

Original Article

Pediatric Nurse Students' Attitudes towards the Use of Disposable Toys: A Phenomenological Study

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Abstract

Background: As individual toys are recommended for each in-patient in pediatric settings to prevent cross-contamination.

Aim: The present study aims to investigate pediatric nursing student's attitudes towards using disposable toys made from medication packaging in order to assess its potential as a viable nursing intervention.

Methodology: This qualitative study employs a phenomenological approach to sample Turkish nursing students' (n=80) attitudes towards using unused, clean medication packaging made of paper/cardboard to create their own disposable toys for child patients. Descriptive analysis was used to categorise the types of disposable toys created, while thematic analysis was used to aggregate the nursing student's attitudes towards their perceived usefulness.

Results: From a total of 85 disposable toys, 6 different types were identified (i.e. general, humanoid, animal-like, vehicles, education material and medical objects). Three main themes emerged from the participant's opinions (i) the value of recycling unused medical packaging (ii) the benefit of providing sick children with specialised toys, and (iii) the benefits for primary nursing.

Conclusion: In conclusion, this intervention was viewed as beneficial by reducing the risk of cross-infection, providing nurses with a means of creating better relationships with patients, and improving hospital's environmental impacts.

Keywords: medication packaging; toys; phenomenological study; pediatrics; nursing intervention

Background

Toys are used by children on a daily basis, although, in the nursing context, the use of noncompliant toys pose risks to children's health and lives (Liepina & Korablova, 2014). Differences in contamination rates among toys from various sources remain to be determined (Ibfelt, Engelund, Schultz, & Andersen, 2015). Although the cleaning and disinfection of toys every two weeks can decrease the microbial load in nurseries, it does not appear to reduce sickness absence among nursery children (Ibfelt et al., 2015).

Toys are commonly placed in sick children's beds or toy rooms to engage their attention and entertain them. However, such items also tend to harbour the highest pathogen loads, and sharing toys increases the risks of cross-contamination

and disease transmission in hospitals (Boretti, Correa, dos Santos, Leao, & Goncalves e Silva, 2014; Ibfelt et al., 2015; Watson, Woodrow, & Stadnyk, 2015).

Some of these microorganisms can remain viable for hours and even weeks on surfaces when they are not properly cleaned and sanitised, and thus toys can function as a pathogen reservoir. Toys need to be kept in boxes made of washable materials with covers, or in cabinets, which also require regular and effective cleaning (Boretti et al., 2014; Watson et al., 2015).

Studies on the different types of risks various types of toys pose found that non-compliant toys tended to be responsible for high rates of injuries and sickness (Liepina & Korablova, 2014). Specifically, the material the toys are made from influences contamination risks; higher bacterial

and allergen contamination has been found on plastic toys, followed by metal ones (Boretti et al., 2014; Watson et al., 2015).

Although children's toys are available in various shapes, sizes and materials, they must all comply with specific safety requirements regarding their physical and mechanical properties, flammability, chemical properties, electrical properties, hygiene and radioactivity (Liepina & Korablova, 2014).

Thus, although the importance of toys as therapeutic aids for hospitalised children is obvious, their role as reservoirs of potentially pathogenic bacteria demands that strict measures are in place to guarantee their safety, especially in the case of shared toys in hospital playrooms (Avila-Aguero, German, Paris, Herrera, & Grp, 2004; Boretti et al., 2014). This requires the integrated cooperation of a multidisciplinary pediatric healthcare team, the playroom team, and the hospital infection control service staff to ensure adherence to cleansing practices to prevent and control the risk of infection from contaminated toys (Boretti et al., 2014). Individual toys for each patient are recommended for hospitalised children to prevent cross-contamination, and it is not recommended that children are allowed to bring them home from hospital to prevent contamination risks (Teksoz, Bilgin, Madzwamuse, & Oscakci, 2017). Therefore, the present study investigates nursing students' attitudes to a new nursing intervention – using disposable toys created from medication boxes in pediatric clinics.

