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The relationship between self-esteem and overall health behaviors in Korean adolescents

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ABSTRACT

It is known that self-esteem influences health behaviors, but the number of studies examining the association between self-esteem and overall health behaviors including physical, psychological, and social behaviors among Asian adolescents is limited. This cross-sectional study included middle school students ($n = 667$, 67.5% boys, 31.6% girls) in Bucheon, Korea. The participants completed self-report questionnaires on self-esteem (using Rosenberg's Self-Esteem Scale), and overall health behaviors. Results indicated that self-esteem was positively associated with satisfaction with school life and academic grades, and perceived health status. Suicidal ideation and satisfaction with peer relationships were significantly associated with self-esteem in multivariate regression analysis. These results should be considered in the establishment of health policies and the content of programs to improve adolescents' health outcomes.

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1. Introduction

Adolescence is an important developmental stage for physical development and formation and maturation of psychological characteristics, including self-identity and self-esteem, which may impact on adult life (Dishman et al., 2006; Kim, 2003). Self-esteem is likely to be associated with personal qualities and abilities, which are reflected in various aspects of life (e.g. achievement, success, and satisfaction) (Mann, Hosman, Schaalma, & de Vries, 2004). According to previous empirical researches, it has been established that self-esteem influences human health behaviors (Hoare & Cosgrove, 1998; Mohamadian & Arani, 2014; Park, Schepp, Jang, & Koo, 2006; Tomori & Rus-Makovec, 2000).

Furthermore, one study indicated that poor self-esteem played a critical role in the development of mental disorders and social problems such as depression, anorexia nervosa, bulimia, anxiety, and violence (Mann et al., 2004). During adolescence, unhealthy behaviors tend to result in negative health outcomes in numerous ways (Kim, 2001). In

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particular, the long-term consequences of such behaviors, such as teenage pregnancy, may have a critical impact on the adolescents' future. Therefore, adolescents' health behaviors potentially exert an impact on health behaviors affecting their entire lives, emphasizing the importance of the association between self-esteem and health behaviors.

Most previous studies in this area, the impact of self-esteem on health behaviors, involving adolescents have been restrictively conducted for self-esteem and addiction to the Internet or smart phones, obsession with physical appearance and body shape, pathological binge eating, obesity, or depression (Courtney, Gamboz, & Johnson, 2008; Hoare & Cosgrove, 1998; Hwang & Shin, 2000; Joo, 2007; Tomori & Rus-Makovec, 2000; Von Essen, Enskär, Kreuger, Larsson, & Sjöden, 2000). Even though these studies mentioned above pointed out the importance of self-esteem for adolescents' health outcomes in the specific areas, they could not provide enough information for adolescents' holistic healthy development. A Turkish study reported that self-esteem was associated with a variety of health risk issues among adolescents (Geçkil & Dündar, 2011). However, personal lifestyles, cultures, and unique traits of geographic populations should be considered together to produce the broad spectrum of health data including physical, psychological, and social aspects that are easily affected by factors such as ethnicity, nationality, and cultural background.

However, only few studies exist to deal with the relationship between self-esteem and overall health behaviors in Asian adolescents and they were predominantly confined to mental health (Kim, 2003). Therefore, we examined the association between self-esteem and overall health behaviors embracing physical, psychological, and social behaviors.

2. Methods

2.1. Participants

Participants were 692 middle school students (aged 13–15 years; 67.4% males, 31.8% female) from Bucheon, Korea. Data were collected by school nurses during class at three different types of middle schools (one all-boys middle school and two co-educational schools). Of the 692 students, we excluded 25 (6 who provided skewed responses by marking all items with “no response” or the same number on the scale, 13 who missed items in the Rosenberg's Self-Esteem Scale (RSES), and 6 who did not indicate whether they were male or female). The total number of final analysis was 667 (453 males and 214 females). This survey was conducted between 1 and 15 December 2014. This study was approved by the local Institutional Review Board.

2.2. Measures

All participants provided demographic information (age, gender, and household economic status), health behaviors, psychological variables, and social variables.

