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Research Article

Effects of Self-esteem Improvement Program on Self-esteem and Peer Attachment in Elementary School Children with Observed Problematic Behaviors

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SUMMARY

Purpose: The purpose of this study was to investigate the effects of a self-esteem improvement program on self-esteem and peer attachment in elementary school children with observed problematic behaviors.
Methods: This study is a quasi-experimental study with a nonequivalent control group pretest-post-test design. A total of 47 fourth grade elementary school students participated in this study. The program was provided for 45 minutes once a week; a total of 12 sessions were completed with a group in the classroom for the experimental group. Child Problem-Behavior Screening Questionnaire was used to measure problematic behavior. Self-esteem was measured using the Rosenberg's Self-esteem Questionnaire, and peer attachment was measured using the Inventory of Parent and Attachment. Measuring was performed right after the program was done (post 1) and 1 month after the program was finished (post 2). To compare the differences in self-esteem and peer attachment between groups, repeated measures analysis of variance was used.
Results: Most participants in the experimental group were 10 years old (62.5%, range 10–11), male (52.0%) and with middle grade point average (64.0%). The self-esteem scores in the experimental group were significantly higher than those of the control group ($F = 26.64$, $p < .001$). The peer attachment scores in the experimental group were significantly higher than those of the control group ($F = 6.48$, $p = .014$).
Conclusions: The self-esteem improvement program in this study improved the self-esteem and peer attachment in elementary school children. The self-esteem program helped acknowledge the peer's name and increased their connections. The program needs to be considered as a formal and consistent program.

Introduction

The numbers of divorced, separated and single-parent families have been increasing in South Korea [1]. These changes have brought a decrease in the number of school children also. The number of school children in 2002 was 4,138,366, which decreased to 2,951,995 in 2012 [2]. The changes in the family structure and the decrease in the number of school children are thought to have induced the increase of negative development concerns, including the pathological syndromes of depression, neurosis, complexes and learning disabilities. There are also concerns regarding problematic behavior patterns including lying, hyperactivity and disruptive behaviors [3]. In South Korea, nearly 60% of the school children have been observed to show various emotional or behavioral problem patterns and 33% of the students have shown various forms of psychosomatic problems in 2006 [4].

Problematic behaviors in a schoolchild are defined as inappropriate behaviors when the personal needs are not satisfied or accepted by others [5]. Children showing problematic behaviors are inclined to exhibit silence and helplessness along with the refusal to participate in school activities. The affected children also show a low level of self-esteem and maladjustment to friends and school life [6,7]. Self-esteem in school children has been observed to be low, between the ages of 11 and 12 years (grade 4–5) if compared with that of grade 1–3 students [8]. This is thought to be because grade 4–5 students are inclined to show a higher level of stress with an increased level of awareness.

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Self-esteem is related to the sense of attachment in feeling safe and stable [9], and this sense of attachment affects the self-esteem in school children [10]. Positive self-esteem and peer attachment are important factors for personal creativeness and productiveness. Negative self-esteem and peer attachment are factors for decreased confidence, helplessness, depression, and risky behaviors [11,12]. Students with a high level of self-esteem and attachment have shown a high level of adjustments to personal challenges and school life [13,14]. Such students have also shown a high level of personal health and stress management [15]. As such, developing and maintaining positive self-esteem as well as increasing the sense of peer attachment are important for the reduction of problematic behaviors.

Many studies have shown the positive outcomes of diverse programs that improve self-esteem and peer attachment, including group art therapy [16], self-esteem programs [17–20], play schemes and bibliotherapy programs for students [21]. However, most of the studies have focused on infants or high school students and were limited to those from low-income brackets or those with learning or intellectual disabilities. Few studies have been conducted for school children showing problematic behaviors [17,19]. In addition, most studies were performed with experimental groups only, and without a control group so that it was difficult to generalize the findings of the studies [20,22]. Thus, the current study is different from previous studies. The program was provided to elementary school children showing the observed problematic behaviors and the effect of the program was compared with a control group. In particular, the program was provided right after class at school. As such, the program was very easily accessible for the students.

