

The Effect of Training with Models and Videos on Decreasing Fears of Children for Medical Procedures: A Randomized Controlled Study

Çocukların Tıbbi İşlemlere Yönelik Korkularını Azaltmada Maketli ve Videolu Eğitimin Etkisi: Randomize
Kontrollü

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Abstract

Purpose: Evaluating the effect of training given for decreasing medical fears of 7–14-year-old children treated in pediatric services.

Method: Semi-experimental study including pre- and post-test control-group. The universe was 2289 children and treated in pediatric services of Afyon Karahisar State Hospital. Sample size was 90 children divided 45-by-45 both in the experimental- and control-groups. Descriptive Information Form, Medical Procedure Fear Scale (MPFS), training-videos, -brochure and -model were used to collect data.

Results: It was determined that 68.9% of the children in the experimental and control groups were in the 7-10 age group, and 31.1% were in the 11-14 age group. It was found that 60% of the children in the experimental and control groups were girls. No statistical difference was found between the children in the experimental and control groups in terms of demographic characteristics. Statistically significant difference was found between the children in the experimental and control groups in terms of their total mean scores from MPFS ($p<0.001$), and also mean scores from the subscales of MPFS such as procedural, environmental, personal and interpersonal items following training ($p<0.001$).

Conclusion: Training program given to hospitalized children reduced their fears at an advanced level.

Keywords: Child, fear, medical procedure, model, video.

Özet

Amaç: Çocuk servislerinde tedavi görmekte olan 7-14 yaş aralığındaki çocukların tıbbi işlemlere yönelik korkularını azaltmada verilen eğitimin etkisini incelemektir.

Yöntem: Araştırma ön test-son test kontrol gruplu yarı deneysel bir çalışmadır. Araştırmanın evrenini, Afyon Karahisar Devlet Hastanesi çocuk servislerinde tedavi gören 7- 14 yaş grubu 2289 çocuk oluşturmuştur. Power analizine göre hesaplanan örneklem büyüklüğü deney grubunda 45; kontrol grubunda 45 toplam 90 çocuk üzerinde yapılmıştır. Verilerin toplanmasında; tanımlayıcı bilgi formu, tıbbi işlem korku ölçeği (TİKÖ), eğitim videoları, eğitim broşürü ve eğitim maketi kullanılmıştır.

Bulgular: Deney ve kontrol grubundaki çocukların %68.9'unun 7-10 yaş grubunda, %31.1'inin ise 11-14 yaş grubunda olduğu saptanmıştır. Deney ve kontrol grubundaki çocukların %60'ının kız olduğu belirlenmiştir. Deney ve kontrol gruplarındaki çocuklar demografik özellikler yönünden aralarında istatistiksel farklılık olmadığı belirlenmiştir. Deney ve kontrol grubundaki çocukların eğitim sonrası TİKÖ toplam puan ortalamaları arasında istatistiksel olarak anlamlı farklılık olduğu saptanmıştır ($p<0.001$). Deney ve kontrol grubundaki çocukların eğitim sonrası TİKÖ alt boyutlarının işlemsel maddeler, çevresel maddeler, kişisel maddeler ve kişiler arası maddelere ait elde edilen puan ortalamaları açısından istatistiksel olarak anlamlı bir farklılık olduğu saptanmıştır ($p<0.001$).

Sonuç: Hastaneye yatan çocuklara verilen eğitim programının tıbbi işlem korkusunu ileri düzeyde azalttığı belirlenmiştir.

Anahtar kelimeler: Çocuk, korku, tıbbi işlem, model, video.

INTRODUCTION

Hospitalization of children who are prone to live all negative aspects of getting ill is an important experience that may emerge possible adverse outcomes for the children and their families. Getting ill and hospitalization are traumatic and stress triggering experiences for the children and may cause short term or

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long term psychological and behavioral difficulties (Mazurek Melnyk, 2000; Rokach, 2016; Sarajärvi, Haapamäki, & Paavilainen, 2006).