2.2.1. Physical health behaviors

2.2.1.1. Dietary habits. The following questions, which were major dietary issues in adolescents, were included to examine dietary habits: (1) How many days per week do you have breakfast? (2) How many days per week do you drink soda? (3) How many days

per week do you eat fast foods like pizza, hamburger, or fried chicken? (4) How many days per week do you have ramen (instant noodles)?

2.2.1.2. Physical activity. The following items were included to evaluate physical activity (PA): (1) How many times did you actively participate in the PA class during the past week? (2) On average, how much time did you spend sitting, watching TV, playing games, surfing the Internet, and using a smart phone each day during the past week? (3) On average, how much time did you spend sitting, watching TV, playing games, surfing the Internet, and using a smart phone each day during the last weekend?

2.2.1.3. Sleep habits. The following items were included to evaluate sleep habits: (1) On average, how many hours did you sleep per night last week? (2) Was this amount of sleep sufficient to alleviate your fatigue during the past week?

2.2.1.4. High-risk health behaviors. The following items were included to evaluate high-risk behaviors in adolescents (drinking, smoking, gambling, substance abuse, and sexual experience): (1) Have you ever consumed alcohol? (2) How often did you drink more than five glasses of alcohol during the past month? (3) Have you ever smoked a cigarette? (4) Have you ever gambled? (5) How often did you engage in gambling during the last year? (6) Have you ever tried to take illicit substances? (7) Have you ever experienced sex?

2.2.2. Psychological health behaviors

2.2.2.1. Self-esteem. Self-esteem was measured using the RSES, and evaluates self-esteem based on two-dimensional (positive or negative) evaluation of one's own value or worth. RSES has been mainly applied using comparison with means, not cut-off points based on previous studies (Bagley, Bolitho, & Bertrand, 1997; Byrne, 2000; Ethier et al., 2006; Hwang & Shin, 2000; Joo, 2007; Kim, 2009; Kristjánsson, Sigfúsdóttir, & Allegrante, 2010) since this scale was originally designed as the higher the score, the higher is the self-esteem (Suliman & Halabi, 2007). For this study, we used the Korean version of the RSES to assess self-esteem (Lim & Lee, 2007), as it has been used widely and is suitable for measuring adolescents' self-esteem. The scale consists of 10 items, with responses provided using a 4-point Likert Scale, in which 5 items are reversed and require score conversion. Each item is assigned a value between 0 and 3. Possible scores range from 0 to 30.

2.2.2.2. Perceived health. The following items were used to evaluate perceived health status: What do you think of your overall health status?

2.2.2.3. Depression and suicide. The following items were used to evaluate depression and suicide: (1) Have you experienced feelings of sadness or frustration to the extent that you could not do your job for more than two weeks during the past year? (2) Have you ever thought about suicide? (3) Have you ever attempted suicide?

2.2.3. Social health behaviors

The following items were included to evaluate relationships with parents and peers, school life, academic grades, and economic status: (1) Are you happy with your relationship with

your parents? (2) Are you happy with your peer relationships? (3) Are you happy with your school life? (4) What do you think about your academic grade level?

2.3. Statistical analysis

We analyzed mean differences in RSES scores according to health behaviors using student's *t* tests or one-way analysis of variance (ANOVA) with the Duncan's Multiple Range Test. Statistical significance was set at $p < .05$. Pearson's correlation coefficient was used to evaluate correlations between the items. For multivariate regression analyses, variables with statistical significance in simple correlation analysis were used. Multivariate regression was performed to determine that self-esteem contributed to health behaviors. SPSS version 18 (SPSS Inc., Chicago, IL, USA) was used for the statistical analyses.

3. Results

All results were classified into three broad categories as physical health behaviors, psychological health behaviors, and social health behaviors for the sake of convenience (Table 1).

Self-esteem scores did not differ significantly between males and females. First, with regard to dietary habits, PA, and sleep habits (Table 2), results indicated that students who actively participated in PA classes ($p = .009$), slept more ($p = .040$), and were satisfied with the duration of their sleep ($p = .000$) were more likely to have high self-esteem scores compared with other students. In terms of high-risk health behaviors (Table 3), results showed that students who had experienced sex during adolescence ($p = .005$) were more likely to have low self-esteem scores in the physical health behaviors part.

