Research Article

The Relationship between Mental Health and Smartphone Overdependence among Multicultural Adolescents and General Adolescents

Kyung-Shin Paek*

Department of Nursing, Semyung University, Jecheon-City, Chungbuk, 27136, Korea

Abstract

Purpose: Multicultural adolescents are increasing every year in Korea, and multicultural adolescents have many difficulties compared to general adolescents because their parents have different cultural backgrounds. In particular, adolescents are highly dependent on smartphones, which negatively affects their mental health. This study was to identify the correlation between stress awareness, depression experience, generalized anxiety disorder, and smartphone overdependence of multicultural adolescents and general adolescents.

Method: Data from the 16th online survey of youth health behavior (2020) was used to analyze 39,987 adolescents. The data were analyzed using complex sample analysis by using SPSS/Win 22.0

Results: There was no significant difference in stress awareness, depression, generalized anxiety disorder, and smartphone overdependence between multicultural and general adolescents.

Multicultural adolescents showed significantly higher control failure of smartphone overdependence.

The use time of smartphones on weekdays and weekends was significantly higher in multicultural youth. In both multicultural and general adolescents, smartphone overdependence was higher in the middle-level academic achievement and the higher the stress awareness and generalized anxiety disorder, the higher the possibility of smartphone overdependence. The smartphone overdependence of general youth was significantly related to gender, age, school level, residence type, and depression.

Conclusion: To prevent adolescents€™ overdependence on smartphones, it needs to differentiate approaches according to the characteristics of multicultural and general adolescents.

Keywords: Stress; Depression; Anxiety; Smartphone; Overdependence; Adolescents

Introduction

Smartphones have the advantage of being able to use necessary information conveniently without being restricted between time and time, but they also make side effects of overdependence on the smartphone due to addictive use. Smartphone overdependence means that smartphone use becomes the most important activity in everyday life (salience), and it is difficult to control the degree of smartphone use by oneself (self-control failure), conflict with people around it, physical discomfort, and difficulties in the home, school, and workplace life (serious results) [1].

Excessive use of smartphones causes mental and social health problems such as stress, depression, anxiety, attention deficit, hyperactivity, interpersonal relationship, communication, and maladjustment to school life as well as physical health problems such as eye fatigue, dry eye syndrome, and musculoskeletal pain [2].

According to the survey on the status of smartphone overdependence in 2019 [1], adolescents' smartphone overdependence increased by 30.2% (high-risk group 3.8%, potential risk group 26.4%) compared to the previous year, and it was the highest among all age groups, adolescents are vulnerable to smartphone overdependence.

On the other hand, the total number of students and the school-age population in Korea is decreasing, while the number of multicultural students has increased by more than 10,000 every

year for the past six years. Multicultural adolescents face many difficulties due to their different cultural backgrounds. It is difficult to form a bond due to difficulties in communicating with parents, and in schools, it is often difficult to form a smooth relationship with peers due to difficulties in language and school life adaptation. In addition, multicultural youth families are often lower in economic level than ordinary families, so parents often work double-income, so children tend to be neglected after school [3-5]. Therefore, multicultural adolescents are likely to be isolated from schools and families, which will spend a lot of time using smartphones, leading to smartphone overdependence [6].

Most of the studies on smartphone overdependence were conducted for general adolescents, and various variables such as stress [6], depression [2], impulsiveness, anxiety [7], interpersonal relationship, self-esteem [8], and school violence [9] are reported to be related to smartphone overdependence.

Unlike general adolescents, multicultural adolescents have high acculturation stress due to different cultural backgrounds of their parents [10], higher depression experience, and suicidal ideation rate than general adolescents [11, 12], and are reported to be excessively immersed in computer use such as internet games [13].

Therefore, the overdependence of the smartphones of multicultural youths is different from that of ordinary youths. However, there are not many studies comparing the differences between multicultural

and general adolescents in terms of smartphone overdependence [12].

The purpose of this study is to compare mental health such as stress recognition, depression, and generalized anxiety disorder, and smartphone overdependence of multicultural adolescents and general adolescents and to identify factors related to smartphone overdependence.

