

ÇOCUKLARDA İNVAZİV İŞLEMLER SIRASINDA DİKKATİ BAŞKA YÖNE ÇEKME TEKNİKLERİNİN KULLANIMI ¹

USE OF DISTRACTION TECHNIQUES ON DURING THE INVASIVE PROCESSES OF PEDIATRIC PATIENTS

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Öz: Amaç: Bu derleme, 6-12 yaş arası çocuklarda invaziv işlemler sırasında dikkati başka yöne çekme tekniklerinin anksiyete, korku ve ağrı yönetimine etkisini belirlemek amacıyla yapılmış olan literatürü incelemek amaçlanmıştır. **Yöntem:** Veri tabanlarından yapılan literatür taraması sonucu oluşturulmuştur. **Bulgular:** Çocuklarda anksiyete, korku ve ağrı yönetimiyle ilgili YÖK Ulusal Tez Merkezi'nde 2 adet tıpta uzmanlık tezi, 3 adet doktora tezi ve 7 adet yüksek lisans tezi bulunmaktadır. Konuyla ilgili sayısız yayın ve makale taranmış olup, genel itibarıyla ağırlı / invaziv işlemler sırasında uygulanan dikkati başka yöne çekme tekniklerinin çocuk hastalar ve aileleri üzerinde olumlu etkiler yaptığı gözlenmiştir. **Sonuç:** Kan alma, damar yolu açma gibi invaziv işlemler sırasında uygulanan dikkati başka yöne çekme tekniklerinin çocuklarda oluşan anksiyete, korku ve ağrıyı azaltmasının yanında tedavi ve bakıma olan uyumu artırarak kısa ve uzun dönem sonuçları olumlu etkileyeceği düşünülmektedir. Bu derlemede, çocuklarda invaziv işlemler sırasında dikkati başka yöne çekme tekniklerinin kullanımından bahsedilmiştir.

Anahtar Kelimeler: Ağrı, Anksiyete, Korku, Dikkati Başka Yöne Çekme, İnvaziv İşlemler

Abstract: Aim: This review aimed to examine the literature on the effectiveness of distraction techniques on anxiety, fear, and pain management during invasive procedures in children aged between 6-12 years old. **Method:** The literature was searched using databases. **Results:** In the Higher Education Council National Thesis Center, there were 2 medical specialty theses, 3 doctoral theses, and 7 master's theses on anxiety, fear, and pain management in children. Numerous publications and articles were also reviewed and it was found that distraction techniques, in general, had positive effects on pediatric patients and their families during painful/invasive procedures. **Conclusion:** Distraction techniques used during invasive procedures such as drawing blood and opening vascular access increase adherence to treatment and care as well as reducing anxiety, fear, and pain, which may lead to positive long-term outcomes. This review addressed the use of distraction techniques in children during invasive procedures.

Key Words: Pain, Anxiety, Fear, Distraction, Invasive Procedures

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INTRODUCTION

Painful medical procedures constitute one of the biggest sources of pain, fear, and anxiety in hospitalized children. These fears often cause unwillingness in the child or the family against medical procedures such as drawing blood, opening vascular access, and suturing and affect the future treatment and care experience of the child. Especially children with chronic diseases face may painful procedures in the diagnosis and treatment process (Arts et al., 1994: 797; Uman et al., 2013:10).

Studies have shown that children experience both pain and anxiety during these procedures (Uman et al., 2013:10). Besides affecting the behavior, family interactions, and nutrition levels of the child, the pain experienced by the child also cause changes in the development of the brain and senses, negatively affecting growth (Derebent and Yiğit, 2006:41; Dinçer et al., 2011:46).

According to the International Pain Studies Association Taxonomy Committee, pain is defined as an unpleasant biochemical situation or experience caused by a certain area of the body with or without relation to tissue damage that is affected by the past experiences of the person and presents in order to distance an unwanted condition (Task Force on Taxonomy, 2004).

The American Academy of Pediatrics and the American Pain Society (2001: 793) both state that pain is insufficiently evaluated in children. When evaluating pain, it should not be forgotten that pain is subjective and contains personal differences. The aim in evaluating pain is to determine, decrease, and effectively manage pain (Conk et al., 2013: 893-910).