With respect to psychological health behaviors (Table 4), results showed that students who perceived their health status as good ($p = .000$) had higher self-esteem scores, and students who reported depression ($p = .000$), suicidal ideation ($p = .000$), and suicide attempts ($p = .000$) had lower self-esteem scores compared to other students.

Regarding social health behaviors, students who expressed satisfaction with their school lives ($p = .000$) and relationships with their parents ($p = .000$) and peers ($p = .000$); achieved high academic grades ($p = .000$); and reported high household economic status ($p = .000$) were more likely to have high self-esteem scores in comparison with others (Table 5).

Self-esteem scores were significantly associated with participation in PA classes; sleep duration; perceived health status, satisfaction with sleep duration, parent-child relationships, peer relationships, and school life; academic grades; and household economic status (Table 6). In contrast, self-esteem scores were negatively correlated with depression, suicidal ideation, and suicide attempts (Table 6). The most significant health behaviors

Table 1. Middle school students' characteristics.

Sex, <i>n</i> (%)	Boys 453 (67.4)	Girls 214 (31.8)	Total 667 (100.0)	<i>p</i> value
Height (cm) ^a	168.3 ± 0.07	159.8 ± 0.05	165.5 ± 0.08	<.0001
Weight (kg) ^a	58.1 ± 12.25	50.3 ± 8.66	55.9 ± 11.93	<.0001
Self-esteem score	19.79 ± 4.74	19.05 ± 4.65	19.55 ± 4.72	.056

Note: Values represent means ± standard deviations.

^aSelf-report data.

Table 2. Mean self-esteem scores according to dietary habits, physical activity, and sleep habits.

	<i>n</i> (%)	Self-esteem score mean (SD)	<i>p</i> value
Dietary habits			
Breakfast consumption frequency			
0–6 days per week	306 (46.6)	19.33 (4.57)	.158
7 days per week	350 (53.4)	19.85 (4.84)	
Soft-drink consumption frequency			
≥1 occasion per week	453 (68.9)	19.70 (4.68)	.511
None	204 (31.1)	19.44 (4.76)	
Fast-food consumption frequency			
≥1 occasion per week	478 (73.0)	19.68 (4.54)	.556
None	177 (27.0)	19.44 (5.09)	
Ramen consumption frequency			
≥1 occasion per week	484 (74.3)	19.58 (4.64)	.671
None	167 (25.7)	19.76 (4.91)	
Physical activity			
Participation in physical activity class during the preceding week			
None	131 (20.1)	18.71 (4.74)	.009
Once per week	100 (15.3)	19.36 (4.28)	
Twice per week	102 (15.6)	18.90 (4.13)	
≥3 times per week	319 (48.9)	20.16 (4.95)	
Use of electronic devices on weekdays ^a			
<2 hours per day	292 (44.2)	19.41 (5.00)	.423
≥2 hours per day	369 (55.8)	19.70 (4.51)	
Use of electronic devices on weekends ^a			
<2 hours per day	152 (23.0)	19.84 (4.81)	.698
2–4 hours per day	227 (34.3)	19.44 (4.71)	
≥5 hours per day	283 (42.7)	19.50 (4.70)	
Sleep habits			
Sleep duration			
<6 per day	40 (6.6)	18.75 (5.23)	.040
6–7 per day	248 (41.1)	19.01 (4.46)	
8–9 per day	279 (46.3)	19.98 (4.79)	
≥10 per day	36 (6.0)	20.58 (5.45)	
Satisfaction with sleep duration			
Very unsatisfied	57 (8.6)	19.14 (5.08)	<.0001
Unsatisfied	271 (40.9)	18.96 (4.48)	
Satisfied	269 (40.6)	19.65 (4.61)	
Very satisfied	65 (9.8)	21.97 (5.23)	

Notes: Student's *t* test was applied for two-item questions and ANOVA with Duncan's Multiple Range Test was applied for questions with three or more items. SD: standard deviation.

