



## Experimental Article

# Effect of the Nurse-Led "I Am the Hero of my Body" program on the sexual abuse knowledge of children: A quasi-experimental study

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### Abstract

**Objectives:** This study evaluated the effect of the nurse-led "I am the hero of my body" program on children's sexual abuse knowledge levels.

**Methods:** The population of this quasi-experimental study consisted of fourth-grade students in 3 state primary schools in the Ümraniye district of İstanbul. The study was carried out with 52 students in the intervention group and 90 students in the control group (n=142). Data were collected using a sociodemographic information form and the Children's Knowledge of Abuse Questionnaire. The program comprised a single 40-minute session including a Power-Point presentation prepared by the researchers, videos, and role-play techniques. Descriptive statistics, chi-square test, and Mann-Whitney U and Wilcoxon signed-rank tests were used to analyze the data. Statistical significance level was accepted at  $p < 0.05$ .

**Results:** In the pretest, the intervention and control groups were similar in terms of gender, age, place of residence, parental education, parental employment, and previous education from family or teacher. There was a significant difference between pretest and posttest scores in the intervention group ( $p < 0.05$ ). In the posttest, the intervention group had significantly higher good touch and bad touch scores compared to the control group.

**Conclusion:** The program was effective in increasing children's sexual abuse knowledge. The program should be implemented in schools and its long-term results evaluated.

**Keywords:** Child; nurse; sexual abuse.

The helplessness and stigma of being abused as a child causes social isolation<sup>[1]</sup> and can lead to suicide, depression,<sup>[2]</sup> smoking and substance abuse, chronic disease, impaired interpersonal relationships, obesity, and risky sexual behaviors later in life.<sup>[3]</sup> Physical abuse is an important public health problem that adversely affects the child's development as well as negatively impacts the child's family and society as a whole.<sup>[1,3]</sup>

Most physical abuse is known to be perpetrated by people known to the child. These people may be neighbors, relatives,

even parents or caregivers. It is recognized that children with a shy disposition and, most importantly, those who do not know how to say no are less able to evade the situation and seek help when faced with potential abuse.<sup>[4]</sup> Previous studies indicate that abuse prevention education programs for children that include personal safety information and skills are crucial for preventing sexual abuse because they increase children's knowledge about the issue and encourage the right behaviors.<sup>[3,5-7]</sup> These education programs teach children about private body areas and in which situations it is appropriate or in-

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**What is presently known on this subject?**

- Child sexual abuse is an important public health problem and children must be informed about this issue.

**What does this article add to the existing knowledge?**

- The nurse-led I Am the Hero of My Body Program was effective in increasing children's level of sexual abuse knowledge, with 82.7% of students showing an increase in knowledge scores after the program.

**What are the implications for practice?**

- This study showed that nurse-led I Am the Hero of My Body Program is a cost-effective program that can be implemented by nurses working in schools and primary care.

appropriate for others to touch these areas (good/bad touch), thereby enabling the child to protect their body accordingly, ask for help if such a situation occurs, and understand who they can ask for help.<sup>[6-11]</sup> Although children in Turkey lack information about child abuse, the education being provided is inadequate.<sup>[4,6,7,12]</sup> In developed countries, body safety education is provided from the fourth grade of elementary school through the 12<sup>th</sup> grade, and in the United States, such health education is supported by government funding.<sup>[8,13]</sup>