Pain evaluation in children is important with regard to (Törüner and Büyükgöneç , 2013: 146-172)

- Determining the child's need for pharmacological and non pharmacological interventions
- Deciding whether the interventions were successful,
- Helping with diagnosis in certain conditions
- Observing surgical or other complications

The hospital environment is a stressful environment which breeds anxiety for children. The factors that cause a hospital to increase stress in children are the disruption of health, the unknown environment, the strangers in this environment, different sounds, lights, and tools, painful procedures applied to the child, disruptions in routine, disruptions in body integrity or the risk of such, and mental developments (Törüner and Büyükgöneç, 2013:



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146-172; Conk et al., 2013: 893-910). The child should be informed on why the procedures that will be applied were chosen, how long the procedures will take, and what the child will feel during the procedures in order to prevent stress and anxiety in the child (Çavuşoğlu, 2013: 296-308).

The American Society of Pain Management Nursing-ASPMN states that nurses are responsible before, during and after a painful procedure for the use of pharmacological and non pharmacological methods for pain management in people exposed to painful procedures (Czarnecki et al., 2011:154). The AAP and the APS (2001: 793) both state that even in minor interventions, such as opening a venous pathway, pain and stress should be minimized.

To decrease pain in children, non pharmacological methods are used alongside pharmacological methods. The child needs someone to hold hands and verbally relax him/her during procedures. The child and the family should be provided with a sense of safety continuously, and simple explanations on the procedures that are and will be done should be given. The applications may be needed to repeat from time to time, and team members should be patient (Çevik Ü, 2003: 91-95; Çavuşoğlu, 2013: 296-308).

Non pharmacological methods used in pain management are grouped into three categories as supportive methods, cognitive/behavioral methods, and physical methods. Supportive methods encompass the psychosocial care of children and include techniques such as watching videos, reading, and ensuring that the family is with the child during procedures. Physical methods include touching, positioning, massage, skin stimulation, and hot/cold applications. Cognitive/behavioral methods deal with the sensory, behavioral, and perceptual dimension of pain. This group includes techniques such as drawing attention to another place, hypnosis, and relaxation (Uman et al., 2013:10; Törüner and Büyükgöncü, 2013:146-172).

Distraction focuses attention to somewhere else than the painful stimulus, increasing pain tolerance. This method is used as a strong pain and anxiety management tool in pediatric pain (Sloman et al., 2005:125; Gupta et al., 2006: 1372; Cohen et al., 2008: 939). There are many methods to draw attention. The evidence based distraction methods that can be effectively used in painful procedures are as follows:

- Virtual reality goggles
- Using distraction cards
- Music



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- Using a kaleidoscope
- Blowing balloons and making balloons out of bubbles
- Cartoons
- The parents drawing attention (talking of something other than the intervention) (İnal and Canbulat, 2015:116).

PURPOSE of STUDY

This review aimed to examine the literature on the effectiveness of distraction techniques on anxiety, fear, and pain management during invasive procedures in children aged between 6-12 years old.

SCOPE of STUDY

For this review, The national thesis center of the Council of Higher Education, google scholar, and PubMed were searched for journals and articles on the topic. In this regard, studies investigating the effects of distraction techniques applied to children during invasive procedures on anxiety, fear, and pain management were examined.

METHOD

The literature was searched using databases.

RESULTS

In the Higher Education Council National Thesis Center, there were 2 medical specialty theses, 3 doctoral theses, and 7 master's the-

ses on anxiety, fear, and pain management in children. Numerous publications and articles were also reviewed and it was found that distraction techniques, in general, had positive effects on pediatric patients and their families during painful/invasive procedures.

Virtual Reality Goggles

The virtual reality goggle is a 3D technological product that is attached to the head of the patient and enables him/her to watch the visuals in a bigger and clearer manner through the special lenses within. Since it prevents the perception of hospital noises and draws attention during procedures, it has a relaxing and pain decreasing effect (İnal and Canbulat, 2015: 116). However, in children with histories of migraine, epilepsy or vestibular disorders, negative responses to virtual reality goggles, albeit small, may develop (nausea, vertigo etc.) and these children thus can't participate in virtual reality studies. Alongside this, children who are applied virtual reality should be monitored for side effects throughout the procedure (Patrick, McGrath and Allen Finley, 2006: 6).

Sander Wint et al. (2002: 8) have separated 30 children into two groups as 17 in the study (virtual reality) and 13 in the control group to research the effect of using virtual reality goggles during lumbar puncture. As a result of the study, they found that the pain scores of the study group were lower than the control



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group without a significant statistical difference.

Das et al. (2005:1) have examined 9 children between the ages of 5 and 18 who would have the dressings of their burn wounds changed, and concluded that the pain scores of the group using virtual reality were lower during dressing change than the group not using the method.

