

The Effect of Sports Activity of Regional Child Center's on Emotion Regulation, Peer Status and Physical Self-Efficacy

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Background/Objectives: The purpose of this study is to find the effects of personal characteristics and sports activity on emotion regulation and peer status of the regional center's children.

Methods/Statistical analysis: In order to accomplish the purpose of this study, the children using the regional child center were selected as the population, a total 46 children were tested by pre and post test. For the sports activity, the test was performed every Saturday for 120 minutes for 9 times each quarter. The control group was randomly selected from 35 normal children and low-income children who did not participate in the sports activity, and a total of 81 children were sampled. In order to solve the research question, the t-test and the independent t-test were performed using SPSS Ver20.0 statistical program.

Findings: As a result, first, the analysis of pre-test and post-test through sports activity of regional center's children showed that cognitive level, behavioural level, and experience level of emotion regulation was higher after sports activity than those before sports activity. Especially, there was a significant difference in behavioural level of emotion regulation. For the peer status, sociality and popularity / leadership were higher than those before activity but they were not significantly different. For physical self-efficacy, there was a significant difference in running capacity, sports participation efficacy, appearance efficacy, and muscular strength efficacy after sports activity. Second, Experiment groups that engaged in sport activities at local children's centers were found to have higher average levels, than control groups, in their emotional regulation, peer status and physical self-efficiency.

Improvements/Applications: The sports activity of

the regional center's children seems to be significantly related to emotion regulation, peer status, and physical self-efficacy.

Key words: *Regional center's child, Sports activity, Emotion regulation, Peer status, Physical self-efficacy.*

Introduction

The regional child center is the country's leading child welfare service delivery institution that provides the necessary services for poor children and supplements the role of the parents. It is a regional child center that is available for not only poor children but also regional children under 18 years old, associated with the community. The regional child center has children who are in relatively unfavourable socioeconomic status because it is primarily used by children in need of protection in the area and prioritizes the use of a weak class of children.

Parents of the regional center's children mostly rely on the government without regular income or a certain occupation and are unable to perform childcare and education functions due to economic difficulties, resulting in various social and emotional problems such as the heredity of poverty (Ahn, 2013); (Choi, 2016). It is also difficult for the parents of the regional center's children to provide appropriate care and support for their children. Therefore, problems such as socioeconomic difficulties, living environment and family relations, and parental deficits of these children may adversely affect the desirable physical development and emotional development of the child (Eisenberg, 1998). In particular, the regional center's children lack physical activity and has a long sedentary working time (Joe, 2014) because their residential environment is not safe and the sports facilities and programs are limited compared with general population family children.

According to (Kim, 2007), as a result of research with 171 regional center children, 15 persons (8.8%) carried out sports for 60 minutes or more during 1 week 7 days, 31 persons (18.1%) watched TV and played internet/mobile games for less than 2 hours a day and the majority of the remaining children had insufficient physical activity and excessive sedentary activities.

The regional child center, where children spend most of the time after school, is also unable to provide any kind of education for sports events that require sports equipment and a movable place due to the poor situation. Even if you visit the regional child center to coach, there is neither enough equipment nor an athletic field or gymnasium, so it is almost impossible for children in the center to learn the functions for professional sports activity or to run a game.

In addition to promoting health, sports activity is mentally, socially and emotionally helpful for harmonious development as an alternative to use the leisure for children. In recent years, the number of children who spend most of their time on games through smartphones has been increasing due to the recent Internet development; the importance of sports activity has been raised more than ever (Kim and Kim, 2011). Such sports activity is associated with emotion regulation of children, (Kwon, 2001) suggests that the emotional regulation of children is more likely to be affected by exposure to dynamic environments such as sports activities, and (Lee, 2016) reported that the ability to form a positive attitude and emotion regulation is improved according to the degree of participation of adolescents in sports activity (attitude, duration, etc.). In addition, emotion regulation is associated with resilient and adaptive behaviour, whereas on the other hand, a strong negative emotion not adequately regulated is associated with impulsive and maladaptive behaviour (Park, 2016); (Park et al., 2018); the sports activity is associated with the child's peer status. (Park, 2012) suggests that in the case of a child with an intrinsic need for sports, his motor ability has a visible effect among children, so it can be an important factor in determining the peer status of children. Nevertheless, studies on emotion regulation and peer status in relation to sports activity are limited to general children, and there are very few studies on the regional center's children. Therefore, this study provided the children of the regional child center with the sports activity and analyzed the effect of the sports activity on their emotion regulation and peer status. The research questions to achieve this research objective are as follows.

Research Question 1: Is there any difference in the emotion regulation ability and peer status of the regional center's children before and after the sports activity?

Research Question 2: Is there any difference in the emotion regulation ability and peer status of the regional center's children, through the sports activity, between the experimental group and the control group?