Body safety education should start at an early age, when children are more vulnerable to abuse. Primary school is an especially ideal time to start such health education, as the children are at a suitable level of development.<sup>[3,9]</sup> Although some publications recommend that body safety education should be included in the curriculum and delivered by teachers, some studies show that parents and teachers do not have sufficient knowledge on this subject. In a study conducted by Orak<sup>[14]</sup> (2015) with 9- to 10-year-old students, education was provided to only the mothers of one group with the expectation that the students' knowledge of body safety would increase indirectly due to information received from their mothers. In the other group, the students received personal safety education only from a nurse. The authors concluded that the education provided by the nurse was more effective than the education delivered by way of the mothers. Keser et al.<sup>[15]</sup> (2010) determined in their study examining parental knowledge of abuse that 90% of parents had never been educated on this subject before. In a similar study including the mothers of girls aged 9 and older, Erbil et al.<sup>[16]</sup> (2010) found that mothers only taught their children about male-female body differences, menstruation, and relationships. Eliküçük et al.<sup>[17]</sup> (2011) determined that 43.5% of mothers and fathers had misperceptions about what body safety education was and did not have sufficient and accurate information on the subject. In a study conducted by Gümüş<sup>[18]</sup> (2015), 50% of counselors working in special education schools did not have any education on the subject and 62% did not provide sexual education to the students.

In the international literature, it was reported that teachers in Australia lacked confidence in this area<sup>[19,20]</sup> and refrained from providing body safety education due to lack of time and an appropriate setting.<sup>[19,21,22]</sup> In England, it was determined that teachers did not provide this education because they did not know what information to deliver or how to

convey it.<sup>[23]</sup> In another study, elementary school teachers said they refrained from providing body safety education because they thought parents may object.<sup>[24]</sup> In a study by Cirik et al.<sup>[25]</sup> (2019) in which parents were educated about getting to know their children better, protecting them from abuse, and teaching them about private body areas, parents stated that they were opposed to other family members providing education on this subject. Another qualitative study revealed that male teachers avoided providing such health education.<sup>[6]</sup> In addition to all of these factors, families' traditional attitudes about sex may be a barrier to children receiving body protection education.<sup>[8]</sup> Efforts in our country to inform families and overcome taboos about this issue have been inadequate.<sup>[12]</sup>

It has been pointed out in the literature that school nurses play an important role in educating children about body safety and raising awareness of this issue among their families.<sup>[12,26,27]</sup> Cecucci<sup>[28]</sup> (2017) noted that nurses are in an ideal position to educate children about sexual abuse prevention. While studies on this subject have been conducted in countries that make such health education compulsory in their curricula, there has not been adequate research into this type of health education in Turkey.<sup>[12]</sup> The aim of this study was to investigate the effect of the nurse-led "I Am the Hero of My Body" program (HMBP) on children's level of sexual abuse knowledge.

**Research Hypothesis**

The nurse-led "I Am the Hero of My Body" program will be effective in increasing sexual abuse knowledge levels of children in the intervention group compared to the control group.

**Materials and Method****Study Design**

This was a quasi-experimental, controlled study with a pretest-posttest design.

**Study Population and Sample**

The population of the study consisted of fourth-grade students from 20 different elementary schools in Ümraniye, Istanbul. Sample selection was done using a stratified and cluster sampling method based on school and class. Of the 20 schools in the population, a total of 6 classes, 2 from each of 3 schools, were selected by simple random sampling. Studies on this subject have reported that training is effective in the 10-year age group and that the effectiveness of training increases with age.<sup>[6,11]</sup> Therefore, fourth-grade students (in the 9–11 year age group) were selected for the sample of our study. To avoid the impact of classmate interaction on the results and minimize disruption to educational activities during the study, we planned for one class in each school to comprise the intervention group and the other class to be the control group. After the pretest, the classes from each school were assigned to the intervention and control groups

by drawing lots. Sample size for the study was determined by power analysis performed using the PS: Power and Sample Size Calculation package program (version 3.0). Based on the standard deviation of 4.4 determined in a previous study that used the Children's Knowledge of Abuse Questionnaire (CKAQ)(29) and an expected increase of 2 points, the necessary sample size at 0.05 alpha (type I error probability) and 0.80 beta (type II error probability) levels was determined to be at least 40 for each group. Ensuring that each group included at least 40 children, the pretest was performed with students from the selected classes who met the inclusion criteria and provided informed consent to participate in the study (n=142). There were 52 students from the classes in the intervention group and 90 students from those in the control group. The intervention and control groups showed good homogeneity in terms of student characteristics and pretest results, and the study was conducted with these two groups (Table 1).