The purpose of this study is to test the effects of the self-esteem improvement program on self-esteem and peer attachment in grade 4 elementary school students with problematic behaviors. The research hypotheses of this study are as follows:

Hypothesis 1. The students who participate in the self-esteem improvement program (experimental group) show a higher level of self-esteem compared to the students who do not participate in the self-esteem improvement program (control group);

Hypothesis 2. The students who participate in the experimental group show a higher level of peer attachment compared to the students who participated in the control group.

Methods

Study design

This study is a quasi-experimental study with a nonequivalent control group pretest-posttest design. It aims to investigate the effects of a self-esteem improvement program on the self-esteem and peer attachment in elementary school grade 4 students with problematic behaviors.

Setting and samples

A total of 25 students at school A participated in the experimental group and 25 students at school B participated in the control group. The experimental group and control group were randomly determined using pitching pennies. The inclusion criteria of the study are as follows: (a) grade 4 students in an elementary school; (b) score over 13 points on the Child Problem-Behavior Screening Questionnaire (CPSQ) [23]; (c) able to verbally communicate; (d) never participated in a similar program before.

The reasons for providing the program to grade 4 students were that the level of self-esteem in the grade 4 students was lower than that in others in the elementary school, and that grade 4 is an important period in the formation of a peer group [8]. The study started with 50 students participating in the program (25 in the experimental group and 25 in the control group). Three students in the control group dropped out due to personal reasons such as vacation. Hence, there were 25 students in the experimental group and 22 students in the control group who completed the study. The CPSQ was assessed by the principal investigator (PI) and research assistants. The minimum size for each group was 20, based on the G*Power 3 Program analysis [24] for repeated measures analysis of variance (ANOVA; with moderate effect size of 0.30, power of .80, and alpha value of .05). Hence, the number of participants in this study satisfied the minimum sample size. The evidence to determine the sample size was also based on the previous studies [20,21].

Ethical considerations

The study was approved by the institutional review board committee members at D hospital of K university (No. 12–47). Data collection began after the approval. Participants were informed that they could decline to participate in the study when they felt uncomfortable. All materials including questionnaires and consent forms were stored in a locked file cabinet in the PI's office to ensure the protection of participant confidentially.

Intervention (experimental group)

The self-esteem improvement program was originally developed by the Samsung Psycho Social Health Research Center to improve self-esteem in school children [25]. The center introduced the self-esteem improvement program to school nurses at school nurse workshops; school nurses were allowed to run the program when they were certified. The program consists of five levels including introduction, self-understanding, personal relationship, sense of purpose/competence improvement and conclusion (Table 1). The intervention consists of 12 sessions and the more specific description of each session is as follows:

Follow the name game

Participant A says his/her name, for example “I am John. I sing well.” Participant B says his/her name after restating participant A's name, such as “I am Christina. I enjoy singing and dancing, sitting next to John who sings well.” Next, participant C would say his/her name after restating Participant A's and B's names, such as “I am Tiffany. I love caring for dogs, sitting next to Christina who enjoys singing and dancing, next to John singing well.”

“It's me” contest

A participant lists his/her name, birth date, happy memory, what he/she is good at or not good at, favorite food, entertainer, songs or physical activity, the best memory in his/her life, the best gift received and so on, and shares the stories related to the lists with others. Present the best list of “It's me.”

Write about meaningful persons in his/her life

Remember the meaningful persons in his/her life, list the names and have time to appreciate them. For example, remember a person who listened to his/her worries, a person who consoled him/her when sorrowful, a teacher he/she likes the best, a person who cooks and organizes for him/her, a person who call him/her the most frequently and so on. Share the person's names and stories with other participants.