Hospitalization may lead to many difficulties among children such as leaving familiar environment and surrounding, families, playmates and school environment besides physical discomfort caused by the disease (Vasques, Bousso, & Mendes-Castillo, 2011). Therefore; experience of hospitalization which means to face many foreigners and undergo a series of procedures in a foreign environment is a traumatic and anxiety triggering event for children (Estrada et al., 2015; Santos, Silva, Depianti, Cursino, & Ribeiro, 2016). Difficulties experienced by the child during hospitalization may result in emotional difficulties at later life experiences (Crnkoviæ, Divèiæ, Rotim, & Èoriæ, 2009; Gündüz et al., 2016). Moreover, long term and repeated hospitalization procedures in children and adolescents having chronic disease generate risk by affecting development process in a negative way (Moura, Junior, Silva, Reichert, & Collet, 2015).

In many reports in the literature, it has been indicated that children perceived hospital as a bad place and they were required to be trained before hospitalization in order to reduce their concerns (Broome, Bates, Lillis, & Mcgahee, 1994; Gönener & Görak, 2009; Holt & Maxwell, 1991).

Preparation of children before medical procedures helps to decrease anxiety levels of child and the family; facilitates child's co-operation; supports coping skills of the child and family for the procedures; and provides the child to overcome difficulties brought by the disease more easily by increasing the trust between the children, their families and healthcare professionals. Besides, a suitable preparation phase helps the child to cope with stress (Kyle & Carman, 2013).

MATERIALS AND METHODS

The type of the study

This was a semi-experimental study including a pretest-posttest control group design that was performed to examine the effect of a training program given to children of 7-14 years old who were treated in pediatrics department in order to decrease their medical fears.

Hypotheses of the study

Hypothesis 0: There is no significant difference between the MPFS total score means of the children in the experimental and control groups after the implementation of the training program to reduce fears of medical procedures.

Hypothesis 1: There is a significant difference between the MPFS total score means of the children in the experimental and control groups after the implementation of the training program to reduce fears of medical procedures.

Hypothesis 2: After the implementation of the training program to reduce fears of medical procedures, the medical procedure fear scale mean scores of the children in the experimental group are lower than the children in the control group.

The universe and sample of the study

The study was carried out in the clinics of Pediatrics Service in Afyon Karahisar State Hospital. The universe of the study was composed of 2289 pediatric patients who were hospitalized to be treated in pediatric services of Afyon Karahisar State Hospital between January-December 2015.

Sample of the study was determined as a total of 90 patients including 45 in control group and 45 in experimental group based on the power analysis performed within a confidence interval of 80% and with an error rate of $\pm 5\%$. 90 children constituting the sample were randomly assigned to experimental/control groups.

Study inclusion criteria for the children:

- Parents and Children who approved to participate in the study,
- Hospitalized children between 7-14 years old,
- Pediatric patients who did not have a diagnosis of psychiatric disease,
- Pediatric patients who did not have a diagnosis of a chronic disease,
- Patients who would be hospitalized in pediatric service at least for three days.

Data collection instruments

- Descriptive Information Form,
- MPFS
- Training Model,
- Training Brochure,
- Training Video 1- Training Video 2,
- Informed Consent Form were used to collect data.

Descriptive Information Form: In the form prepared and rearranged by the researcher in line with the literature and expert opinions, the socio-demographic characteristics of the children in the study and the information that would indicate the children's fears about hospitalization and medical procedures were questioned (Alak, 1993; Maraşuna & Eroğlu, 2013).

Medical Procedure Fear Scale (MPFS): MPFS was developed by Marion Bloom et al in 1985; and it is a scale for measuring the fears of children for medical procedures and applications. Validity and reliability study of the scale was conducted by Alak (1993). In the study by Alak (1993) which was performed with 100 healthy school children between 7-14 years old, Spearman Brown reliability coefficient was calculated as 0.93 in reliability analyses. In the study, Cronbach alpha was found to be 0.91. This was a Likert type scale including

three options. Students who got a score between 0-29 from the scale was evaluated as never scared, between 29-58 as a little scared and between 58-87 as very scared.

Assessment of subscales was performed as follows: the lowest score of procedural items was 9 and the highest was 27. The lowest score of environmental items was 7 and the highest score was 21. The lowest score of personal items was 4 and the highest score was 12. The lowest score of interpersonal items was 9 and the highest score was 27 (Maraşuna & Eroğlu, 2013).

