



Comparison of the Effects of Educational Storybooks and Face-to-Face Training on the Fear of Hospitalization in Children

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Background & Objective: Hospitalization of children is considered a frightening event in their life. To overcome the fear associated with hospitalization, nurses should perform as trainers and familiarize children with the hospitalization process. The present study aimed to compare the effects of educational storybooks and face-to-face training on the fear of hospitalization in children.

Materials and Methods: This quasi-experimental research was conducted with a pretest-posttest design. Sample population consisted of 87 children aged 6-9 years, who were hospitalized in the pediatric ward of Vasei Hospital in Sabzevar, Iran in 2015. Subjects were selected via convenience sampling. Data were collected using a demographic questionnaire and Broome's hospital fear questionnaire. Data analysis was performed in SPSS version 20 using descriptive statistics, Shapiro-Wilk test, Chi-square, dependent t-test, analysis of covariance (ANCOVA), and Bonferroni post-hoc test.

Results: A significant difference was observed in the level of fear in the children receiving storybook training compared to the routine approach ($P < 0.001$) and face-to-face training ($P < 0.01$). However, no such difference was observed between face-to-face training and routine educational approaches ($P > 0.05$).

Conclusion: According to the results, educational storybook training could be considerably effective in reducing fear in hospitalized children. Therefore, it is recommended that educational storybooks be used as a popular, efficient approach to preparing children during hospital admission.

Introduction

Hospitalization is among the issues that most children experience at least once (1). Hospitalization is one of the most frightening events for children and parents and has been categorized as the most common anxiety trigger in these individuals (2). Several factors may cause fear in children upon admission in the hospital, including separation from the parents, being in a strange environment, unfamiliar equipment, wearing a hospital gown, ambulances, serum injections, lighting, special sounds, and even the smell of the hospital (3, 4).

Children are afraid of physicians, nurses, hospital staff, and pediatric activities, so that they may experience the fear of seeing the white robes (5); this could be a major influential factor in the extension of the recovery period in hospitalized children (6). Therefore, fear is considered to be a significant challenge for families, as well as a threatening experience for hospitalized children depending on their maturity level (7). Furthermore, fear of hospitalization could lead to various adverse consequences in children, thereby disrupting their working capability and decreasing their persistence (1).

'Fear of the unknown' is a phenomenon that causes considerable anxiety in patients. As such, awareness of care procedures could significantly reduce the associated phobias (8). Patient education refers to the planned combination of educational activities to assist patients and enable them to change their behaviors for health promotion and maintenance (9). Patient education is one of the foremost patient rights (10), which aims to provide information for patients, increase their independence, improve self-care,

relieve anxiety, and diminish the complications, length (9), and costs of hospitalization (11).

Physicians and nurses are responsible for providing hospitalized children with the essential information that is allowed during the course of treatment. These healthcare professionals should apply numerous comprehensible examples to clarify facts for children. Preparation of children for medical procedures reduces their anxiety, enhances their cooperation, and creates dominance in the face of a potentially stressful event (12). When children receive the necessary information on the hospital environment and medical equipment, they will be able to adapt to stressful situations (13).

Various approaches are used for the training of hospitalized children, including face-to-face training, videos, games, storybooks, and writing techniques (14). Face-to-face training has been shown to increase the awareness of children through elaborating on care procedure, which in turn reduces stress effectively (15). In addition to the verbal specification of hospitalization processes or surgery stages in face-to-face training, physicians and nurses could discover the weaknesses and mental disabilities of hospitalized children (e.g., fear) and attempt to eliminate frightening misconceptions for these patients. The main drawback of face-to-face training is that it is a time-consuming approach, and pediatric patients tend to have a short attention span (14).

Written procedures along with images could also be used for the training of hospitalized children. Hospitalized children often enjoy sharing their dreams or life stories with someone who has the same problem and is

involved in an issue (14). To date, no studies have compared the effectiveness of the mentioned methods in the reduction fear in hospitalized children. With regard to anxiety, Felder-Puig et al. (2003) have investigated the effects of using storybooks on the preparation of children aged 2-10 years and their parents before surgery. The researchers used an illustrated storybook with colorful drawings about a rabbit who was hospitalized for a tonsillectomy, and the story was shared with the children and their parents. The results revealed that using educational storybooks before surgery could decrease the anxiety of the children and their parents, thereby increasing their cooperation with the medical staff (16).

There is an urgent need for clinical research to develop appropriate teaching methods to reduce fear and anxiety in hospitalized children (17). Considering the establishment of clinical governance, which principally aims to improve the safety and satisfaction of patients in hospitals, the present study aimed to compare the effects of educational storybooks and face-to-face training on the fear of hospitalization in children. It is hoped that our findings be used to adopt efficient approaches in order to alleviate anxiety in pediatric patients.

