Original Research

Correlation of Visual Distraction Method Toward Pain Reduction in Preschool Children at The Emergency Installation

Dian Vita Sari1*, Fatmawati1, & Alhuda1

1Akademi Keperawatan Kesdam Iskandar Muda Lhokseumawe, Aceh, Indonesia

Article Info

Abstract

Introduction: A child’s reaction in overcoming the crisis is influenced by the level of age, experience of the process of being sick and treated, the support system available, and coping skills in dealing with stress. Preschool-age children is very difficult to understand the invasive procedures that can cause pain such as during IV insertion. When a child is hospitalized, the child will usually be given an infusion. The infusion is done in order to get the fulfillment of nutrition, fluids, and medicines. Yet, when the infusion is installed in children, they can feel pain. The aim of the study is to determine the relationship between the visual distraction method and the reduction of pain in preschool children infusion.

Methods: The population in this study was preschool children who were treated in the Emergency Room. The sampling technique used Accidental Sampling with a total sample of 105 people.

Results: The research results were obtained with a confidence level of 95% (a 0.05), it is known that the p-value or Asymp value Sig. (2-sided) which is 0.001 means that the p-value is 0.001 ≤ 0.05, this shows that there is a significant relationship between the Visual Distraction Method and the Pain Reduction Method in Infusion for preschool children in the Emergency Room at the Sultan Abdul Aziz Syah Peureulak Hospital.

Conclusion: The use of non-pharmacological techniques has a significant impact on pain management in children. Various non-pharmacological measures that can be performed include using the distraction method. Audiovisual distraction therapy is thought to help release endorphins which have a function to reduce stress and pain.

Keywords: visual distraction, infusion, preschool children

*Corresponding Author:
e-mail: dianv2783@gmail.com

This work is licensed under a Creative Commons Attribution 4.0 International License.
INTRODUCTION

Children’s reaction in overcoming this crisis is influenced by the level of age, experience with the process of being sick and treated, the support system available, and coping skills in dealing with stress [1]. Preschool-age children is very difficult to understand invasive procedures that can cause pain such as during IV insertion. When a child is hospitalized, an infusion will be installed to get the fulfillment of nutrition, fluids, and medicines. So, when an infusion is installed on a child, the child can feel pain [2].

Various reactions appear in preschool aged children due to the stress of hospitalization such as denial, pull-out, refusal to eat, and loss of affection. In hospitals, children undergo various procedures such as IVFD (Intravenous Fluid Drip) installation as a painfully uncomfortable experience [3].

According to surveillance data from the World Health Organization (WHO), it is stated that the incidence of infusion in hospitals, especially in emergency departments, is quite high, 85% per year. 120 million people out of 190 million patients treated in hospitals use infusions. The child morbidity rate at the time of infusion in Indonesia is 15.26% [4].

Based on UNICEF data (2017) which states that the number of preschool-aged children in the world’s 3 largest countries reaches 148 million children with incidents of children being hospitalized as many as 57 million children each year, where 75% experience trauma in the form of fear and anxiety while undergoing treatment. The total population of children aged 0-17 years in 2017 in Indonesia is 79.6 million people.

One of the invasive actions or procedures obtained by children undergoing hospitalization is getting an infusion and blood sampling. Inserting an infusion and taking blood will cause pain in the area where the infusion needle was inserted or the area where blood is drawn. If the child is not handled properly during invasive procedures, it can make the child uncooperative and refuse action so it can obstruct the treatment process. Long-term effects that can arise if a child’s pain is not reduced or treated are psychological and physical stress suffered by children, such as insomnia, depression, changes in appetite, and fatigue [5].

Pain handling in children can be done through pharmacological pain management, namely pain relief using anti-pain drugs. In addition, non-pharmacological pain management is a pain relief strategy without using drugs but caring behavior [3].

Using non-pharmacological techniques has a significant impact on children’s pain handling. Various non-pharmacological can be carried out using the distraction method[6].

Distraction is an effective method for reducing pain and anxiety levels in children during the process of taking blood samples, placing infusions, and treating wounds [7]. Audiovisual distraction therapy is thought to help release endorphins which have a function to reduce stress and pain [8].

This distraction therapy can be done by inviting children to watch cartoon videos and animated videos to divert anxiety in preschool-aged children so that they can have
a positive effect on increasing the body's immunity by providing fun, forming imagination, education, and entertainment for children [9].

