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The Level of Participation and Attitude of School Physical Education and the Relationship with Academic Stress, Ego-resilience and Psychological Wellbeing of High School Students

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Abstract

This study was carried out to investigate the level of the participation in and the attitude towards school physical education, and the relationship with the academic stress, ego-resilience and psychological wellbeing of high school students. First, the participation in and attitude toward school physical education of youth showed a positive correlation with ego-resilience and psychological wellbeing, but a negative correlation with academic stress. Second, high academic stress was observed in the cluster with low participation and a negative attitude, and in the cluster with medium participation and a neutral attitude toward school physical education. Third, ego-resilience demonstrated the highest levels in the cluster with high participation and a positive attitude. Finally, the highest psychological wellbeing was found among those with high participation and a positive attitude.

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

1. Introduction

Physical education is a curriculum that emphasizes the harmonious development of mind and body through physical activities, and has the advantage of cultivating the basic physical strength and sociality of students. The physical education curriculum handbook[1] also indicates that the purpose of physical education at school is to establish human character by internalizing values through a comprehensive experience of physical activities[2]. However, as the opportunity for students to participate in physical activity and consequent reduction in health has emerged as a serious social problem with the development of modern society, school physical education has been recognized as an effective educational activity to address this issue[3]. Lim[4] reported that physical education could lead to changes in the preferred human behavior through mental and physical development, and it was also recognized to be the desired action for accommodating social norms and roles[5].

In particular, participation in physical education at school was reported to have a positive effect on learning attitude, including the interest, confidence and concentration felt by students as response tendencies[6], while also influencing satisfaction with lessons[7] and positively changing students' attitudes toward learning[8]. Thus, such positive attitudes towards learning will be able to solve the problem of academic stress caused by overheated competition for admissions and excessive parental emphasis on education.

The Bureau of Statistics[9] reported studying as the biggest stressor of youth in recent years. This academic stress is known to have a close relation with student aggression [10], leading to school violence[11]. According to studies on student stress, participation in sports activities helps to relieve stress [12], which is closely related to the satisfaction with physical education classes[13]. Participation in sports activities also has a positive effect on the academic stress of students[14].

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In addition to academic stress, students face a wide range of environmental issues which require improvement of personal capabilities to be overcome[15]. One of the psychological factors associated with this ability is ego-resilience. Ego-resilience refers to the control ability to strengthen or weaken the tension endurance level and impulse control in accordance with environmental requirements[16], which is closely related to mental health[17]. Ego-resilience was shown to have positive effects on school euphoria[2]. Lee and Ahn [8] and Choi and Lee[18] reported that participation in physical activity increased ego-resilience, while ego-resilience was also reported to be increased by participation in school sports club activities[19,20].

In addition, it was found that students with high ego-resilience showed high relevance in all areas of wellbeing by smoothly maintaining interpersonal relationships[21]. Psychological wellbeing includes the concept of having a current happy and content life, as well as the meaning of self-fulfillment and interpersonal relationships and is a measurement of the functionality on a personal or community level[22]. People with high psychological wellbeing were reported to have positive interpersonal relationships and excellent power of self-regulation and control[23]. Kim and Cha[24] also wrote that sports activities increased psychological wellbeing, while Kim[25] indicated that the degree of participation in physical activity played an important role in psychological wellbeing. In particular, Kim[26] reported ego-resilience to have a positive impact on psychological wellbeing, while Wang[27] reported that participation in physical activity caused increase of ego-resilience, thus improving psychological wellbeing.

It was reported that participants with high levels of perceived ego-resilience had warm, pleasing and trusting relationships with others, with clear goals and a high sense of direction in life for new experiences in the process of growth and development. Ego-resilience was also indicated to be an important positive factor, as well as an antecedent of, psychological wellbeing, as can be seen in studies which reported the improvement of both ego-resilience and psychological well-being by continuous movement[28,29].

Previous studies related to psychological wellbeing, however, were mostly related to school sports clubs or general physical activities. Studies associated with physical education, as a regular school curriculum, are still lacking.

