

The Mediating Effects of Hope between Attitude toward School Physical Education, Academic Stress, Ego-Resilience, and Psychological Wellbeing of High School Students

Kyung Wha Back*

Department of Security and Secretarial Service, Hanseo University, Korea; Khpaek@hanseo.ac.kr

Abstract

This study was to investigate the mediating effects of hope in the relationship between attitude toward school physical education, academic stress, ego-resilience, and psychological wellbeing of high school students. First, the attitude toward school physical education showed a positive correlation with ego-resilience and psychological wellbeing but negative correlation with academic stress. Second, youth participation in school physical education was higher than the median, and academic stress was a little lower than the median of 3. The ego-resilience and psychological wellbeing were more than average median values. Third, a partial mediating effect was shown in the relationships between the youth attitude toward school physical education and academic stress, ego-resilience, and psychological wellbeing.

Keywords: Academic Stress, Ego-Resilience, High School Student, Physical Education, Psychological Wellbeing

1. Introduction

Physical education develops physical strength as well as exercise performance through a variety of physical activities, and it helps to understand oneself and the world, nurtures desirable personality and social nature, provides energy to refresh a balance of mind and body, gives students basic athletic ability, and cultivates sociability^{1,2}. Besides, physical education is one of the favorite subjects of students, since it allows them to engage in physical activity in a casual atmosphere³. It also plays an important role in developing basic physical strength, nurturing sociability, and gaining psychological stability in students, by releasing emotional problems and creating a balance between mind and body⁴.

Positive attitude should be formed in the students toward physical education during the school days, since there is a significant relationship between the perception

and the attitude formed in youth and their lifestyles^{5,6}. The quality of physical education impacts on the students' attitude toward the physical education⁷, and it plays an important role in regularly exercising habits and participation in sports activities when they grow up⁸. According to Park and Kim⁹, attitude of students are generally significant in forming the affective variables related to learning in classes, such as interest, satisfaction, pleasure, and etc. Lee¹⁰ also asserted that it is important for student to make continuous efforts, with which they can gain a positive attitude toward sports and exercise through participation in the physical education. Students can increase their participation in physical activities by understanding the value of physical education¹¹. Physical education may facilitate physical and mental development, as well as changing human behavior in a more desirable way¹²; it is a valuable tool for students in accepting a social norm and role¹³.

*Author for correspondence

Particularly, physical education positively affects students in learning attitude and class satisfaction, as well¹⁴. Learning attitude is a personal response set to a class, including individual interest, confidence, and their concentration level¹⁵. According to Lee¹⁰, learning attitude of students toward classes can be changed positively through a participation in physical education. The positive attitude of students toward learning may reduce the academic stress of students, which are caused by excessive competition in entrance examinations and parents' over-emphasis on the education of their children. According to National Statistical Office¹⁶ for the past several years, the highest stress factor of youth is the academic stress, which appeared to be closely associated with aggression of students¹⁷ that can subsequently be leading to school violence¹⁸. In various studies related to academic stress, sports activity of students may reduce the stress¹⁹, and it is strongly associated with the satisfaction level of students in physical education²⁰. Jeong²¹ also demonstrated that the participation in sports activity positively affects the academic stress of students.

Besides the academic stress, students face a variety of environmental stresses, which could be overcome by improved individual abilities²²; one of the psychological factors related is ego resiliency. Ego resiliency is the controlling ability by either strengthening or weakening the tolerance to pressure and impulse control depending on the environment²³ and it has been reported to be closely related to mental health²⁴. In addition, ego resiliency provides positive effects to the satisfaction at school²⁵, and it rises with physical activity^{4,26}. The sports activities at school can also increase the ego resiliency of students²⁷.

It has been reported that the students with high ego resiliency maintain smooth relationship with other people, which appeared to be related with their wellbeing in all areas²⁸. Psychological wellbeing is the concept of a happy and satisfactory life coupled with self-realization and interpersonal relations; it is a factor determining whether a person gets along well as an individual or a member of society. The person with high psychological wellbeing can show a good relationship with other people and a high self-controlling ability²⁹. Sports activity enhances the psychological wellbeing³⁰, and the participation level of physical activity also plays an important role in psychological wellbeing³¹. Especially, Kim³² showed that ego resiliency can positively influence the psychological wellbeing; and Wang³³ also demonstrated that the high level of participation in physical activity increases ego resiliency,

which results in increased psychological wellbeing. It has been reported that a participant who recognizes one's ego resiliency has a warm, satisfactory, and trustful relationship with others, is open to novel experiences while growing up, and clearly recognizes the purpose and the direction of one's life. It has been shown in their research results^{34,35} that continuous exercise improves ego resiliency and psychological wellbeing, and that ego resiliency is an antecedent variable and an important factor for psychological wellbeing.

