



Research Article

Efficacy of Distraction Methods on Procedural Pain and Anxiety by Applying Distraction Cards and Kaleidoscope in Children



Nejla Canbulat, PhD,^{1,*} Sevil İnal, PhD,² Hacer Sönmezer, MSc³

¹ Pediatric Nursing Department, School of Health, Karamanoglu Mehmetbey University, Karaman, Turkey

² Midwifery Department, Health Science Faculty, Istanbul University, Bakirkoy, Istanbul, Turkey

³ Community Health Nursing Department, School of Health, Karamanoglu Mehmetbey University, Karaman, Turkey

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SUMMARY

Purpose: This study aims to investigate two different distraction methods, distraction cards and kaleidoscope, on pain and anxiety relief of children during phlebotomy.

Methods: This study is a prospective, randomized and controlled trial. The sample consisted of 7–11 year-old children who required blood tests. Children were randomized into three groups: the distraction cards group, the kaleidoscope group, and the control group. Data were obtained by interviewing the children with their parents and the observer before and after the procedure. The pain levels of the children were assessed by the parent and observer reports as well as self report using the Wong Baker FACES Pain Rating Scale. The anxiety levels of children were assessed by parent and observer reports using Children Fear Scale.

Results: One hundred and eighty-eight children (mean age, 8.8 ± 1.5 years) were included. The pain levels of children showed significant differences among the groups ($p = .005$). Both the distraction card group (2.41 ± 2.49) and the kaleidoscope group (3.10 ± 2.16) had lower pain levels than the control group did (4.44 ± 3.64). The distraction card group had the lowest pain levels (2.41 ± 2.49) among all groups. The procedural anxiety levels of children were significantly different among the groups ($p < .001$). Both the distraction card group (1.10 ± 1.20) and the kaleidoscope group (1.61 ± 1.12) had lower anxiety levels than the control group did (2.41 ± 1.30). The distraction card group had the lowest anxiety levels ($p < .001$).

Conclusion: The distraction cards were the most effective method for pain and anxiety relief of children during phlebotomy. Also the distraction method with kaleidoscope was an effective method for pain and anxiety relief during phlebotomy in children.

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Introduction

Pain is a highly prevalent problem in children and adults. It is a predominantly subjective emotional distress that also leads to impairment in the quality of life (Katz, 2002). Medical procedures that are applied using a needle, such as venipuncture and immunization are the most common and important sources of pain for children, causing anxiety, distress and fear (Blount et al., 2009; İnal & Kelleci, 2012b; Leahy et al., 2008; Uman, Chambers, McGrath, & Kisely, 2006). Moreover, fear of pain experienced due to medical procedures in childhood usually continues up to adulthood.

Pain management before the first painful medical procedure in children may reduce pain-related negative emotional and social experiences, reduce anxiety, fear and distress, and contribute to having emotionally less complicated future medical procedures (Wong, Chia, Yam, Teodoro, & Lau, 2004). This management includes pharmacological and nonpharmacological approaches (Taddio et al., 2010). The most commonly used pharmacological approach in order to decrease the medical procedure-related pain is the application of topical anesthetic creams (Rogers & Ostrow, 2004). Topical anesthetic creams supply local anesthesia but need waiting times of approximately 45–60 minutes for acting. Non-pharmacological approaches often include distraction activities such as singing, reading, or playing a game (Cohen et al., 2006; Schechter et al., 2007). Recently, it has been shown that distraction with kaleidoscope is also a beneficial method to provide optimal pain control (Tüfekci, Celebioğlu, & Küçüköglü, 2009). It has also been shown that distraction with distraction cards is a

* Correspondence to: Nejla Canbulat, PhD, Pediatric Nursing Department, School of Health, Karamanoglu Mehmetbey University, Karaman, Turkey.

E-mail address: ncanbulat@gmail.com

beneficial method for pain during phlebotomy (Inal & Kelleci, 2012a).

This study aimed to compare the effect of distraction by applying distraction cards (Flippits; MMJ Labs LLC, Atlanta, GA, USA) and the kaleidoscope to reduce procedural pain and anxiety during phlebotomy in children between the ages of 7 and 11.

Methods

Study design

This study was conducted at the phlebotomy station of the Karaman Maternity and Children Hospital. It was designed as a prospective randomized clinical trial that evaluated and compared the effects of the distraction cards and the kaleidoscope on procedural pain and anxiety levels of children during phlebotomy.