Materials and Methods

This quasi-experimental research was conducted with a pretest-posttest design on three study groups. Sample population consisted of all the children admitted in the pediatric wards of Vasei Hospital in Sabzevar, Iran in 2015. Subjects were selected via non-random convenience sampling. Sample size of the study was calculated using the following formula:

$$N=3\sigma^2(z_{1-\alpha/2}+z_{1-\beta})^2/d^2$$

$$n=3\times 25\times(1.96+1.28)^2/9= 87$$

where σ^2 is the maximum variance of fear based on similar studies, $z_{1-\alpha/2}$ represents the safety factor of the plan in the generalization of the research findings to the community, $z_{1-\beta}$ indicates the test power, and d is the effect size. In total, 87 children were enrolled in the study and randomly divided into three groups of storybook, face-to-face training, and routine techniques (29 subjects per each group).

Inclusion criteria of the study were as follows: 1) age of 6-9 years; 2) full consciousness; 3) children hospitalized for the first time; 4) lack of malignancies and other chronic diseases; 5) no use of anti-anxiety drugs and painkillers and 6) consent of parents and children to participate in the research. Exclusion criteria were as follows: 1) children requiring surgery or emergency care; 2) use of painkillers and anti-anxiety drugs; 3) discharge against medical advice and 4) hospitalization for more than one week and less than one day.

A two-part questionnaire was used to collect the demographic data of the subjects. The first section contained questions about the age and gender of the children, as well as the age and education level of the patient companions. The second part of the questionnaire was focused on disease diagnosis, chief complaints, length of hospital stay, and vital signs upon admission and discharge.

Fear in the hospitalized children was measured using Broome's hospital fear questionnaire, which has been used in the study by Mola et al. (2001). Items in this scale were scored within a range of 17-51 based on a three-point Likert scale (Extremely Low=1, Moderate=2, High=3) (1). High total scores reflected high

levels of fear, while scores of ≤ 28 indicated minor fear, scores of ≥ 40 represented extreme fear, and other scores showed moderate fear (1).

The validity of Broome's hospital fear questionnaire was determined by content validity. To this end, the questionnaire was distributed among faculty members and experts and revised based on their feedback and comments. Moreover, the reliability of this scale was assessed using the Cronbach's alpha coefficient; the questionnaire was completed by 15 patients, and the reliability was confirmed at $\alpha=74\%$.

Identical educational contents in the groups receiving face-to-face and storybook training were related to the hospitalization procedures, including filing, bed assignment, obtaining

the history of the patients by nurses, insertion of intravenous (IV) catheters and blood sampling, serum and drug therapy, bed rest, familiarity with other personnel (e.g., servers and food service distributors), physician's visit, imaging procedures, meetings and discharge, detaching the IV catheter, and exit of the patients and their parents.

To provide educational storybooks about the hospitalization process of children, the educational content was presented to an illustrator and a children's poet. Following that, the drawings and poems were provided to a child psychologist for evaluation and feedback (18). Finally, the approved storybook was presented to the related study group (figures 1 & 2).



Figure 1. A Page of Hospitalization Process Storybook (serum attachment)



Figure 2. A Page of Hospitalization Process Storybook (children exiting hospital with parents)

After obtaining the reference letter from Sabzevar University of Medical Sciences, the researcher referred to the pediatric ward of Vasei Hospital in order to obtain the required

permit from the hospital authorities. Upon the admission of the patients, informed consent was obtained from the parents, and demographic questionnaires were completed

via interviews with the children and their companions. The children who met the inclusion criteria completed Broome's hospital fear questionnaire.

In the storybook group, the training intervention was implemented by providing the designed storybook to the patients before the surgery and explaining the objectives. In the face-to-face training group, the first training session was held upon the arrival of the patients and their companions at the hospital. In this session, we only presented the concepts relating to the admission process, and the other training sessions were held in the patient's room or working rooms of the personnel in the presence of the patients and their companions every morning. In the face-to-face training, each training sessions lasted 15 minutes on average depending on the educational contents for the hospitalization day and enquiries of the patient. During these sessions, instructional materials were also used in proportion to the understanding of the children. In the patients receiving routine training, the common hospital procedures were performed without the aforementioned techniques.

In order to collect adequate data for statistical analysis, Broome's hospital fear questionnaire was re-completed in the face-to-face and storybook training groups at the time of discharge. Data analysis was performed in SPSS version 20 using descriptive statistics (mean and standard deviation for the quantitative data, frequency and percentage for the qualitative data) and analysis of covariance (ANCOVA). In addition, Chi-square test was applied to determine the homogeneity of the study groups in terms of the demographic characteristics, and dependent t-test was used for the comparison of the level of fear before and after treatment in each group. ANCOVA and Bonferroni post-hoc test were performed after the educational intervention.