### Inclusion and Exclusion Criteria

Students between 9 and 11 years of age who volunteered to participate, whose parents consented to their participation, who were present at school on the day the program was delivered, and completed both the pretest and posttest were included in the study. Foreign nationals whose native language was not Turkish and special education students were excluded.

### Study Setting

The study was performed in 3 public schools. Although abuse prevention programs are not included in the education curriculum, most of the students in the intervention and control groups reported receiving previous education on this subject from school counselors or their parents due to the rising number of abuse cases. This education delivered by the school counselors was carried out by the Ministry of National

**Table 1. Sociodemographic characteristics of the students (n=142)**

Variable	Intervention (n=52)		Control (n=90)		Statistics	
	n	%	n	%	$\chi^2$	p
Sex						
Female	25	48.1	54	60.0	1.89	0.168
Male	27	51.9	36	40.0		
Lives with						
Parents together	45	86.5	84	93.3	1.83	0.176
Parents separated	7	13.5	6	6.7		
Maternal education						
Elementary school	13	25.0	24	26.7	0.42	0.981
Middle school	8	15.4	14	15.6		
High school	10	19.2	19	21.1		
University	7	13.5	13	14.4		
I don't know	14	26.9	20	22.2		
Maternal employment						
Not working	38	73.1	65	72.2	0.01	0.912
Working	14	26.9	25	27.8		
Paternal education						
Elementary school	10	19.2	13	14.4	3.67	0.452
Middle school	8	15.4	9	10		
High school	9	17.3	27	30		
University	12	23.1	17	18.9		
I don't know	13	25	24	26.7		
Paternal employment						
Not working	3	5.8	3	3.3	1.61	0.445
Working	49	94.2	85	94.4		
I don't know	0	0	2	2.2		
Previous education from teacher or parent?						
No	12	23.1	19	21.1	0.07	0.785
Yes	40	76.9	71	78.9		

$\chi^2$ : Chi-square test.

Education in all public schools during the year our study was conducted, suggesting that the students to be included in the study would have prior knowledge on the subject. Therefore, students who received and did not receive the education were included in the study.

**Data Collection**

The data were collected based on self-report in the students' classrooms in the spring semester of the academic year. A sociodemographic information form and the CKAQ were used in the pretest. Two weeks after the pretest, the researchers implemented the HMBP with the students in the intervention group in their classrooms. Two weeks after the program,<sup>[3,14]</sup> the students completed the CKAQ again as the posttest to evaluate the effectiveness of the education. The control group underwent pretest and posttest at the same time as the intervention group. After the posttest, the control group also received the HMBP. The study procedure is shown in Figure 1.

**Instruments**

Data were collected using a sociodemographic information form and the CKAQ. A pilot study was done with 10 children aged 9–10 years to evaluate the comprehensibility of the data collection tools and the feasibility of the intervention program. As a result of this pilot, the PowerPoint presentation

used in the program was revised to reduce the amount of writing and include more pictures.

**Sociodemographic Information Form**

The sociodemographic information form was prepared by the researchers and consisted of 9 questions including age, sex, place of birth, who they live with, their parents' education levels, their parents' employment status, and whether they previously received body safety education.

