RESEARCH ARTICLE

Evaluation of efficiency of puppet show in decreasing fears of school-age children against medical procedures in Zonguldak (Turkey)

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Abstract

Objective: To determine children's medical fears and to evaluate the effectiveness of puppet show to decrease such fears.

Methods: The quasi-experimental study was conducted from February 1 to May 31, 2016, in Zonguldak, Turkey, and comprised primary school students. Descriptive Information Form and Medical Operations Fear Scale were used to collect data. Those found to be 'very afraid' subsequently underwent a puppet show. The Scale was applied post-intervention o track changes. SPSS 18 was used for data analysis.

Results: There were 617 children with a mean age of 8.86±0.96 years and studying in second third and fourth grades. Of them, 316(51.2%) were boys. The mean score on the fear scale was 43.9±1.03 (range: 29-87); 58(9.4%) were terrified of medical procedures. There was a significant difference between the scores of children with respect to the year of education (p=0.001), age (p=0.0001), previous hospitalisations (p=0.0001), previous fears related to hospitalisations (p=0.0021) and fear of being sick (p=0.0001). Two sessions of puppet shows were performed for 44(76%) of the terrified students. There was a significant difference between baseline and post-intervention scores (p=0.0001).

Conclusion: Age, previous negative experiences of hospitalisations and the fear of being sick were factors that shaped children's medical fears. Puppet show effectively decreased such fears.

Keywords: Art teraphy, Child, Fear, Procedure, Playtings. (JPMA 69: 817; 2019)

Introduction

Illness and hospitalisation are conditions leading to negative effects on the lives of children at any age.[1,2] It has been reported that anxiety and fear were the most common psychosocial responses given at hospitalisation and it occurred more frequently among children compared to the adults.[3,4] Being away from the family, in an unknown environment, unfamiliar healthcare professionals, devices and monitors, medical procedures performed and lack of information about treatment and procedures are the factors affecting the children most.[5,6] These factors may alter the responses of the child depending on the development period.[7]

In literature, it has been reported that the duration of recovery and hospitalisation increases when children have negative responses such as anxiety and fear, and they decrease their willingness to cooperate with healthcare professionals and their adaptation to the hospital and treatment.[3,8-11] Therefore, it is necessary that negative feelings and thoughts of the child regarding diseases and hospitals should be understood by healthcare professionals and some interventions should be implemented for decreasing them.[12] Moreover, not only sick and hospitalised children, but also healthy children should be prepared for possible hospitalisations in the future. It has been postulated that any visits to a hospital without having any treatment or training helps to decrease the fear of the child and makes their adaptation to hospital easier.[13,14]

In the scope of preventive healthcare services, child health nurses should give education to them and decrease their fears before getting ill and hospitalised in any healthcare institutions.[15] The content of the education includes health, hospital, hospital environment, hospital staff, instrumentations used in the hospital and medical procedures performed at hospitals.[16] The methods used for these trainings are hospital visits, movie presentations, books, cards, banners and posters, music, drawing pictures, dramatisation and puppets.[7] Puppets, that are seen as a tool of playing games from a distance, are the easiest way of teaching children without making them aware of it. It has a significant role also in art activities and they have a great contribution to the development of school-age children.[17] The current study was planned to determine the effect of art activities, including puppet shows, on

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school-age children regarding their fear of medical procedures.

Subjects and Methods

The two-stage quasi-experimental study was conducted from February 1 to May 31, 2016, in Zonguldak, Turkey, and comprised primary school students.

The study universe comprised 5287 students at 26 public elementary schools in second, third and fourth grades in Zonguldak City Centre during the 2015-16 academic year.

Sample size was calculated using the formula that is applicable when the universe is known but the frequency is not known.[18] The sample size, determined with confidence interval (CI) of 90%, unknown prevalence of 50% and an error rate of 5%, was 358 Two heterogenous elementary schools were chosen for the study using sample clustering technique in order to reach the number of students constituting the sample group. Zonguldak Elementary School and Bahcelievler Elementary School were included.

