

Effects of Sexual Abuse Prevention Education Program on Sexual Knowledge and Attitude among Elementary School Students

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Purpose: The purpose of this study was to investigate the effects of sexual abuse prevention education program linked to elementary physical and psychological development on sexual knowledge and attitude. **Methods:** The participants were the elementary school students of fifth and sixth grades in S city, South Korea (experimental, comparison, and control group=96, 96, and 74, respectively). The experimental group received sexual abuse prevention education linked physical and psychological development, 6 sessions (3 sessions are physical and psychological development educations and 3 other sessions are sexual abuse prevention educations). The comparison group received sexual abuse prevention educations, 3 sessions (the same curriculum of the experimental group). The control group didn't receive any sexual education. The data were analyzed by χ^2 test and t-test, and ANOVA using the SPSS program. **Results:** The experimental group showed significantly better sexual knowledge and attitude than the comparison and control group. **Conclusion:** Sexual abuse prevention education program linked physical and psychological development is required for elementary school students, to improve the sexual knowledge and attitude.

Key Words: Sexual abuse, Education, School, Students, Development

INTRODUCTION

1. Necessity of the Study

As children sexual abuse becomes a social issue, voices urging the prevention of sexual abuse are growing rapidly. According to Supreme Public Prosecutors' Office, children sexual abuse cases are constantly growing such as 735 in 2004, 844 in 2006, 971 in 2008 and 1,004 in 2010. As 958 children sexual abuse cases were reported in 2012 and 1,051 cases in 2013, approximately 1,000 children a year are exposed to sexual abuse crimes [1]. Sexual abuse is defined as doing a sexual act or asking someone to do a sexual act for the sexual satisfaction [2]. It causes fatal aftereffects on victims. Especially, children victims may get fatal effects on their growth and development and may have intellectual, emotional, social and sexual developmental disorder [3]. Therefore, in sexual abuse primary preventive education

is very important as well as post countermeasures [2].

To prevent sexual abuse and improve sexual consciousness, sexual education is given in school. However, current sexual education in school is often a mere formality. According to the guidelines of Ministry of Education, Science and Technology [4] schools provide sex education 15 hours a year but it is not an independent curriculum but is given in related subject classes. Therefore it often becomes a formality and cannot contribute much to the composition of the right sexual values. According to the investigation of sex education conditions by Planned Population Federation of Korea, out of 812 elementary school students who answer the survey 48.5% answered that they had sex education more than once a month, 21.6% answered that they had 2 to 3 times a semester, 17.0% more than once a semester, and 7.4% more than once a year and 5.5% answered that they did not have any sex education at all. It shows that there is difference between the actual hours of

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sex education and the hours that students perceive. It implies that students do not perceive that those are sex education hours as sex education is performed in related subject classes or sex education is not performed actually as planned [5].

As children sexual abuse incidents occur often and become social issues, the priority is placed on sexual abuse preventive education. According to the study on the perception and attitude on children sexual education on 812 elementary school students in Korea by Ministry of Health and Welfare and Planned Population Federation of Korea, the most frequently learned content in school sex education was sexual abuse prevention (44.1%). The words 'sex' reminds were gender (male and female)(33.1%) and then sexual abuse (11.7%). It shows that school sex education is focused on sexual abuse preventive education [5]. As systematic sex education is not performed as such, sexual preventive education which is performed according to social necessity can make elementary school students have negative attitudes on sex. Additionally, Zwi et al. [6] addressed that sexual abuse preventive education could make negative effects on children such as anger, fear, terror and nightmare.

Elementary school period is when they are easily affected by peers and environments as well as parents and siblings as their scope of movement is widened [7] and includes adolescence when they experience physical and psychological changes. As changes as secondary sexual characters emerging in this time are signals to prepare for another life, it is very important to love and value others as well as themselves by recognizing the reasons rather than perceiving the changes in themselves as simple phenomena. Therefore systematic education should be performed so that they can accommodate individual difference in sexual maturity and difference between male and female and compose right sexual attitude, sexual consciousness and sense of value for other sex based on right knowledge on sex [8].

According to Planned Population Federation of Korea and Health Promotion Project, contents that they want to include in school sex education are in the order of sexual abuse prevention (86.1%), definition of sex (53.9%) and genital organ management (48.9%) among grade 1 to grade 4 students. Among grade 5 and grade 6 students, they are in the order of physical and psychological changes in adolescence (67.5%), sexual abuse prevention (57.5%) and damages by pornography and coping method (54.6%) [9]. In the study by Bae and others [10], grade 6 students wanted to have sexual education contents such as adolescence (43.3%), AIDS (17.5%) and sexual abuse (10.0%). As they want to include different contents in sex education according to their grade, we need to develop sex education considering physical and psycho-

logical development stage of the participants.