Training model: The model we used for training was a baby doll on which crying, and increase in body temperature were seen and on which medical procedures such as application of oral, muscular, intravenous and inhaler drugs were performed.

Training brochure: In the training brochure prepared by the researcher, there was a presentation of pediatric service, medical procedures and the materials used in medical procedures.

Training video 1- training video 2: In Training Video 1, there were admission of the child who was hospitalized, to pediatric service, presentation of the service and the medical procedures performed. Video display lasted for 12 minutes. There were practices of medical procedures on baby model in the content of training video 2. Display of video 2 lasted for six minutes. Training videos were prepared by the researcher.

Implementation of the study

All necessary approvals were taken from the institutions and ethics committee before starting data collection process.

Implementation Phases

Pre-test phase: Children in study group were selected in accordance with indicated criteria during pretest phase, and consents were taken from their parents through informed consent form. During pretest phase, “Descriptive Information Form and MPFS” were applied to both experimental and control groups before the treatment.

Intervention phase: A training program was applied to the children in the experimental group of the study during the dates of the study for decreasing their fears for medical procedures.

The scope of this training program was as follows:

1st session (Day 1):

- Meeting with the child and parent.
- Visiting and introducing the service by establishing a feeling of trust with the child and parent.
- Presentation of video 1 including hospital, pediatric service and medical procedures on tablet.

1st Session (Day 2):

- Presentation of video 2 showing medical procedures on baby model on tablet.
- Practicing medical procedures on baby model together with the child as a game.

1st Session (Day 3):

- Delivery of the brochures that were prepared by the researcher and introducing pediatric service and medical procedures and replying the questions of child and the parents.

During intervention phase of the study, children in the experimental group were met, they were introduced the service and made to watch video 1. Meeting, service presentation and video presentation lasted for 20 minutes (video was around 12 minutes). Children in the experimental group were given a brief explanation about the scope of video 1 before watching. In the scope of this video, there were fears generated by getting sick and hospitalization on the child, symptoms of fear, factors affecting fear, responses given to the fears and explanations of procedures and devices used in healthcare institutions in order to defeat the fear of unknown. On the second day of training program, video 2 was watched on tablet and played with patient baby material. Playing and video presentation lasted for 20 minutes (video was about 6 minutes). In the content of video 2, practices of medical procedures (measurement of body temperature, oral drug administration, establishing vascular access, blood drawal procedure, oxygen treatment) and procedure steps were included. Following the video, medical procedures were first shown on the patient baby model; and then, child was made to practice. On the third day of training program, children in the experimental group were given training brochure, and the questions of children and parents were answered.

Post-test phase: During posttest phase, children constituting experimental and control groups included in the study were applied “MPFS”.

