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Playing video games as a distraction can reduce anxiety in children before circumcision

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Abstract

Background: Circumcision is a minor surgical procedure that aims to cut and clean the prepuce of the penis for various indications. This minor surgical procedure causes varying degrees of anxiety in most children. One intervention to reduce anxiety in children before circumcision is to distract them with video games.

Purpose: To determine the effect of playing video games on anxiety in children undergoing circumcision.

Method: A pre-experimental study with a one-group pre-test post-test design. The sample size was 32 children selected based on several criteria: no visual or hearing problems, cooperative patients, no excessive anxiety, and good communication skills. The Child Anxiety Scale was used to assess anxiety. Statistical analysis used the Wilcoxon rank sum test.

Results: The level of anxiety in children before circumcision was mostly in the moderate anxiety range before the intervention, with 14 (43.8%) having an average score of 2.25. After the video game intervention, 14 (43.8%) children experienced mild anxiety with an average score of 1.01. The Wilcoxon rank sum test yielded a p-value of 0.001 ($p < 0.05$).

Conclusion: Playing video games can reduce anxiety levels in children prior to circumcision.

Keywords: Anxiety; Circumcision; Playing; Video Games.

INTRODUCTION

Circumcision, commonly referred to in everyday language as *khitan* or *sunat*, is a surgical procedure that has been performed for hundreds of years and continues to be practiced in many countries today. In addition to being a religious obligation in Islam, circumcision is also a cultural practice in certain societies. Circumcision is recommended because it provides numerous health benefits (Sutrisno & Herawati, 2024). In Indonesia, approximately 10.2 million circumcision procedures are performed each year. Although circumcision is classified as a minor surgical procedure, it should not be regarded as insignificant by parents, as it can cause anxiety in children due to various imagined sensations that arise prior to the procedure (Labulawa & Thalib, 2024).

Pre-procedural anxiety in children is one of the complicating factors in circumcision. Anxiety before

circumcision stimulates the autonomic nervous system, and fear as a stressor is responded to by the adrenal medulla, which activates the sympathetic nervous system and releases epinephrine. This response causes an increase in heart rate, blood pressure, respiration, and cognitive, psychomotor, and physiological reactions that are uncomfortable, such as difficulty in logical thinking and increased motor activity. This condition is particularly dangerous because an elevated heart rate increases oxygen demand and cardiac workload. Furthermore, anxiety can intensify the perception of pain, as it inhibits the secretion of endogenous pain-relieving substances. If this condition is not properly managed, the circumcision process may not proceed cooperatively, leading the child to cry, resist, and refuse to continue the procedure (Rahayuningrum, Gustomi, Wahyuni, & Aziza, 2020).

Children who experience anxiety feel uncomfortable, fearful, and perceive that something bad is about to happen, even though they may not understand the cause of these feelings. If anxiety is not well managed, the child may become uncooperative during the circumcision process and refuse the procedure. Anxiety can also lead to prolonged trauma, resulting in a stressor crisis manifested as pain responses such as grimacing, crying, clenching the teeth, biting the lips, widening the eyes, and even potentially dangerous behaviors, including aggression such as kicking, hitting, biting, or running away. These reactions can significantly disrupt the circumcision process (Pamuja, Nubadriyah, & Hardiyanto, 2021).

One method that can be used to reduce anxiety in children undergoing circumcision is the application of distraction techniques (Safari & Azhar, 2019). The purpose of distraction techniques in nursing interventions is to divert or shift the patient's attention away from the procedure being faced. The benefit of this technique is that it helps individuals feel more comfortable, relaxed, and in a more pleasant state (Pelek & Iriani, 2024). Visual distraction is one effective form of distraction, as it is easily accessible in daily life

and can be implemented by focusing the child's attention on preferred activities, such as watching videos or playing video games (Sanjaya, 2022).

RESEARCH METHOD

A pre-experimental study is a research design used to identify cause-and-effect relationships involving the researcher's active manipulation of the independent variable. The research design applied in this study was a one-group pretest–posttest design, which is an experimental study conducted on a single group without a control group. The population of this study was determined based on data of children who underwent circumcision at Rumah Sunat Modern Klaten during the previous six months, totaling approximately 190 children. The sample consisted of 32 children selected according to specific inclusion criteria, namely having no visual or hearing impairments, being cooperative patients, not experiencing excessive anxiety, and being able to communicate effectively. The research instrument used to assess anxiety was the Child Anxiety Scale, while hypothesis testing was performed using the Wilcoxon Signed-Rank Test.