The elementary school phase in Turkey comprises grades I to IV. The students included were from grades II to IV who, along with their parents, voluntarily consented to participate. Those excluded were grade I students, those who did not want to participate and those mentally or psychologically unstable.

After permission from the ethics committee of Bülent Ecevit University, Zonguldak, Turkey, and administrative permission from the Provincial Directorate of National Education, data was collected using a self-generated Descriptive Information Form (DIF) and the validated Medical Operations Fear Scale (MOFS). Dates that were suitable for the students and the schools were determined through negotiations with the two schools enrolled in the study. The questionnaires were given to the students and they were asked to personally complete them after they were briefed about the questions.

The 15-item DIF was prepared in the light of relevant literature and was revised based on expert opinion.[3,4,6,13,15,19,27] It included sociodemographic characteristics of the students and their parents such as age and gender as well as information indicating fears of the children related to medical procedures. Completion of the forms by the students lasted about 20 minutes.

The MOFS was developed in 1985 and is aimed at measuring the fears of children regarding medical procedures and applications.[6] The 29-item scale is composed of four subscales. Internal consistency coefficient for whole scale had a Cronbach α of 0.93; and the validity of the scale was 0.78.[19]

The lowest score on the scale was 29 and the highest score was 87. It was a Likert-type scale with three choices. Children were asked to choose from 'never afraid' (1), 'little afraid' (2) and 'very afraid' (3) for each item in the scale. The ones who got a score between 0 and 29 were evaluated as 'never afraid', between 29 and 58 as 'little afraid' and between 58 and 87 as 'very afraid'.

In subscales, score of procedural items ranged 9-27; environmental items 7-21, personal items 4-12, and interpersonal items 9-27.[6]

Those who scored the highest on MOFS were the 'very afraid' subjects and were taken to the second phase of the study. Puppet shows were presented to the students in the intervention group between March 1 and 30, 2016, in order to decrease their fears for medical procedures with the help of self-prepared shows. There were 4 shows that were held once a week for 4 weeks, with each show lasting 20 minutes.

Before the show, the students were briefed about the puppet characters and the events experienced by them. They were also given some explanations to make them familiar with the puppet that were to portray the characters of a doctor, a nurse and a patient. A scenario reflecting healthcare professional-child-parent relationship was demonstrated and appropriate puppets were prepared for the show. The shows played out the fears experienced by a child during illness and hospitalisation, indications of the fears, factors affecting the fear, responses given to the fears, the explanations of health institutions, the procedures performed and the instruments used. The target was to eliminate fear. Those who did not volunteer to participate were excluded.

In the post-test phase, the children were asked to fill out the MOFSagain.

SPSS 18 was used for statistical analysis. In descriptive statistics, mean±standard deviation (range) values were used for numerical data and frequencies and percentages were used for categorical variables. The differences between groups in terms of categorical variables were evaluated by Chi-Square test. Changes between measures in pre- and post-test were analysed by paired-samples t test since they showed normal distribution. Results were assessed in with 95% CI, and $p<0.05$ was considered statistically significant.

Results

There were 617 children in the first phase with a mean

Table-1: Scores of Children from CFMS.

Variables	n	%
Scale Score		
0-29 points	23	3.7
29-58 points	536	86.9
58-87 points	58	9.4
Total	617	100

CFMS: Child Medical Fear Scale.

having to use medications.

The mean score on MOFS was 43.99±1.03 and 58(9.4%) were 'very afraid' of medical procedures, 536(86.9%) were 'little afraid', and 23(3.7%) were 'never afraid' (Table-1).

Statistically significant differences were found when mean scores of the children from MOFS were compared with age (p=0.0001), gender (p=0.008), grade (p=0.001),

Table-2: Comparison of Scores from CFMS based on Some Characteristics of the Children.