Recently, many researchers have paid attention to hope, which is a positive psychological factor. Hope is conceptualized as "cognitive construct which reflects people's motivation and capacity to strive toward personally-relevant goals"³⁶, which increases positive emotions and wellbeing³⁷. The components of hope are as follows: 1) goals, approaching life in a goal-oriented way; 2) pathways, finding workable routes to reach the goal; 3) agency, believing to initiate and sustain movement along pathways toward desired goals³⁸.

Hopeful thinking improves students' ability to find a variety of ways of reaching the desirable academic goals and to focus on achieving their goals by using it³⁶. An athletic under stress with high hope performs better than one with less hope³⁸. In addition, it was reported that hope controls psychological distress caused by stress at a low level and alleviates physical symptoms due to one's own stress³⁹. According to Kim⁴⁰, hope has a positive relationship with psychological wellbeing in high school and undergraduate students. The research results also demonstrated that students with high level of hope accept well their private experiences and more social support perception, and select an active way of coping rather than an avoiding way.

As mentioned above, it is considered that hope improves the academic stress by playing a mediating role for ego resiliency as well as psychological wellbeing.

2. Method of Study

2.1 Survey Subjects and Data Collection Methods

Survey region C was selected considering the convenience of the study, and three schools in C city were selected with kendo as their physical education. A total of 780 students were randomly sampled and used for the final analysis,

including “370” from S, “296” from Y1, and “114” from Y2 high school.

As for general characteristics of the subjects, females prevailed as 60.1% compared to males as 39.9%; ages ranged from 14 to 18 years, with the average of 16.23 years. Second graders accounted for 75.2%, with the remaining 24.4% of first graders. Students who responded that their academic marks are average were most common with 60.0%, followed by 23.7% of lower marks, and 16.3% of better marks.

2.2 Research Tools

2.2.1 Attitude toward School Physical Education

The attitude toward school physical education was measured for the reputation of the school physical education, by using the Likert 5-point scale from 1 point indicating “strongly disagree” to 5 points indicating “strongly agree”. The higher the scores indicated higher attitude.

2.2.2 Academic Stress

The questionnaire on academic stress was developed by Oh⁴¹, and it was revised and complemented to measure the academic stress. A total of 31 subscale questions on academic stress consisted of 7 questions on academic performance, 7 questions on future career, 7 questions

on teacher relationship, and 10 questions on friendship. The 5-point Likert scale was used that is composed from 1 point indicating ‘not at all’ to 5 points indicating ‘very much so’; and the higher scores indicated that the ego-resilience is higher. The reliability Cronbach’s α of the academic stress was “0.901”.

2.2.3 Ego-Resilience

Ego-Resilience Scale (ERS) developed by Kremen⁴² was used, which was adapted by Park⁴³ and reorganized by Kim⁴⁴. A total of 15 questions on ego-resilience consisted of 3 questions on interpersonal relationships, 5 questions on vitality, 3 questions on curiosity, and 4 questions on optimism. Likert scale was composed from 1 point indicating ‘not at all’ to 5 points indicating ‘very much so’; and higher scores indicated that the ego-resilience is higher. The reliability Cronbach’s α of the ego-resilience was “0.872”.

2.2.4 Psychological Wellbeing

The Psychological Wellbeing Scale (PWBS) of Ryff⁴⁵ was adapted by Kim et al.⁴⁶, was translated into Korean, and was revised and complemented by Kim⁴⁷ to be used in this study. A total of 28 questions were used in this study as follows: 6 questions on self-demand, 5 questions on positive interpersonal relationships, 4 questions on the

Table 1. Correlation analysis and descriptive statistics of main variables

	1	2	3	4
1. Attitude toward school physical education	1			
2. Academic stress	-0.171**	1		
3. Ego-resilience	0.289**	-0.346**	1	
4. Psychological wellbeing	0.213**	-0.450**	0.620**	1
M	3.55	2.426	3.483	3.236
SD	0.969	0.506	0.526	0.432

* $p < 0.05$, ** $p < 0.01$

control of environment, 4 questions on autonomy, 5 questions on the purpose of life, and 4 questions on personal growth. The 5-point Likert scale was composed from 1 point indicating 'not at all' to 5 points indicating 'very much so'. The reliability Cronbach's α of the psychological well-being was "0.863".

