

Ev Kazaları Hakkında Okul Öncesi Dönemdeki Çocukların Eğitiminde Resim Kullanımının Etkinliği

The Effectiveness of Using Picture in Teaching Pre-Schoolers About Home Accidents

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ÖZ:

GİRİŞ ve AMAÇ: Bu çalışmanın amacı resim yöntemi ile okul öncesi dönemdeki çocuklara (3-5 yaş grubu) verilen eğitim ile ev kazaları risklerinin öğretilmesidir.

YÖNTEM ve GEREÇLER: Çalışmada yarı deneysel “Bir Grup Pre-Test Post-Test Modeli” kullanılmıştır. Çalışma, okulöncesi eğitim kurumunda yapılmıştır. Anaokuluna devam eden 3, 4, 5 yaş gruplarından birer şube basit rastgele örnekleme yöntemi ile seçilerek toplam 87 öğrenci çalışmaya alınmıştır. Çalışma kapsamındaki çocuklara yapılan eğitimde “Ev kazası risklerini tanılama formu” ve “Evde riskli durumları gösteren ev resmi” kullanılmıştır.

BULGULAR: Eğitim sonrası çocukların ev ortamındaki odalarda kaza risklerini tanıma durumları anlamlı derecede yüksek bulunmuştur ($p<0.001$). Genel olarak, eğitimden sonra tüm odalardaki kaza risklerinin tespiti daha yüksek belirlenmiştir.

TARTIŞMA ve SONUÇ: Eğitim sonrası çocukların ev kazası risklerini tanıma durumları yükselmiştir. Girişim uygulanmasıyla çocukların kaza risklerini tanıma durumları iyi olmakla birlikte, bilgi her zaman davranış değiştirmeye dönüşmeyebilir. Eğitimden sonra, çocuklar ev kazaları riskini daha iyi tanımaktadırlar. Bilgi her zaman davranış değişikliğine yol açmayabilir, ancak çocukların kaza riskini tanıma kabiliyeti iyidir. Ev kazalarından korunma konusunda 6 yaşından küçük çocuklara etkili biçimde eğitim vermek için bilişsel becerilerine uygun eğitim yöntemleri kullanılmalıdır.

Anahtar Kelimeler: Ev Kazalarında Eğitim, Okul Öncesi Dönem, Resim, Hemşire

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SUMMARY:

INTRODUCTION: The aim of this study was to teach the risks of home accidents to preschool children (aged 3-5 years old) using a painting method.

METHODS: This study was a semi-experimental, single group, pre-test/post-test model. This study was conducted in an institution of preschool education. A total of 87 students were selected from the 3-, 4-, and 5-year-old age groups in kindergarten using a simple random sampling method. The "Home environment risk determination form" and home environment "Home picture showing risky situations at home" were used to teach the children in the study.

RESULTS: After training, children were found to be significantly more likely to recognize accident risk in their home environment ($p < 0.001$). Generally, recognition of accident risks in all rooms was found to be higher after education.

DISCUSSION and CONCLUSION: After training, children are more likely to recognize the risk of home accidents. Information may not always lead to behaviour change, but children's ability to recognize the risks of accidents was good. To teach children younger than 6 years about protection from home accidents effectively, educational methods appropriate to their cognitive skills should be used.

Keywords: Home Accident Education, Preschool Children, Picture, Nurse

Introduction

In our country, children, despite social progress being measured by wishing greater health for the next generation (1). The influence of accidents on child health is too big to be underestimated. For these reasons, childhood accidents are a community health problem that needs to be emphasized (2,3).