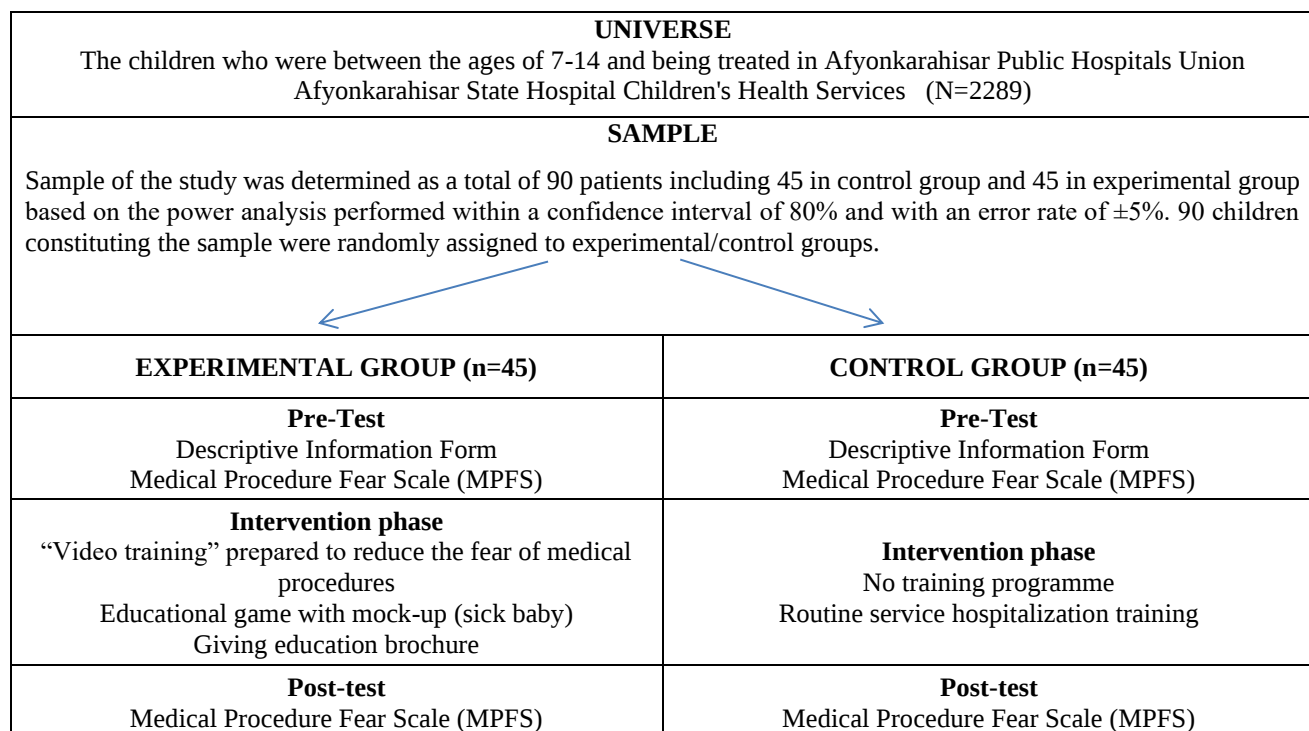


Figure 1. Flow Chart of the Study

A training program was applied to the children in the control group to reduce the fear of medical procedures at the end of the study.

Statistical analysis

Statistical analyses of the study were performed by R 3.2.1. package program. Descriptive statistics of categorical variables included in the study were given by frequency and percentage; and descriptive statistics of continuous variables were given by mean, standard deviation, median, minimum and maximum values. Compliance of continuous variables with normal distribution was analyzed by Shapiro Wilk test. Independent samples t test was used for two group comparisons of the variables showing normal distribution; Mann Whitney U test was used for two group comparisons of the variables not showing normal distribution. Pearson Chi-Square, Yates Chi-Square and Fisher's Exact Chi-Square test were used for the comparison of categorical variables between the groups.

Ethical aspect of the study

Verbal and written consents were taken from the children and parents included in the study. Ethics committee approval was taken from a University Human Research Ethics Committee with the protocol number 134 in 20.05.2016. The permission of the institution required to carry out the study was obtained.

RESULTS

When children in experimental and control groups were evaluated based on age, it was seen that 68.9% ($n=31$) of the children in both groups were within 7-10 years old age group, and 31.1% ($n=14$) were within 11-14 years old group. The difference between the groups was not found to be statistically significant ($p=1.000$).

When children in experimental and control groups were evaluated based on sex characteristics, it was determined that 60% ($n=27$) of the children in experimental group were females and 40% ($n=18$) were males; 60% ($n=27$) of the children in the control group were females and 40% ($n=18$) were males. No statistically significant difference was found between the groups in statistical analyses ($p=1.000$). It was found that there were no statistically significant differences between the children in experimental and control groups in terms of their status of previous hospitalization and diagnosis for hospitalization ($p=0.358$, $p=0.344$) (Table 1).

It was found that there was no statistically significant difference between the groups in terms of the fear of being hospitalized before and the reason for the fear of the children in the experimental and control groups in the study. It was observed that 81.5% ($n=22$) of the children in the experimental group and 83.3% ($n=20$) of the children in the control group stated the needle as a reason for fear of hospitalization (Table 1, $p=0.052$, $p=0.631$). In the statistical analysis of the children in the experimental and control groups in terms of fear of being sick and the reasons for fear, it was seen that there was no significant difference between the two groups (Table 1, $p=1.000$, $p=0.585$).