Sexual education emphasizing sexual abuse prevention and countermeasures without sex education considering physical and psychological development stage may reduce human relations, make them perceive current or future changes in them, and furthermore they may have negative sexual values [6]. Through sexual abuse prevention education considering physical and psychological development, they should understand birth and development, compose values to respect life, understand physical and psychological difference between men and women, understand changes in themselves, compose good values on sex by managing sex healthy and respect others, and make healthy behaviors related to sex.

Previous studies on sexual abuse prevention [2,11-16], they did not deal with effects of sexual abuse prevention education on general knowledge on sex although they verified effects of education focusing on sexual abuse prevention. There are no studies on the effects of sexual abuse prevention education considering physical and psychological development stages of the subjects. Additionally, studies reported different results regarding the effects of sexual abuse prevention education on sexual attitude. Therefore, this study tried to propose sexual abuse prevention education method to compose the right sex knowledge and sex attitudes in childhood by comparing the effects of sexual abuse prevention education connected with physical and psychological development education including physical and psychological development stages of the subjects and general sexual abuse prevention education.

2. Purpose of the Study

The purpose of this study is to provide basic sources for systematic sexual abuse prevention education to compose the right values of sex by executing sexual abuse prevention education connected with physical and psychological development education and general sexual abuse prevention education respectively, comparing sex knowledge and sex attitudes, verifying the effects of sexual abuse prevention education connection physical and psychological development.

3. Hypotheses of the Study

Hypothesis 1. There will be difference in sex knowledge between the experimental group who gets sexual abuse prevention education connection physical and psychological development, the comparison group who gets gen-

eral sexual abuse prevention education without education on physical and psychological development, and the control group who gets no sexual education.

Hypothesis 2. There will be difference in sex attitude between the experimental group who gets sexual abuse prevention education connection physical and psychological development, the comparison group who gets general sexual abuse prevention education without education on physical and psychological development, and the control group who gets no sexual education.

METHODS

1. Research Design

This study was designed and performed as nonequivalent 3 group pre and post experiment design where sexual abuse prevention education connecting physical and psychological development is executed on Grade 5 and 6 elementary students and effects of the education on sex knowledge and sex attitude are identified. Previous studies [2, 11-16] compared and analyzed the experimental group who got general sexual abuse prevention education and the control group without sexual abuse prevention education. In this study, the group who got general sexual abuse prevention education became the comparison group and the group who got sexual abuse prevention education connecting physical and psychological development became experimental group. It was tried to verify the effects of sexual abuse prevention education connecting physical and psychological development and general sexual abuse prevention education on sex knowledge and sex attitude. To prevent expansion and contamination of experiment handling the three groups received health education during the same period so that they could not know which group they were in. Additionally, those three groups were assigned to different classes to prevent mutual interchanges.

2. Study Subjects

Convenience sampling was performed on all the Grade 5 and Grade 6 students in S elementary School located in Mapo-Gu in Seoul. Experiment group includes 2 Grade 5 classes and 2 Grade 6 classes (Male: 47, Female: 49), the comparison group includes 2 Grade 5 classes and 2 Grade 6 classes (Male: 46, Female: 50), and the control group includes 1 Grade 5 classes and 2 Grade 6 classes (Male: 38, Female: 36). The size of sample was calculated using G*Power 3.1 program setting effect size (d) .20, test power ($1-\beta$) .80, significance level (α) .05 and number of groups 3

based on previous studies [17,18] and the sample size was calculated to be 244. As the subjects of this study were 266 so it satisfied the sample size requirement. During the study, there was no going-out of coming-in student. To reduce wastage rate, researcher collected the survey materials in person and checked insincere answers. Thanks to efforts all the subjects' materials ($n=266$) could be used in the final analysis.

3. Research Tools

Sex consciousness is an opinion or values on sex and is composed of sex knowledge and sex attitude [19]. It was tried to identify the effects of sexual abuse prevention education connected with physical and psychological development education on changes in sex knowledge and sex attitude.

1) Measurement of sex knowledge

The survey questionnaire that Lee et al. [20] developed with the validity verification by 4 health care teachers and a majoring professor and Ryu et al. [21] modified and supplemented was used with the verbal authorization of the developers. The tool is composed of 20 questions such as 12 questions in physical and sex psychological development area, 5 questions in sex health area and 3 questions in sex culture and sex ethics area. They include physical changes, psychological changes, muscle development, sex hormone, menstruation, behaviors in menstruation, wet dream, ejaculation, circumcision and sexual abuse. In each question, subjects were asked to select from 'Yes,' 'No' and 'I Don't Know.' Total score was calculated as giving 2 to correct answers, 1 to incorrect answers and 0 when they answer that they don't know. The range of points is minimum 0 to maximum 40. As the point gets higher, they have better sex knowledge[21]. Reliability of the tool at the time of development was Cronbach's $\alpha = .88$ and the reliability of the tool in this study was Cronbach's $\alpha = .89$.