^aElectronic devices include TV, games, the Internet, smart phones, and similar devices.

were associated with self-esteem were perceived health status, satisfaction with peer relationships and school life, academic grades, and household economic status, which exerted a positive impact on self-esteem scores (Table 7), and depression, suicidal ideation, and sexual intercourse, which exerted a negative influence on self-esteem scores (Table 7).

4. Discussion

The study was conducted to examine the associations between self-esteem and overall health behaviors in Korean adolescents. The main results indicated that perceived health status, satisfaction with school life and peer relationships, academic grades, and household economic status were positively related to self-esteem. In contrast, depression, suicidal ideation, and sexual intercourse were negatively correlated with self-esteem. The results of previous studies examining self-esteem and perceived health status were similar to those observed in this study. One Norwegian study suggested that there was no direct

Table 3. Mean self-esteem scores according to high-risk health behaviors.

	<i>n</i> (%)	Self-esteem score mean (SD)	<i>p</i> value
Drinking and smoking habits			
Alcohol drinking experience			
≥1 occasion per month	221 (33.2)	19.25 (4.67)	.262
None	444 (66.8)	19.68 (4.74)	
Binge drinking			
≥1 occasion per month	18 (2.7)	20.89 (5.50)	.233
None	644 (97.3)	19.54 (4.70)	
Smoking experience			
Yes	66 (9.9)	19.85 (4.61)	.593
No	599 (90.1)	19.52 (4.74)	
Addiction			
Gambling experience			
Yes	82 (12.4)	19.04 (5.3)	.287
No	581 (87.6)	19.63 (4.64)	
Gambling abuse during the preceding year			
>1 occasion per month	53 (8.1)	19.30 (5.33)	.685
None	599 (91.9)	19.58 (4.66)	
Substance abuse			
>1 occasion	9 (1.4)	18.56 (6.60)	.524
None	653 (98.6)	19.57 (4.71)	
Sexual intercourse			
Yes	11 (1.6)	15.64 (3.36)	.005
No	656 (98.4)	19.62 (4.71)	

Notes: Student's *t* test was used for two-item questions. SD: standard deviation.

Table 4. Mean self-esteem scores according to psychological health behaviors.

	<i>n</i> (%)	Self-esteem score mean (SD)	<i>p</i> value
Perceived health status			
Bad	29 (4.4)	16.38 (5.52)	<.0001
Normal	162 (24.5)	17.62 (4.13)	
Good	469 (71.1)	20.42 (4.60)	
Depression			
Yes	86 (13.0)	16.64 (4.64)	<.0001
No	576 (87.0)	19.99 (4.64)	
Suicidal ideation			
Yes	104 (15.6)	16.70 (4.76)	<.0001
No	562 (84.4)	20.09 (4.52)	
Suicide attempt			
Yes	8 (1.2)	16.00 (5.43)	.031
No	658 (98.8)	19.61 (4.69)	

Notes: Student's *t* test was applied for two-item questions and ANOVA was applied for questions with three or more items. SD: standard deviation.

association between self-esteem and perceived health (Meland, Haugland, & Bredablik, 2007). However, the authors suggested a possible relationship, as adolescents who were dissatisfied with their bodies were more likely to perceive their health as fair or poor and exhibit depression, low self-esteem, and low social functioning relative to other adolescents. Another study argued that low self-esteem was negatively associated with very good/excellent health in Canadians (Shields & Shooshtari, 2001).

The results regarding adolescents' social health behaviors were consistent with those of existing studies examining self-esteem (Courtney et al., 2008; Jang & Shin, 2002; Tak & Lee, 2004). In particular, self-esteem was strongly associated with adolescents' satisfaction with school life and peer relationships, academic grades, and household economic status, as observed in a previous study (Kristjánsson et al., 2010).

Table 5. Mean self-esteem scores according to social health behaviors.