Unintentional injuries were the fourth most common cause of baby and child deaths in the USA, a developed country (4). It has been reported that 34.2% of deaths in children under five years old and 25.4% of deaths in children above 5 years old are from diseases and accidents in our country (5). According to data from the World Health Organization (WHO), the most important reasons for morbidity and mortality in home accidents are falling, burns and intoxications. Therefore, home accidents are very significant health problem all over the world (6). The frequency of home accidents is varied by country and age group and comprise 25% of childhood accidents (7,8). It has been reported from research in the 25 countries of the European Union that 21% of children, more than 50,000, under 20 years old die in accidents and that home accidents constitute 35% of all accidents (7).

It has been estimated that home accidents are a large proportion of all accidents (9,10). However, regular tracking of home accidents does not occur in our country. The records from hospitals do not reflect the real accident rate and damage to society. Although we do not have a definite number of home accidents in our country, it has been estimated that 18-25% of all accidents are home accidents (3,10,11). Kids of preschool age are curious, unaware of hazards. These children do not have well-developed self-defence mechanisms to prevent accidents. They have needed the help of adults to maintain a safe environment and prevent accidents. In particular, children 1-5 years old are at high risk for burns, drowning, and intoxication for the reasons mentioned above (3,12).

Providing children, a safe environment instead of repressing their curiosity and independent movement is the most efficient approach. Not organizing the home atmosphere based on the child's behaviour increases the possibility of accidents (13). In fact, it has been mentioned in research that 50-80% of falling events that resulted in death occurred of home for the children 0-6 years old (10,11).

Specifically, small adjustments to the home atmosphere and training parents about these adjustments is extremely important for reducing accident frequency. Taking security precautions at home, being on the alert for risks and following the child closely will minimize the probability of injury. Consequently, health professionals, especially paediatric nurses, should train parents about simple adjustments to the home environment. These issues should be discussed in both written and visual media (14).

Determining the knowledge of parents about preventing accidents is insufficient in our country. The risk of accidents involving children is high (3,8,12,15,16). Environmental regulations and informing parents about creating a safe home atmosphere could prevent injuries from home accidents (17). An important way to prevent children from experiencing home accidents is training parents, especially mothers (11,16). Research has been conducted on mothers' knowledge and the use of tools to prevent

home accidents (8,18,19,20,21,22) as well as on the efficiency of the education for mothers about home accidents (16,23). However, there is a need for research on educating children.

Visual perception is a developing process in children. Visual perception skills rapidly improve in early childhood and reach close to adult levels around eleven–twelve years of age (24). Some stories that are appropriate for the cognitive abilities of children under six years old could be used to provide them safer information about avoiding various high-risk home accidents. As a result of research conducted to examine the effect of visual perception education performed with education materials appropriate for the visual perception skills of children, it was determined that a visual perception education programme using educational toys was effective at increasing the children’s visual perception abilities (25). These studies revealed that the most significant factor in the structure of a story is the casual connection between the events that creates the fundamental structure of expression such as ‘starting the event’, ‘attempt’ and ‘result’. This connection is irreplaceable for the integrity of the story (26). It is important to design proper stimuli and enhance the efficiency of the education by ensuring reminders of the less through the story. For this purpose, pictures that show common home accidents for different age groups (3-6 years) must be developed and presented visually. Then, the amount of information and the structure of the story (causative structures like consecutive expression or reverse expression) must be evaluated to analyse the efficiency of the education. It was found in a research study that using ‘verbal presentation and associating the pictures’ is more effective than using only ‘verbal presentation’ for teaching about injury causes (27).

Children remember more information when the education system uses more appropriate methods. Specifically, lessons with painting, music, and fairy tales reinforce memory and learning. We could not find any work in our country related to painting for informing pre-school children about home accidents. Therefore, we aimed to teach the risks of home accidents to preschool children (3-5 years old) by using picture in this study.