2) Measurement of sex attitude

The survey questionnaire that Lee et al. [20] developed with the validity verification by 4 health care teachers and a majoring professor and Ryu et al. [21] modified and supplemented was used with the verbal authorization of the developers. The tool is composed of 20 questions such as 9 questions in physical and sex psychological development area, 3 questions in sex health area, 2 questions in human relationship area and 6 questions in sex culture and sex ethics area. They include sexual curiosity, adolescence, expectation to physical changes, roles of males and females,

importance of the role, sexual abuse and precious body. In each question, subjects were asked to answer the level of consistency according to their feelings or opinion as 5 steps such as from 'Yes, Very Much,' to 'No, Not At All.' The points of the answers were calculated by converting strong positive attitude as 5 and strong negative attitude as 1. The range of the points is from 20 to 100. As the point gets higher, they have natural and positive attitude toward sex [21]. Reliability of the tool at the time of development was Cronbach's $\alpha = .85$ and the reliability of the tool in this study was Cronbach's $\alpha = .86$.

4. Research Procedure

1) Sexual abuse Prevention Education connected with Physical and Psychological Development Education Program

Sexual abuse prevention education connected with physical and psychological development education (6 units) was given to the experiment group, sexual abuse prevention education without physical and psychological development education (3 units) to the comparison group and no sex education including sexual abuse prevention education to the control group, referring to previous studies [10,11,19,21,22]. To exclude effects of number of education hours, the comparison group and the control group had 3

units and 6 units of health education which is not sex education respectively. Education contents were prepared by the researcher based on Sex and Health area in Grade 5 and 6 Health Subject textbooks (10 types) referring to the previous studies [12,13,19-21] and contents and methods of sexual abuse prevention education to experiment group and the comparison group were same.

While the existing sexual abuse prevention education was emphasizing the negative aspects of sex as dealing with sexual abuse prevention [2,11-16], the sexual abuse prevention education program in this study proposed positive and negative sex in balance by connecting with physical and psychological development. Sexual abuse prevention education program is composed of 6 themes such as preciousness of life leaning about the meaning of the seeds of life and management methods, physical and psychological changes in adolescence learning meaning of adolescence changes in the adolescence and countermeasures, male and female sexual organ development in adolescence and how to manage them according to physiological phenomenon, meaning and damages of sexual abuse, prevention and countermeasures of sexual abuse prevention, and peer sexual abuse learning the meaning and prevention methods of peer sexual abuse (Table 1). To enhance the effects of the education, in every unit in-

Table 1. Sexual Abuse Prevention Education Program linked Physical and Psychological Development

Sessions	Topics	Goals	Contents	Methods & materials
1	The importance of life	I can explain the birth of life and managing the seeds of life	The birth of life Managing the seeds of life	Power point templates, video, report, individual activity sheets
2	Physical and psychological changes of puberty	I can understand physical and psychological changes of puberty	The meaning of puberty Changes of puberty Coping with changes in puberty	Power point templates, doll of puberty, group activity sheets
3	Reproductive organ development and physiology in puberty	I can explain physiology of man and woman	Physiology of man Physiology of woman	Power point templates, pictures of genital, group activity sheets
4	The meaning of sexual abuse and the damage	I can Know the meaning and damage of sexual abuse	The meaning of sexual abuse Damage of sexual abuse Creating sexual punishment	Power point templates, crying child pictures, post-it
5	Sexual abuse prevention and coping	I can understand prevention of sexual abuse and treat the situation properly	The characteristics of sexual abuse Prevention of sexual abuse Coping with sexual abuse	Power point template, individual activity sheets, group activity sheets
6	Prevention of sexual abuse among peers	I can explain the meaning and prevention of peer sexual abuse	Kind of peer sexual abuse Damage of peer sexual abuse Prevention of sexual abuse among peers	Power point template, group activity sheets, post-it

dividual and group activity sheets were provided and video, sexual organ models, adolescence dolls and picture materials provided.

At Unit 1, seeds of life (sperm and egg) and growth of embryo are taught under theme of preciousness of life. While the previous studies [10,19,22] focused on thanking parents through activities knowing the growth process of embryo, writing thank you letter and simulating the pregnancy experience, the education in this study focuses on letting them know the preciousness of life and perceive and practice how to manage their seeds of life.