The purpose of this study was to investigate the level of participation in and the attitude towards school physical education, and the relationships with academic stress, ego-resilience and psychological wellbeing of high school students. To this aim, two research questions were examined: 1) what are the correlations between participation in and attitude toward school physical education and academic stress, ego-resilience and psychological wellbeing? 2) What are the relationships between participation in and attitude toward school physical education and academic stress, ego-resilience and psychological wellbeing?

2. Method of study

2.1 Survey Subjects and Data Collection Methods

Survey region C was selected for convenience of the study, and three schools in C city which include kendo in their physical education program were selected. 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.

Regarding the general characteristics of the subjects, females prevailed at 60.1%, with 39.9% males. The ages of participants ranged from "14" to "18," with an average of 16.23 years. Second graders (Western grade 11) accounted for 75.2%, with the remaining 24.4% made up of first graders (Western grade 10). Students most commonly responded that their academic marks were average (60.0%), followed by lower marks (23.7%) and better marks (16.3%).

2.2 Research Tools

2.2.1 Participation in and Attitude Toward School Physical Education

The degree of participation in school physical education was measured on a 5-point Likert scale, from 1 point "very passive" to 5 points "very active". The attitude toward school physical education was measured regarding the reputation of the school's physical education through employment of questions on a 5-point Likert scale, from 1 point "strongly disagree" to 5 points "strongly agree".

2.2.2 Academic Stress

The academic stress scale developed by Oh[30] was revised and complemented for measurement of academic stress. A total of 31 questions on academic stress were included, which consisted of subscales with 7 questions on academic

performance, 7 on future career, 7 on teacher relationship, and 10 on friendship. Questions were rated on a 5-point Likert scae, in which students expressed their agreement from 1 point 'not at all' to 5 points 'very much so'. Higher scores indicated higher academic stress. The reliability of academic stress was measured through Cronbach's α, which was "0.901."

2.2.3 *Ego-resilience*

The Ego-Resilience Scale (ERS) that was developed by Kremen[31], adapted by Park[15] and then reorganized by Kim[32] was employed herein. A total of 15 questions on ego-resilience were used, which consisted of 3 questions on interpersonal relationships, 5 on vitality, 3 on curiosity and 4 on optimism. Students expressed agreement on a 5-point Likert scale from 1 point 'not at all' to 5 points 'very much so'. Higher scores indicated higher ego-resilience. The Cronbach's α of "0.872" was obtained for ego-resilience.

2.2.4 *Psychological Wellbeing*

The Psychological Well-Being Scale (PWBS) of Ryff[22], which was adopted by Kim et al.[33] into the Korean language and further revised and complemented by Kim[34], was employed herein. There were a total of 28 questions, including 6 questions on self-demand, 5 on positive interpersonal relationships, 4 on control of the environment, 4 on autonomy, 5 on the purpose of life and 4 on personal growth. Students expressed agreement on a 5-point Likert scale from 1 point 'not at all' to 5 points 'very much so'. The Cronbach's α of psychological wellbeing was "0.863."

2.3 Data Analysis

Data analysis was performed using the SPSS PC + Win. 21.0 programs. Descriptive statistics and correlation analysis were utilized for basic analysis, and hierarchical cluster analysis was employed for the group classification focused on youth participation in and attitude toward school physical education. Further, the difference analysis between academic stress, ego-resilience and psychological wellbeing according to participation and attitude clustering was performed by multivariate analysis of variance, with the Dunnet ad hoc test.

2.4 Cluster Analysis

In order to perform cluster analysis in accordance with participation in and attitude toward school physical education, hierarchical cluster analysis was performed according to the level of participation and attitude variables by specifying three clusters for calculation. The hierarchical cluster analysis employed was sequential in the form of a Dendrogram. Ward's method was used for clustering, which calculates the distance between clusters by weighting the distance between cluster centers.

According to the results of cluster analysis, the low participation and negative attitude cluster accounted for 166 students (21.3%), the medium participation and neutral attitude cluster accounted for 286 students (36.7%), and the high participation and positive attitude cluster included 315 students (40.4%).

ANOVA results showed significant differences depending on the clusters in school physical education participation ($F = 1.49.373$, $p < 0.001$) and attitude ($F = 398.986$, $p < 0.001$).