Research Methods

Subject of study

The data of the 16th online survey of health behavior of adolescents conducted by the Ministry of Education, the Ministry of Health and Welfare, and the Centers for Disease Control and Prevention in 2020 [14] were used for the first graders of middle school through the third graders of high school. The subjects were 39,987 students, 1,065 multicultural students who answered 'no' to the question of whether their father or mother were born in Korea and 38,922 ordinary students who answered that both their parents were born in Korea.

Research instruments

Among the data from the 16th Online Youth Health Behavior Survey, questions related to stress perception rate, depression experience rate, pan-anxiety disorder, and Internet addiction corresponding to the mental health area were used.

Stress awareness and depression experience were measured as a single question, stress awareness was measured as a 5-point scale, and depression experience was measured as presence or absence.

Generalized anxiety disorder is a total of seven items consisting of a four-point scale of 'not at all' (0) and 'almost every day'(3). The score range is 0 to 21 points, and according to the total score, 0-4 points are minimal, 5-9 points are mild, 10-14 points are moderate, and 15-21 points are classified as severe. The higher the score, the higher the anxiety. The items related to internet addiction were the average smartphone usage time during the week and weekend, and the smartphone overdependence scale for adolescents, which consisted of 10 items in the sub-areas such as regulation failure (3 items), salience (3 items), and problem result (4 items). The score range is 10 to 40 points, and it is classified into a potential risk group with a total score of 23 points - 30 points, and a high-risk group with 31 points or more. The higher the score, the more smartphone overdependence.

Data analysis

The 16th online survey on the health behavior of adolescents was conducted by the stratification step cluster extraction method, so this study used a complex sample analysis method considering stratification variable, cluster variable, and weight.

The data were analyzed by using SPSS/WIN 22.0 program and complex sample analyses were conducted to compare general characteristics, stress recognition, depression experience, generalized anxiety disorder, and smartphone overdependence of multicultural adolescents and general adolescents. To identify factors related to smartphone overdependence of multicultural adolescents and general adolescents, binomial logistic regression analysis was conducted by classifying normal use group and risk group (high-risk group and potential risk group).

Results

The subjects of this study were 1,065 multicultural adolescents (2.2%), and 38,922 general adolescents (97.8%). In the comparison of general characteristics between multicultural adolescents and general adolescents, there were significant difference in age (x^2=16.77, p<.001), grade (x^2=19.46, p<.001), academic achievement (x^2=29.90, p<.001), economic status (x^2=106.10 p<.001), and residential form (x^2=10.06, p<.001) (Table 1).

There was no significant difference in the stress awareness (p=.944), depression experience (p=.345), generalized anxiety disorder (p=.077), and overdependence on the smartphone (p=.349) between multicultural and general adolescents (Table 2). However, in the sub-area of smartphone overdependence, the multicultural youth showed significantly higher control failure than the general youth. (p=.05) Also, the time of using smartphones during the week (p<.001) and on weekends (p<.001) were significantly higher in multicultural adolescents than in general adolescents (Table 3).

There were significant differences in gender (p<.001) and academic achievement (p=.001, p=.007) in overdependence on smartphones according to the general characteristics of multicultural family students. There were significant differences in gender (p<.001), age (p=.004), academic achievement (p<.001), economic status (p<.001), and residence type(p=.001) for general family students (Table 4).

Significant variables related to smartphone overdependence of multicultural adolescents were academic performance (p=.045), stress awareness (p<.001), and anxiety disorder (p<.001). The smartphone overdependence was found to be higher in the case of middle-level academic achievement than in the case of high-level. Recognizing stress (p<.001), and the higher the anxiety disorder (p<.001), the higher the dependence on smartphones (Table 5).