They are asked to think reversely from the birth of baby and trace down to the seeds of life in males and females. They have time to think about the management of seeds of life and to make sure of the management. Through fertilization process of sperm and egg and growth of fetus in the womb, the preciousness of life was taught. It is also emphasized that life is also a part of sex. They are asked to respect others' life as their own lives and not to consider sex as shameful.

In the Unit 2 changes in the adolescence and how to respond to them are educated under theme of physical and psychological changes. In this unit, they learn to understand changes that they are experiencing and accept them as positive things as everyone experiences. They are asked to talk about the responses on the changes. They are also asked not to show negative responses to changes in their friends and not to be anxious by comparing them with their friends.

In the Unit 3, physiological phenomena that they experience in adolescence are studied under theme of sexual organ development and physiological phenomena.

They come to thank and think positively on physiological phenomena by identifying the principle under it not perceiving the physiological phenomenon as a simple phenomenon, knowing the mystery of human body and preparing the life in the future. Additionally, they can expand perception on sex as well as changes in adolescence to relationship with others by considering and understanding friends who experience physiological phenomena in adolescence.

In the Unit 4, meaning and damages of sexual abuse are dealt with. The concept of sexual abuse is explained and it is emphasized that sexual violence is a crime by explaining it focusing on 'abuse' not 'sex'. Through the group activities to understand the pains that the victim may feel and to console the victims, supports for the victims by people around them are emphasized. They are asked to identify problems in the punishment for sexual abuse and to legislate and present the law to punish offenders.

In the Unit 5, sexual abuse prevention and coping methods according to various situations are taught. Sexual abuse situations that can happen frequently are presented and students are asked to think about the preventive and coping methods of sexual abuse incidents. They are asked to practice that they have learned in the class through indirect experiences by sharing their opinions with their friends.

In the Unit 6, peer sexual abuse is studied. According to 2012 Seoul Sun Flower Child Center Report, cases that offenders and victims are in the same grade are around 22.7 % [23]. However, previous studies regarding sexual abuse prevention education [11,13,15] and regarding sex education including sexual abuse prevention [10,19,21,22] have dealt with sexual abuse damage prevention only. Therefore, it is needed to expand the education to preventive methods not to inflict sexual abuse escaping from the damages inflicted on the victims. Accordingly, this study provides peer sexual abuse cases to make them recognize the behaviors that they made for fun as sexual abuse behaviors. It asks them not to make sexual abuse behaviors and if they made sexual abuse behaviors without intention it asks them to make apology actively.

2) Data Collection

Data collection was performed from May 6 to June 23 in 2013 with the consent of the study participants and their parents. Pretest was done a week before the education. The researcher distributed sex knowledge and sex attitude questionnaires directly to the subjects, explained purpose of the survey and how to answer the survey, asked them to answer and collected the sheets at the place. For the experiment, the researcher gave education once a week to each class in health education room. It takes about 40 minutes per unit. Posttest was performed on three groups such as experimental group, the comparison group, and the control group using the same measurement a week after the sex education. After the posttest, sexual education was given to the control group and the comparison group using experiential class for the fairness of educational opportunities.

3) Ethical Considerations

As subjects are elementary school student who are vulnerable group and educational contents are related to sex, the study was approved by Kyung Hee University Ethics Committee (KHSIRB-13-010 (RA)) before execution for the ethical considerations. Before starting the study, the purpose of the study and confidentiality of survey answers were explained to students and parents through school

newsletters. The study was executed with informed consents letting them know that they could discharge from the study at any time according to their will. Additionally, the comparison group received physical and psychological development education like the experimental group so that they could know positive and negative sex altogether [15].

5. Data Analysis

Collected materials were coded and analyzed using SPSS/WIN 21 program.

- 1) General characteristics and sex related characteristics of experimental group, the comparison group and the control group were analyzed with real number and percentages. For homogeneity test χ^2 test was used. For the homogeneity test of sex knowledge and sex attitude of the three groups ANOVA was used.
- 2) To verify the effects of sexual abuse prevention education connected with physical and psychological development education program on sex knowledge and sex attitude of the three groups, one-way analysis of variance and t-test were used.

RESULTS

1. Homogeneity Test of General Characteristics and Sex-related Characteristics of the Participants

Comparing general characteristics of the subjects such as sex, education of father and mother, conversation with parents and domestic atmosphere, there were no statistically significant differences among three groups. Additionally, comparing the sex-related characteristics such as secondary sex characteristics, experience in school sex education and origin of sex knowledge, there were no statistically significant differences among three groups. Therefore, it was confirmed that the three groups are homogeneous in general characteristics and sex-related characteristics (Table 2).