3. Fittings

Pearson correlation analysis was performed to investigate the correlations between participation in and attitude toward school physical education and the academic stress, ego-resilience and psychological wellbeing of youth. As shown in Table 2, the participation in school physical education showed a positive correlation with attitude,

Table 1. Cluster analysis of participation in and attitude toward school physical education (n=780)

	Participation	Attitude
Cluster 1: Low participation and negative attitude		
N	166	166
Mean	1.85	2.73
SD	0.638	0.948
Cluster 2: Medium participation and neutral attitude		
N	286	286
Mean	3.33	3.13
SD	0.527	0.648
Cluster3: High participation and positive attitude		
N	315	315
Mean	4.27	4.36
SD	0.522	0.520

ego-resilience and psychological wellbeing, but a negative correlation with academic stress.

According to analysis of the descriptive statistics, youth participation in school physical education was 3.4 points, which was higher than the median, while academic stress was 2.426 points, which was a little lower than the median of 3. The attitude toward school physical education, ego-resilience and psychological wellbeing obtained 3.5 points, 3.483 points and 3.236 points, respectively, which were all above the median value.

Participation in and attitude towards school physical education of youth was input to verify the differences in academic stress, ego-resilience and psychological wellbeing depending on the cluster. Multivariate Analysis of Variance (MANOVA) was conducted with the dependent variables of 3 clusters (cluster1 = low participation, negative attitude; cluster2 = medium participation, neutral attitude; cluster3 = high participation, positive attitude). First, the variance homogeneity test proved not to be homogeneous, with Box M=244.972(F=2.183, p<0.000), so the Dunnett post-test was used, with the main effect of Wilks Lambda=0.748, F (20, 1510)=11.787, p<0.001, showing significance.

Specifically, academic stress was found to have significant differences depending on the cluster. In other words, academic stress showed M = 2.4937 for the low participation and negative attitude cluster, M = 2.4887 for the medium participation and medium attitude cluster, and M = 2.3426 for the high participation and positive attitude cluster. This indicated higher values in the low participation and negative attitude cluster and the medium participation and neutral attitude cluster. Second, ego-resilience was also found to have significant differences depending on the cluster. In particular, the values of M=3.6769, M=3.4016, and M=3.2610 were obtained for the three clusters from high to low participation and attitude, respectively, with the highest value for the high participation and positive attitude cluster. Third, psychological wellbeing also revealed significant differences. In psychological wellbeing, the values of M=3.3729, M=3.1680, and M=3.0950 were obtained for the clusters from high to low participation and attitude, respectively, with the highest value in the high participation and positive attitude cluster.

Table 2. Correlation analysis of main variables

	1	2	3	4	5
1.Participation	1				
2.Attitude	0.476**	1			
3.Academic stress	–0.112**	–0.171**	1		
4.Ego-resilience	0.303**	0.289**	–0.346**	1	
5.Psychological wellbeing	0.234**	0.213**	–0.450**	0.620**	1
M	3.40	3.55	2.426	3.483	3.236
SD	1.066	0.969	0.506	0.526	0.432

*<0.05, **p<0.01

4. Discussion and Conclusion

Herein, participation in and attitude toward school physical education of youth showed a positive correlation with ego-resilience and psychological wellbeing, but a negative correlation with academic stress. This is consistent with the previous findings that students with high ego-resilience perform with more flexibility and integrity in stressful situations[31]

Table 3. Multivariate analysis

	Low participation and negative attitude (cluster 1)	Medium participation and neutral attitude (cluster 2)	High participation and positive attitude (cluster 3)	F	p	ES	Duncan
	M(SD)	*M(SD)*	*M(SD)*	*F*	*p*	*ES*	*Duncan*
1.Academic stress	2.4937 (0.45699)	2.4887 (0.48676)	2.3426 (0.53109)	8.137	0.000	0.021	cluster1=cluster2>clsuter3
2.Ego-resilience	3.2610 (0.55158)	3.4016 (0.43596)	3.6769 (0.51685)	44.392	0.000	0.104	cluster3>cluster2>cluster1
3.Psychological wellbeing	3.0950 (0.43383)	3.1680 (0.37070)	3.3729 (0.43457)	30.998	0.000	0.075	cluster3>cluster1=cluster2

and attain high intellectual academic achievement and positive support of others. In addition, the results of the present study were also supported by the finding that students who perceived more pressure for academic achievement felt more negative emotions, showing a negative correlation with psychological wellbeing[25].

