

Teddy Bear Hospital, a Pilot Study in Mashhad, Iran

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Abstract

Teddy bear hospital is a public health project for children with an easy-to-apply experiential method. This pilot study project was performed in Mashhad, Iran, to compare the feeling of preschool children toward doctors and hospitals before and after the project. Medical students took part in this project that was conducted in Razavi Hospital, Mashhad, Iran. Picture questionnaires were used in this quasi-experimental study with a pre/posttest design. The result of the data analysis showed a significant improvement in children's feelings toward the hospital; however, no significant improvement was observed in their feelings toward doctors. Notably, more children could recognize commonly used medical instruments, such as stethoscope and otoscope after the project.

Keywords: Children, Doctors, Health-education, Hospitals, Iran, Medical student, Preschool child, Teddy Bear Hospital, White-coat-syndrome

1. Introduction

Many people have a fear of doctors and the procedures that they go through in hospital visits or any other health care environment. The "white coat syndrome" affects 21% of patients who visit a hospital. About one-third of the children population is hospitalized at least once in their lifetime, and approximately 5% had experienced hospitalization several times (1). White coat syndrome often leads to some physical and psychological symptoms, such as fear of doctors and anxiety, elevated body temperature with a probability of causing other complications, including postoperative vomiting, sleep disturbance, and an extended period of recovery. Different approaches, such as audiovisual remodeling, interactive methods, and concrete methods were used to reduce this fear in children (3). It should be noted that although the application of these methods resulted in a significant reduction in hospitalization fears among children, their implementation in a hospital required special equipment and technologies (4). Therefore, these methods are less appropriate for medical centers with low budgets. Furthermore, the abovementioned methods are not appropriate for younger children whose cognitive skills are not developed enough to understand them (4). On the other hand, there are other methods, such as teddy bear hospital (TBH) or clown doctor projects that do not require high-tech hospital equipment or advanced cognitive skills of children (4-7).

The TBH is an international public health project for children with an easy-to-apply experiential method. The TBH aims to increase children's knowledge about health, medical instruments, and medical procedures and also help students extend their experience and reduce their fear of doctors and hospitals. Although TBH projects were held in many countries, only a few studies have been conducted to evaluate their effectiveness (8). Most of the published studies are dated back to the 1990s. Besides, all studies were executed in countries that had a vast cultural difference from Mediterranean countries, including Iran. In this study, a TBH event was held in a private hospital in Mashhad, the second-largest city of Iran, and introduced a variety of activities to children in the age range of 5-7 years. This pilot study aimed to assess the feeling of preschool children toward doctors and hospitals and compare their feeling before and after the TBH project.

2. Method

In total, 28 medical students from Mashhad University of Medical Sciences, Mashhad, Iran, volunteered to work as the executive board of TBH and the study was performed based on the TBH international manual. The study participants included 40 pre-school students (19 girls and 21 boys) from the kindergarten related to the faculty of education at the Ferdowsi University of Mashhad, Mashhad, Iran. The age range of these children was 5-7 years. Signed written informed consent of the parents was

compulsory for participation in the program. The study had a quasi-experimental pre/post design. Medical students conducted pre-tests and post-tests in the kindergarten by asking questions using pictures (emoticons). The questions included: 1) when you see a doctor, how do you feel? 2) When you visit a hospital, how do you feel? 3) Are you familiar with the shown device (picture of otoscope) and its usage? 4) What about (picture of) stethoscope? 5) Have you ever been in a hospital environment or not? The pre-test and post-test were conducted within one week before the children visited Razavi Hospital (on October 26, 2014), Mashhad, Iran, and few days after the project, respectively. There was no difference in the performance of pre-and post-test and both were conducted similarly.

Different phases of this project were:

The day before the project

In this phase pre-requisites of the project was prepared which included getting a consult from a pediatrician and a psychiatrist, selecting study population, informing kids and their families about the project, providing medical students with required training, finding a financial supporter as well as a suitable place to run the project, and developing the project plan provided by IFMSA general.