2. Homogeneity Test of the Dependent Variables

There was no statistically significant difference in sex knowledge among three groups such as 22.84 in experimental group, 21.46 in the comparison group and 19.81 in

Table 2. Homogeneity Test of General Characteristics and Characteristics related to Sex (N=266)

Division	Characteristics	Categories	Exp (n=96)	Com. (n=96)	Cont. (n=74)	χ^2	p
			n (%)	n (%)	n (%)		
General characteristics	Gender	Male	47 (49.0)	46 (47.9)	38 (51.4)	0.20	.904
		Female	49 (51.0)	50 (52.1)	36 (48.6)		
	Education (father)	≤ High school	13 (13.5)	10 (10.4)	8 (10.8)	9.64 [†]	.647
		≥ College graduate	59 (61.5)	63 (65.6)	46 (62.2)		
		Do not know	24 (25.0)	23 (24.0)	20 (27.0)		
	Education (mother)	≤ High school	16 (16.7)	20 (20.8)	13 (17.6)	4.76 [†]	.781
		≥ College graduate	58 (60.4)	56 (58.4)	43 (58.1)		
		Do not Know	22 (22.9)	20 (20.8)	18 (24.3)		
	Family atmosphere	Free	66 (68.8)	58 (60.4)	50 (67.6)	3.11 [†]	.540
		Average	24 (25.0)	33 (34.4)	22 (29.7)		
		Strict	6 (6.2)	5 (5.2)	2 (2.7)		
	Secondary sexual characteristics	Yes	78 (81.3)	77 (80.2)	60 (81.1)	3.50	.174
		No	18 (18.7)	19 (19.8)	14 (18.9)		
Characteristics related to sex	Experience of sexuality education	Yes	94 (97.9)	93 (96.9)	72 (97.3)	6.46 [†]	.101
		No	2 (2.1)	3 (3.1)	2 (2.7)		
	Sources of sex intelligence [†]	Parents	47 (49.0)	52 (54.2)	31 (41.9)	2.52 [†]	.284
		Teacher	51 (53.1)	55 (57.3)	40 (54.1)		
		Siblings	2 (2.1)	7 (7.3)	3 (4.1)		
		Friends	7 (7.3)	14 (14.6)	14 (18.9)		
		TV, internet, video	17 (17.7)	17 (17.7)	19 (25.7)		
		Book	19 (19.8)	8 (8.3)	13 (17.6)		
		The others	2 (2.1)	0 (0.0)	6 (8.1)		

Exp.=experimental group; Com.=comparison group; Cont.=control group; [†] Multiple answer; [†] Fisher's exact test.

the control group. There was also no statistically significant difference in sex attitude among three groups such as 45.48 in experimental group, 45.48 in the comparison group and 44.11 in the control group. It shows that the three groups are homogeneous in sex knowledge and sex attitude (Table 3).

3. Hypothesis

The analysis results of the effects of sexual abuse prevention education connected with physical and psychological development education on sex knowledge and sex attitude of elementary school students are found in Table 3.

When analyzing variances of pre- and post- sex knowledge of experimental group, the comparison group and the control group, it was found that sex knowledge of the experimental group increased from 22.84 to 23.32, the comparison group dropped from 21.46 to 19.08, and the control group slightly increased from 19.81 to 19.93. There was statistically significant difference in sex knowledge of three groups.

Sex attitude of experimental group, the comparison group and the control group was changed after the experiment such as the experimental group from 45.48 to 61.73, the comparison group from 45.48 to 43.45 and the control group from 44.11 to 46.04. There was statistically significant difference in sex attitude of three groups.

When compared sex knowledge and sex attitude between the experimental group who had sexual abuse prevention education connected with physical and psychological development education and the comparison group who had sexual abuse prevention education after the experiment, the experimental group showed significantly higher sex knowledge and sex attitude than the comparison group (Table 4). Additionally, when comparing sex knowledge and sex attitude of the comparison group who received sexual abuse prevention education and the control group without any sex education including sexual abuse prevention education, it was found that there was no significant difference in sex knowledge and sex attitude of the comparison group and the control group (Table 5).

Table 3. Changes in Sexual Knowledge and Sexual Attitude Scores Pre-post Application of the Sexual Abuse Prevention Education (N=266)

Variables	Groups	Exp. (n=96) M±SD	Com. (n=96) M±SD	Cont. (n=74) M±SD	F	p
Sexual knowledge	Pretest	22.84 (8.84)	21.46 (8.37)	19.81 (8.21)	2.66	.072
	Posttest	23.32 (5.15)	19.08 (7.98)	19.93 (8.84)	8.74	< .001
Sexual attitude	Pretest	45.48 (10.46)	45.48 (12.13)	44.11 (11.67)	0.39	.677
	Posttest	61.73 (8.46)	43.45 (10.28)	46.04 (10.95)	94.03	< .001

Exp.=experimental group; Com.=comparison group; Cont.=control group.