Variables	CFMS Scores								
	0-29 points		29-58 points		58-87 points		Total		Test Values*
	n	%	n	%	n	%	n	%	χ^2;*p*
Age									
7 years	1	2.1	41	85.4	6	12.5	48	100	47.04;0.000
8 years	5	2.8	142	80.7	29	16.5	176	100	
9 years	7	3.2	195	89.9	15	6.9	217	100	
10 years	6	3.7	150	91.5	8	4.9	164	100	
11 years	4	33.3	8	66.7	0	0	12	100	
Sex									
Male	4	1.3	266	88.4	31	10.3	301	100	9.729;0.008
Female	19	6	270	85.4	27	8.5	316	100	
Class									
2nd class	6	3.1	157	80.5	32	16.4	195	100	19.04;0.001
3rd class	8	4.3	162	87.1	16	8.6	186	100	
4th class	9	3.8	217	91.9	10	4.2	236	100	
Status of previous hospitalisation									
Yes	17	4	362	85.6	44	10.4	423	100	2.000;0.368
No	6	3.1	174	89.7	14	7.2	194	100	
Status of fear from previous hospitalisation (n=423)									
Yes	11	3.6	250	82.8	41	13.6	302	100	14.670;0.005
No	6	5	112	92.6	3	2.5	121	100	
Status of fear from getting ill									
Yes	10	3.2	258	81.4	49	15.5	317	100	28.277;0.000
No	13	4.3	278	92.7	9	3	300	100	

*: Chi-Square test
CFMS: Child Medical Fear Scale.

age of 8.86±0.96 years. Of them, 316(51.2%) were boys. Of the total, 195(31.6%) subjects were in grade II, 186(30%) grade III and 236(38.3%) were in grade IVb. Besides, 328(53.2%) subjects belonged to financially stable families, and 542(87.8%) were living in a core family setup.

While 423(68.6%) subjects said they had been hospitalised due to various reasons, there were overall 441(71.4%) subjects who said they were scared of hospitalisation due to getting injections, getting hurt, hospital environment and staying away from home. Of all the children, 317(51.4%) said that they were scared of getting ill due to some bad illness, getting hurt and

status of previous hospitalisation (p=0.005) and status of getting ill (p=0.0001) (Table-2).

Of the 58(9.4%) 'very afraid' children in phase 2, 14(24%) were excluded as they did not volunteer to participate.

Among the 44(76%) children in the second phase, 23(52.3%) were females, 23(52.3%) were aged 8 years, 27(61.4%) were in grade II, 22(50%) belonged to financially stable families, and 35(79.5%) were living in a core family setup (Table-3).

Besides, 35(79.5%) children had been hospitalised previously, 41(94.3%) said they were afraid of

Table-3: Comparison of Mean Scores of Children in Intervention Group from CFMS.

	CFMS	First measurement (Pre-test) ±SD (Min-Max)	Second Measurement (Post-test) ±SD (Min-Max)	t*	p
Subscales	Procedural	17.36±3.56 (12-27)	14.38±2.87 (9-20)	4.439	0.0001
	Environmental	16.86±2.39 (13-21)	14.31±3.10 (7-20)	4.658	0.0001
	Personal	9.81±1.80 (6-12)	7.54±2.33 (4-12)	6.452	0.0001
	Interpersonal	21.44±3.41 (12-27)	16.79±4.67 (9-25)	5.885	0.0001
Total	Child Medical Fear	65.52±6.70 (59-87)	53.04±10.95 (29-70)	6.584	0.0001

* Paired-samples t test
CFMS: Child Medical Fear Scale.

hospitalisations, and 36(82%) were afraid of getting ill.

From their baseline readings, there was a statistically significant difference in the mean scores of the children on MOFS and its subscales post-intervention (p=0.0001).