Several workshops and training sessions were held after an assessment. The workshop entitled "How to appropriately interact with children?" was a five-hour workshop for all medical students participating in TBH. The trainer of this workshop was an associate professor at the Ferdowsi University of Mashhad, Iran. The second workshop "Taking patients' medical history" was performed by a fourth-year medical student. Attending this session was compulsory for all teddy doctors (medical students acting as doctors of ill toys on the day of the project). Eventually, dentistry residents trained the students in charge of dental hygiene about the "proper ways of brushing and flossing teeth".

Executive members were divided into a few groups with different tasks. Each group ran online discussions and updated its status to inform other executive members of the team. In addition, formal meetings were held to assess their progress. Since this study was being run for the first time in Iran, it was decided to work with a specifically chosen kindergarten instead of giving general announcements. After getting the first impression from children and consulting with the professor in the named workshop, a role-play was performed in the kindergarten to familiarize the children with the project. This role play took place following the team's visit for pre-test in which kids were divided into groups to play and they were asked about their general ideas of doctors and medical staff. Moreover, also they were questioned about their sick toys which they were supposed to bring to TBH. Each child was called during the play to fill the pre-test form. Furthermore, a meeting was arranged with parents to explain the whole idea, goals, previous similar projects, and more details of what was going to happen in TBH. Parents' questions and concerns were addressed and they were assured about their children's safety. A risk assessment approach was used and adjusted based on the specific needs of the project.

Day of the project

The room dedicated to the project in Razavi hospital was decorated to create a friendly atmosphere. Children's teachers, assistant teachers, and the kindergarten principal were present at Razavi Hospital (the presence of these supervisors was highly required to support kids mentally and physically). The theater hall and the newly constructed staff training center room were the main sites used in this project. At their arrival, children stood in line and got their ID cards, and were officially divided into eight groups. Groups had specific colors of stripes to be easily differentiated from each other. In addition, children's moral characteristics were considered with regard to their teachers' advice. Afterward, the sick toys were collected from children and moved to the staff training center where the major part of the project took place. A puppet show about healthy life habits was performed in the amphitheater. Children actively responded to the puppet's questions and sang with him. This provided the chance of a friendly environment for children in which they could cooperate in the TBH project easier. Eventually, each group was directed to the staff training room for the rest of the program. It is worth mentioning that additional toys were available in case kids had forgotten to bring their sick toys.

In the next stage, the children were guided to different stations. Each group of children started at a specific station based on their group number and color. A number of medical students were responsible for running each section. Description of the stations was as follows:

Painting. Children used color pencils, crayons, and syringe-shaped pens to fill the coloring sheets related to doctors and hospitals.

Dental health. The proper way of brushing and flossing teeth was explained to children on a dental model provided by the kindergarten. Moreover, the importance of dental hygiene was emphasized and a story about tooth decay was narrated using cartoony pictures.

Organs of the body and their functions. A big picture of Pinocchio, a favorite cartoon character, was designed with different internal organs stuck on his body. In addition, internal organs were made using paper boards and stapled to vests. The shape, location, and function of the heart, lungs, esophagus, stomach, intestine, and liver were explained to children by means of these materials. Eventually, a competition was held among children to ensure that they have correctly learned the position of the provided organs.

Medical instruments and their usage. Some commonly used medical equipment, including a stethoscope, ophthalmoscope, otoscope, sphygmomanometer, syringe, intravenous therapy bag, hammer for knee jerk (patellar) reflex, and thermometer were introduced to children and applied to a big sick teddy bear. Furthermore, children could try toy medical instruments by themselves.

Animation. In this section, different health-related cartoons were played for children, along with further discussions and explanations.

Healthy food pyramid. The concepts of healthy foods and food pyramids were explained to children. Afterward, they practiced with their own pyramid-shaped box and

selected their preferred daily meals. Children used paper foods (both healthy and junk food) to fill the pyramid. They were guided in the process by the students in their section.

Teddy doctors visiting toys. In this stage, the height and weight of the toys were measured and the history of present illness was taken. Subsequently, examination, diagnosis, and treatment procedures were performed one by one, followed by a follow-up session (if required). Afterward, the children (as parents of their toys) brought their toys to the X-ray, pharmacy, or bandage sections if they were referred to by their teddy doctor. Children contributed in each of the aforementioned sections and they were provided with additional information about the devices and procedures.