Table 4. Changes in Sexual Knowledge and Sexual Attitude Scores of the Experimental Group and Comparison Group (N=192)

Variables	Groups	Exp. (n=96) M±SD	Com. (n=96) M±SD	t	p
Sexual knowledge	Pretest	22.84±8.84	21.46±8.37	1.11	.270
	Posttest	23.32±5.15	19.08±7.98	4.37	< .001
Sexual attitude	Pretest	45.48±10.46	45.48±12.13	0.00	1.000
	Posttest	61.73±8.46	43.45±10.28	9.25	< .001

Exp.=experimental group; Com.=comparison group.

Table 5. Changes in Sexual Knowledge and Sexual Attitude Scores between the Comparison and Control Group (N=170)

Variables	Group	Com. (n=96) M±SD	Cont. (n=74) M±SD	t	p
Sexual knowledge	Pretest	21.46 (8.37)	19.81 (8.21)	-1.29	.199
	Posttest	19.08 (7.98)	19.93 (8.84)	1.44	.152
Sexual attitude	Pretest	45.48 (12.13)	44.11 (11.67)	-0.75	.456
	Posttest	43.45 (10.28)	46.04 (10.95)	1.69	.093

Com.=comparison group; Cont.=control group.

DISCUSSION

This study is to verify the effects of sexual abuse prevention education connected with physical and psychological development education on sexual knowledge and attitude in elementary school students. While previous studies compared and analyzed the experimental group with the sexual abuse prevention education and the control group without the sexual abuse prevention education. In this study the group with sexual abuse prevention education was set as the comparison group, the group with sexual abuse prevention education connecting physical and psychological development as the experimental group to verify the respective effects of sexual abuse prevention education connecting physical and psychological development and the general sexual abuse prevention education on sex knowledge and sex attitude. Study results show that sexual abuse prevention education connected with physical and psychological development education was effective on enhancement of sex knowledge.

Sex knowledge of the experimental group with sexual abuse prevention education connected with physical and psychological development education was increased after experiment while sex knowledge of the comparison group with general sexual abuse prevention education decreased and that of the control group was not much different after the experiment. The reason why the experimental group showed higher sex knowledge than the comparison group is thought that the education could make the students perceive the preciousness of life through physical and psychological development education and provide information on the right responding method according to physical and psychological changes through physical and psychological development education. It seems the method of education such as providing sexual abuse prevention education after giving right information on sex makes their concentration on the education and eventually makes positive effects on the acquisition of knowledge on sexual abuse as well as general sex knowledge. The result of this study is consistent with previous studies [17,19,24] addressing that sex education including sexual abuse prevention education enhanced sex knowledge. It shows the sexual abuse prevention education connected with physical and psychological development education has effects on enhancement of sex knowledge.

However, sex knowledge of the experimental group with sexual abuse prevention education connected with physical and psychological development education was increased less than in previous study. When sex knowledge points are converted to total point 100, the point was

increased by 1.2. It is quite less than other studies such as Kim [12] and Kim [13] showing about 10 points increase, Lee and Lee [24] showing about 20 points, and Im and Park [17] and Lee et al. [19] showing about 30 points increase. The reason may be in the difference in sex knowledge measurement. Previous studies on the effects of sexual abuse prevention education [12,13] measured knowledge on sexual abuse and they used different tool to measure sex knowledge from this study which deal with physical and psychological changes in adolescence, how to deal with those changes, sexual physical management and sexual abuse prevention. Secondly, it may be because of the contents of sex education. When looking into the sex education contents of the previous studies, Im and Park [17] performed a unit of sexual abuse prevention education in total 10 units' sexual education and Lee et al. [19] performed a unit of sexual violence prevention education in total 11 units' sex education. Lee & Lee [24] executed a unit of sexual violence prevention education in total 12 units' sex education. Most of previous studies executed more hours of sex education than this study (6 units) but less hour of sexual abuse education than this study (3 units). Therefore, sex education time should be expanded and contents from various areas should be included in sex education to greatly improve the points of sex knowledge. Based on the previous studies on sex education methods [10,17,21,22, 25,26], it is recommended to utilize Information & Communication Technology (ICT) rather than lecture type of education, to introduce various activity oriented education and cooperative education in which students can participate, and to use various coaching methods in order to improve sex knowledge.