Method

Participants: A semi-experimental, single group, pre-test/post-test model study was conducted from February to May 2017 in Denizli, Turkey. Schools dependent on the Ministry of National Education in the centre of city were used to recruit the population. For the research sample, one student from each school from 2 central districts was chosen by simple random sampling. In all, 87 students who met the inclusion criteria were recruited into the study by being selected one student from each branch of the 3-4 and 5-year-old groups in the schools by random sampling. The inclusion criteria were not having an absenteeism problem during the periods while the study was occurring, not having advanced problems with seeing, hearing or speaking and family agreed to be recruited. It was determined that 90% power would have been attained with 95% confidence when 60 children were included. The ‘Risks of home accidents identification form’ was used over the children in this study.

Institutional permission and written consent were obtained from Ethics Committee one of University (60116787-020/28283 03.05.2016) and the families, respectively.

Measures: Identification form of risk of home accident: The circumstances that define the accident risk in parts of the kitchen, saloon, kid's room, bathroom and garden were specified by the investigators in line with the literature. Fifteen risky circumstances were found for the kid's room and bathroom, 14 risky circumstances were found for the saloon and kitchen and finally, 10 risky circumstances were found for the garden. The required corrections were made on the form after the opinion of the expert. The form was coded as 'yes/1 point' if children could find the risks of accidents in the pictures, and 'no/0 point' if the child could not. The highest score that will be received for the bathroom is 15, for the saloon and kitchen are 14, and for the garden is 10.

Home picture showing risky situations at home: In the materials, the risky circumstances in the "Home picture showing risky situations at home" were drawn by a specialist painter with the help of the investigators. Then, the drawings were controlled, and required corrections were made by basing on suggestions. The bright colours were used in a room to attract the kid's notice. At the same time children are better at perceiving the whole (28,29). "Home picture showing risky situations at home" that was presenting each room at home together was shown to the children. It has been shown that such designs are highly efficient to train children about security information (29).

Risky environments at home shown in figure 1 and illustrated as follows:

Illustration 1: Bathroom: Two brothers were depicted playing alone. There is water, some soap and toothpaste in the bathroom. There is an open toilet seat depicted, shower curtains on the floor, and bathtub which is full of water (11,12,16).