**METHODS**

This research used an analytic approach, which is aimed at knowing the relationship between two variables in a situation or a group of subjects. This is done to see the relationship between one variable and another. The instrument in this study used a standard questionnaire with an assessment of the Face, Legs, Activity, Cry, and Consolability (FLACC) to measure the pain scale and used the infusion method with visual distraction using media. The population in this study were preschool children who were treated in the emergency room of Cut Mutia Hospital. The number of samples in this study was 108 children with the criteria of subjects being 3-6 years old school children, being treated in the emergency room. This study used an accidental sampling technique with a total of 108 people. Data analysis of this study used univariate and bivariate analysis. This research has passed the ethical clearance with the number 065/KEPK/UNPRI/VII/2023.

**RESULTS**

**Univariate Analysis**

Based on Table 1, it is showed that the frequency of respondents' characteristics based on gender was female as many as 57 (54.3%). It is showed that the age of preschool children in the Emergency Room aged 3-4 years was 83 people (79%). It is showed that 93 (88.6%) respondents effectively performed infusions using the visual distraction method. It is showed that the pain level of infusion is moderate pain in 63 preschool children (60%).

**Bivariate Analysis**

Based on Table 2, it is showed that 93 people (88.6%) responded effectively using the visual distraction method, and 61 (58.1%) experienced moderate pain. Furthermore, 12 respondents who were ineffective in infusion with visual distraction, and 7 (6.6%) respondents experienced severe pain with a p-value of 0.001 ≤ 0.05, indicating that there is a significant relationship between the visual distraction method and a decrease in pain.
Table 1
Demographics Data

<table>
<thead>
<tr>
<th>Gender</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>48</td>
<td>45.70%</td>
</tr>
<tr>
<td>Female</td>
<td>57</td>
<td>54.30%</td>
</tr>
<tr>
<td>Total</td>
<td>105</td>
<td>100%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Age</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-4 Years old</td>
<td>83</td>
<td>79%</td>
</tr>
<tr>
<td>&gt;4-6 Years old</td>
<td>22</td>
<td>21%</td>
</tr>
<tr>
<td>Total</td>
<td>105</td>
<td>100%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Visual Distraction Infusion Methods</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ineffective</td>
<td>12</td>
<td>11.40%</td>
</tr>
<tr>
<td>Effective</td>
<td>93</td>
<td>88.60%</td>
</tr>
<tr>
<td>Total</td>
<td>105</td>
<td>100%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pain Levels</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hard/Severe</td>
<td>34</td>
<td>32.4%</td>
</tr>
<tr>
<td>Moderate</td>
<td>63</td>
<td>60%</td>
</tr>
<tr>
<td>Mild</td>
<td>8</td>
<td>7.6%</td>
</tr>
<tr>
<td>Total</td>
<td>105</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 2
Correlation between the Visual Distraction Method and the Pain Reduction Method in the Infusion of Preschool Children in the Emergency Room Cut Mutia Hospital of North Aceh

<table>
<thead>
<tr>
<th>Installation of Visual Distraction Method Infusion</th>
<th>Pain Levels</th>
<th>Total</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hard Pain</td>
<td>Moderate Pain</td>
<td>Mild Pain</td>
</tr>
<tr>
<td></td>
<td>f</td>
<td>%</td>
<td>f</td>
</tr>
<tr>
<td>Ineffective</td>
<td>7</td>
<td>6.6</td>
<td>2</td>
</tr>
<tr>
<td>Effective</td>
<td>22</td>
<td>20.9</td>
<td>61</td>
</tr>
<tr>
<td>Total</td>
<td>29</td>
<td>27.6</td>
<td>63</td>
</tr>
</tbody>
</table>

0.001
DISCUSSION

Based on the results of the univariate study, it is showed that the sex of preschool children at the Cut Mutia Emergency Room Hospital of North Aceh was mostly female, namely 57 people (54.3%). From the age of preschool children in the Emergency Room at Cut Mutia Hospital of North Aceh, the majority are 3-4 years old, namely 83 people (79%). In general, men and women do not have different responses to pain. However, in terms of age can affect a person’s perception and expression of pain, differences in development in adults and children greatly affect the way they react to pain [10].

This research is related to Ulfah et al, who said that the ability of preschool-age children to describe the shape and intensity of pain has not yet developed. Preschool-age children cannot define the scope of the body well and have little knowledge of its internal anatomy [11].