Results

According to ANCOVA and Chi-square, the study groups were homogeneous in terms of age, gender, and education level of the patient companions ($P>0.05$) (Table 1). According to the results of t-test, fear of hospitalization decreased significantly at the posttest phase compared to the pretest phase in the intervention groups ($P<0.001$) (Table 2).

Table 1. Demographic Characteristics of Subjects in Storybook, Face-to-Face, and Routine Training Groups

Variables	Routine Trainin g (n=29)	Face-to-Face Trainin g (n=29)	Storybook Trainin g (n=29)	P-value
Age of Patient (year)	1.8±7.4	1.8±7.4	1.8±7.4	0.749

Age of Patient Companion (year)	1.8±7.4	1.8±7.4	1.8±7.4	0.698
Gender				
Male	16 (55)	14 (48)	13 (45)	0.725
Female	13 (45)	15 (52)	16 (55)	
Education Level of Patient Companion				
Below Diploma Academic Education	23 (79) 6 (21)	21 (72) 8 (28)	24 (83) 5 (17)	0.624

Table 2. Mean Fear of Hospitalization before and after Storybook, Face-to-Face, and Routine Training

Fear Level		Storybook Training	Face-to-Face Training	Routine Training
Children	Pretest	33.93±4.02	34.21±5.64	35.62±4.93
	Posttest	26.62±3.92	29.14±4.30	30.97±4.40
	P-value	<0.001	<0.001	<0.001

According to the information in Table 3, the results of ANCOVA indicated that in the pretest phase, the study groups had no significant difference in terms of the fear level ($P>0.05$). However, a significant difference was observed in the level of fear between the study groups after the intervention ($P<0.001$). In the present study, Bonferroni post-hoc test was used to determine the point of difference.

The results showed a significant difference in the fear level of the children in the storybook and routine training groups ($P<0.001$), as well as the storybook and face-to-face training groups ($P<0.01$). However, the difference was not considered significant between the routine and face-to-face training groups ($P>0.05$).

Table 3. Comparison of Mean Fear Level in Storybook, Face-to-Face, and Routine Training before and after Intervention

Fear Level		Storybook Training	Face-to-Face Training	Routine Training	P-value
Children	Pretest	*	*	*	0.158
	Posttest	*	*	*	<0.001
		*	*		0.008
		*		*	<0.001
			*	*	0.287

**Specification of compared groups*

Discussion

According to the results of the present study, storybook training could have a more significant effect on reducing the fear of hospitalization in children compared to face-to-face and routine training. However, face-to-face training was not more effective than routine training in this regard. It is noteworthy that we evaluated the level of fear before and after the hospitalization of children, and other factors might have been involved in reducing the level of fear in the subjects (especially after hospitalization), such as pain relief, passing of time, and elimination of some factors. Findings of the current research indicated that face-to-face training could also reduce the fear of hospitalization in children, which is consistent with the study by Talebi et al. (2015).

In this regard, Mousavi et al. (2011) claimed that fear and anxiety have a significant impact on recovery after hospitalization. Therefore, in addition to the physical aspects of treatment, healthcare professionals must consider the mental and psychological

aspects of care. Attention to patient education is essential to the mental preparation of patients (20).

In the present study, the purpose of storybook and face-to-face training was the orientation of children toward the hospitalization process. In this regard, Jackson and Sounders (2003) believe that nurses should acquaint children and their family members with other employees, peers, and the physical environment of the hospital since unfamiliarity of the environment and obligation to communicate with strangers cause children to return to their former strategies of coping with the stress of hospitalization (7).

In another study, Rennick (2007) stated that storytelling and drawing in the presence of the mothers or nurses during hospitalization could help children to play, laugh, and have better appetite (21). In patient training, using instructional methods tailored to the individual needs of children could improve the quality of learning, and appropriate use of educational aids may also reduce the length and costs of hospitalization significantly.

The main limitation of the present study was using a single storybook for all the patients. Due to the extent of diseases, preparing separate stories for each subject was time-consuming and costly. To overcome this limitation, we attempted to only consider the common concepts in pediatric diseases.

Findings of the current research indicated that training on the hospitalization process using storybooks could reduce the fear of hospitalization more significantly compared to face-to-face and routine training in children. Considering the evidence on the impact of training on the hospitalization process on the fear of children, our findings could be used in the training courses regarding hospitalization for the reduction of the fear of hospitalization in children.

Conclusion

According to the results, educational storybooks could effectively reduce the fear of hospitalization in children. Therefore, it is recommended that this practical, efficient approach be applied for the preparation of children in hospitals.

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