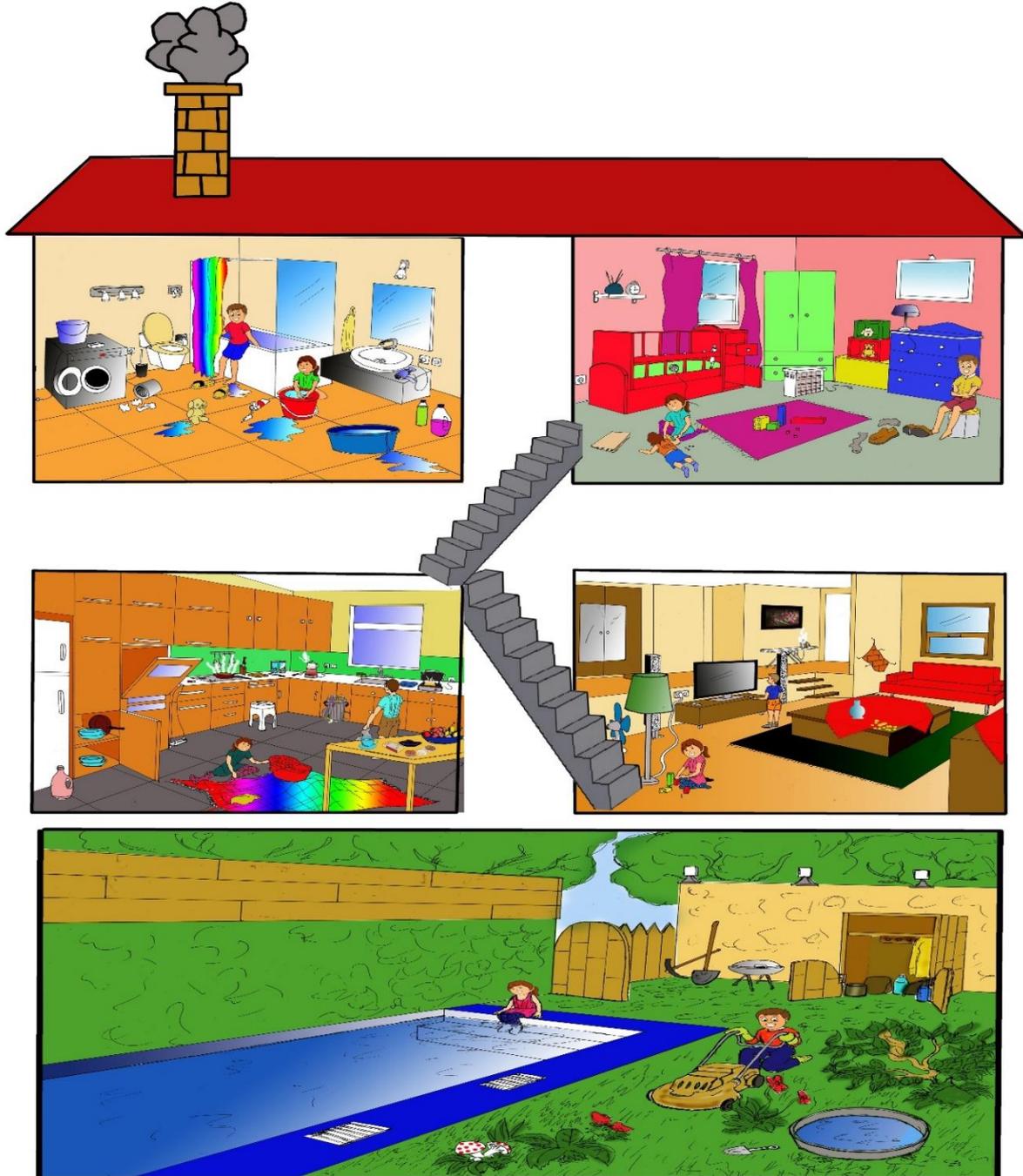
Illustration 2: Kid's room: Two brothers are pictured playing alone in a child's room. The bed railings are painted as cut and spaced widely apart. Threaded toys are on the bed, and the bed is settled near the window and with plug sockets. The cables are on the floor, and the cabinet doors and drawers are open. There is an electric heater near the curtains, the toys have pieces and parts and the toy box is high and can roll. There are wall-mounted knick-knacks (11,12,16,30,31).

Illustration 3: Kitchen: There are two brothers alone in the kitchen. The pan with outward facing handle is on the cooker, there is a tea maker and a toaster that are plugged in the kitchen. There are also plates and blades in places where the children can reach. The drawer and cabinet doors are open, and the dustbin is shown to be full and spilling over, and it has no cover. Moreover, the carpet on the ground is raised, and the ground is wet. There is a hot teacup on the kitchen table. It was also drawn small grained vegetables on the kitchen table (7,11,12,16,31).

Illustration 4: Saloon: The children are alone. Money, the remote, cables, open sockets, and a plugged-in iron are available in the room. At the same time, the edges of the end table are sharp. The table sheet and fragile objects are on it. There are wall paintings, spilled wall paint. No stair rails. The standing fan and lampshade are depicted as children can get stuck. The sofa is shown in front of the window (7,11,12,16,31).

Illustration 5: Garden: The children are alone in the garden. There are toxic substances such as insects and pesticides in the garden. There is broken trees and disorderly tree branches in the garden. There are some possibly poisonous plants and fungi. The children are uncontrolled and near the poolside. Additionally, the garden door is depicted as open, and the lawn mower is depicted in the centre of the picture. The sharp garden tools, a water-filled bucket, barbecue, match, and lighters are described as unattended as well (11,12,16,31).