Materials and Methods

Subject of Research

This study selected 46 children using the regional child center among 109 children in three regional child centers located in C city, and the test was performed on every Saturday for 120 minutes for 9 times each quarter, dividing into the first quarter and 2nd quarter from 1st April 2018 to 30th November 2018 respectively. The control group was randomly selected from 35 normal children and low-income children who did not participate in the sports activity. The individual characteristics of subjects are shown in Table 1 and the preliminary and post test of experiment design is shown in Table 2.

Table 1: Individual Characteristics of Research Subjects

	Characteri stic	Level	N	%	Characteri stic	Level	N	%	
Experime ntal group(n=4 6)	gender	male	1 8	39. 1	center service period	under a year	5	10. 9	
		female	2 8	60. 9		1- 2year	1 9	41. 3	
	school year	1-2year	1 7	37. 0		2- 3year	4	8.7	
		3-4year	1 6	34. 8		over 3year	1 8	39. 1	
		5-6year	1 3	28. 3		do not use	0	0	
	who lives together	mom and dad family	3 5	76. 1		a brother and sister number	none	4	8.7
		a single- parent family	8	17. 4	one perso n		2 0	43. 5	
		grandpare nts' family	2	4.3	two peopl e		1 3	28. 3	
		None	1	2.2	over three peopl e		9	19. 6	
	Control group(n=3 5)	gender	male	2 4	68. 6	center service period	under a year	5	14. 3
			female	1 1	31. 4		1- 2year	0	0
		school year	1-2year	1 5	42. 9		2- 3year	1	2.9
3-4year			1	31.	over		5	14.	

			1	4		3year		3
		5-6year	9	25.7		do not use	24	68.6
	who lives together	mom and dad family	31	88.6	a brother and sister number	none	5	14.3
		a single-parent family	3	8.6		one person	20	57.1
		grandparents' family	1	2.9		two person	5	14.3
		None	0	0		over three persons	5	14.3

Table 2: Experiment Design

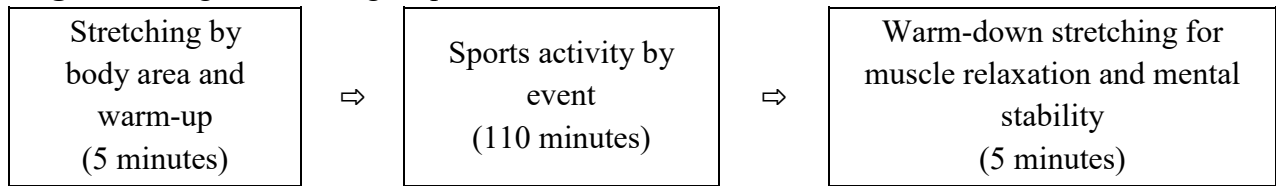
Research question 1	pre-post experiment	O1 pre-test	exercise	O2 post-test
Research question 2	experimental group	O2 post-test (exercise group)	control group	O3 post-test (non-exercise group)

Research Procedure and Method

Sports activity

The sports program consists of various programs needed for growing children such as futsal, badminton, music skipping & flying disk, Pilates and a comprehensive athletic meet. The futsal consists of 7 game for 1 hour each time, badminton consists of 6 games for 1 hour each time, and skipping & flying disk consist of 2 games for 30 minutes each time, Pilates consists of 1 session for 1 hour each time and comprehensive athletic meet consists of 1 event for 2 hours each time, making a total of an 18 hours program. The sequence of the program run over 9 weeks is shown in Figure 1.

Figure 1. Program Running Sequence



Composition of Questionnaires

Questionnaires were used as an investigation tool of this study. The content of questionnaire consisted of 5 questions for personal characteristics including gender, school year, home type, period of use of the center, number of siblings, 14 questions for emotion regulation and 14 questions for peer status. Table 3 shows the factors by questionnaires area and the internal consistency, the reliability coefficient of emotion regulation, peer status. The emotion regulation reliability used in this study was .745 and the reliability of the peer status was .814, the reliability of physical self-efficacy was .872, the both are suitable for carrying out the study.

