The Effects of Daily Stress on Health Behavior of Adolescents - The Mediating Effects of Resilience

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Abstract

This is a descriptive correlation analysis to verify the mediating effects of resilience on the effects of daily stress on health behavior of adolescents. In the results of examining correlations between observed variables, health behavior had significantly positive correlations with resilience (r=.42, p<.001) while having significantly negative correlations with daily stress (r=-.41, p<.001). Resilience had negative correlations with daily stress (r=-.32, p<.001). The explanatory power of daily stress on health behavior with resilience as a mediating variable was 78.4%. Therefore, in the aspect of explaining the effects of adolescents' daily stress on health behavior with the mediation of resilience, the results of this study were significant for the composition of educational program and student counseling.

Keywords: Adolescent, Daily Stress, Health Behavior, Resilience

1. Introduction

As the adolescence is accompanied by maturement and physically/mentally/socially important changes, with the habituation of many behaviors related to health, it is essential to establish the correct health behavior. However, adolescents experience diverse daily stresses by complex factors like school life, family environment, and peer relationship [1]. Especially, Korean adolescents get academic stress because of high pressure related to entrance examinations since they are young, and they experience diverse stresses socio-psychologically in the developmental changes, peer relationship, and family relationship [2][3]. These stress factors could have effects on health behavior such as their mental health, eating habit, smoking & drinking, and computer use [4][5]. As health behavior of the adolescence is led to the adulthood, causes diseases1, and has a bad influence on health, there should be an intervention to decrease the health risk behavior.As a dynamic process of overcoming and positively adjusting even after going through significantly unfortunate events andhardships, resilience is a proper concept to understand the growth process of adolescents facing many difficulties [6].Preceding researches have reported that resilience has effects on the academic stress, internet addiction, mental health, body image, and life satisfaction of adolescents[7][8].This study aims to examine the mediating effects of resilience on the effects

of daily stress on health behavior of adolescents, and also to provide basic data to establish the nursing intervention to enhance adolescents' health behavior.

2. Research methods

2.1. Research design

This is a descriptive correlation analysis to verify the mediating effects of resilience on the effects of daily stress on health behavior of adolescents.

2.2 Research subjects & data collection method

Regarding the minimum sample size necessary to perform the structural equation model, in case of maximum likelihood, around 200 people are suggested to be acceptable[9]. Therefore, this study distributed questionnaires to 280 people, and then total 267 questionnaires were used for analysis after excluding 13 questionnaires with insufficient responses.

2.3 Research tool

2.3.1 Daily stress: Daily stress was measured by using the scale developed by Bae & Kim[[10]. When it was developed, the Cronbach's **α** value of this tool was .93 while it was .95 in this study.

2.3.2 Health behavior: Health behavior was measured by using the scale developed by Shin [11]. When it was developed, the Cronbach's **α** value of this tool was .85 while it was .78 in this study.

2.3.3 Resilience: Resilience was measured by using the scale developed by Ju& Lee [12]. When it was developed, theCronbach's **α** value of this tool was .87 while it was .95 in this study.

3. Research results

3.1 Descriptive statistics of daily stress, health behavior, and resilience

Daily stress of the subjects was average 1.61 point out of 3point scale, and health behavior was 2.87 point out of 4point scale while resilience was 3.53 point out of 5point scale. In the results of analyzing the absolute values of kurtosis and skewness of all the observed variables to see their normality, the kurtosis value was -.28~2.42, which was within ±7. The skewness value was -1.02~.99, which was within ±3, so that the normality was supposed. In the results of analyzing the tolerance and VIF(variation inflation factor) to evaluate the multicollinearity between observed variables used for the structural equation model before the verification of hypotheses, all the tolerance values were 0.1 or higher, and all the VIF values were 10 or lower, so that there would be no problem of the multicollinearity[Table. 1].

3.2 Correlations of daily stress, health behavior, and resilience

In the results of examining correlations between observed variables, health behavior had significantly positive correlations with resilience(r=.42, $p<$.001) while having significantly negative correlations with daily stress(r=-.41, $p<$.001). Resilience had negative correlations with daily stress(r=-.32, $p<$.001).

Table 1. Descriptive statistics of the observed variables (N=267)

Variables	M±SD	Skewness	Kurtosis	Tolerance	VIF
Daily Stress (1-3)	1.61±.44	.77	.06		
physical	1.51±.47	.99	.43	.54	1.86
emotional	1.62±.56	.74	-.28	.39	2.57
behavioral	1.82±.50	.39	-.21	.45	2.20
Health Behavior (1-4)	2.87±.23	-.19	.22		
stress and mental health	2.90±.45	.02	-.19		
sleep habits	2.91±.44	.16	-.04		
dietary habits	2.68±.42	.05	.71		
weight control	2.26±.43	.16	2.02		
physical activity	2.37±.59	.21	.39		
hygiene habits	3.26±.54	-1.02	2.42		
safety	2.82±.92	.09	-.33		
computer use	3.45±.62	-.94	.39		
health screening	2.34±.66	.08	.07		
Resilience (1-5)	3.53±.65	-.18	1.40		
trust in yourself and others	3.66±.71	-.29	.84	.27	3.74
problem-solving ability	3.57±.72	-.16	.67	.24	4.16
patience of negative feeling	3.48±.73	-.05	1.01	.30	3.31
academic competence	3.41±.72	-.18	.49	.31	3.24

3.3 Verification of goodness of fit on model

The research model with the mediating effects of daily stress on health behavior was analyzed through the structural equation model. The structural equation model was analyzed by applying the maximum likelihood estimate. In the results of verifying the goodness of fit on the research model to analyze the direct effects of daily stress on health behavior and its indirect effects with resilience as a mediating variable, the rate of x^2 value and degree of freedom was 3.08 that was bigger than 3 while also showing GFI .86, AGFI .81, NFI .80, TLI .83, CFI .86, RMSEA .09, SRMR .09. As all the standards of goodness of fit did not meet the recommended level, the model was modified[Fig. 1]. Regarding the goodness of fit on the modified model, the rate of x^2 value and degree of freedom was 3.12 that was greater than 3 while showing GFI .90, AGFI .85, NFI .89, TLI .90, CFI .92, SRMR .07, RMSEA .09, so that the standards of goodness of fit mostly met the recommended level[Table. 2].