Figure 1. Home picture showing risky situations at home



Procedure:Pre-test: General information which was shared with the class, and single interviews were performed to prevent the children from interacting with each other. The children were asked to recognize the dangerous circumstances on the picture. The picture of the home environment was shown, and they were asked to review the picture. The story of every room in the picture was told to the children by investigators, and the children were asked to find the dangerous circumstances. The children were asked, 'Can you show the risky conditions?', and the data form was completed with their answers. They were also allowed to show the risky circumstances with drawings. These risky circumstances were coded by the investigators. Duration of data collection from the children was an average of 20-35 minutes for each child before the training and 15-20 minutes after the training.

Training: An education tailored to the children's developmental level was provided. The training was applied by power-point presentation and the picture home environment picture'. A question and answer teaching method and straight expressions were used during the training phase. Moreover, we asked children to find the dangerous circumstances in the home environment. The risky conditions were found on the home picture showing risky situations at home.

Post-test: After 15 days of training, we asked the same children to show the risky circumstances on the picture, and the answers were coded on the form by investigators.

Analysis: The data was analysed using the SPSS 20 software package. The distribution of numbers and percentages were reported. Wilcoxon t-tests were used to assess the efficiency of training.

Results

In all, 44.8% of the participating children were four years old, 34.5% were 3, 20.7% were 5 and 52.9% were girls. It was determined that the difference between knowledge before and after the training was significant in all home environment rooms (living room, kitchen, kid's room, bathroom, garden) ($p<0.001$) (Table 1).

Table 1. The average score of the children's home environment rooms before and after training

Home environment rooms	Pretest	Posttest	Z P
	$\bar{x} \pm ss$ Median (Min-Max)	$\bar{x} \pm ss$ Median (Min-Max)	
Living room	3.34±0.20	8.19±0.27	-8.088
	3.00 (0.00-10.00)	8.00 (4.00-20.00)	0.000
Kitchen	3.56±2.12	8.55±2.19	-8.117
	3.00 (0.00-12.00)	9.00(4.00-14.00)	0.000
Kid's room	3.04±1.93	8.19±2.80	-8.072
	3.00 (0.00-8.00)	8.00 (3.00-19.00)	0.000
Bathroom/toilet	4.52±2.68	9.96±3.62	-7.832
	4.00 (0.00-14.00)	9.00 (4.00-25.00)	0.000
Garden	3,21±2.15	7.00±1.73	-7.610
	3.00 (0.00-9.00)	7.00 (2.00-10.00)	0.000

There was an increase in children's recognition of the accident risks in the living room, the kitchen, the kid's room, the bathroom/toilet, the garden picture after training.

Discussion

Home accidents are still a community health problem because of their frequency and the risk of death and disability. Non-confident environmental conditions and attitudes have an important role in an accident happening (32). Several programs and approaches have been developed to control accidents and injuries. The new approach to preventing injuries is 'change/arrange the environment where the injuries happen' not 'change the behaviours of the individuals' (12,33).

Environmental arrangements could prevent injuries based on home accidents and training parents (17). The first way to prevent children from having accidents at home is educating the family, especially the mother (11,16). The mother is the individual who is the nearest to the children during the accident. That is why the children's knowledge and attitudes about accidents, issues with how children are watched and improper home atmosphere are factors that make home accidents easier (34). In particular, studies have emphasized mothers about home accidents. They found increased in the knowledge of mothers after training. Researchers can evaluate how to transfer the mother's training about the occurrence of home accidents to children. Again, there was a decrease in the accident rates among children whose parents received the training (11,16). However, having experts tell children about the circumstances that cause accidents can be useful for raising awareness and making the child conscious of the issues.

The previous studies mostly emphasized developing information and applications for parents for enhancing home security (35,36,37,38). This approach is important but insufficient because of the dangers children face when on their own (39). Therefore, it is important to teach children to understand the risky circumstances. In particular, ensuring they live in a safe environment is preferable to repressing their behaviour and development (12,33).