The general family adolescents were significant variables related to smartphone overdependence such as gender (p<.001), age (p<.001), school level (p<.001), academic achievement (p<.001), residence type (p=.004), stress awareness (p<.001), depression experience (p=.001) and anxiety disorder. (p<.001) Smartphone overdependence was lower in males (p<.001), high school (p<.001), non-residential with parents (p<.001), it was found to be higher in the case of the medium, and low-level academic achievement than in the case of high-level. In the case of recognizing stress (p<.001), and experiencing depression (p=.001), and the higher the anxiety disorder (p<.001), the higher the smartphone overdependence (Table 5).

Discussion

In this study, there was no significant difference in stress awareness, depression experience, and generalized anxiety disorder between multicultural and general adolescents. This is similar to the results of the study compared to the mental health of multicultural families and Korean adolescents, which reported that there is no significant difference in stress awareness and depression [15]. However, multicultural adolescents face relatively more stress than general adolescents due to bullying

Table 1: General characteristics according to multi-cultural and general family in Korean adolescent (N=39,987).

Variables	Categories		Total (n=39,987)			Multi-cultural family (n=1,065)			General family (n=38,922)			X²	p
			n	B (%)	SE	n	B (%)	SE	n	B (%)	SE		
Gender	Male		19,247	48.3	1.2	497	46.1	2.0	18,750	48.3	1.2	1.554	.213
	Female		20,740	51.7	1.2	568	53.9	2.0	20,172	51.7	1.2		
Age* (years) mean=14.91 SE=.026	12		2,405	5.9	0.2	124	11.9	1.0	2,281	5.8	0.2	16.777	P<.001
	13		7,933	19.3	0.3	276	25.1	1.4	7,657	19.2	0.3		
	14		7,251	16.9	0.3	202	17.3	1.2	7,049	16.8	0.3		
	15		6,739	16.1	0.2	185	17.3	1.3	6,554	16.1	0.2		
	16		6,220	16.3	0.3	109	11.3	1.1	6,111	16.4	0.3		
	17		5,779	15.5	0.3	90	10.0	1.0	5,689	15.6	0.3		
	18		3,599	10.1	0.2	66	7.1	0.8	3,533	10.2	0.2		
Grade	Middle school	1st	8,211	20.3	0.3	350	32.4	1.6	7,861	20.0	0.4	19.461	P<.001
		2nd	7,427	17.3	0.3	214	17.2	1.1	7,213	17.3	0.3		
		3rd	6,880	15.8	0.3	189	17.2	1.3	6,691	15.7	0.3		
	High school	1st	6,221	16.2	0.3	128	13.3	1.2	6,093	16.3	0.3		
		2nd	5,949	15.7	0.3	94	9.9	1.0	5,855	15.8	0.3		
		3rd	5,299	14.8	0.3	90	10.0	1.0	5,209	14.9	0.3		
Academic performance	High		15,431	38.8	0.4	292	27.6	1.4	15,139	39.0	0.4	29.907	P<.001
	Medium		12,153	30.2	0.2	342	31.5	1.6	11,811	30.2	0.2		
	Low		12,403	31.0	0.3	431	40.9	1.6	11,972	30.7	0.3		
Economic status	High		16,198	41.5	0.4	239	22.6	1.4	15,959	42.0	0.4	106.109	P<.001
	Medium		19,173	47.4	0.4	572	53.4	1.6	18,601	47.2	0.4		
	Low		4,616	11.1	0.2	254	24.0	1.4	4,362	10.8	0.2		
Residence type	Living with family		38,433	97.0	0.2	1,011	95.1	0.7	37,422	97.0	0.2	10.069	P<.001
	Living with relatives		124	0.3	0.0	5	0.7	0.3	119	0.3	0.0		
	Boarding		116	0.3	0.0	4	0.6	0.3	112	0.3	0.0		
	Living in dormitory		1,279	2.4	0.2	36	2.6	0.4	1,243	2.4	0.2		
	Living in care facility		35	0.1	0.0	9	1.0	0.3	26	0.1	0.0		

Table 2: Comparison of mental health according to the multi-cultural and general family in Korean adolescent (N=39,987).