2.2.5 Hope

To measure the hope among rural elementary school students, the dispositional hope scale was used; this was invented by Snyder³⁶ and was adapted by Choi⁴⁸ and others into a form called the K-DHS, which is more useful for this research in Korea. The K-DHS is a 12-item Likert-type scale consisting as follows: four items assessing agency thinking, four items assessing pathways thinking, and four distracters. It is a 4-point Likert scale with the following as the range of measure: 1 = definitely false to 4 = definitely true. A higher score of the scale indicates the higher level of hope.

2.3 Data Analysis

Data analysis was performed by using SPSS PC + Win. 21.0 program. The descriptive statistics and correlation analysis were utilized for basic analysis; hierarchical regression analysis was carried out in accordance with the mediating effect verification procedures of Baron and Kenny; and Sobel's Test was used for the significance level verification of the indirect effects of independent variables on the dependent variables by the mediating variables.

3. Findings

Pearson correlation analysis was performed to identify the correlation between attitude toward school physical education, academic stress, ego-resilience, and psychological well-being of the youths. Table 1 shows the following results; the attitude toward school physical education showed a positive correlation with ego-resilience and psychological well-being, but negative correlation with academic stress.

According to the descriptive statistics analysis, youth attitude towards school physical education was 3.55 points, which is higher than the median; and academic stress was 2.426 points, which is a little lower than the median of 3. The ego-resilience and psychological well-

being were 3.483 points and 3.236 points, respectively, which were more than average median values.

Hierarchical regression analysis and Sobel's Test were carried out to investigate the mediating effects of hope between the attitude toward school physical education and academic stress of the youth. The attitude was significantly predictive of hope ($F = 27.009$, $p < 0.001$) in step 1, and the attitude significantly predicted academic stress ($F = 23.055$, $p < 0.001$) in the second step. In step 3, when attitude and hope were input at the same time, these two variables were significantly predictive of the academic stress ($F = 52.631$, $p < 0.001$), and the standardized coefficient (β) value of the participation in step 3 was reduced from "-0.171" to "-0.112". Therefore, the partial mediating effect of hope was found in the relation between the youth attitude toward school physical education and academic stress; and the indirect effects of independent variable on the dependent variable through mediating variable was also found to be significant according to the significance level verification (Sobel's Test: $Z = -4.609$, $p < 0.001$), which is verifying the mediating effect.

Hierarchical regression analysis and Sobel's Test were carried out to investigate the mediating effects of hope between the attitude toward school physical education and ego-resilience of the youth. The attitude was significantly predictive of hope ($F = 27.009$, $p < 0.001$) in step 1, and the attitude significantly predicted ego-resilience ($F = 69.368$, $p < 0.001$) in the second step. In step 3, when attitude and hope were input at the same time, these two variables were significantly predictive of the ego-resilience ($F = 212.627$, $p < 0.001$); and the standardized coefficient (β) value of the participation was reduced from .289 in step 2 to .188 in step 3. Therefore, the partial mediating effect of hope was found in the relation between the youth attitude toward school physical education and ego-resilience; and the indirect effects of independent variable on the dependent variable through mediating variable was also found to be significant according to the significance level verification (Sobel's Test: $Z = 5.093$, $p < 0.001$), which is verifying the mediating effect.

Hierarchical regression analysis and Sobel's Test were carried out to investigate the mediating effects of hope between the attitude toward school physical education and psychological well-being of the youth. The attitude was significantly predictive of hope ($F = 27.009$, $p < 0.001$) in step 1, and the attitude significantly predicted psychological wellbeing ($F = 36.287$, $p < 0.001$) in the second step. In step 3, when attitude and hope were input at the same

time, these two variables were significantly predictive of the psychological wellbeing ($F = 254.751, p < 0.001$); and the standardized coefficient (β) value of the participation was reduced from 0.213 in step 2 to 0.100 in step 3. Therefore, the partial mediating effect of hope was found in the relation between the youth attitude toward school physical education and psychological well-being; and the indirect effects of independent variable on the dependent variable through mediating variable was also found to be significant according to the significance level verification (Sobel's Test: $Z = 5.097, p < 0.001$), which is verifying the mediating effect.

