, such as parental support and teacher support, was more effective in preventing maladjustment among elementary school students than older adolescent groups, this study analyzed the effects of family support and teacher support on acculturation stress. However, some inconsistency in research findings suggests that there is a need to examine the impact of peer support on acculturation stress in multicultural adolescents. Despite the limitations of the present study, it is meaningful that this study conducted research on multicultural adolescents in relation to community nursing by using the latest data presented by the National Youth Policy Institute on December 30, 2022. The results of this study can be utilized as basic data for counseling for multicultural youth at school as well as the development of family therapy programs of community multicultural welfare centers. In addition, as the numbers of foreign workers and multicultural families have recently been increasing, the roles of community multicultural welfare centers are expected to be expanded further. Community nurses should play a central role in not only the physical health but also the mental health of children from multicultural families. In this connection, the results of this study will hopefully contribute to the improvement of national awareness regarding the health promotion of multicultural adolescents in terms of community nursing. Lastly, in Berry's model of acculturative stress [6], gender was mentioned as an important moderating factor prior to acculturation in the acculturation stress process, and it was claimed that women may be at greater risk for acculturative stress during the acculturation process than men. In particular, considering the finding that female adolescents more sensitively perceive stress than male adolescents in the process of acquiring various types of socialization and forming self-concept through school life, it is thought that there would be significant gender differences in the acculturative process occurring in stressful situations [11].

The significance of this study can be found in that this study explored gender differences in factors affecting acculturation stress, and showed that there is a need to consider and pay attention to gender differences when counseling for multicultural adolescents or the development of programs for them is carried out in the future.

Conclusions

This study examined independent variables such as parental support, teacher support, and self-esteem as well as sociodemographic characteristics to identify factors affecting acculturative stress in multicultural adolescents. In terms of sociodemographic characteristics, for male adolescents, regional size, academic achievement, the mother's education level, the father's education level, and the number of close friends were identified as statistically significant variables. For female adolescents, regional size, discrimination experience, and the number of close friends were statistically significant variables. With respect to factors influencing acculturative stress in multicultural adolescents, for male adolescents, they were found to be regional size, mother's education level, parental support, and teacher support. For female adolescents, regional size, discrimination experience, the number of close friends, parental support, and self-esteem were identified as influencing factors of acculturative stress.

Currently, the number of multicultural families has been continuously increasing in Korea. In this situation, the role of community nurses should not be limited to clinical therapeutic interventions, and community nurses are also required to play a central role in the health promotion of the multicultural youth in the community, their adjustment to school life, and counseling for them at school. Based on the results of this study, it is suggested that community nurses should take an interest in counseling, education, and family therapy for the multicultural youth going through adolescence when rapid physical and psychological growth and changes occur, and develop and apply various health

promotion programs tailored to multicultural adolescents. In particular, it is necessary to appropriately develop and apply customized education programs that reflect the characteristics and environment of multicultural adolescents, such as human respect programs for multicultural youth and social adaptation programs for them, in addition to the implementation of existing self-esteem promotion programs.

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Conflict of interest

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Authors' contributions

Han, Seungwoo contributed to conceptualization, data curation, formal analysis, funding acquisition, methodology, project administration, visualization, writing – original draft, review & editing, investigation, resources, software, supervision, and validation.

Data availability

Please contact the corresponding author for data availability.

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