Methodology

Study design

This qualitative study employs a phenomenological approach whereby nursing students provide feedback on the viability of using disposable toys made from medication packaging with in-patient child patients. A phenomenological approach attempts to push beyond what is known by empirical, experimental-derived data or *a priori* knowledge by investigating research participants' experiential, subjective experiences of specific phenomena. Critical attention is paid to how such phenomenon is interpreted by the participants themselves, not in sterile laboratories, but in their natural, every-day settings in order to examine the meaning(s) it holds for them through the filter

of their own unique experiences and backgrounds (Finlay, 2014).

Participants

This study samples nursing students (n=80) recruited from a Turkish university. All students were in their third year of an undergraduate nursing programme and had studied pediatrics for 4 months as of 2014. In this term, a module on pediatric Children's Diseases is taught for 6 hours per week and Clinical Learning accounts for 12 hours per week over 4 months. The inclusion criteria were the nursing students had to be in their third year of an undergraduate nursing programme, they had to participate in a new nursing intervention – using disposable toys created from medication boxes they had taken informed consent.

Data collection

Semi-structured individual interviews were conducted face-to-face by the author. The interviews lasted 20–30 min each. Clean, unused medication packaging made from paper and cardboard provided by the researcher was given to the participants in May 2014. They were asked to create their own disposable toys for children in their pediatric placement at the end of the term. Interview questions were devised to obtain a deeper understanding of the nursing students' experiences of making for disposable toys: Tell me about the toys making process. What do you expect from your toy in the pediatric clinic?

Data analysis

Descriptive analysis was used to categorise the nature of the disposable toys created by the respondents.

Different phenomenological methodologies have different priorities and recommend different procedures. In this study focus on the lifeworld hermeneutic approach described by Dahlberg, Maria, and Helena (2007). This analysis is suited to the current study as it is concerned with identifying the meanings participants attached to the toys, as well as aggregating common themes which emerged through a constant iterative process (Braun & Clarke, 2006). Data Analysis interviews were used for the data analysis and all the data were carefully read and viewed until familiarity with it as a whole was achieved. The interpretation phase began by searching for and identifying the meanings in the data in relation to the aim of the study. Similarities and differences were identified, and the data were grouped into

themes representing the meanings of the phenomenon. Aspects deemed to have the same meaning created a theme, and three final themes emerged. Themes were tentatively interpreted until everything related to the aim was included in the analysis. These groups of themes were compiled as preliminary interpretations and validated by using the following criteria suggested by Dahlberg et al. (2007):

- The interpretation's source lies solely in the data, not in the researchers' pre-understanding.
- An interpretation that leaves a significant variety of data unaccounted for is considered to be weak.
- No contradictions should arise between the data and the interpretation.

After the three themes were established, the work with the interpretations began. This process followed the dialectic principle of thesis, antithesis and synthesis. Firstly the theses consist of the conditions that are needed for certain aspects of the data to be supportive. The antitheses describe the opposite and each theme is concluded with a synthesis, in which it is suggested what conditions or factors must be present for support to be given. Throughout the entire process of interpretation, the following quality criteria have been applied. In each theme, different preliminary interpretations were considered. The preliminary interpretation, which was most consistent with both the data and the aim of the study, was tested once again. This time, it was verified that there was nothing in the data that contradicted this interpretation (Dahlberg et al., 2007).

Ethical considerations

ethical approval for this study was obtained from the Mustafa Kemal University Ethics Committee. The nursing students were asked for, and gave, their verbal consent for pictures of the toys they created as well as their interview responses to be used in this research.

Results

From a total of 85 disposable toys, 6 different types of features (i.e. general, humanoid, animal-like, vehicles, education material and medical objects (see Pictures1, Table 1).

Three main themes emerged from the participants' observations on the toys as medical interventions: ***The value of recycling unused medical packaging, The benefit of providing***

sick children with specialised toys, and The benefits for primary nursing. We now examine them one by one.

The value of recycling unused medical packaging: In terms of the first theme, respondents highlighted that disposable toys can be easily made from clean pharmacy boxes, and were safe as the material does not present a contamination risk. Respondents also mentioned that by recycling pharmacy boxes, hospitals can contribute to reducing their environmental impact. The following excerpts demonstrate this theme:

Medicine boxes are being thrown away before they are used. This method is a very creative recycling strategy (Student nurse AY).

Medicine boxes are very plentiful in the hospital... and we know that they are free of contamination. It is very nice to use them for such a beneficial purpose (Student nurse NC).