Table 1 *Contents of Self-esteem Improvement Program (N = 47).*

	Session	Title	Purpose	Specific activity
Introduction	1	"I am special"	– Understand the purpose and contents of the program – Formation of intimacy and confidence	– Follow the name game – "It's me" contest
Self-understanding	2	All about me	– Understanding his/her own personality	– Personality type test – Slide "Personality type"
	3	Overcome complex	– Clarify his/her strengths/weakness – Convert weakness to strengths	– Writing his/her strengths on the pizza – Speed game speaking his/her strengths
	4	Challenge Stereotype	– Understanding his/her own thinking – Change his/her distorted thinking and body image	– Wear colored glasses – Game of saying reasonable or unreasonable thinking
	5	Traffic light on my mind	– Understanding his/her own feelings – Express different emotions	– Find cards showing face with different emotions – Expressing his/her own emotions using five letters – Write comments to others' worries
Personal relationship	6	Apple tree in my life	– Find meaningful persons	– Write meaningful persons in his/her life – Draw an apple tree and fill the tree with meaningful persons to him/her
	7	"Style" is saying about me	– Understand the types of interpersonal relationship	– Test the type of interpersonal relationship – Slides "My style" presenting an open, self-assertive, cautious, and isolated types
	8	Magic bingo game	– Review his/her communication type	– Bingo game: "I don't want to hear this kind of saying" e.g., "Are you crazy?", "Your are selfish." "You are foolish." – Ten compliment rules and quiz
	9	What I really want	– Understand and express the meaning of "want"	– What is really what I want? – Find the meaning behind the picture e. g., "What is the meaning of the super man flying in the picture?" – Practicing saying "what I want"
Personal relationship (Continued)	10	Get my heart	– "Want" Blue marble game	– "Want" Blue marble game
A sense of purpose/competence	11	Dream come true	– Find dream for the future	– Watch video "Dream come true" – Make a business card with photo and share with classmates
Conclusion	12	Important us	– Wrap up the program	– Wrap up the program – Make "love line": write thank you cards and share with classmates – Take a picture with classmates of "love line" – Evaluate the program

Practice saying "what I want"

Present the "Want" rule, listing "Fact", "Feeling", "Want" and "Asking" in order. For example, first tell a truth. Next, tell a feeling about the truth. Then, tell "what I want". Lastly, ask for "what I want" from the other party. An example of dialogue according to the "Want" rule is as follows:

A: Let's go to the cafeteria.

B: Gee, it's time to check homework next, and I haven't done it yet (Fact). I am so anxious now (Feeling). I want to take a rest right after I complete my homework (Want). I am sorry but let's go next time (Asking).

The specific contents of the program are presented in Table 1. The PI and the research assistants provided the program to the participants after the center's approval. The self-esteem improvement program called "I am special" was provided for 45 minutes once a week; a total of 12 sessions was completed for the experimental group in a group in the classroom. The program was provided at 4 p.m., as all grade 4 year students finished their classes at that time and could participate in the creative discretionary activities after school with other students not showing problematic behaviors. The participants showing problematic behaviors and the students without such concerns participated in the program together, so that the levels of observed problematic behaviors were not known to them. Throughout the study, the school nurse had additionally provided 10–20 minutes of counseling once a week for a total of four sessions at the school health office. The contents of the counseling were related to the participation of the program, school life and friendship. The counseling was provided as a type of individual meeting with 1–2 students because the students want individual meetings after the group program to talk about school life and friendship. As such, the counseling was offered on an individual basis to meet the students' need. A total of 12 weeks of the program was provided because previous programs related to self-esteem were effective when the program was provided for more than 8 weeks [16,20]. The control group received no program during the research period. However, it was offered afterwards because of ethical issues.

Self-understanding brings positive thinking to himself/herself and positive thinking increases self-esteem [26]. Positive communication with peers are also important for students for increasing their self-esteem. Thus, the self-esteem improvement program focused on self-understanding and personal relationship in a group setting. The program was selected in this study because it was originally developed for students in a group so it was appropriate for students in a group in elementary schools. Contents of the program were explained concretely using specific examples in the manual so school nurses feel comfortable using the program without confusion.