Discussion

Acute and chronic diseases experienced by the children, hospitalisation, procedures performed, and repeated hospitalisations are stressful experiences for children.[20,21] In earlier studies, it has been determined that school-age children had concerns and fears regarding diseases and hospitals although their ages and skills increased.[6,8,19,22] A total of 617 school-age children were included in the current study and 423 of them had a previous history of hospitalisation. Most of these children with a history of hospitalization (71.4%) stated that they were afraid of hospital due to the reasons such as getting hurt, getting injections, hospital environment and staying away from home. In other studies evaluating hospital experiences, it has been reported that children experienced fear due to the reasons such as injections, staying away from home environment and staying away from parents and friends.[21-24] Half of the children included in the study (51.4%) declared they were scared of getting ill due to the reasons such as having a bad illness, getting hurt and having to use medications. Similar to our study, children in other studies stated they had fears of getting hurt when they got ill.[4,22]

Mean total MOFS score in the study was 43.99±1.03, and only a small percentage (3.7%) was 'never afraid' and almost all (96.3%) experienced little or much fear. A study[15] using MOFS on school-age children found mean total score to be 42.06±9.6 which is in line with our study. There were significant differences between MOFS scores of the children and age, gender, class, fear from previous hospitalisation and status of fear from getting ill (p<0.05), but there was no significant difference between the groups in terms of status of previous hospitalization (p>0.05). In a study with middle school students, no significant differences were found between total mean score of MOFS and subscales and their experiences of visiting hospital, previous hospitalisation and their hospitalisation durations.[6] A study compared the children with and without an experience of previous hospitalisations, and reported that there were no differences in their experiences of fear, and only children with a hospital experience used more medical or hospital terminology in their stories.[17] In another study performed on school-age children, it was determined that there was no relationship between previous hospital experiences of the children and medical fear.[24] In the study, it was seen that having a previous hospitalisation experience did not affect MOFS scores. This result might be explained by the fact that children in the study had the ability to associate the occurrence of disease with actual reasons.

After baseline readings, the group with the highest scale score (9.4%) constituted the intervention group that was the second phase of the study and the whole study was completed by 44 children. Characteristics of the children in the intervention group such as gender, income status of the family and family type were similar with the characteristics of the descriptive study group. However, there was no child aged 11 years in 'very afraid' group based on MOFS scores. Besides, there was equal participation from grades of the students in the descriptive phase, whereas the majority of the children in the intervention group (61.4%) were from grade II and the ratio of upper classes decreased by half. This difference between the groups in two different phases of the study showed that the age of students who experienced 'much fear' depending on their MOFS scores was smaller than the students who were 'less afraid' or 'never afraid'. However; in previous studies, no significant relationship was found between

the ages and medical fears of the children; and it was reported that children always had fears regarding disease and hospital despite their increasing age and hospital experiences.[6,21] In the study, no comment could be made on the presence of younger age children among the ones that constituted the intervention group.

Almost all children in the intervention group and almost all children who had a hospital experience (94.3%) indicated that they were afraid of hospitalisation; and this ratio was much higher than the ratio of children (71.4%) who constituted the descriptive phase. Similarly, majority of the children in the intervention group (81.8%) declared that they were scared of getting ill; and this ratio was much higher than the ratio of children in the descriptive phase (51.4%). These higher scores found in the intervention group may be interpreted as an expected outcome. The presence of higher ratio of children who were afraid of getting ill and hospitalised in the intervention group may be explained by the fact that children thought of getting hospitalised and having the same traumatic experience by getting ill.

MOFS scores of the students were evaluated by comparing data obtained at baseline and then post-intervention in order to determine the effect of the puppet show on the medical fears of children. Mean total MOFS scores and mean subscale scores of the children decreased after the puppet show at a statistically significant level. A study performed with healthy school-age children aged 7-14 years by using MOFS reported that mean fear scores of the children decreased at a statistically significant level at the end of the training for decreasing their medical fears ($p<0.001$).[15] A study investigating the effects of informing and game programmes on post-operational behavioural changes reported that behaviours such as fear increased after the operation in children who were not informed and were not provided any game programmes.[26] Another study performed with the children in kindergartens reported that meeting a medical environment in the form of a toy before hospitalisation decreased the anxiety and fears of the children regarding hospitals.[26] In our study, the puppet show presented to the children decreased their medical fears which is line with the studies cited above.[15,26,27]

Conclusion

Majority of the children in the sample had 'little' or 'much' fear regarding medical procedures. Puppet shows that were provided for the children with 'much' fear decreased their fears.

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