The benefit of providing sick children with specialised toys: Participants mentioned that children enjoyed playing with such disposable toys and that the toys were appropriate for entertaining children who are partially interrupted from their usual activities by hospitalisation. According to the nurses, such toys helped to fulfil the children's needs for toys. The respondents also expressed that this intervention was helpful as it altered their perception of the children as individuals rather than simply patients. They also emphasised the practicality of this intervention; typifying it as feasible, cost-effective and 'doable'. Below are excerpts which highlight this theme:

There are not many toys for sick children in hospitals or often they cannot go to the playroom. Because the sick children cannot get out of their beds. It would have been nice to play with such a toy on their beds (Student nurse BS).

For me, it's a viable activity that I can do with the child in the pediatric clinic. A special toy for every child and a special way to spend time with them (Student nurse ED).

The benefits for primary nursing: The student nurses stated that this intervention facilitated better interaction between the children and the nurses, and created a more child-friendly hospital environment for patients. This new use of materials was completely unique to the student-nurse participants as they are the first to try such

a new intervention. The following excerpts highlight this theme:

I think it is a great opportunity to work individually with sick children (Student nurse AŞ).

Primary nursing should not be just about medicines and treatments. This is a new approach for us (Student nurse CT).

Discussion

The present study has multiple strengths. The study used a phenomenology design for evaluating the intervention which provided both breadth and depth of evidence. This approach goal is to move beyond what the participant says of experience to what is implicitly revealed about the prereflective experiential realm in the telling (Finlay 2014). Database searching of research published shows that researchers in the disciplines of health sciences and particularly nursing have taken phenomenology approach (Charalambous, Papadopoulos, & Beadsmoore, 2008; Dreyer & Pedersen, 2009; Karlsson, Rydström, Nyström, Enskär, & Englund, 2016; Singsuriya, 2015). This study evidenced the effectiveness, acceptability, and sustainability of the disposable toys intervention by providing a holistic evaluation of the practice. Second, this study was conducted in the south of Turkey where hospital resources are limited.

The World Health Organisation developed the first comprehensive, global guidance document which sets out the safe management of waste from the health-care sector. It addresses aspects such as the regulatory framework, planning issues, waste handling, storage and transportation, treatment and disposal options, as well as training, waste minimisation and recycling. Of the total amount of waste generated by health-care activities, about 85% is general, non-hazardous material and recycling is becoming increasingly important due to limited natural resources as well as cost-saving (WHO, 2015). The present study demonstrates that nursing staff viewed this intervention in a positive light – a feasible and effective way of providing children with safe, non-contaminated toys, enhancing the interaction between them and the children, as well as being environmentally sustainable. Therefore this intervention is not only useful and beneficial for staff and patients, it is also cost-effective, and encourages recycling and reusing within the medical sector.

Public awareness about toy safety has become an essential component of child safety over the past decades, and three areas are key to this: age-appropriateness, materials used, and parental supervision. In a survey of parents, it was found that 11 % admitted that their children had suffered injuries while playing with non-compliant toys, which confirms the above – that the number of accidents in which children suffer preventable accidents from toys is too high (Liepina & Korablova, 2014). In regards to toy contamination by material, a study by Boretti et al. (2014) sampled toys (n=60) and found that 87% were positive for *staphylococcus* bacteria, and found that plastic toys were the most contaminated, followed by rubber, and wood. Watson et al. (2015) study reported that allergens were commonly found on plastic toys. However, the literature fails to address the benefits provided by using disposable toys made from paper or card in pediatric nursing contexts. Therefore, the present paper advocates the use of toys made from medication packaging as a cost-effective, safe, simple-to-make, and readily-available method for in-patients in pediatric settings, and the use of such toys made from natural materials enriches children's learning environment (Ardıç & Altun, 2017).