Variables	Categories	Total (n=39,987)			Multi-cultural adolescent (n=1,065)			General adolescent (n=38,922)			X²	p
		n	B (%)	SE	n	B (%)	SE	n	B (%)	SE		
Stress awareness	Feel extremely stressed	3,132	7.8	0.2	87	8.2	0.9	3,045	7.8	0.2	0.185	0.944
	Feel a lot of stress	10,193	25.7	0.3	265	25.2	1.5	9,928	25.7	0.3		
	Feel a little stress	17,898	44.8	0.3	479	45.1	1.6	17,419	44.8	0.3		
	Do not feel much stress	7,320	18.1	0.2	193	17.7	1.2	7,127	18.2	0.2		
	Do not feel stressed at all	1,444	3.5	0.1	41	3.8	0.6	1,403	3.5	0.1		
Depression experience	Yes	9,754	24.5	0.3	273	25.8	1.3	9,481	24.5	0.3	0.893	0.345
	No	30,233	75.5	0.3	792	74.2	1.3	29,441	75.5	0.3		
Classification of generalized anxiety disorder	Minimal	26,683	66.4	0.3	696	64.5	1.6	25,987	66.5	0.3	1.038	0.374
	Mild	8,856	22.3	0.2	237	23.1	1.3	8,619	22.3	0.2		
	Moderate	3,037	7.7	0.2	87	8	0.8	2,950	7.7	0.2		
	Severe	1,411	3.5	0.1	45	4.4	0.6	1,366	3.5	0.1		
		mean (SE)			mean (SE)			mean (SE)			CE(SE)	p
Generalized anxiety disorder		3.96(.033)			4.23(.150)			3.96(.034)			.270(.152)	0.077

* contrast estimate

Table 3: Comparison of the smartphone overdependence according to the multi-cultural and general family in Korean adolescent (N=39,987).

Variables	Categories		Total (n=39,987)			Multi-cultural adolescent (n=1,065)			General adolescent (n=38,922)			X²	p
			n	B (%)	SE	n	B (%)	SE	n	B (%)	SE		
Smartphone overdependence	Classification	Normal group	29,903	74.4	0.3	786	73.9	1.3	29,117	74.4	0.3	1.84	0.16
		Potential risk group	8,906	22.6	0.3	237	22.1	1.3	8,669	22.6	0.3		
		High-risk group	1,178	3	0.1	42	4	0.6	1,136	3	0.1		
			mean	SE		mean	SE		mean	SE		CE*(SE)	p
	Total		18.68	0.046		18.85	0.191		18.67	0.046		.182(.94)	0.349
	Sub-area	Regulation failure	6.53	0.02		6.69	0.083		6.52	0.02		.165(.084)	0.05
		Salience	5.63	0.015		5.59	0.067		5.63	0.015		-.034(.069)	0.625
		Problem result	6.51	0.014		6.56	0.073		6.51	0.014		.050(.076)	0.505
Smartphone usage time during the week (minutes)			282.84	1.815		333.9	7.339		277.27	1.886		56.624(7.345)	P<.001
Smartphone usage time during the weekend (minutes)			393.41	2.372		478.67	8.299		388.5	2.519		90.166(8.380)	P<.001

*CE: contrast estimate

Table 4: Smartphone overdependence of multi-cultural and general family adolescent according to general characteristics in Korea (N=39,987).