Setting and sample

The study population consisted of 7–11 year-old children who requested blood test. The study sample size was determined by power analysis. Based on previous research (Inal & Kelleci, 2012a), with a 1.5 standard deviation for the experimental group and 2.0 for the control group. With a power of .80 and an acceptable Type I α error size of 0.05, each group required 50 individuals. Adding 20% loss rate of study group the final sample size required about 60 individuals per group. Children were randomized into three groups: the distraction card group, the kaleidoscope group and the control group (Figure 1). All data were obtained by interviewing with the children, their parents and the observer after the procedure. The phlebotomy process took an average of 3 minutes (min: 1, max: 5).

The current application in our hospital that conducted this study was that nurses conducted phlebotomy at a phlebotomy station.

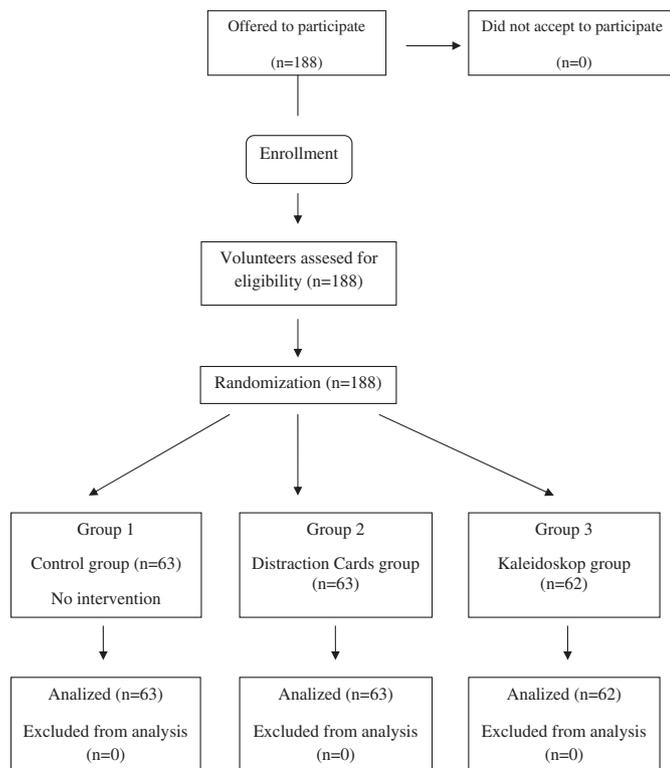


Figure 1. Diagram showing the flow of participants.

Routinely, hospitals in Turkey did not provide pharmacological or nonpharmacological method to reduce the pain and anxiety during phlebotomy. Parents are allowed but not required to stay with children during phlebotomy. In this study all parents stay with their children during the procedure.

Ethical consideration

The study was approved by the ethics committee of Selcuk University Selcuklu Medical Faculty, Konya (2011/45). The aim and method of study were explained to the children and their parents. They were informed that if they did not want to continue, they could withdraw from the study without stating a reason.

Measurement

The distraction cards (Figure 2) consisted of visual cards of 5 cm × 8 cm, covered with various pictures and shapes. In this method, the children first carefully examined the cards. Then, the researcher asked some questions about those cards to be answered by the children, such as “How many ladybugs are there in the picture?” “How many apes are there in the picture?” or “Can you see the comet?” The distraction procedure via distraction cards began just before the phlebotomy and continued until the end of the phlebotomy. Because the children’s native language was not English, the translation and back translation of the instrument were conducted by an expert who knew both languages.

Kaleidoscope is a cylinder toy with mirrors containing a number of loose, colored objects like beads (Figure 3). The images inside a kaleidoscope are based on the principle of multiple reflections of colored objects on typically three mirrors set at 60° angle to each other (Figure 4). The viewer looks into one end and light entering from the other end creates colorful symmetrical patterns inside as one of the cylinders is rotated. Those symmetrical colorful patterns usually draw the attention of children in each turn. The distraction procedure via kaleidoscope began just before the phlebotomy and continued until the end of the phlebotomy.

The level of pain resulting from the applied procedure in each child was assessed by self reports, parent and observer reports using the Wong Baker FACES (WB-FACES) Pain Rating Scale. The WB-FACES is a 0–10 scale, showing six cartoon faces that range from a neutral expression (0 = very happy/no hurt) to a crying face (10 = hurts as much as you can imagine) (Hockenberry & Wilson, 2009).



Figure 2. Distraction cards (Flippits).

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