Table 3: Composition Index of Questionnaires, Contents and Reliability

Variable	Contents	Number of questions	Cronbach's α	
			Variable	Range
Emotion regulation	cognitive level	5	.779	.745
	behavioral level	5	.877	
	experience level	4	.865	
Peer status	sociality	4	.780	.814
	popularity/Leadership	3	.783	
Physical self-efficacy	muscular strength efficacy	3	.858	.872
	running capacity	3	.851	
	appearance efficacy	5	.768	
	sports participation efficacy	3	.760	
Total		35		

Validity of Questionnaires

The questions related to emotion regulation (Ra and Gang, 2014) were modified and supplemented in accordance with the purpose of this study. Emotion regulation has a total of 14 items and three factors are extracted. The factor load of emotional regulation by sub-

factor showed a behavioural level from 747 to .842, experiential was from .802 to .826, and cognitive was from .625 to .847 and cumulative ratio of 68.146%, respectively, which is proved to be reasonably measured. In addition, as a result of conducting KMO (Kaiser Meyer Olkin) for suitability for factor analysis of emotion regulation, it was analysed to be suitable (KMO = .678 / X² = 374.744 / Sig = .000)

The peer status measure was measured using the scales of social capability for children developed by (Rhee and Hong, 2012) as a peer-level measure, which is based on "outgoing behavior," "popularity/leaders" and "interactive person." peer status totaled seven questions, with two factors extracted. Looking at the factor load for each sub-factor of peer status, it is shown that sociability level was from .644 to .848 and popularity/leadership was from .769 to .860 with a cumulative ratio of 66.68%, which was reasonably measured. In addition, Kaiser Meyer Olkin (KMO) was conducted to determine whether it is suitable for factor analysis of peer status (KMO=.752/X²=213.509/Sig=.000) It has been analyzed as appropriate.

Physical self-efficacy was measured using the physical self-efficacy of adolescents developed by (Richman and Shaffer, 2000). The scale was composed of five sub-factors: sports participation efficacy, appearance efficacy, muscular strength efficacy, and 4 types of factors except body type efficacy were used in accordance with the purpose of this study. Four factors were extracted from physical self-efficacy. When investigate the factor load of physical self-efficacy by subfactor, the distribution consisted of the muscular strength efficacy level was from .800 to .896, running capacity of .743 to .874, appearance efficacy was from .566 to .722, and sports participation efficacy was from .751 to .805 and the cumulative ratio was 69.081%, which is a reasonable measure. In addition, as a result of conducting KMO (Kaiser Meyer Olkin) for suitability for factor analysis of physical self-efficacy, it was analyzed to be suitable (KMO = .758/ X² = 525.714/ Sig = .000)

Data Processing Method

In this study, the research question was analyzed using the SPSS Ver20.0 statistical program. The validity of the study variable was measured by the exploratory factor method, and the reliability of the questionnaire used Cronbach's α value. A corresponding test was conducted between the independent sample t-test and the pre-test and post-test for verification of each variable. Statistical significance level of all analyses was set at $p < .05$.

Results

Emotion regulation ability of the regional center's children through the sports activity and difference between Pre and Post of peer status and physical self-efficacy.

Table 4 shows the results of pre- and post-test analysis to examine the effect of emotional regulation on the sports activity of the regional center's children. The behavioral level of the group was significantly increased from 3.09 to 3.33 before, and variation was significantly increased by .24 ($p < .05$). The experience level was 3.91, post - 3.93 and pre - post variation was .02 showing no significant difference while cognitive level was 2.70, post - 2.88, pre - post cognitive variation was .18 showing no significant difference.

Table 4: Emotion regulation between Groups according to participation in the Sports Activity

Variable	N	Pre-Test	Post-Test	Correlation	Variation Pre-Post	t(P)
		M(SD)	M(SD)			
Behavioral level	46	3.09(0.94)	3.33(1.01)	.718	.24	-2.289*
Experience level	46	3.91(0.91)	3.93(0.92)	.527	.02	-.208
Cognitive level	46	2.70(0.93)	2.88(1.05)	.575	.18	-1.378

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

[Table 5] shows the results of pre- and post-test to examine the effect of peer status on the sports activity of the regional center's children. In the group change, sociality increased to 3.35, post - 3.43, pre - post variation to .08, popularity / sociality to 2.93, post - 3.19, pre - post variation to .26., which showed no significant differences.

Table 5: Peer Status between Groups according to Participation in the Sports Activity

Variable	N	Pre-Test	Post-Test	Correlation	Variation Pre-Post	t(P)
		M(SD)	M(SD)			
Sociality	46	3.35(.88)	3.43(.97)	.671	.08	-.686
Popularity/Leadership	46	2.93(.79)	3.19(1.04)	.488	.26	-1.867

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

Table 6 shows the results of pre- and post-test analyzes to examine the effects of sports activities on physical self-efficacy of regional center's children. In the group change, the running capacity was increased to 2.93 and post - 3.47, pre - post variation to .54 ($p < .001$), sports participation efficacy was 3.07, post - (P $< .01$), respectively, which showed significant difference. Appearance efficacy was 2.76, post - 3.02, pre - post - variation was .26 ($p < .05$), muscular strength efficacy was 2.77, post - 3.06, pre - post variation was .29, which showed a significant difference ($p > .05$).