Next, academic stress was found to show significant differences depending on the cluster, demonstrating comparatively high academic stress in the clusters with low/medium participation and negative/neutral attitudes regarding school physical education. These results are consistent with the report that sustained participation in regular physical activity has a positive impact on the lifestyle, attitude and academic performance of students undergoing significant stress due to the educational policy focused on admission[2], and with the findings that pre-class physical education greatly enhances the academic achievement of middle school students [34]. In addition, the finding of Kim[33] that cognitive participation in sports had a positive impact on learning activities as well as relationships with teachers, and the observations of Ryu[20] that groups participating in physical activity relieved more stress that non-participating groups also support the observations made herein. Therefore, high participation in and positive attitude towards school physical education are believed to improve the mental burden and uncomfortable psychological state arising from studying.

Regarding ego-resilience, significant differences were again found according to cluster. The cluster with high participation in and positive attitude toward school physical education showed the highest ego-resilience, while the low participation/negative attitude cluster showed the lowest. These results are also supported by the previous reports that more participation in physical activity brings higher ego-resilience[19], and that physical activity improves patience[18]. In addition, the results obtained herein are also in agreement with the previous observation that children's participation in physical activity has a positive impact on fitness, physical self-concept and ego-resilience[13]. Therefore, the cluster with high participation in and positive attitude towards school physical education is believed to have a better ability to adapt to troubling situations with less frustration compared to the other clusters.

Finally, significantly differences were observed in psychological wellbeing according to the cluster: the cluster with high levels of participation in and positive attitude toward school physical education also had high psychological wellbeing. Such results are consistent with other findings that groups participating in sports had higher life satisfaction [8], as well as better interpersonal relationships than non-participants[27], and that ongoing exercise improves both ego-resilience and sense of psychological wellbeing[28,29].

The followings suggestions are made for further research based on the findings obtained herein. First, development of applicable programs for improving the positive psychological factors such as ego-resilience and psychological wellbeing are urgently needed, as they can reduce the level of academic stress felt by youth in the entrance examination-oriented educational environment. Second, this study examined the correlations between and differences according to cluster in the participation and attitude of high school students towards school physical education and their levels of academic stress, ego-resilience and psychological wellbeing. However, further research is deemed necessary to identify causal relationships between each of the variables, including personal factors and environmental factors, through extensive sampling of elementary, middle and high school students.

5. References

1. Physical Education Curriculum, Ministry of Education and Science. 2008; p. 10–28.
2. Song CK. The effects of physical education of high school life satisfaction [Unpublished Master's Dissertation]. Seoul University; 2011.
3. Hong JB, Choi WC. The effect of class environmental satisfaction through sport facility on pe class commitment and participation will. Journal of Korean Society for the Study of Physical Education. 2011; 16(3):93–106.
4. Lim SY. The study of physical education lesson with attitude on in middle school students [Unpublished Master Dissertation]. Kyungwon University; 2008.
5. Kim ED, Cho YC, Park YH, Kim CM. An analysis of the class satisfaction according to enjoyment of students in middle school physical education class. The Korean Journal of Sports Science. 2007; 16(4):569–79.
6. Hong SM. The influence that the attitude in participating in the athletics class has on the physical self-efficacy and class satisfaction [Unpublished Master Dissertation]. Chung-Ang University; 2010.
7. Myeong JS. Analysis on teenagers' autonomous participation in physical activities and their learning attitude on p.e [Unpublished Master's Dissertation]. Cheongju University; 2008.