In addition, when comparing sex knowledge of the comparison group with physical and sexual abuse prevention education without physical and psychological development education and the control group without any sex education, no significant difference in changes in the points of sex knowledge was found in groups. It means general sexual abuse prevention education is not effective on the improvement of sex knowledge, which is inconsistent with previous studies' results [2,11-14,16]. Son [2] reported that sexual abuse prevention education was effective on the improvement of knowledge in sexual abuse prevention and their responding capabilities when he studied on Grade 1 elementary school students. Bae [11] developed CD-ROM on 6 units regarding sex abuse and let Grade 1 to 3 elementary school students study with CD-ROM. He reported that knowledge on sexual abuse was significantly increased. Kim [12] reported that knowledge on sexual abuse prevention was not significantly dif-

ferent among Grade 4 elementary students but it significantly increased at Grade 5 and 6, Kim [13] reported that the experimental group showed significant increase in sexual abuse prevention knowledge although there was no significant difference in general sex knowledge of the control group with general sex education and the experimental group who received sexual abuse prevention education with general sex education. Moon [14] who studied on Grade 6 elementary school students reported that points on the perception on sexual abuse prevention significantly increased in some items and Yook et al. [16] reported in their study on the perception on sexual abuse that there was significant difference in the knowledge on sexual violence according to whether they had sexual abuse prevention education or not. As such, most of previous studies reported that sexual abuse prevention education was effective on the improvement of knowledge on sexual abuse prevention. However, in this study it did not show significant difference. It is because this study measured sex knowledge in general areas including sexual abuse prevention knowledge so the sex knowledge measured in this study is different from the sex knowledge measured in the previous studies. Additionally, Kim [12] reported that the reason why there was no difference in sexual abuse prevention knowledge in Grade 4 students that they had low level of understanding on sex because of insufficient pre education. It shows young students cannot understand sex property only with sexual abuse prevention education. In this study, it is thought that sexual abuse prevention education without physical and psychological development education will not help students to understand sex properly as it deals with a part of 'sex' only and therefore it does not make effects on the improvement of sex knowledge. Effects of hours of education cannot be excluded. The comparison group received less hours of sex education comparing to the experimental group. Moon [14] addressed that the reason why there was no big difference in the perception on sexual abuse between the experimental group receiving sexual abuse prevention education and the control group without the sexual abuse prevention education was the effects of education through mass media. The researcher also believes that there was no significant difference in sex knowledge between the comparison group and the control group as education through parents and mass media affected sex knowledge of the control group.

Although there was no significant difference, the score of sex knowledge in the comparison group was dropped by 6 point from 53.7 to 47.7 when converting the points into 100 points as full score, while sex knowledge of the control group did not change much as 49.5 and 49.8. It is be-

cause the education focusing on sexual abuse gave them negative perception on sex and affected negatively on the existing sex knowledge. Educating sex abuse can reduce sex knowledge because it may occur negative feelings such as fear, anger and anxiety and shrink though on sex, although it may be effective on preventive activities by alerting and promoting the awareness on sexual abuse [6]. Therefore, to improve sex knowledge sexual abuse prevention education connected with physical and psychological development education rather than general sexual abuse prevention education should be introduced so that they can perceive sex appropriately.

Sexual abuse prevention education connected with physical and psychological development education was effective on the improvement of sex attitude. Sex attitude of the experimental group with sexual abuse prevention education connected with physical and psychological development education increased by 16.25 while that of the comparison group with general sexual abuse prevention education dropped by 2.03. That of the control group increased 1.93. It is consistent with the result of the previous studies [10,27] showing that sex education including sexual abuse prevention education increased sex attitude. It shows that sexual abuse prevention education connected with physical and psychological development education made positive effects on the composition of sex attitude. Bae et al. [10] thought that the provision sex knowledge utilizing picture materials from the perspectives of biology, behavioral science and moral contributed to positive sex attitude composition. The same can be applied to this study. In this study, multilateral sex education including preciousness of life and changes in adolescence make them acknowledge sex positive and consider others, which contributes to increase of sex attitude points of the experimental group. In this study, they were educated not to take sex lightly or shamefully and asked to think about the reason rather than focusing on changes in adolescence so that they could accept their changes positively. Furthermore, they were asked to expand the perception on sex to the relationship with others not limiting it to individual problems so that they could think about sexual abuse from various perspectives. Such changes in perspectives on sex may make positive effects on sex attitude. To improve sex attitude, it is important to provide multilateral information on 'sex' and sex attitude can be improved more when students participate in the information provision based on the results of previous studies [10,21]. Lee et al. [19] reported that parents' attitude at home are closely related with sex attitude of children. Therefore, it is important for parents to have good sex attitude and systematic sex education for parents

is also important.