Measurements

Child Problem-Behavior Screening Questionnaire (CPSQ)

The CPSQ developed by Huh et al [23]. was used to assess the level of problematic behaviors in school children. The questionnaire includes 26 questions in five areas (internalization problems, 5 questions; externalization problems, 10 questions; cognitive problems, 3 questions; abuse problems, 2 questions; and psychosomatic problems, 6 questions) using a 4-point Likert scale from 0 (*none*) to 3 (*very serious*). Higher scores in the questionnaire meant a higher level of problematic behaviors. The cutoff point was at 13, meaning that the student needed a more serious professional assessment for the diagnosis of problematic behaviors. The Cronbach's alpha of the questionnaire was .85 [27] and its value in this study was .85.

Self-esteem

An instrument developed by Rosenberg [26] and translated by Jon [28] was used to measure the level of self-esteem in the school children. The instrument consisted of 10 questions on a 3-point Likert scale from 0 (*strongly disagree*) to 3 (*strongly agree*). Items numbered 2, 5, 6, 8 and 9 are reverse scored; the higher the score the higher the self-esteem. Cronbach's alpha of this instrument was .82 [29] and its value in this study was .79.

Peer attachment

The Korean version of the Inventory of Parent and Attachment (IPPA) was used. The original questionnaire was developed by Armsden and Greenberg [30] and translated by Ok [31] to measure peer attachment in the school children. The measurement includes a total of 25 questions in three areas (mutual dependence, 10 questions; communication, 9 questions; alienation, 6 questions). The 5-point Likert scale ranged from 1 (*almost never or never true*) to 5 (*almost always or always true*) with higher scores indicating higher levels of peer attachment. The initial Cronbach's alpha of the instrument was .92 [30] and its value in this study was .91. All instruments were approved for use in this study.

Data collection

Data was collected from April to July 2012. The primary investigator contacted the principals and school nurses of two elementary schools, located within a 1-hour drive from the PI's office in D-city, and explained the purpose and the specific contents of the current study. The two schools were selected because the schools were located near the PI's office, have a full-time school nurse and a similar size of students and teachers. The size and general characteristics of the elementary schools were similar (approximately 500 students total, 110 in grade 4 with 25–30 teachers). Elementary school A was randomly assigned to the experimental group and elementary school B to the control group. The PI explained the purpose and the specific contents of the study to the school nurses, grade 4 students and families. Formal consent forms were obtained and the study started after the students and their families agreed to participate in this study. The school nurse in the experimental group was trained in counseling and the self-esteem program by the Research Institute for Social Psychiatric Health of the Samsung Medical Center. The school nurse was also licensed as special counselor for school children to run the counseling program.

The PI and school nurse explained to the students how to answer the questionnaires and all students answered the questionnaires on the general characteristics, self-esteem and peer attachment in the classrooms. When the students had difficulties in understanding the meaning of the questions, the PI and the research assistants helped clarify the questions. In this study, the first post-test (CPSQ, self-esteem and IPPA) was measured in the classroom after the last session (post 1). The follow-up test (CPSQ, self-esteem and IPPA) was measured in the school 1 month after the program completed (post 2).

Data analysis

Data analysis was conducted using the SPSS-WIN version 20.0 program and the specific data analysis was as follows: (a) Descriptive statistics was used to describe participant characteristics. (b) *t* test, chi-square test and Fisher's exact test were used to compare the differences in participant characteristics between the groups. (c) Repeated measures ANOVA was used to compare the differences in self-esteem and peer attachment between the groups throughout the duration of the research.

Results

Participant characteristics

The findings of the participant characteristics are presented in Table 2. Most participants in the experimental group were 10 years old (62.5%), male (52.0%) and with middle grade point average (64.0%). In the control group, most participants were 10 years old (54.1%), were female (54.5%) and with middle grade point average (63.6%). Most participants in the experimental group and control group were from a single-child family (44.0%, 40.9%), without experience of being ostracized within 1 year (92.0%, 95.5%) and without any experience of major illness (96.0%, 100.0%). Over half of the participants in the experimental and control groups reported a high level of stress in school (52.0%, 59.1%), a high father attachment (56.0%, 50.0%), a high mother attachment (64.0%, 68.2%) and less than 1 hour per day (39.2 minutes, 40.0 minutes) of conversation time with the parents. There were no differences between the experimental group and control group on problematic behaviors, self-esteem and peer attachment.