8. Lee ES, Ahn CW. Effect of leisure sports participation on the successful aging of elderly: analysis of the intermediating effect of resilience. The Korean Journal of physical Education. 2010; 49(4):325–37.
9. Statistics Korea, statistical survey. 2012.
10. Sprague J, Verona E, Kalkhoff W, Kilmer A. Moderators and mediators of the stress-aggression relationship: Executive function and state anger. Emotion. 2011; 11(1):61–73.
11. Moon B, Hwang H, Mc Cluskey JD. Causes of school bullying: empirical test of a general theory of crime, differential association theory, and general strain theory. Crime and Delinquency. 2008; 57(6):849–77.
12. Lim KY. A Study on effects of juveniles' participation in life sports on their learning stress [Unpublished Master Dissertation]. Kyung Hee University; 2006.
13. Kang HC. The Correlation between the Satisfaction of Physical Education and Study Stress to Middle-School Students [Unpublished Master's Dissertation]. Kon-kuk University; 2003.
14. Jung OB. The Analysis of participation in intramural sports of elementary school's student on the differences of stress [Unpublished Master Dissertation]. Inha University; 2004.
15. Park WJ. The Effect of the ego-resiliency on internalizing and externalizing problems: mediating effects of cognitive emotion regulation and positive, negative emotion [Unpublished Doctoral Dissertation]. Yonsei University; 2011.
16. Kim KH, Kwon SJ, Sim MY. Test Stress and the physical symptom of elementary school students: the moderating effect of ego-resiliency. The Korean Journal of Health Psychology. 2005; 10(1):113–26.
17. Davydov DM, Stewart R, Ritchie K, Chaudieu I. Resilience and mental health. Clinical Psychology Review. 2010; 30:479–95.
18. Choi MR, Lee YC. The leisure sports participation, life stress, depression and buffering effect of resilience among the elderly. The Korean Journal of Physical Education. 2012; 51(1):75–90.
19. Byun HS, Roh JH. A study of mediation effect of ego[resilience between leisure sports participants and psychological well-being of elementary students in participating after school program. Journal of Sport and Leisure Studies.2001; 44(1):479–92.
20. Yoo SL, Eurm HJ, Park JG. The role of ego-resilience in associations between self-efficacy, stress, and self-esteem in elementary physical education setting. Korean Journal of sport Psychology. 2011; 22(4):169–82.
21. Kim KM. The correlations between parental disciplinary styles and subjective well-being of students in middle and high school. Youth cultural-forum. 2010; 25:40–74.
22. Ryff CD, Keyes CLM. The structure of psychological well-being revisited. Journal of Personality and Social Psychology. 1995; 69(4):719–27.
23. Lee OH. The influence of life stress, ego-resilience and social support on psychological well-being among college students. Korean journal of youth studies. 2012; 19(1):29–57.
24. Kim YJ, Cha YS. Flow level according to psychological well-being for university students in leisure sports participate. Journal of Sport and Leisure Studies. 2009; 36(2):965–74.
25. Kim SS. A study on the effect of leisure satisfaction, leisure commitment on psychological well-being and self- actualization [Unpublished Doctoral Dissertation]. Anyang University; 2009.
26. Kim SH. The differences between personality and well-being based on adolescents' ego-resilience and types of control on dependency [Unpublished Master Dissertation]. Korea University; 2013.
27. Wang MJ. The relationship among self-efficacy, ego-resilience and psychological well-being of yoga participation [Unpublished Master's Dissertation]. Chonbuk University; 2013.
28. Hall N. Give it everything you got: Resilience for young males through sport. International Journal of men's health. 2011; 10(1):65–81.
29. Hammermeister J, Pickering MA, McGraw L, Ohlson C. The relationship between sport related psycho\-logical skills and indicators of ptsd among striker brigade soldiers: the mediating effects of perceived psychological resilience. Journal of sport behavior. 2012; 35(1):40–60.
30. Oh MH. Analysis of academic stressors and symptoms of juveniles and effects of mediation training on academic stress reduction [Unpublished Master's Dissertation]. Kyungbuk University; 1993.
31. Block J, Kremen AM. IGQ and ego-resiliency: conceptual and empirical connections and separateness. Journal of Personality & Social Psychology. 1996; 70:349–61.
32. Kim HO. Effect of children's social network on self-perceived competence, ego-resiliency and psychological well-being [Unpublished doctoral dissertation]. Dongduk womens University; 2010.
33. Kim MS, Kim HW, Cha KH. Analyses on the construct of psychological well-being (pwb) of korean male and female adults. Korean Journal of Social and Personality Psychology. 2001; 15(2):15–39.
34. Kim JJ. The Relationship of stress, psychological well-being, mindfulness and acceptance behavior of the girls' high school students [Unpublished Master's Dissertation]. Chonnam National University; 2011.