Table 1. Comparison of the Results of Children in Experimental and Control Groups Regarding Their Status of Previous Hospitalization and Hospital Fear

Information	Experimental group (n=45)		Control group (n=45)		p value
	n	%	n	%	
Status of Previous Hospitalization					0.358 ^b
Yes	29	64.4	34	75.6	
No	16	35.6	11	24.4	
Diagnosis for Previous Hospitalization*					
Infectious Disease	4	13.8	5	14.7	0.344 ^a
Respiratory Disease	1	3.4	6	17.6	
Gastrointestinal System Disease	23	79.3	22	64.7	
Surgery	1	3.4	1	2.9	
Status of Fear from Previous Hospitalization*					
Yes	27	93.1	24	70.6	0.052 ^b
No	2	6.9	10	29.4	
The Reason of Fear from Previous Hospitalization**					
Injection	22	81.5	20	83.3	0.631 ^a
Hospital environment	4	14.8	4	16.7	
Staying away from home	1	3.7	0	0	
Status of Fear from Getting sick					
Yes	40	88.9	40	88.9	1.000 ^c
No	5	11.1	5	11.1	
The reason of fear for getting sick***					
Bad disease	8	20	9	22.5	0.585 ^a
Getting hurt	27	67.5	23	57.5	
Taking medications	5	12.2	8	20	

a: Pearson chi-square; b: Yates chi-square; c: Fisher chi-square

*The calculation was made on the number of children previously hospitalized.

** Previously calculated on the number of children who were afraid of hospitalization.

*** The calculated over the number of children who are afraid of being sick.

It was observed that there was not a statistically significant difference between both groups at pretest (before training) in terms of mean MPFS scores ($p=0.274$); however, a statistically significant difference was found between the groups at posttest (following training) ($p<0.001$) (Table 2).

When findings regarding mean scores from subscales of MPFS were examined, no statistically significant differences were found in terms of mean scores of procedural items, environmental items, personal items and interpersonal items that were obtained at pretest ($p=0.350$, $p=0.176$, $p=0.752$, $p=0.632$). However, a statistically significant difference was found for mean scores of procedural items, environmental items, personal items and interpersonal items at posttest ($p<0.001$) (Table 2).

Table 2. Comparison of Mean MPFS Scores of Children in Experimental and Control Groups

Medical Procedures Fear Scale		Experimental Group <i>M±SD</i>	Control Group <i>M±SD</i>	P value
Total Mean Score	Pretest	65.11±8.36	63.88±7.52	0.274
	Posttest	43.11±4.35	59.93±7.98	<0.001 ^a
	<i>p</i> value	<0.001 ^a	<0.001 ^a	
Mean Scores of Scale items				
Procedural Items	Pretest	16.97±2.73	16.64±2.92	0.350
	Posttest	10.91±1.12	15.06±2.55	<0.001 ^b
	<i>p</i> value	<0.001 ^a	<0.001 ^a	
Environmental Items	Pretest	17.57±3.21	16.97±2.50	0.176
	Posttest	10.37±1.80	16.35±2.89	<0.001 ^b
	<i>p</i> value	<0.001 ^a	<0.005 ^a	
Personal Items	Pretest	9.28±2.10	9.22±1.89	0.752
	Posttest	6.42±1.37	9.11±1.84	<0.001 ^b
	<i>p</i> value	<0.001 ^a	<0.197 ^a	
Interpersonal Items	Pretest	21.26±2.79	21.04±2.76	0.632
	Posttest	15.40±1.83	19.40±3.14	<0.001 ^b
	<i>p</i> value	<0.001 ^a	<0.001 ^a	

a: Independent samples t test; b: Mann Whitney U test

DISCUSSION

This study was performed to determine the effect of a training program given on decreasing fears of children of 7-14 years old for medical procedures. Children in the control and experimental groups included in the study were examined for demographic characteristics and no statistically significant difference was found between the groups. Thus, the possibility of children's being affected by demographic factors such as age, gender, hospitalization experience that might affect their fear of medical procedures was eliminated.