Self-esteem and peer attachment

The changes in self-esteem and peer attachment in both groups are presented in Table 3.

Hypothesis 1

The repeated measures ANOVA revealed a significantly higher level of self-esteem scores in the experimental group than those of

Table 2 *Homogeneity Test for Participant Characteristics (N = 47).*

Variables	Category	EG ($n = 25$)	CG ($n = 22$)	t/χ^2	p
		n (%) or $M \pm SD$	n (%) or $M \pm SD$		
Age (year)	10	15 (62.5)	13 (54.1)	1.53	.465
	11	9 (37.5)	11 (45.9)		
Gender	Male	13 (52.0)	10 (45.5)	0.20	.654
	Female	12 (48.0)	12 (54.5)		
Sibling	Only child	11 (44.0)	9 (40.9)	0.99	.609
	First	6 (24.0)	8 (36.4)		
	Second	8 (32.0)	5 (22.7)		
Disease	None	24 (96.0)	22 (100.0)	0.90	1.000
	Yes	1 (4.0)	0 (0.0)		
GPA	High	5 (20.0)	4 (18.2)	0.05	.974
	Middle	16 (64.0)	14 (63.6)		
	Low	4 (16.0)	4 (18.2)		
Learning stress	High	13 (52.0)	13 (59.1)	0.50	.778
	Middle	8 (32.0)	5 (22.7)		
	Low	4 (16.0)	4 (18.2)		
Being ostracized	None	23 (92.0)	21 (95.5)	0.23	.629
	Yes	2 (8.0)	1 (4.5)		
CPSQ		15.20 ± 2.08	14.73 ± 1.72	0.84	.405
Conversation with parents (minutes/day)		39.20 ± 16.81	40.00 ± 13.81	0.18	.860
Father attachment	High	14 (56.0)	11 (50.0)	0.38	.827
	Middle	8 (32.0)	5 (31.8)		
	Low	3 (12.0)	4 (18.2)		
Mother attachment	High	16 (64.0)	15 (68.2)	0.18	.916
	Middle	2 (8.0)	2 (9.1)		
	Low	7 (28.0)	5 (22.7)		
Self-esteem		2.32 ± 0.30	2.34 ± 0.31	0.21	.832
Peer Attachment		2.81 ± 0.65	2.80 ± 0.51	0.10	.921

Note. EG = experimental group; CG = control group; GPA = grade point average; CPSQ = Child Problem-Behavior Screening Questionnaire.

Table 3 *Changes in the Self-esteem and Peer Attachment (N = 47).*

Variables	Group	Pretest	Post-test 1 $M \pm SD$	Post-test 2 $M \pm SD$	Source	F	p
Self-esteem	EG ($n = 25$)	2.32 ± 0.30	2.57 ± 0.26	2.54 ± 0.30	Group	10.10	.003
					Time	0.07	.800
	CG ($n = 22$)	2.34 ± 0.31	2.34 ± 0.25	2.14 ± 0.18	Group × Time	26.64	.000
Peer attachment	EG ($n = 25$)	2.81 ± 0.65	3.53 ± 0.56	3.52 ± 0.63	Group	8.77	.005
					Time	16.03	.000
	CG ($n = 22$)	2.80 ± 0.51	2.97 ± 0.51	2.96 ± 0.48	Group × Time	6.48	.014

Note. EG = experimental group; CG = control group.

the control group ($F = 26.64$, $p < .001$). Therefore, hypothesis 1 was supported. The initial level of self-esteem in the experimental group was 2.32 and increased to 2.57 at post-test, followed by 2.54 at final test. In the control group, the initial level of self-esteem was 2.34 and stayed the same at post-test, followed by 2.14 at final test.