Variables	Categories	Multi-cultural family (n=1,065)		CE*(SE)	p	General family (n=38,922)		CE*(SE)	p
		mean	SE			mean	SE		
Gender	Mail	18.79	0.62	-1.540(.387)	P<.001	17.63	0.114	-1.801(.074)	P<.001
	Female	20.33	,577			19.43	0.115		
Age (years)	Under 15	19.52	0.729	-.076(.883)	0.932	18.32	0.127	-.416(.145)	0.004
	Over 16	19.6	0.707			18.74	0.133		
Grade	Middle school	19.82	0.653	.518(.783)	0.509	18.4	0.134	-.255(.152)	0.094
	High school	19.3	0.723			18.66	0.13		
Academic performance	High	18.98	.656)	-1.524(.469)	0.001	17.97	0.117	-1.352(.082)	P<.001
	Medium	19.2	0.636	-1.309(.482)	0.007	18.31	0.118	-1.013(.079)	P<.001
	Low	20.51	0.607			19.32	0.117		
Economic status	High	19.33	0.722	-.643(.601)	0.286	18.17	0.115	-.787(.105)	P<.001
	Medium	19.39	0.583	-.575(.491)	0.243	18.47	0.112	-.488(.103)	P<.001
	Low	19.97	0.626			19.32	0.117		
Residence type	Living with family	18.53	0.255	-2.061(1.111)	0.064	18.89	0.044	.711(.209)	0.001
	Do not living with family	20.59	1.093			18.18	0.208		

* contrast estimate

with peers, school maladjustment, and poor learning at school with their rapid physical and emotional changes in adolescence [16]. They have high depression and anxiety due to their parents' low socioeconomic level and poor learning due to differences in language and culture, and have many mental health problems [17]. It was reported that multicultural adolescents experienced more depression than general adolescents [11, 12].

In this study, there was no significant difference in smartphone overdependence between multicultural youth and general youth, but multicultural youth showed significantly higher control failure than general youth in the sub area of smartphone overdependence. Also, the time of using smartphones on weekdays and weekends was significantly higher for multicultural youths. This is in part consistent with the result of classifying

Table 5: Factors associated with smartphone overdependence of multi-cultural and general family in Korean adolescent (N=39,987).

Variable	Categories	Multi-cultural family (n=1,065)						General family (n=38,922)					
		B	SE	P	Exp(B)	95%CI**		B	SE	P	Exp(B)	95%CI**	
						Low	High					Low	High
Gender	Male	.054	.158	.733	1.056	.773	1.441	-.284	.028	P<.001	.032	.022	.046
Age		.089	.081	.272	1.093	.933	1.281	.113	.014	P<.001	1.119	1.090	1.149
Grade	High school	-.506	.272	.064	.603	.353	1.030	-.217	.052	P<.001	.805	.728	.891
Academic performance	Medium	.394	.196	.045	1.483	1.009	2.180	.409	.031	P<.001	1.506	1.418	1.599
	Low	.009	.221	.968	1.009	.653	1.559	.128	.030	P<.001	1.137	1.071	1.207
Economic status	Medium	-.108	.211	.610	.898	.593	1.359	.050	.038	.194	1.051	.975	1.134
	Low	-.003	.191	.986	.997	.685	1.451	.-.009	.026	.715	.991	.942	1.042
Residence type	Do not living with family	.053	.389	.892	1.054	.491	2.265	-.250	.086	.004	.779	.658	.923
Stress awareness	Yes	.876	.231	P<.001	2.402	1.525	3.783	.312	.034	P<.001	1.366	1.279	1.459
Depression experience	Yes	-.007	.187	.970	.993	.688	1.434	.096	.030	P=.001	1.101	1.038	1.167
GAD*		.103	.019	P<.001	1.109	1.069	1.150	.113	.003	P<.001	1.110	1.104	1.117

*GAD (Generalized Anxiety Disorder)
**CI (Confidence Interval)

the smartphone overdependence risk group based on the time of using the smartphone on weekdays and weekends in Chae Myung-ok's study [12], which shows that the overdependence rate of the smartphone on weekdays and weekends is 1.359 times higher than that of the general youth, respectively, and 1.297 times higher than that of the general youth. Multicultural adolescents have fewer peer friends than ordinary adolescents and poor emotional support relationships that share their concerns. Therefore, multicultural adolescents tend to spend more time using smartphones than ordinary adolescents [18]. The time of smartphone use is related to the overdependence of smartphones of adolescents [2], especially multicultural adolescents who have difficulty in controlling their use of smartphones are higher than ordinary adolescents, so education and support for the right use of smartphones are required.