Table 2. Goodness of fit on modified model

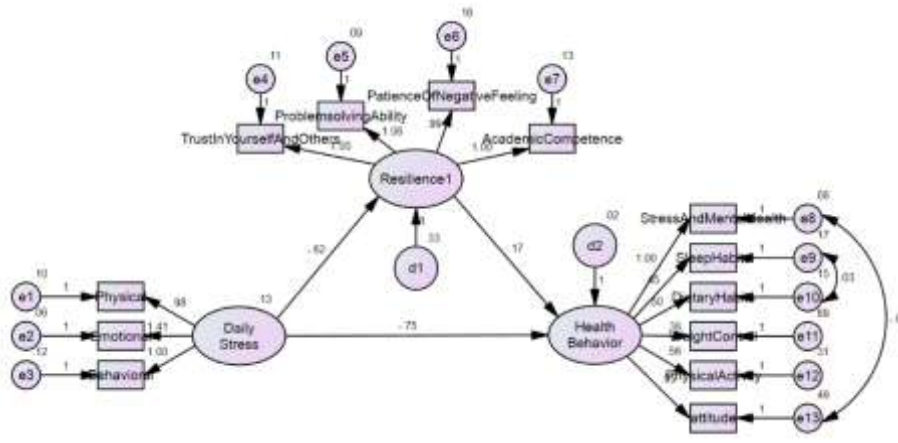| Model	$x^2(p)$	df	x^2/df	GFI	AGFI	NFI	TLI	CFI	SRMR	RMSEA(90% CI)
Research Modified Model	187.07(<.001)	60	3.12	.90	.85	.89	.90	.92	.07	.09(.08-.10)

Figure 1. Path diagram for the research modified model

3.4 Relations of daily stress, health behavior, and resilience

Through the analysis on the structural equation model, the relations of main latent variables were examined[Table. 3]. Resilience showed statistically significant direct effects(β=-.17, p<.001) and total effects(β=-.17, p<.001) on health behavior without indirect effects, and the explanatory power was 12.9%. Daily stress showed statistically significant direct effects(β=-.74, p<.001), in direct effects(β=-.10, p=.08), and total effects(β=-.86, p=.010) on health behavior. With resilience as a mediating variable, daily stress had statistically significant direct effects(β=-.62, p<.001) and total effects(β=-.62, p<.001) on health behavior with no indirect effects. The explanatory power of daily stress on health behavior with resilience as a mediating variable was 78.4%.

Table 3. Path coefficient and direct, indirect effect of modification model (N=267)

Dependent	Independent	Direct effects (Standardized estimates)	Indirect effects (Standardized estimates)	Total effects (Standardized estimates)	SMC
Resilience	Health Behavior	.17(.29)***		.17(.29)***	.129
Daily Stress	Health Behavior	-.74(-.75)***	-.10(-.10)**	-.86(-.86)*	.784
	Resilience	-.62(-.36)***		-.62(-.36)*	

*p < .05, **p < .01, ***p < .001 SMC=squared multiple correlations.

3.5 Mediating effects of resilience on health behavior

The estimate of direct effects was -.74(Standardized estimates=-.75), which was statistically significant. The estimate of indirect effects was -.10(Standardized estimates=-.10), which was statistically significant. Thus, the complete mediating effects of resilience on the relation between two variables were verified.

4. Discussions

This study analyzed the effects of daily stress on health behavior with the mediation of resilience targeting adolescents, and it aims to discuss based on the research results.

In the results of examining correlations between observed variables, daily stress showed negative correlations with health behavior. In other words, when daily stress increases, health behavior gets lower. The research result that the effects of daily stress on mental health could be relatively more relieved when the level of neighboring social capital is increased [13] and the result of this study showing lots of chatting with friends to relieve stress show the great importance of support and relationship with peer group, family, and school teachers. Thus, it would be necessary to get encouragement and support from support groups, so that adolescents could relieve daily stress and also fully perform health behavior. Also, daily stress showed negative correlations with resilience. In other words, when resilience is high, they get stressed less and they could control it better, which accorded with the result of a study by Kim, Shin & Moon [14]. Therefore, the mental health program for lowering adolescents' daily stress and enhancing their resilience should be operated as a regular program instead of one-shot education. It would be also necessary to put efforts to establish intervention measures based on interest in the role/importance of resilience.

In this study, resilience had direct effects on health behavior while daily stress also had direct/indirect effects on health behavior. Also, daily stress completely mediated health behavior with the mediation of resilience, and the explanatory power was 78.4%. Even though the effects of resilience on health behavior could not be directly compared, the mediating effects of self-resilience on the relations between daily stress, internalized problem behavior, and externalized problem behavior [15] support the results of this study. Based on the research result showing the effects of self-esteem on health behavior [16], the education that increases self-esteem and strengthens resilience could be actively helpful to adolescents' positive behavioral change by working as a protection factor of problem behavior, so that there should be multilateral efforts at school and home. Therefore, in the aspect of explaining the effects of adolescents' daily stress on health behavior with the mediation of resilience, the results of this study were significant for the composition of educational program and student counseling.

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