Hypothesis 2

The repeated measures ANOVA revealed significantly higher peer attachment scores in the experimental group than those in the control group ($F = 6.48$, $p = .014$). Therefore, hypothesis 2 was supported. The initial level of peer attachment in the experimental group was 2.81 and increased to 3.53 at post-test, followed by 3.52 at follow-up test. The initial peer attachment in the control group was 2.80 and also slightly increased to 2.97 at post-test, followed by 2.96 at follow-up test.

Discussion

The self-esteem improvement program was provided for 12 weeks with a total of 12 sessions (45 minutes per session) to school children with problematic behaviors in this study. The purpose of this study was to investigate the effects self-esteem improvement program on their self-esteem and peer attachment. The program was developed to improve self-esteem for prevention-oriented purposes. It included five main parts: introduction, self-understanding, personal relationship, sense of purpose/competence improvement and conclusion. The program was significant in the sense that it was developed for students in group settings, so it was practical for elementary school students. Also, the program focused on self-understanding and personal relationships as opposed to self-esteem programs in previous studies which focused on enhancing general self-esteem and body image [17].

The study showed that self-esteem and peer attachment increased significantly after the completion of the self-esteem improvement program. The findings were consistent with the findings from previous studies partially in terms of increasing self-esteem and peer attachment, although the specific contents of the programs were different [20–22]. Sohn and Yim [22] tested the effects of after-school self-esteem program for grade 1–3 school children. The program was offered for 40 minutes, twice a week for a total of 53 sessions. The program improved self-esteem at its completion. In Kim and Chung's study [20], 11 sessions of the self-esteem program (60 minutes per session) were provided to grade 4–5 school children from a low-income bracket. Children from that study showed improved self-esteem and peer attachment. The program included building relationships, understanding oneself, improving relationship skills and having a sense of target competency. However, these two studies [20,22] had limitations due to a missing control group. As such, the generalizability of their findings was limited. Tak [21] compared the effects of a Bibliotherapy program for improving self-esteem in grade 3–5 school children from a low-income bracket with a control group. The program included general self-esteem, homely self-esteem, academic self-esteem and social self-esteem. It was offered for 90 minutes, twice a week for a total of 10 weeks. The self-esteem in the Bibliotherapy program group was significantly more improved than that in the control group. The findings from the literature were similar to that of this study in terms of improving self-esteem even though the criteria of participants were not exactly the same, as they used school children from low-income families or those with learning disabilities.

Other studies provided programs to improve self-esteem for grade 6–7 school children [17,18]. McVey and colleagues [18] evaluated the improvement of self-esteem in grade 6 school children in a school-based program; the program included media influences, enhancing self-esteem and body image, body size acceptance, healthy living, stress management and positive relationships. The program was offered for 50 minutes with a total of 6 sessions and it improved the self-esteem when the program was completed. Lai and colleagues [17] provided a self-esteem program to grade 7 junior high schools and compared the effect of the program on self-esteem with the control group. The experimental group received a 32-week self-esteem program which consisted of 3 sessions per week. The total score of self-esteem was 3.53 in the experimental group and 3.45 in the control group, measured in the form of a 5-point scale. The self-esteem in the experimental group was significantly higher than that in the control group. Previous studies investigating the effects of self-esteem programs for senior elementary school students or junior high school students (grade 6–7) also showed a significant improvement in the self-esteem of students.

While the self-esteem programs in the previous studies were focused on infants, low-income bracket school children and students with learning disabilities, the findings of the previous studies were consistent with those of the current study in terms of improving the participants' self-esteem. Based on the findings of this study, the self-esteem program would be meaningful in terms of increasing the self-esteem in school children and improving the sense of positive peer attachment by offering a time of desirable friendship.