The results of the infusion study showed that the visual distraction method for preschool children at the Cut Mutia Hospital Emergency Room of North Aceh was effective for the majority of children namely 93 people (88.6%). This theory is related to the result of study where visual distraction is diversion using the five senses of sight including seeing matches, watching television and seeing sights [10]. In this study, providing a visual distraction is giving children to watch cartoons that children like. When a child watches a video that has elements of pictures, colors and stories, the child’s attention is focused on the video and distracted from the infusion procedure.

This research is related to Sarfika, who said that children like pictures, colours, stories, and emotions (happy, sad, exciting, and excited) contained in the cartoon are elements of the right brain and sound. What emerges from the film is the left brain. So, by watching animated cartoons, the right brain and left brain at the same time are used in a balanced way so that the child focus on the film [12]. The results of this study are related to Yusuf, that visual card distraction has an effect on reducing pain levels in children during infusions [13].

The results of the Pain Level study showed that in infusion of preschool children at the Emergency Room of Cut Mutia Hospital North Aceh, the majority experienced moderate pain (4-6) 63 people (60%). According to the theory by Iswara, the pain felt varies in intensity and severity in each child. The pain you feel may be mild, moderate or severe. Regarding to the quality of pain, each child is also different [14]. This study is related to Sarfika who stated that the pain response in the treated group was lighter than in the non-treated group [12].

The results of the bivariate test using the Chi-square test showed that the relationship between the visual distraction method and the pain reduction method in infusion of preschool children in the emergency department of Cut Mutia Hospital of North Aceh with a confidence level of 95% (α 0.05), it is known that the value p-value or Asymp value. Sig. (2-sided) which is 0.001 means that the P value is 0.001 ≤ 0.05, this shows that there is a significant relationship between the Visual Distraction Method and the Pain Reduction Method in Infusion of Preschool
Children at the Emergency Room of Cut Mutia Hospital, North Aceh.

One of the actions that are routinely carried out is an invasive procedure, namely the installation of an infusion. The therapeutic procedure through the intravenous route cause acute pain in children, meaning that the pain that is felt only lasts for a short period of time, about 1 minute at the time of the injection [12].

One of the distraction techniques that can be used to treat pain in children is watching animated cartoons. Because in watching animated cartoons, there are elements of pictures, colour and stories. When children focus more on watching cartoons, this causes pain impulses due to injuries not to flow through the spine, messages do not reach the brain so that children do not feel pain [12]. This research is related to Sarfika, showing that there is a difference in the pain scale of children who are given the distraction technique of watching animated cartoons, namely 2.64, and children who are not given the distraction technique of watching animated cartoons, namely 6.36 (using the FLACC score range) [12]. This research is also related to Yusuf, that card visual distraction has an effect on reducing pain levels in children during infusion procedures [13].

The limitation of the study is nurses’ role who are not reliable and capable of carrying out invasive actions in every infusion, so making action will be difficult and children feel increasingly anxious and in pain. Nursing care provided minimizes the occurrence of physical and mental stress on children because invasive actions during infusion cause anxiety in preschool children during the hospitalization period. The children already feel anxiety because of their imagination before the action is taken [15]. Hospitals as executors and policy makers should need to provide an opportunity for nurses to be able to apply visual distraction with various media as non-pharmacological pain management in procedures that cause pain to children, especially during infusions.

CONCLUSION

Preschool-age children is very difficult to understand invasive procedures that can cause pain such as during IV insertion. When children get hospitalized, an infusion will be installed to get the fulfillment of nutrition, fluids, and medicines. However, when infusions are installed, the children can feel pain. The distraction method is an effective method for reducing the level of pain and anxiety in children during the process of taking blood samples, installing infusions and treating wounds.

For further research, it can conduct other invasive procedures that cause pain, such as taking venous blood and various kinds of injections, and also looking forward at the factors that influence the child’s pain level based on family support, culture, fatigue, anxiety, coping patterns, and the meaning of pain.

ACKNOWLEDGMENTS

Thank you very much to Fauziah Public Hospital for giving us the opportunity to conduct this research, and also to the respondents who have been willing and cooperative in action. Lastly, thanks to the
team of this research to complete this study on time.

CONFLICTS OF INTEREST

This study has no conflict of interest because the study is conducted purely and real by collecting data from respondents at Fauziah Public Hospital Bireun Aceh. The researcher did this research directly and independently.

REFERENCES