The preschool period is a period when the children tend to be the most curious and seek, review, and explore their environment at a high level. Children use their senses effectively when they explore. Seeing the object, hearing its voice, touching and tasting it are effective for getting to know what it is (40). Thus, the purpose of this study was to teach accident risks for preschool children (3-5 age group) using paintings. Using training methods in children's education, such as pictures, games, and drama, improves memory. Pictures and pictorial fairy tales also improve memory. Pictures and pictorial stories are training materials for children who are 3-6 years old. Several early childhood models emphasized the importance of associating game and teaching activities for promoting children's interaction with the material and basic concepts and knowledge assimilation (31).

In the study, it was found that the use of pictures and illustrations appropriate for the children's age could increase awareness about home accidents and the identification of risks for accidents in each house room (i.e., living room, kitchen, children room, bathroom, and garden). The presentation of visual

materials and material appropriate for preschool age children influenced the risk of accidents in the home. The illustration combined with the story and the illustration designed as a home environment can help children in the process of understanding the information.

After training, children were more likely to recognize the risks for home accidents in the living room, kitchen, children's room. Previous studies focused on determining the objects that can cause accidents in the living room, kitchen, kid's room, bathroom / toilet, and garden (12,33,42,43, 44, 45, 46) and identification of these risky situations by mothers. In a study using pictures with mothers, it was found that the parents could generally find the dangerous circumstances. We did not find a study with children in the literature.

According to research study, using a method that includes pictures and a story about burning were more useful for remembering than the method that included only story telling (27). Enhancing children's knowledge about dangerous circumstances indicates the importance of age-appropriate training with pictorial, visual and interesting materials. In the study by Morrongiello et al., (2016) that sought to understand the home security dangers to kindergarten children and the risky behaviours that could lead to injuries, they found that there was significant progress in their knowledge and understanding about home security risks and the initiatives to prevent them. O'Neill and Susie (2016) mentioned in their research that children can see the accident risks when given the right opportunities in daily life. Home-based training programmes can be given effectively to children in a class environment over a short time without experts or extensive training (47). It has even been determined that the training programmes significantly increase the children's awareness of home security risks and behaviours to avoid accidents. Using pictorial materials for these children, especially for preschool children, improves memory.

It was determined that children had a significant increase in recognizing accident risks after the training using paintings. As a result of the education using pictures and stories, children's memory for risky situations in the home was increased. However, recognition of risky situations may not always result in behavioral change. For this reason, studies on what techniques will produce behavioral changes are required.

Limitations and future Research: In this study, the sample included 87 children and it was performed in two kindergartens since an interventional practice was done. Thus; the outcomes can not be generalized to whole Denizli and Turkey. Since no long-term follow up was not performed on children following the study, their states of knowledge and behavior acquisition can not be known. We only tested who could find the risky situations during the training; we did not test whether they would integrate the information given into their real lives. Also after the study, studies including sample follow-ups and evaluating behavioral changes are required.

Implications for clinical practice: The use of pictorial narrative techniques appropriate to the child's level during preschool period will increase the permanence of the information. It should be possible to introduce risky situations that can lead to accidents in ways that are appropriate to the level of them in the environment where children spend most of their time, such as home, school, etc. For this reason the

education can be more permanent through visual and auditory equipment such as story book, cartoon, and video about the subject. Recognition of risky situations, self-protection may increase if the given education addresses more sensory organs. Thus, specific techniques may need to be developed to help children learn this skill. Instead of suppressing curiosity and free movement of children at this age group, it is necessary to let them be aware of the dangers by means of the education to be given by picture method about home accident risks. Nurses have great responsibilities in preventing accident injuries turn into impairment and in decreasing severity with early diagnosis and immediate treatment. Comprehensive and interdisciplinary studies that will use children's many senses and improve memory are recommended. Additionally, conducting long-term, repetitive and traceable studies will contribute to decreasing the prevalence of home accidents in this age group.

Conflict of interest: We declare that there are no conflicts of interests.

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