Next, there was no difference in sex attitude between the comparison group with sexual abuse prevention education without physical and psychological development education and the control group without any sex education. It implies that general sexual abuse prevention education did not make any effects on sex attitude. The result is not consistent with Kim's [13] result showing significant increase in sex attitude after education, while it is consistent with the results of previous studies by Bae [11] and Park and Kwon [15] showing there was no significant difference in sex attitude after education. Bae [11] explained the reason why there was no significant difference in sex attitude was that the hours of education were not sufficient to change the attitude and attitude could be affected by various other factors as well besides education. Although insignificant, there was slight increase in the control group without any education by 1.93 but there was drop in the comparison group by 2.03 after the education. Based on the previous studies [28,29] addressing that there was positive correlation between sex knowledge and sex attitude, it is thought that sex knowledge of the comparison group made effects on sex attitude in the same context that sex knowledge of the comparison group dropped after the education. Bae et al. [10] addressed that children's negative thought on sex education (80.0%) was because sex education was focused on sexual abuse prevention education. It explains that sex attitude point of the comparison group dropped after general sexual abuse prevention education. The researcher of this study also believes that the reason why sex attitude point of the comparison group dropped is that sexual abuse prevention education without giving positive information on sex is given to the students who do not understand sex very well and negative aspects of sex are emphasized. Sexual education focusing on sexual abuse prevention may compose anxiety and fear against sexual abuse and emphasize sexual abuse prevention behaviors only. Therefore, it may limit the thoughts on sex, crook the concept of sex and result in negative sex attitude. To compose the right sex attitude of children, sexual education connected with physical and psychological development should be introduced to let them have correct and proper concept of sex.

This study can be applied in the school field directly as it provides direction of sexual abuse prevention education. It can be basic sources for a systematic sexual abuse prevention education program by studying the effects of sexual abuse prevention education connected with physical and psychological development education considering the development stages of the subjects on the general

sex knowledge. However, this study has the limitations. First, as the participants of this study are limited to Grade 5 and 6 students in an elementary school in Seoul with convenience sampling. Therefore, there is limitation to generalize the results to other regions or grade. To increase the external validity, it is recommended to study on more students in various areas with random sampling. Second, there is difference in sex knowledge measurement tool. Previous studies used a sex knowledge measurement tool dealing with knowledge on sexual abuse as they studied effects of sexual abuse prevention education, while this study included more items such as physical and psychological changes in adolescence, how to respond to those changes, how to manage sexual organs and how to prevent sexual abuse. It cannot be excluded this difference made effects on the program effect measurement. Third, further analysis is required in that sex knowledge of the experimental group did not increase and there was change in sex knowledge point of the comparison group, which implies that the effects may be significant. Additionally, this study executed the same sex education to Grade 5 and Grade 6 students without considering their development stage according to their Grade. To develop a systematic sexual abuse prevention program considering the development stage, effects by grade should be analyzed and a study on sexual abuse prevention education appropriate for the curriculum by grade should be performed.

CONCLUSION

This study is a quasi-experimental study with 3 group pre and post experiment design to find the effects of sexual abuse prevention education connected with physical and psychological development education on sex knowledge and sex attitude of Grade 5 and 6 elementary school students.

The results say that sex knowledge and sex attitude of the experimental group with sexual abuse prevention education connected with physical and psychological development education are significantly higher than those of the comparison group with physical sexual abuse prevention education without physical and psychological development education and the control group without any sex education. Therefore, it is thought that sexual abuse prevention education connected with physical and psychological development education considering the development stage of elementary school students who will experience physical and psychological changes will improve sex knowledge and sex attitude of the subjects and contribute to composition of the right sexual values. It is also ex-

pected that students need to accept their changes positively and respond to sexual abuse as sexual subjects.

The followings are proposed for further studies based on the results of this study.

First, the improvement of sex knowledge of the experimental group receiving education connected with physical and psychological development education was smaller than that in previous studies. It may be because of difference in tools, education hours and educational contents. Therefore, studies on the effects of sexual abuse prevention education using general sex knowledge measurement tool and studies on program hours and contents should be followed. Second, this study analyzed the effects of sexual abuse prevention education connecting physical and psychological development areas considering development stages of the subjects who are Grade 5 and Grade 6 elementary school students. A systematic sexual abuse prevention education program should be developed through studies comparing effects of sexual abuse prevention education connecting human relationship area, sexual culture and sexual ethics area as well as physical and psychological development area with effects of general sexual abuse prevention education.

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