Table 6: Physical self-efficacy between Groups according to Participation in the Sports Activity

Variable	N	Pre-Test	Post-Test	Correlation	Variation Pre-Post	t(P)
		M(SD)	M(SD)			
Running capacity	46	2.93(1.06)	3.47(1.03)	.620	.54	-3.987** *
Sports participation efficacy	46	3.07(1.04)	3.54(.97)	.420	.47	-2.898**
Appearance efficacy	46	2.76(.80)	3.02(.97)	.725	.26	-2.581*
Muscular strength efficacy	46	2.77(1.04)	3.06(1.11)	.614	.29	-2.070*

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

The emotion regulation showed a higher mean value in the post-test than the one in pre-test and a meaningful result was obtained at the behavioral level of the emotion regulation ability through the sports activity of the regional center's child. (Kim and Kim, 2011) supports the results of this study by showing that middle school students participating in weekend sports have high confidence in emotional attention, emotional clarity, and emotional improvement. Physical self-efficacy showed significant differences in running capacity, sports participation efficacy, appearance efficacy, and muscular strength efficacy. (Rothbart et al., 1998) partially supports the results of this study, indicating that physical self-efficacy of adolescents participating in soccer club activities has an effect on school life satisfaction and adaptation. In this study, there was no significant difference in peer status through sports activity. However, when the average value of sociality and popularity / leadership were found to be higher in the sports activity group, a further study is required.

Emotion regulation ability of regional center's children through sports activity and difference between experimental group and control group on peer status and physical self-efficacy

The results of an analysis of experimental and control groups for the effects on the experimental and control groups for emotion regulation, peer status, and physical self-efficiency through sports activities of children in local children's centers are shown in [Table 7]. In the change between the experimental and control groups in emotion regulation, the Cognitive level was shown to be the experimental group M=3.33, the control group M=3.15; The Behavioral level was found to be the experimental group M=3.93 and the control group M=3.79. The experimental group M=2,88 and the control group M=2.07. In the change between experimental and control groups in peer status, sociality was shown as experimental group M=3.43, control group M=3.20 The popularity/Leadership was shown to be the experimental group M=3.19 and the control group M=2.95 respectively. In the change between experimental and control groups of physical self-efficiency, running capacity was shown as experimental group M=3.47, control group M=3.11. Sports fractionation efficiency was found to be M=3.54 and control group M=2.99. The experimental group M=3.02 and the control group M=2.75. Muscular strength efficiency was found in experimental group M=3.06 and control group M=2.93. Overall, the average value was higher than the control group.

Table 7: Results of emotional coordination, peer status and physical self-efficiency according to experimental and control groups

Variable	Contents	Experimental control status	N	M	SD
Emotion regulation	Cognitive level	experimental group	46	3.33	1.01
		control group	35	3.15	.86
	Behavioral level	experimental group	46	3.93	.92
		control group	35	3.79	.98
	Experience level	experimental group	46	2.88	1.05
		control group	35	2.07	.84
Peer status	Sociality	experimental	46	3.43	.97

		group			
		control group	35	3.20	.91
	Popularity/Leadership	experimental group	46	3.19	1.04
		control group	35	2.95	.93
Physical self- efficacy	Running capacity	experimental group	46	3.47	1.03
		control group	35	3.11	.99
	sports participation efficacy	experimental group	46	3.54	.97
		control group	35	2.99	1.01
	appearance efficacy	experimental group	46	3.02	.97
		control group	35	2.75	.54
	muscular strength efficacy	experimental group	46	3.06	1.11
		control group	35	2.93	1.03

The effect of emotion regulation, peer status, and physical self-efficacy on the experimental group and the control group through the sports activity of the regional center's child was significantly different in the appearance efficacy of physical self-efficacy. The results of this study are consistent with those of several studies carried out by (Seok and Chung, 2013); (Shaffer and Wittes, 2006) since the students participated in the physical activity were quite more satisfied with their physical strength and appearance than those not participated.

Conclusion

The purpose of this study is to investigate the effects of personal characteristics and sports activity on emotion regulation and peer status of the regional center's children. In order to accomplish the purpose of this study, the children using the regional child center were selected as the population, A total of 46 children were tested by pre and post test. For the sports activity, the test was performed every Saturday for 120 minutes for 9 times each quarter. The control group was randomly selected from 35 normal children and low-income children who did not participate in the sports activity, and a total of 81 children were sampled. In order to solve the research question, the t-test and the independent t-test were performed using the SPSS Ver20.0 statistical program. As a result, the sports activity of the regional center's child seems to be significantly related to emotion regulation, peer



status, and physical self-efficacy. Therefore, in order to help the regional center's children, who are in the physical and mental development period, to understand the body correctly and to create an environmental atmosphere that can form a more positive body confidence, various physical activity programs or sports activity program are required.

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