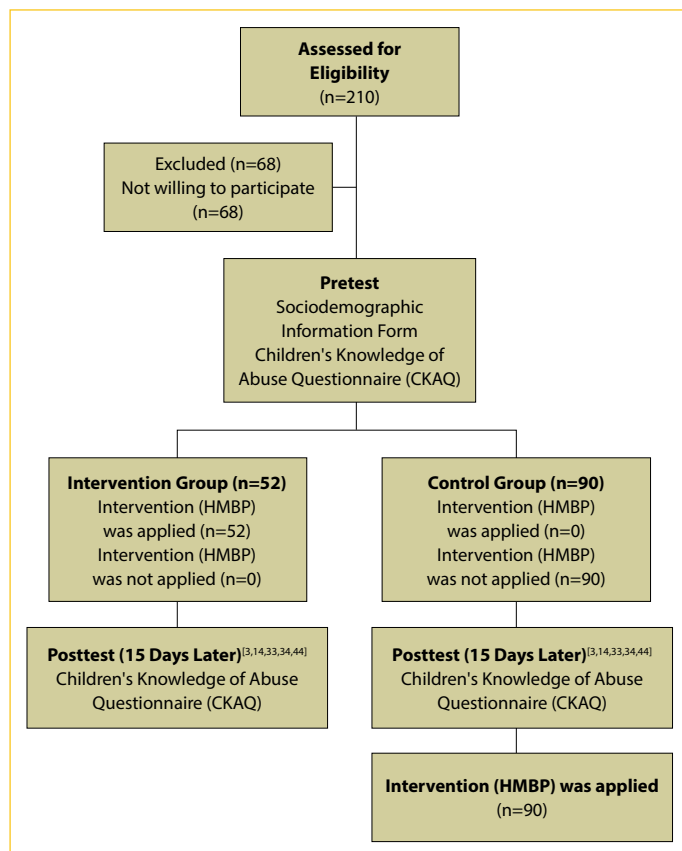
**Children's Knowledge of Abuse Questionnaire (CKAQ)**

This tool was developed in 1992 and revised in 1995 by Tutty<sup>[29]</sup> and adapted to Turkish by Yılmaz and Önder<sup>[30]</sup> in 2019. It consists of 30 items in 2 dimensions: good touch (8 items) and bad touch (22 items). Response options are true, false, and "I don't know". Correct answers are scored 1 point, while incorrect and "I don't know" responses receive no points. The total score ranges between 0 and 29, with higher scores reflecting a higher level of knowledge about sexual abuse prevention. The reliability coefficient was reported as KR21=.74. Permission to use the CKAQ in this study was obtained from the developer. In order to obtain permission from the Provincial National Education Institution, we needed to remove an item from the scale. This was reported to the developer and we recalculated the reliability coefficient based on the remaining 29 questions before using the scale. The Cronbach's alpha was .77 and the KR21 was .56 in this study. Cronbach's alpha coefficients were .64 for the good touch subscale and .72 for the bad touch subscale. As the Cronbach's alpha coefficients were above .40, the 29-question version of the scale was used in this study.