In this study, academic achievement, stress awareness, and general anxiety disorder were found to be significant variables in both multicultural and general adolescents as factors related to smartphone overdependence. Adolescence is emotionally unstable due to rapid physical development and excessive social tasks. Adolescents experience stress and anxiety due to school life adaptation and academic achievement burden, and they can be over-dependent on smartphones because they use smartphones to avoid them [19]. It was reported consistently in previous studies that students who are addicted to smartphones have difficulty in achieving academic achievement [2, 21] and students who feel stressed [6, 20] and have high anxiety [21] are over-depended on smartphones.

Unlike multicultural adolescents in this study, factors related to the overdependence of smartphones in general adolescents were gender, age, school level, residence type, and depression experience. As a result of this study, female students were more likely to be over-depended on smartphones than male students. Previous studies [2, 22,23] consistently reported that female students are more likely to be addicted to smartphones than male students because they value interpersonal relations and communication, and often use messengers such as SNS. In addition, according to the smartphone over-dependence survey in 2019, both high-risk and potential risk groups showed that women (high risk 4.0%, potential risk 27.4%) were higher than men (high risk 3.7%, potential risk 25.5%), by school level, middle school students (4.6% at high risk and 30.1% at potential risk) were the highest. According to this study, adolescents' overdependence on smartphones has increased with age. It is contrary to the report that the age range of teenagers addicted to the Internet and smartphones is getting lower [24]. In this study, adolescents who experienced depression were found to be highly dependent on smartphones. Prior research also reported that if there is a high tendency of depression, there is a tendency to avoid difficulties in the real world and satisfy social needs in virtual space, which leads to excessive use of the Internet or smartphones [8, 25]. In this study, it was found that smartphone overdependence was low when they did not live with their parents. These results are believed to have been attributed to the dormitory residents account for a large portion of the subjects of this study, and the characteristics of the youth dormitory that keeps the discipline of common life and lives regularly. Therefore, unlike multicultural adolescents, the smartphone dependence of ordinary adolescents is related to gender, age, and school level, type of residence, and depression, which requires attention.

This study is a cross-sectional study that limits the identification of causal relationships between variables. In addition, multicultural adolescents were classified and analyzed based on the country in which their parents were born, so there is a limit to generalizing their findings.

Conclusion

It was intended to compare mental health and dependence on

smartphones among teenagers from multicultural families and ordinary families and to identify factors related to smartphone dependence. There was no significant difference in mental health such as stress awareness, depression experience, and generalized anxiety disorder between adolescents from multicultural families and general adolescents. There was no significant difference in smartphone overdependence between multicultural family adolescents and general adolescents, but multicultural adolescents showed significantly higher control failure, which is the sub-area of smartphone overdependence, than general adolescents. The use time of smartphones on weekdays and weekends was significantly higher in multicultural families than in general families. In both adolescents from multicultural families and adolescents from ordinary families, smartphone overdependence was higher in the middle-level academic achievement than in the higher-level, and the higher the stress awareness and generalized anxiety disorder, the higher the possibility of smartphone overdependence. Also, the smartphone overdependence of general youth was significantly related to gender, age, school level, residence type, and depression experience.

Therefore, Education and support for the right use of smartphones for multicultural youths are required so that they can control the degree of smartphone use themselves and to prevent adolescents' overdependence on smartphones, it needs to differentiate approaches according to the characteristics of multicultural families and general family adolescents.

References

1. Internet Addiction Prevention Center (2020) Results of 2019 smartphone overdependence survey. National Information Society Agency.

2. Kwon YS, Paek KS (2016) The influence of smartphone addiction on depression and communication competence among college students. Indian J Sci Technol 9:1-8.

3. Oh SY (2013) A study on the cause and preventive measures of smart-phone addiction in multi-cultural family: Analysis of in-depth interviews. PSJ 8: 149-80.

4. Park JS, Koh YJ, Han YS (2015) National or ethnic language fluency and the quality of relationship between parents and children in multicultural family in Korea. Korea Psychol J Culture Soc Issues 21: 649-69.

5. Jang YJ, Shin NM (2015) An ethnography study on the experiences and characteristics of peer relationships among multicultural adolescents. Multicul Educ Studies 8:57-76.