	<i>n</i> (%)	Self-esteem score mean (SD)	<i>p</i> value
Satisfaction with relationship with parents			
Very unsatisfied	8 (1.2)	16.75 (5.06)	<.0001
Unsatisfied	37 (5.6)	17.51 (5.55)	
Satisfied	203 (30.6)	17.89 (4.25)	
Very satisfied	415 (62.5)	20.65 (4.54)	
Satisfaction with peer relationships			
Very unsatisfied	10 (1.5)	18.70 (3.71)	<.0001
Unsatisfied	19 (2.9)	14.58 (4.11)	
Satisfied	226 (34.0)	17.73 (4.13)	
Very satisfied	410 (61.7)	20.82 (4.60)	
Satisfaction with school life			
Very unsatisfied	14 (2.1)	17.64 (6.13)	<.0001
Unsatisfied	47 (7.1)	15.57 (3.88)	
Satisfied	317 (47.6)	18.38 (4.26)	
Very satisfied	288 (43.2)	21.58 (4.38)	
Academic grades ^a			
Low (rank ≥75%)	58 (8.8)	17.10 (4.53)	<.0001
Middle low (rank 50–75%)	232 (35.2)	18.60 (4.31)	
Middle high (rank 25–50%)	246 (37.3)	19.96 (4.53)	
High (rank <25%)	124 (18.8)	21.76 (4.93)	
Household economic status ^a			
Low	12 (1.8)	18.50 (5.68)	<.0001
Middle low	174 (26.4)	17.99 (4.52)	
Middle high	338 (51.2)	19.76 (4.51)	
High	136 (20.6)	21.30 (4.78)	

Notes: ANOVA was used for questions. SD: standard deviation.

^aSelf-report data.

Table 6. Simple correlations between self-esteem scores and health behaviors.

	Coefficients
Participation in physical activity class	0.118**
Use of electronic devices on weekdays	0.031
Use of electronic devices on weekends	−0.024
Breakfast	0.055
Soft drinks	0.026
Fast food	0.023
Ramen	−0.017
Sleep duration	0.114**
Satisfaction with sleep duration	0.148***
Perceived health status	0.286***
Depression	−0.238***
Suicidal ideation	−0.260***
Suicide attempt	−0.083*
Satisfaction with relationship with parents	0.242***
Satisfaction with peer relationships	0.319***
Satisfaction with school life	0.377***
Academic grades	0.285***
Household economic status	0.236***
Drinking experience	−0.044
Binge drinking	0.046
Smoking experience	0.021
Gambling experience	−0.041
Gambling abuse	−0.016
Substance abuse	−0.025
Sexual intercourse	−0.108**

Note: Pearson's correlation coefficient was used.

* $p < .05$, ** $p < .01$, *** $p < .001$.

Table 7. Influence of self-esteem scores on health behaviors in multiple regression analysis.

	<i>B</i>	β^a	<i>t</i>	<i>p</i> value
Participation in physical activity class	0.116	0.029	0.790	.430
Sleep duration	0.396	0.058	1.574	.116
Satisfaction with sleep duration	0.036	0.006	0.154	.877
Perceived health status	1.207	0.142	3.709	<.0001
Satisfaction of relationship with parents	0.263	0.037	0.905	.366
Satisfaction with peer relationships	0.792	0.100	2.311	.021
Satisfaction with school life	1.429	0.204	4.618	<.0001
Academic grades	1.215	0.227	6.353	<.0001
Household economic status	0.516	0.080	2.115	.035
Depression	-1.207	-0.082	-2.207	.028
Suicidal ideation	-1.459	-0.112	-2.927	.004
Suicide attempt	-0.486	-0.010	-0.289	.773
Sexual intercourse	-3.077	-0.081	-2.286	.023

Note: The values in bold are significant at $p < .05$.

^aStandardized beta.

The development of positive self-esteem during childhood and adolescence depends on various factors. Attachment, unconditional parental support, and feeling safe and stable are critical to the development of self-esteem during adolescence. Students with a high level of self-esteem have been reported to exhibit high levels of adjustment to personal challenges and school life. These students also showed high levels of personal health and stress management (Mann et al., 2004).

Depression, suicidal ideation, and sexual intercourse were negatively associated with self-esteem in Korean adolescents, which were consistent with the results of previous researches (Kim, 2003; Mann et al., 2004; Moksnes, Eilertsen, & Lazarewicz, 2016; Overholser, Adams, & Lehnert, 1994).