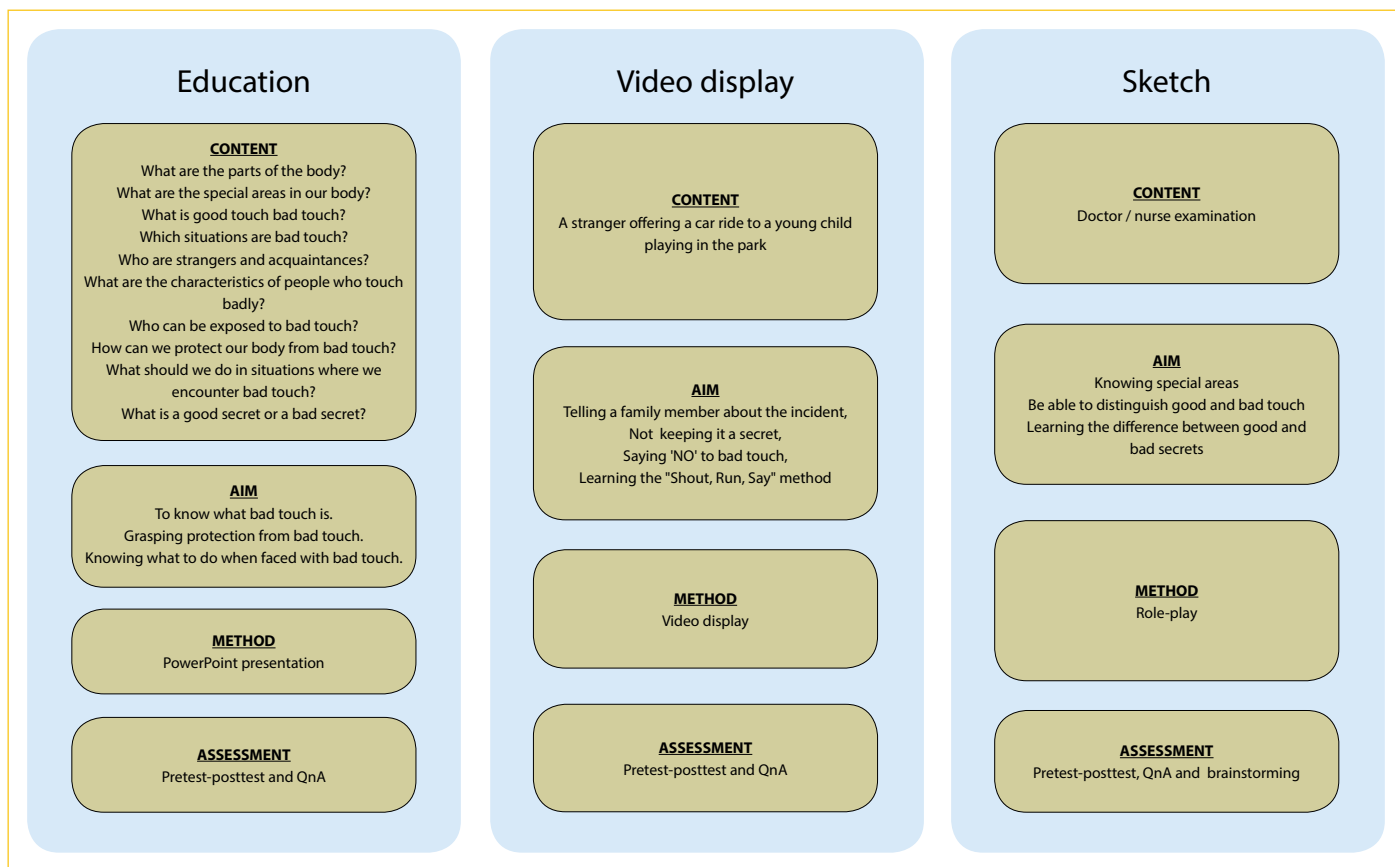
**Intervention: I Am the Hero of My Body Program (HMBP)**

The HMBP is designed to increase students' level of knowledge of sexual abuse so that they can distinguish between good touch and bad touch, protect themselves from bad touch, and react appropriately when necessary. The program was delivered in a single 40-minute session using a PowerPoint presentation prepared by the researchers according to relevant studies in the literature, as well as 3 short (1-minute) videos.<sup>[10,31,32]</sup> Before and during implementation of the program, we collaborated with a preschool teacher to ensure the content was appropriate in terms of child development. The content plan is shown in Figure 2.

The content of the videos used in the program included a stranger offering a car ride to a young child playing in the park, a familiar adult touching a young child inappropriately and asking them to keep it a secret, and what children should do in these situations. The correct behaviors include never going anywhere with a stranger and telling a family member about the incident, saying no to bad touch, shouting and running away, and telling a parent or teacher about bad touch instead of keeping it a secret. The videos depict children who react correctly and protect their bodies as heroes.



**Figure 1.** Process of study.



**Figure 2.** I am the hero of my body program.

The program emphasizes the difference between good secrets and bad secrets, that bad touch is a bad secret, the importance of being able to say no to unwanted situations and requests, and the concept of strangers versus people we know. Students were informed that if they experienced bad touch, they should tell a trusted adult, and they were asked who they trusted. The program included pictures and examples to help the students better understand good/bad touch and good/bad secrets (e.g., nurses or doctors looking at your private areas to treat you when you are injured is good touch; someone you know or do not know touching your private areas when you do not want them to is bad touch; your mother telling your sibling what gift she bought you before your birthday is a good secret; threatening, harmful games and bad touch are bad secrets).