At the end of the program, each child received a pack containing the TBH logo, a syringe-shaped pen, a toothbrush, toothpaste, a random toy medical instrument, a picture of the food pyramid, a notebook, color pencil, and a hand hygiene information guide.

Statistical analysis: In this study, children responded to five questions before and after the intervention. The effect of the intervention on study variables was investigated. The data were analyzed in SPSS software (version 19) through paired t-test and McNemar test.

3. Results

In pretest and posttest, the children were asked to choose the best emoticon that was indicative of their feelings toward doctors and the hospital environment. The children's responses were scored based on a Likert scale from 1 (the worst feeling) to 7 (the most comfortable and happiest state). Children's response to the question "How do you feel when you see a doctor" was slightly improved in the posttest (5.32 ± 2.08) compared to the pretest (5.96 ± 1.50); however, the difference was not statistically significant ($P=0.151$). Their response to the question "How do you feel when you are in a hospital" was estimated at 4.23 ± 2.34 and 6.07 ± 1.51 in pre-and post-test, respectively, indicating a significant improvement ($P=0.001$).

Regarding the children's familiarity with medical instruments, it was revealed that 25% and 75% of the children were familiar with stethoscope in pre-and post-test, respectively, indicating a statistically significant improvement ($P=0.017$) in their familiarity with this medical instrument. The rate of their familiarity with otoscope was estimated at 35% and 65% in pre-and post-test, respectively, which was also statistically significant ($P=0.005$).

4. Discussion

A statistically significant improvement was observed in children's feelings towards the hospital in this study. Despite the cultural differences between Iran and other countries, similar findings were observed in studies conducted by Bloch and Toker as well as Victorine et al. (4, 9). However, no statistically significant improvement in children's feelings toward doctors was observed. This result could be attributed to a high average score in the pretest (5.32 ± 2.08), indicating that children had a comfortable

feeling toward doctors even before the project. However, it is not clear why there was no post-test improvement in the feeling of children who felt bad about doctors in the pretest. Furthermore, the study findings indicated that children's knowledge about stethoscope and otoscope (the two most frequently used medical instruments in clinics) was significantly improved after attending the project. In the study conducted by Victorine et al., pre-and posttest were taken immediately before and after the intervention (9). However, in the present study, the pretest and posttest were performed before the children visited the hospital and a few days after their visit to TBH, respectively (4, 5). It was assumed that this time interval could ensure the attainment of more realistic results. On the other hand, this time interval could act as an intervening variable and weaken the relationship between the variables. Moreover, the absence of children in the follow-up days was another consequence of this time gap, which led to the missing of some data in the study.

Regarding the limitations of the present study, one can refer to the fact that most of the project was performed in a small room at the hospital which could have affected the children's reactions in the posttest. Moreover, children were provided with additional educational programs in this study; however, the effectiveness of these programs was not evaluated and their outcome was not measured. The studied population in this study was not randomized due to the pilot nature of the study, and the participant children in this study were collected from a specific kindergarten. In addition, medical students were trained before the project; however, the effect of these teachings was not evaluated.

It is suggested that future studies evaluate the long-term effects of the procedure. Furthermore, the existence of a control group may help the results to be more reliable (4). Future studies are suggested to use a larger and randomized population and employ other instruments, such as interviews or more comprehensive questionnaires to measure the effectiveness of educational programs as well.

5. Conclusion

Based on the obtained results, TBH increased young children's knowledge of otoscope and stethoscope. It also improved children's feelings toward the hospital environment and was a welcomed opportunity for medical students to gain more communication skills. Children were educated in other aspects which their effectiveness was not measured in the posttest. It is worth mentioning that children, students, and professionals enjoyed TBH.

Overall, the conduction of a few more studies on the TBH project can help to turn it into a feasible periodic plan in Iran mainly for kindergartens in collaboration with healthcare organizations. Eventually, the TBH can educate children about health-related aspects and basics of clinical visits and improve their feelings about medical staff and environments which in turn may reduce the symptoms of white coat syndrome.

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