According to a study conducted by Kim (2003), adolescents' mental health problems were correlated with psychological variables such as self-esteem and self-efficacy. One Netherland study involving adolescents reported that low self-esteem was closely related to depression, hopelessness, and suicidal tendencies (Mann et al., 2004). Another study conducted in New Zealand indicated that levels of global self-esteem significantly predicted problem eating habits, suicidal ideation, and multiple health-compromising behaviors in adolescents (Mcgee & Williams, 2000).

As for the substance abuse, results showed that self-esteem was not associated with substance; the reasons for this could have been that the extent of substance abuse in Korean adolescents tends to be relatively low compared to that of those in Western countries and the adolescents' traits of a restricted geographic area might be evaluated in our findings. Another Korean study involving male high school students failed to observe an association between self-esteem and substance abuse, as the number of subjects who used substances was too low for assessment (Kim, Kong, & Kim, 2000). However, in Western studies, adolescents with a positive self-concept were less likely to use alcohol or drugs, while those with low self-esteem were at high risk of drug and alcohol abuse and tobacco use (Mann et al., 2004). Furthermore, according to Hwang (2007), while American adolescents tended to abuse hallucinogenic drugs, such as cocaine and marijuana, more frequently in comparison with Korean adolescents, the latter were more likely to misuse inhalants including glue, butane gas, sedatives, and stimulants. Therefore, future prospective studies are required to confirm the relationship between self-esteem and substance abuse in Korean adolescents.

Sexual intercourse was negatively associated with self-esteem, and students of both sexes who had experienced sexual intercourse were more likely to have lower self-esteem scores. One existing study revealed that adolescents with lower self-esteem at baseline reported initiating sex earlier, indicating that self-esteem influenced subsequent unprotected sex (Ethier et al., 2006). An American study also emphasized that low self-esteem and poor parental relationship were associated with earlier sexual debut, which was similar to this study (Price & Hyde, 2009).

Other high-risk behaviors, such as drinking, smoking, and gambling, were not significantly associated with self-esteem. In contrast, previous studies have observed such associations (Kari, Annamari, Terhi, Mauri, & Jouko, 2001; Scheier, Botvin, Griffin, & Diaz, 2000). For instance, smoking and episodic drinking were inversely correlated with self-esteem in Turkish adolescents according to Geçkil and Dündar (2011). Scheier et al. (2000) posited that self-esteem is part of a dynamic set of etiological forces that instigate early-stage alcohol use (Scheier et al., 2000). Furthermore, Glendinning and Inglis (1999) concluded that it is possible to elaborate on the relationship between self-esteem and cigarette smoking in adolescents (Glendinning & Inglis, 1999); in addition, approximately 10% of the students in the study had experienced gambling or gambling abuse. Another Korean study involving high school students reported a significant difference in self-esteem scores between groups of non-gambling and risk-gambling students (Park & Jung, 2011).

Negative self-esteem can be a causal factor for depression, anxiety, eating disorders, delinquency, school dropout, high-risk behaviors, and social functioning, as shown in this and previous studies (Byrne, 2000; Mann et al., 2004). Interventions and health promotion programs should be implemented to improve self-esteem in Korean adolescents.

The study has several limitations. First, as the current study was cross-sectional, well-designed longitudinal studies are required to determine causal relationships between the variables. Second, the findings could have been limited by the small sample size. Therefore, future studies with larger samples are required to obtain clearer results with stronger statistical power. Third, there could have been geographic limitations, and the results are representative of Bucheon's middle school students rather than the entire Korean adolescent population. Bucheon is a small city in Gyeonggi province, and the results could differ from those that would have been observed in Seoul, which is the largest metropolitan city in Korea. In addition, distinctive characteristics of Bucheon city, which is known to have a high-density population of middle or low economic status, could have affected the results.

Despite these limitations, we evaluated associations between self-esteem and various health behaviors based on different aspects in Korean adolescents. Findings regarding Korean adolescents' self-esteem and overall health behaviors could be valuable in terms of emphasizing the stringent necessity for enhancement of adolescents' self-esteem. Furthermore, these results allowed us to communicate the need for systematic health strategies for adolescents' future well-being. Thus, practical health policies and programs reflecting these results should be established in order to develop positive self-esteem which is ultimately associated with adolescents' future health.

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