Lange (2006) has compared 88 children who underwent blood drawing, venous pathway opening, and suturing procedures in the pediatric emergency room through watching movies and using virtual reality goggles during the procedures. As a result, the behavioral pain and anxiety scores of the group who used virtual reality goggles were found to be lower, with the parents and personnel also finding the use of virtual reality goggles more effective.

Ayyıldız and Göksu (2017) examined 80 children, of which 40 were in the study group and 40 were in the control group, in order to determine the effect of virtual reality goggles in decreasing the pain during venous blood drawing, and as a result observed that there was a statistically significant difference between the study and control groups, with the pain scores of the study group being lower.

Even though studies show that the use of virtual reality goggles is effective in decreasing

the pain and anxiety occurring during medical procedures, more studies on the subject are needed.

Distraction Cards

Distraction cards contain hidden pictures and patterns that the child can see when he/she looks attentively. During the procedure, the child is asked questions regarding the cards, and the attention of the child is drawn elsewhere (İnal and Canbulat, 2015: 116-21).

İnal and Kelleci (2012:210) have separated 123 children between the ages of 6 and 12 whose blood would be drawn, and the study group was asked questions regarding distraction cards while the control group was only applied the routine blood drawing application. As a result, the pain and anxiety scores of the group to which distraction cards were applied were found to be lower.

Canbulat et al (2014: 23) separated 188 children into three groups in a study where they compared distraction cards and kaleidoscope use in children between the ages of 7 and 11 during blood drawing, and while the control group was only applied the routine blood drawing procedure, the study groups were applied distraction cards or a kaleidoscope. As a result, distraction cards were found to be more effective compared to kaleidoscope use in decreasing procedural pain and anxiety scores.



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Şahiner and Bal (2016: 277) separated 120 children between the ages of 6 and 12 into four groups and while the control group was only applied the routine blood drawing procedure, the study groups were applied distraction cards, balloon blowing, and listening to cartoon music. As a result, the pain and anxiety scores of those who were applied distraction cards were found to be significantly lower compared to the control group, with all of the other distraction techniques being also effective (blowing balloons, listening to cartoon music) in the management of procedural pain and anxiety.

Literature review shows that distraction cards can be safely used during painful invasive procedures.

Listening to Music

Nurses and doctors apply music in pediatrics clinics as a relaxing method for children (Dündar, 2011: 11-15). Studies show that listening to music decreases hospitalization duration and relaxes pain and anxiety.

Nilsson et al. (2009: 1184-90) have separated 80 children into study and control groups in numbers of 40 to determine pain, anxiety, and concern post surgery in school children, and applied music to the study group before the procedure. It was concluded that morphine intake rates and pain scores in the music group in the postoperative period were lower

compared to the control group. Additionally, at the end of the study, children stated that music was relaxing and calming.

In a randomized controlled study, Bahadır and Kürtüncü (2016) separated 60 children in the 6-12 age group who would undergo surgery into music therapy and control groups each 30 in number, and found that the post-operative pain, anxiety, and fear scores of the children in the music therapy group were significantly lower with parent satisfaction also being higher in the study group compared to the control group.

Aydın and Şahiner (2017: 164-168) separated 200 children between the ages of 7 and 12 who would undergo blood drawing into four groups of 50 each, and while the control group was only applied the routine blood drawing procedure, the study groups were applied distraction cards, the study groups were applied distraction cards, music, and distraction cards and music combined. As a result, the pain and anxiety levels of all three study groups were found to decrease with no statistically significant difference.

Moving from these study results, music can be said to safely usable during invasive procedures.



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Kaleidoscope Use

The Kaleidoscope can be defined as a game material that shows objects of various colors and patterns when looked into. It is also called the flower binocular. The patterns in the kaleidoscope are often obtained by moving the tool and reflecting light from various points. Its inside is painted black or another dark color. Inside is three mirrors attached with 60 degree intervals. Between the mirrors are colored glass pieces, feathers, scales, thin beads etc. While rotating above eye level, the beads move and their vision is combined through the mirrors. Various images thus emerge. When a kaleidoscope rotates, the designs change according to bead movements and the same design rarely shows up.

In a study with 206 children between the ages of 7 and 11 who would undergo blood drawing, Tüfekçi et al. (2009: 2180-6) separated the children into a 101 child control group and a 105 child study group, asking the children in the study group to look into a kaleidoscope during the procedure. As a result, male children who had blood drawing experience from 1 to 3 previous procedures who feared the procedure were found to experience ore pain. Additionally, the pain scores of the children in the study group were found to be lower compared to those of the children in the control group.