The use of toy-based interventions in clinical settings has been widely used and studied over the past decade (Campos, Rodrigues, & Pinto, 2010; George & Solomon, 2016; Paladino, Carvalho, & Almeida, 2014). Specifically, Avila-Aguero et al. (2004) determined that the sources of hospitalised children's toys were home (41%), purchased mobile toy vendors (55%), and toy stores (4%), and, upon culture analysis, such toys were positive for at least 1 pathogenic microorganism. Similarly, another pediatric bacteria study found that the highest rates of potentially pathogenic bacteria were found in samples from pillows and sofas, followed by changing mats and various toys in the hospital (Ibfelt et al., 2015). Toys brought to a hospital can be contaminated with potentially dangerous bacteria and may provide unnecessary risks for nosocomial infection. However, as toys are important for children's development and sense of ease and it would be inappropriate to remove them from hospitals. Therefore, it is necessary to take precautions to reduce the risks from the toy-associated spread of infection. Each child should have his/her own set of toys; that is, they should not be shared with other children. In the present

study, nurses' attitudes towards disposable toys made from readily available medication packaging suggest that this intervention would be helpful, suitable and beneficial while simultaneously removing infection risks.

Pediatric nurses play a crucial role in creating a safe yet enjoyable environment for child patients which will maximise their well-being and minimize their recovery time. The literature shows that toy-based nursing interventions were found to be transferable, feasible and cost-effective in improving the quality of nursing care across hospitals with varying levels of resources (Karlsson et al., 2016; Li, Chan, Wong, Kwok, & Lee, 2014; Potasz, De Varela, De Carvalho, Do Prado, & Do Prado, 2013; Svendsen & Bjork, 2014; Teksoz et al., 2017). Additionally, the majority of the nurses sampled in the present study agreed that the method advocated was would provide good therapeutic benefit, be easily implemented, and cost-effective for use as a routine primary nursing care intervention in pediatric settings.

Conclusion

In conclusion, toy safety in pediatric hospitals remains a cause of concern as they carry the risk of infection and may play a significant role in the epidemiology of nosocomial pediatric infections. The intervention examined in the present study found that nurses responded well to the notion of using disposable toys made from paper and card recycled from medication packaging, and agreed that such toys would be of benefit to children in pediatric settings by reducing the risk of cross-infection, providing nurses with a means of creating better relationships with patients, and improving hospital's environmental impacts.

Every child requires toys and especially those who are hospitalised in medical settings with limited facilities. It is recommended that children are provided with their own separate toys and should be provided with disposable toys, as cleaning is often inadequate and carries a large risk of infection. Therefore, the use of natural, uncontaminated, unused clean pharmacy boxes advocated by the present study represents a workable method of achieving this in pediatric primary-nursing care settings.

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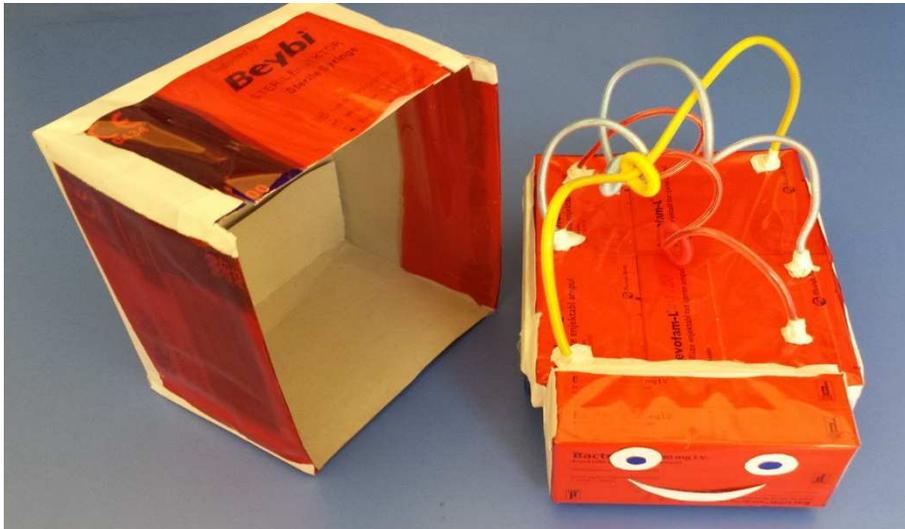
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Table 1. Disposable toys characteristics

Form	n	%
General	19	22.35
Humanoid	29	34.11
Vehicle	24	28.23
Animal-like	4	4.70
Education material	4	4.70
Medical objects	5	5.88



Picture 1 Disposable toys