In this study, the self-esteem improvement program consisted of five parts, including introduction (week 1–2), self-understanding (week 3–5), personal relationship (week 6–10), sense of purpose/competence (week 11) and conclusion (week 12). The first 2 weeks are especially planned to provide time for introducing himself/herself. It is an ice-breaker period of getting to know each other. However, many students reported that the students were shy and that it was not easy to follow the sessions for the first time, so they wanted to have more than 2 weeks to grow close to other students. Based on the comments, 2 weeks were not long enough for the grade 4 students to become close to each other and share their experiences throughout the 12 sessions. Therefore, an introduction period of more than 2 weeks should be planned in the self-esteem programs to test the effects in future studies. Also,

many students in the study desired having a consistent time and place for counseling at the completion of the program, as there was not enough time or place for counseling with the teachers or school nurses in the elementary schools. Based on this finding, it may be necessary to set up counseling rooms other than school health rooms to provide a consistent space for counseling to improve self-esteem in school children.

In this study, almost half of the participants in the experimental and control groups were from single-child families (44%, 41%), showed a high level of stress in school (52%, 59%) and had less than 1 hour (39 minutes, 40 minutes) per day of conversation time with their parents. The participants in this study showed problematic behaviors (over 13 points based on the CPSQ). The findings of this study were consistent with those of previous studies in terms of the high level of stress in school and the relationship with parents being related to the problematic behaviors in the school children, along with the level of self-esteem, peer attachment and school adjustment [7,32]. Thus, there seems to be a need for providing the self-esteem improvement programs and offering consistent personal counseling time to manage the stress levels of students in schools and improve their relationships with the parents by developing inclusive relations with the families of the students.

Generally, 12–27% of the school children show psycho-health problems, but only some of them are managed by the health care system (16–33%) [33]. Problematic behaviors are not easily resolved in school children, and the difficulties have persisted throughout the period of the development in 60% of the students [34]. The problematic behaviors in children are not easily noticed and become pronounced over the school lifetime [35]. The problematic behaviors develop into significant difficulties related to school or social maladjustments if not managed appropriately [11,14]. Thus, it is necessary to prevent and manage such behavior patterns in advance. In addition, the level of self-esteem in grade 4–5 students is the lowest in elementary schools, and active involvement is necessary for developing and managing self-esteem improvement program.

Although the measurement of the changes was desired in the behavior before and after treatment and between the groups, such was not completed as many of the participants declined to be measured on problematic behaviors. In addition, the questions on the variables related to problematic behaviors such as type of family (single-parent, grandparent-grandchildren family, divorced family etc.) were not completed, as the participants declined to answer the questions and were sensitive to the questions relating to the types of families. We need to consider the dynamics of the change in family types in the counseling of school nurses or teachers in elementary schools, as many current families in South Korea have become single-parent, divorced parent and grandparent-grandchildren family. One of the limitations of this study was its impossibility to generalize the results to other cities as the study was only performed in two elementary schools of one city (D-city, Korea). Therefore, there is a need for developing the self-esteem program for school children in different settings and cities and test their effects in future studies.

Based on the findings of the study, identifying the factors related to the problematic behaviors in school children and understanding the home environment such as the type of family and school life are necessary to maximize the effects of the self-esteem program on self-esteem and peer attachment in school children. The study was meaningful in that the self-esteem program was provided to the school children showing problematic behaviors in elementary schools and improved their self-esteem and peer attachment. For future studies, we suggest that providing the program for school children in different settings such as school, institution and special-education schools and investigating the effects of the self-esteem program on self-esteem and peer attachment. In addition, the development of the student-oriented self-esteem programs should consider the students' home environment and school life to maximize the effects of the program.

Conclusion

The self-esteem improvement program in the current study improved self-esteem and peer attachment in elementary school children. The self-esteem program helped acknowledge the peers' name, helped participants realize what they want and increase their connections. The findings of this study are limited in its generalizability because this study was performed at two schools in one city. The program needs to be considered as a formal and consistent program for children in elementary schools to improve their self-esteem and peer attachment.

Conflict of interest

None of the authors have any conflicts of interest to declare.

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