Gözen and Karakaya (2014) separated 144 children in the 7-14 age interval into study and control groups, and gave children in the study group kaleidoscopes, asking them to look into it during the procedure and tell what they saw. The children in the control group were applied the routine blood drawing procedure. As a result, the children in the control group were found to feel more pain than those in the study group.

According to these results, the use of a kaleidoscope during invasive procedures can be seen to be effective. Additionally, the fact that different patterns emerge each time the kaleidoscope is rotated causes children to focus on the patterns and not the procedure, decreasing pain.

Blowing Balloons and Making Bubbles out of Foam

In a study conducted with 149 children in the 4-7 age range, French et al. (1994: 384-8) separated the children into study and control groups and applied the method of blowing bubbles out of foam for the children in the study group. As a result, the pain scores of the group which was applied foam bubbles were found to be lower.

Gupta et al. (2006: 1372-5) separated 75 children in the 6-12 age range into 3 groups of 25 children, applied the routine blood drawing procedure to the control group, asked children



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in one of the study groups to blow balloons during blood drawing, and asked the other study group to squeeze and release a plastic ball in one hand. As a result of the study, the pain scores of the control group were found to be higher than the study groups, with the pain levels of the children blowing balloons being lower among the study groups.

In a randomized controlled study, Balcı and Mutlu (2012) separated 142 children in the 9-12 age interval into three groups of 44, applied the routine blood drawing procedure to the control group, asked children in one of the study groups to blow balloons during blood drawing, and asked the other study group to cough during blood drawing. As a result, the control group was found to experience more pain compared to the study groups, with a statistically significant difference. However, no significant difference could be found between the children blowing balloons and those that coughed, with both being effective in decreasing pain.

As a result of the studies, the applications of blowing balloons and making bubbles out of foam were thought to be effectively usable during invasive procedures.

Cartoons

In a study conducted with 13 children in the 4-12 age range with burns, Landolt et al. (2002: 61-5) examined whether watching

cartoons decreased the pain during dressing changes, and as a result found that cartoons had no effect in significantly decreasing pain during burn dressing changes. However, the fact that burn debridement is a very painful procedure for children is thought to have an effect in this.

Belliemi et al. (2006: 1015-7) separated 69 children into three groups to determine the effect of watching cartoons during blood drawing in children in the 7-12 age range, applied the routine blood drawing procedure to the control group, asked the mothers of children in one group to talk about things irrelevant to the intervention, and applied cartoons to the other group. As a result, the pain scores of the children in the cartoon group were found to be lower than the other two groups.

Dovney and Zun (2012: 3-5) examined 44000 children between 3 and 18 years of age who presented at the pediatric emergency room, and researched the effect of presenting cartoons to children during painful procedures. They observed the children with regard to pain 5 minutes before, during, and 5 minutes after the procedure, and concluded that presenting cartoons during painful procedures was effective in decreasing pain. Additionally, they stated that there was a need for more methods to decrease pediatric pain.



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Moving from these results, it can be said that the method of presenting cartoons to children during invasive procedures can be used.

Parents Drawing Attention (Talking about things irrelevant to the intervention)

Gonzalez et al. (1993: 593-60) observed 42 children who were applied intramuscular injection and their mothers, and found that mothers who talked about things irrelevant to the intervention with their children during the procedure were disturbed less by the injection and that the pain levels of such children were lower.

In a study conducted with 8 cancer patients in the 2-6 age range, Mason et al. (1999: 239-48) separated children into three groups, applied routine treatment to the first group, presented cartoons to the second group during treatment, and had the mothers of the children in the third group read them stories during treatment. As a result, the pain levels of the children who were read stories by their mothers were found to be lower than the other two groups.

Inal and Inan (2017) separated 180 children between the ages of 6 and 10 whose blood would be drawn into four groups, applied the routine blood drawing procedure to the control group, presented cartoons to the second group, made the children in the third group play video games, and asked the parents of

the children in the fourth group to talk to their children and divert their attention. The pain and anxiety scores of the parental support group were found to be lower than the control group.

As a result, the method of the parents diverting attention is thought to decrease pain and anxiety during invasive procedures.

CONCLUSION

It is thought that attention diversion techniques applied during invasive procedures such as blood drawing and opening venous pathways would, besides decreasing the fear, anxiety, and pain in children, increase compliance with treatment and care, positively affecting short and long term results.

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