No statistically significant difference was found between total mean MPFS scores of the children in experimental and control groups at pretest (before training) but a statistically significant difference was found between groups at posttest (after training). In the study by Ünüvar (2011), some activities were organized for school age children who were hospitalized, and these activities were applied to hospitalized children for 6 weeks by 33 teacher candidates. The activities lasted for a total of 270 hours, and 194 activities were performed. Data from the study were obtained at interviews that were carried out during practices. It was observed that these activities contributed to the information of the family, decreased hospital fear among children and entertained the children and families Ünüvar (2011).

In the study by Ataman (Keyik) (2006) which was performed to decrease medical fear among 7-14 years old school age children, a training about healthcare professionals, medical devices and procedures was given by making a video presentation; and it was observed that medical fears of these school age children were decreased after the training Ataman (Keyik) (2006). In the study by Karabulut and Arıkan (2009) which was carried out with 90 children between 9-12 years old and their mothers, 30 children and mothers were allowed

to watch videos, 30 were given training booklets and 30 were included in the control group. It was reported that the training given by video and booklet decreased anxiety levels of mothers and children before and after operation; and besides, training by video was more effective than the training by booklet (Karabulut & Arıkan, 2009). In the study by Adams, Gill, and McDonald (1991) that was conducted with 110 children of 3-13 years old who were hospitalized in pediatric surgery service for an operation, it was determined that fears of children who got a training by a booklet before the operation were decreased compared to the ones who did not get training. Moreover, it was also determined that children who watched video band, were prepared for hospital procedures much better but they were more worried Adams et al. (1991). In the study by Holt and Maxwell (1991) that was performed with 200 children who would undergo an operation, hospital tours were organized before the surgery in order to eliminate fear; and a training introducing hospital environment was given during the tour. It was reported that hospital tours and the training given decreased the fears of the children Holt and Maxwell (1991).

In the study by Fletcher et al. (2011) which was conducted with the children who were treated in two pediatric hospitals in England, expectations of the children for nurses and hospitalization were investigated. It was observed that nurses who could speak with the children freely, who listened to the children, who were friendly, outgoing, and who were making reassuring and informative explanations for medical procedures acquired a strong position in the eyes of the children and families (Fletcher et al., 2011).

The outcome of this study was found to be comparable with the results of other studies (Adams et al., 1991; Alak, 1993; Ataman (Keyik), 2006; Holt & Maxwell, 1991; Karabulut & Arıkan, 2009; Maraşuna & Eroğlu, 2013; Strachan, 1993). The reason of this outcome was thought be that training programs including the introduction of hospital, materials used in the hospital and medical procedures for treatment purposes by using instruments for instructing school age children such as video, brochure (booklet), model and computer, attracted attention of school age children and facilitated their understanding; and decreased the fear emerged by medical procedures.

When mean scores of the children in experimental and control groups from the subscales of MPFS were examined, statistically significant difference was observed for mean scores obtained from procedural items, environmental items, personal items and interpersonal items ($p < 0.001$).

In the study by Ataman (Keyik) (2006), a significant difference was reported between mean procedural scores ($p = 0.000$), mean personal fear scores ($p = 0.005$) and mean interpersonal fear scores ($p = 0.000$); however, no statistically significant difference was found between mean environmental fear scores following training ($p = 0.169$) (Ataman (Keyik), 2006). When this result was compared with the study by (Ataman (Keyik), 2006), similar results were observed for procedural fear, personal fear and interpersonal fear mean scores. Mean score of environmental fear did not show any difference after the training in the same study; however, it was detected that environmental fear score decreased following training in our study. This result is thought to be due to the difference in the content of the training.

In our study, the 34% decrease in the mean score of procedural fear was associated with the introduction of materials used in medical practices during the training, practice of children on model baby doll, development of concrete thought among 7-14 years old children and presentation of the procedures to the children by show and practice method.

CONCLUSIONS

In the study, it was concluded that fears of the children for medical procedures before and after hospitalization were decreased by the training program which was organized for decreasing medical fears of 7-14 years old children who were treated in pediatric services.

Disclosure statement

No potential conflict of interest was reported by the authors

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