The first two researchers performed a short role-play sketch emphasizing that students should “Yell, Run, Tell” when faced with bad touch. After the posttests were collected, the program was also presented to the control group.

**Ethical Considerations**

All stages of the study were conducted in accordance with the principles of the Declaration of Helsinki and the provisions set forth in the regulations and guidelines from the Turkish Ministry of Health. Ethics committee approval (no: 09.2017.688) was obtained from a state university, institutional permission was

obtained from the Istanbul Provincial Directorate of National Education, and written consent was obtained from the participants and their parents. Permission was obtained to use the CKAQ for data collection in this study.

**Data Analysis**

The data were analyzed using the SPSS software package (version 21.0). Analyses included descriptive statistics (frequencies), chi-square test to evaluate the difference between the groups, and Mann-Whitney U and Wilcoxon signed-rank test to evaluate the effectiveness of the education program. Statistical significance was accepted at p<.05.

**Results**

The comparison of the sociodemographic characteristics of the students in the intervention and control groups is presented in Table 1. There was no significant difference between the intervention and control groups in terms of sex distribution, who they lived with, parental education, or parental employment. There was also no difference between the groups in terms of history of body safety education, with 76.9% of the students in the intervention group and 78.9% in the control group reporting that they previously received body safety education from their teachers or parents (Table 1).

**Table 2. Comparison of the median Children’s Knowledge of Abuse Questionnaire scores of the intervention and control groups (n=142)**

Scale		Intervention	IQR	Control	IQR	Statistics	
		Median		Median		X <sup>2</sup>	p
GT	Pretest	5	4–7	5	4–6	-4	.635
	Posttest	7	6.25–7.75	5.50	4–7	-5.2	<0.001
	Statistics (Z; p)	-5.1	<0.001	-1.7	.072		
BT	Pretest	15	13–17	16	13–17	-2	.780
	Posttest	19	17–20	16	13–18	-5.2	<0.001
	Statistics (Z; p)	-5.7	<0.001	-.7	.463		

GT: Good touch; BT: Bad touch. IQR: 25<sup>th</sup>–75<sup>th</sup> percentile, Z: Mann-Whitney test; X<sup>2</sup>: Wilcoxon signed-rank test.

Comparison of the median CKAQ scores of the intervention and control groups is shown in Table 2. In the pretest, there was no significant difference between the intervention and control groups for good touch and bad touch scores. In the posttest, the intervention group had significantly higher good touch and bad touch scores compared to the control group. In addition, posttest scores were higher than pretest scores in the intervention group, while the control group showed no significant difference between pretest and posttest scores (Table 2).

Comparison of the number of correct responses in the CKAQ between pretest and posttest showed positive changes in good touch and bad touch subscale scores in 71.3% and 82.7% of students in the intervention group and in 48.9% and 50% of students in the control group, respectively (Fig. 3).

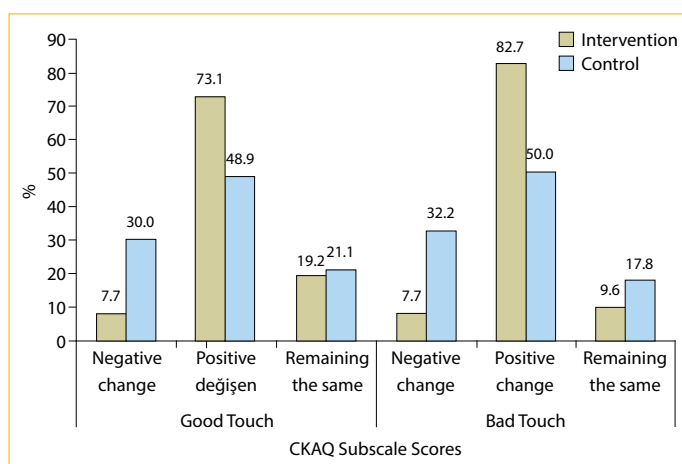
### Discussion

In this study, we found that although a large proportion of children in the 9–11 age group had previous body safety education, students in the intervention group had higher sexual abuse knowledge scores after the nurse-led HMBP compared to the students in the control group. Consistent with our re-