4. Discussions and Conclusion

Based on the above results, the following will be addressed.

First, according to the correlation analysis between youth attitude toward school physical education, academic stress, ego-resilience, and psychological well-being, the attitude toward school physical education showed a positive correlation with ego-resilience and psychological well-being, but negative correlation with academic stress.

Second, youth participation in school physical education was higher than the median, and academic stress was a little lower than the median of 3. The ego-resilience

Table 2. Analysis for the mediating effects of hope

IV	DV	B	SE	β	R ²	F	Sobel's test
Attitude	Hope	0.110	0.021	0.185***	0.034	27.009***	-4.609***
Attitude	Stress	-0.089	0.019	-0.171***	0.029	23.055***	
Attitude Hope	Stress	-0.059 -0.270	0.018 0.030	-0.112** -0.310***	.121 .121	52.631*** 52.631***	
Attitude	Hope	0.110	0.021	0.185***	0.034	27.009***	5.053***
Attitude	Resilience	0.156	0.019	0.289***	0.083	69.368***	
Attitude Hope	Resilience	0.102 0.485	0.016 0.027	0.188*** 0.534***	0.358 .358	212.627*** 212.627***	
Attitude	Hope	0.110	0.021	0.185***	0.034	27.009***	5.097***
Attitude	Wellbeing	0.094	0.016	0.213***	0.045	36.287***	
Attitude Hope	Wellbeing	0.044 0.449	0.013 0.021	0.100*** 0.607***	0.401 .401	254.751*** 254.751***	

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

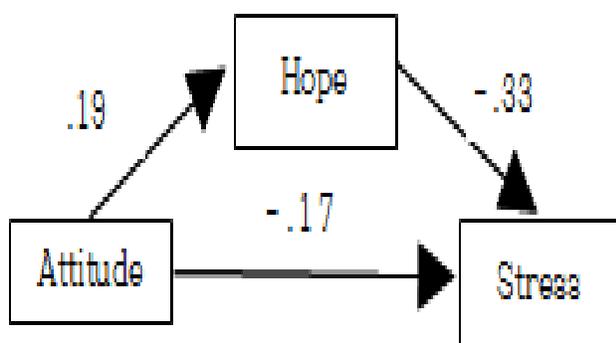


Figure 1. The relationship among academic stress, hope, and attitude toward school physical education.

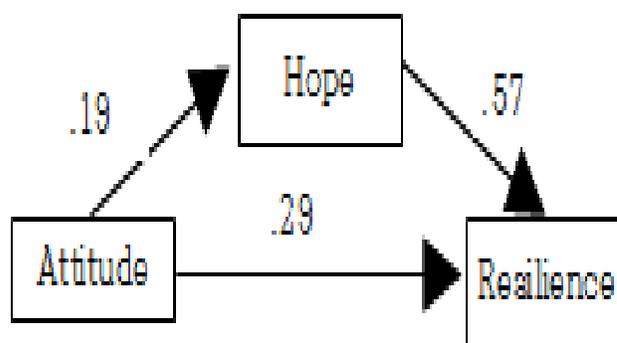


Figure 2. The relationship among attitude toward school physical education, hope, and ego-resilience.

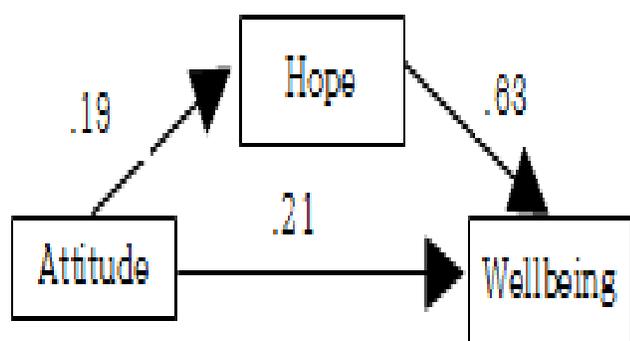


Figure 3. The relationship among attitude toward school physical education, hope, and psychological wellbeing.

and psychological well-being were higher than average median values.

Third, a partial mediating effect was shown in the relationships between the youth attitude toward school physical education and academic stress, ego-resilience, and psychological well-being.

In conclusion, hope improves the academic stress, ego resiliency, and psychological well-being by playing a mediating role.

5. References

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