6. Lee RH (2018) Daily stress and smartphone overdependence among multicultural adolescents: Comparisons by gender and age. J Digital Converg 16: 561-9.

7. Lee JY, Kim JS (2020) A study on the factors affecting the over-dependence of adolescents smartphone-Focusing on moderating effect of gender. HSS21 11: 1171-84.

8. Shim HS, Chun JS (2018) Effects of smartphone addiction on internalizing and externalizing problem behaviors among adolescents: Focusing on mediating effects of self-esteem and interpersonal relations. J Youth Welfare 20:275-300.

9. Paek KS (2017) A convergence study the association between addictive smart phone use, dry eye syndrome, upper extremity pain and depression among college students. J Korea Converg Society 8: 61-9.

10. Oh SB (2005) A case study on the growing of Kosian children and its social environment. J Korean Educ 32: 61-83.

11. Yim SY, Park MH (2014) Behaviors and mental health of adolescents in multi-cultural families compared to general families. JKDAS 16:1641-51.

12. Chae MO (2018) Subjective health status, mental health and internet addiction tendency of adolescents in multi-cultural families compared to general families. J Digital Convergence 16: 383-93.

13. Lee SH, Lee SH (2013) Children's mental health in multicultural family and North Korean defectors in South Korea. J Korean Acad Child Adolesc Psychiatry 24(3): 124-31.

14. Ministry of Education, Ministry of Health and Welfare, Korea Centers for Disease Control and Prevention. (2020). The 16th Korea youth risk behavior web-based survey.

15. Kim JM, Kong BG, Kang JW, Moon JJ, Jeon DW, et al. (2015) Comparative study of adolescents' mental health between multicultural family and monocultural family in Korea. J Korean Acad Child Adolesc Psychiatry 26: 279-87.

16. Park GY, Che YR, Kim BR (2013) The analysis of risk factors influencing adolescent suicidal ideation in a multicultural family. KJOHSM 7: 155-65.

17. Yoo BN, Park KO, Chio JY (2010) Association between self-esteem and health behavior of the children with multi-cultural family background. JKSSCHE 11: 41-55.

18. Kim HJ, Park KT (2010) A study on the living conditions and characteristics of the welfare needs of the multi-cultural family youth: A comparative analysis with normal family youth. J Soc Sci 49: 93-128.

19. Jung IK, Kim JH (2017) Effects of academic stress and academic burnout on smartphone addiction in junior high school students. Korean Society Comm Living Sci 28: 289-300.

20. Kwon YS, Paek KS (2018) Relationship of sleep quality with smartphone addiction and stress among collegians. Indian J Public Health Res Dev 9: 707-13.

21. Hong FY, Chiu SI, Huang DH (2012) A model of the relationship between psychological characteristics, mobile phone addiction and use of mobile phones by Taiwanese university female students. Comput Human Behav 28: 2152-9.

22. Jeon HS, Jang SO (2014) A study on the influence of depression

The Relationship between Mental Health and Smartphone Overdependence among Multicultural Adolescents and General Adolescents

471

and stress on Smartphone addiction among university students: Focused on moderating effect of gender. Korean J Youth Studies 21: 103-29.

23. Hwang KH, Yoo YS, Cho OH (2012) Smartphone overuse and upper extremity pain, anxiety, depression and interpersonal relationships among college students. Jour of KoCon a 12: 365-75.

24. Medical World News (2019) The results of the 2019, Internet and smartphone usage habits diagnostic survey. Ministry Gender Equality Fam.

25. Lee ME, Kim SG, Park SH, Kim SH, Park J (2017) The effect of relationship with family, peers and teachers, depression, and anxiety on smartphone addiction in adolescents. JKAAP 21:81-87.

Address of Correspondence: Kyung -Shin Paek, Department of Nursing, Semyung University, Jecheon-City, Chungbuk, 27136, Korea, Tel: +821045861618; E-mail: kspaek@semyung.ac.kr