sults, studies conducted by nurses, psychologists and educators in Turkey, El Salvador, California, Florida, Australia, Taiwan, South Korea, and China have demonstrated the favorable effects of body safety education on children.<sup>[6,10,14,32–34]</sup>

When we compared pretest and posttest scores in the intervention group, we found that 73.1% of the students had improved scores in the good touch subscale and 82.7% had improved scores in the bad touch subscale. These findings suggest that the HMBP increased students’ knowledge about issues such as distinguishing between good and bad touch, not keeping bad touch a secret, and knowing what to do in case of bad touch. Similarly, Irmak et al.<sup>[7]</sup> (2018) reported in their study that the MHBP reduced the rate of children who kept bad touch a secret. Chen et al.<sup>[33]</sup> (2012) also reported that correct response rates increased in students in the intervention group. In a study in Korea in which nurses Kim and Kang<sup>[34]</sup> (2017) provided sexual abuse prevention education to fifth-grade elementary school students, it was observed that students in the experimental group had higher correct response rates after the education, especially in the self-protection behaviors category. In a review examining 41 studies on nurses’ role in protecting children from abuse and neglect, Lines et al.<sup>[27]</sup> (2018) determined that nurses prevent and detect abuse and neglect in numerous ways. Furthermore, Cirk et al.<sup>[25]</sup> (2019) conducted a study in which parents were educated about protecting their children from abuse and teaching them about private areas with the aim of educating children indirectly. They found that compared to the pretest, children who received prevention education from their parents by way of nurses had enhanced levels of knowledge about private areas and what they should do if they suspect sexual abuse. Moon et al.<sup>[35]</sup> (2017) observed an increase in the sexual abuse awareness and avoidance skills of primary school students after an education about sexual abuse prevention delivered via mobile application. These studies show that the education nurses provide to children is effective in preventing sexual abuse.

The literature indicates that education programs including the topics of body safety, good/bad touch, personal feelings, strangers, being able to say no, and bad secrets may be more



**Figure 3.** Pretest-posttest change of intervention and control group students according to CKAQ (n=142).

effective.<sup>[11,14]</sup> The HMBP incorporates these topics, which may have increased the effectiveness of the program in this study. In a study conducted in the USA, Kenny and Wurtele<sup>[11]</sup> (2010) found that children's ability to interpret inappropriate touching by both good and bad people as bad touch increased after a classroom-based abuse prevention education for children including the topics of private areas, body safety, touching of private areas, and resisting bad touch. In another study conducted in Australia, an education involving similar topics to those in Kenny and Wurtele's (2010) study was reported to increase the knowledge levels of students in the intervention group.<sup>[36]</sup> In another study conducted in Germany, it was concluded that a web-based prevention program for children covering the topics of private areas, body safety, touching of private areas, resisting bad touch, and risky online relationships increased knowledge and promoted safe behavior strategies in the students in the intervention group.<sup>[37]</sup> In our country, Çeçen-Eroğlu and Hasırçıl<sup>[6]</sup> (2013) reported that an education including the headings of body safety, good and bad touch, saying no, and not keeping secrets was effective. In a study that did not include the concept of stranger danger due to the fact that most child abuse is perpetrated by people they know, it was found that students in the intervention group showed no improvement in knowledge about good touch.<sup>[38]</sup> Therefore, as in the present study, including the concept of known people and strangers in this education can be recommended to help children distinguish between good and bad touch correctly.

In the relevant literature, using techniques such as making pictures, group discussion, and drama to increase the effectiveness of education has been recommended.<sup>[14,39]</sup> When the characteristics of the programs are examined, it is seen that they include role-play, films, and demonstrating on a doll.<sup>[7,32]</sup> The inclusion of videos and role-play techniques in the program may be factors that increased the effectiveness of the program in our study.

In most previous studies, abuse prevention education was delivered over multiple sessions and yielded effective results.<sup>[6,14,32,40,41]</sup> Although the education in our study consisted of a single session, the fact that the results were found to be effective in increasing levels of knowledge about both good touch and bad touch may be related to the comprehensive content of the program and variety of methods used. An effective single-session education is advantageous in terms of time management and cost effectiveness, but the absence of long-term follow-up in our study may be considered as a limitation because we did not evaluate the permanence of the results. Another limitation of this study is that comparison of pretest and posttest scores showed that approximately half of the students in the control group had higher scores in the good and bad touch subscales in the posttest. This improvement in the control group may be due to the control group students receiving information from their parent or teachers in line with the questions in the pretest. Similarly, Orak<sup>[14]</sup> (2015) reported a statistically significant difference between

the pretest, posttest, 15-day, and 1-month follow-up test results of control group students from the same school. In their study conducted with 133 first- and second-grade elementary school students in Canada, Hébert et al.<sup>[42]</sup> (2001) observed a slight increase in the average scores of control students despite the fact that the intervention and control groups were selected from two different schools. Another limitation is that the subject of internet safety is not included in the HMBP. Considering the increasing internet use among children today, cyber-safety should be included as an aspect of personal safety in future studies. Refresher education was not provided in our study. In a study conducted in Canada, a significant decrease in preventive skills was observed in the intervention group when assessed at 2 months after the education, showing the need for reminder education. In another later study, it was reported that giving 3 short trainings to the intervention group 2 years after the first education increased the permanence.<sup>[42,43]</sup> The increase in score after the program can be interpreted as an indication that studies on this subject are still needed and that repeating the program would be beneficial. In line with these results, the long-term effects of the HMBP can be evaluated in future studies.

In the literature, there are a few studies conducted by nurses in Turkey reporting that education is effective in increasing children's knowledge levels.<sup>[14,34,44]</sup> The limited number of studies conducted on this subject by nurses in our country can be attributed to the fact that nurses work almost exclusively in private schools and are rarely present in public schools. However, nurses are the health professionals most familiar with the characteristics of all age groups from kindergarten to high school and can easily reach students to provide health education.<sup>[45]</sup> In fact, studies indicate that parents<sup>[15,17]</sup> and teachers<sup>[8,9,18,19,23]</sup> have insufficient knowledge about sexual abuse or do not feel competent to provide such education. In addition, the study conducted by Orak<sup>[14]</sup> (2015) showed that education provided to students by nurses was more effective than education given by mothers. These results demonstrate that more effective results can be achieved if sexual abuse prevention education is carried out in schools by nurses. The nurse-led program used in this study is a good example of an effective program that can be implemented in schools. However, due to the inadequate literature data regarding nursing interventions in children's sexual education, further research is needed to identify the ways that nurses keep children safe and determine their effectiveness in this regard.<sup>[46]</sup>

In conclusion, the nurse-led HMBP was found to be effective in increasing levels of knowledge about body safety among 9- to 11-year-old students. The HMBP should be used by nurses working in schools and primary care and further studies should be conducted to evaluate its long-term results.

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**Authorship contributions:** Concept – E.A., S.D., F.N.S., A.E.; Design – E.A., S.D., F.N.S., A.E.; Supervision – F.N.S., A.E.; Fundings – E.A., S.D., F.N.S., A.E.; Data collection &/or processing – E.A., S.D.; Analysis and/or interpretation – E.A., S.D., F.N.S., A.E.; Literature search – E.A., S.D.; Writing – E.A., S.D., F.N.S., A.E.; Critical review – F.N.S., A.E., E.A.

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