RESEARCH RESULTS

Table 1. Respondent Characteristics (N=32)

Variable	Results
Age (Mean±SD)(Range)(Year)(n/%)	(8.6±1.8)(3-12)
3-6	9/28.1
7-12	23/71.9
Gender (n/%)	
Male	32/100.0
Female	0/0.0
Anxiety Level Before Distraction (Mean± SD)(n/%)	(22.5±0.71)
Poor	5/15.6
Moderate	14/43.8
Heavy	13/40.6
Anxiety Levels After Distraction (Mean± SD)(n/%)	(1.0±0.7)
Poor	13/40.6
Moderate	14/43.8
Heavy	5/15.6

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The characteristics of the respondents showed that the mean age of the children was 8.6 ± 1.8 years, with an age range of 3–12 years. Most participants were in the 7–12 year age group (71.9%), while 28.1% were aged 3–6 years. All respondents were male (100.0%). Before the distraction intervention, the mean anxiety score was 22.5 ± 0.71 . The majority of children experienced moderate anxiety (43.8%), followed by severe anxiety (40.6%), while only 15.6% were classified as having mild anxiety. After the distraction intervention, the mean anxiety score decreased to 1.0 ± 0.7 . Most children experienced moderate anxiety (43.8%) and mild anxiety (40.6%), whereas only 15.6% remained in the severe anxiety category.

Table 2. Results of data normality test

Data Normality Test	Data	Statistics	df	P value
<i>Shapiro-Wilk</i>	Before	0.790	32	0.001
	After	0.790	32	0.002

Based on table 2, the data obtained from the normality test for the anxiety variable data, namely before and after colored sand play therapy, had a significance value of <0.05 , so it was concluded that both data were not normally distributed.

Table 3. Results of the Test of the Effect of Distraction by Playing Video Games on Anxiety

	Mean	Min-max	p value
Before Intervention	2.25	1-3	0.001
After Intervention	1.01	0-2	

The results of the study obtained a p-value of the Wilcoxon test of $0.001 < \alpha$ value of 0.05, which means that there is an effect of distraction by playing video games on anxiety before circumcision.

DISCUSSION

Based on the study results, younger children tend to experience higher levels of anxiety compared to older children. Age is closely associated with the attainment of a child's cognitive development (Filia, Febrianto, Amellia, & Hasni, 2025). Preschool-aged children are not yet able to fully accept and perceive illness and new experiences in unfamiliar environments. Patients' responses and attitudes toward anxiety are influenced by age-related factors (Andrianur, 2024). One reason for the lack of attention to pain in children is the assumption that children do not experience pain as intensely as adults. Age also influences an individual's level of knowledge, as increasing age is associated with improved logical thinking, enabling individuals to engage in positive behaviors based on the positive knowledge they acquire (Herawati & Putra, 2024).

The level of anxiety in children before the intervention was most frequently categorized as moderate anxiety, affecting 14 children (43.8%),

whereas after the intervention, the highest proportion of children experienced mild anxiety, also affecting 14 children (43.8%). Anxiety is defined as a vague and diffuse sense of worry associated with feelings of uncertainty and helplessness (Purwaningsih, Sugiarto, & Budiarto, 2023). This emotional state is not directed toward a specific object; rather, anxiety emerges as a subjective experience expressed socially and exists along a spectrum. Children who experience anxiety due to invasive procedures require special attention and prompt intervention. If anxiety is not addressed immediately, it may progress to a more severe condition. Children with severe anxiety typically exhibit symptoms such as tension, reduced activity, lack of interest in play, loss of appetite, withdrawal from social interactions, and feelings of sadness and apathy. Severe anxiety symptoms also include a sense of threat, excessive muscle tension, changes in breathing patterns, gastrointestinal disturbances (such as nausea, vomiting, burning sensations in the epigastric area, belching, loss

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of appetite, and diarrhea), alterations in cardiovascular function, and difficulty concentrating (Aqobah & Rhamadian, 2022).

Common types of anxiety disorders observed in hospitalized children include panic attacks, phobias, obsessive-compulsive disorder, generalized anxiety disorder, and others. Anxiety can be influenced by an individual's perception. A child's perception of circumcision can affect the level of anxiety experienced prior to the procedure. This is often due to incorrect or misleading information about circumcision conveyed to the child, which can lead to a negative perception of the procedure. Such negative perceptions may result in maladaptive responses to anxiety, ultimately increasing anxiety levels. Excessive anxiety may cause children to refuse circumcision (Bela, Sutrisno, & Rusmawati, 2020).

Although circumcision is considered a simple procedure (minor surgery), children undergoing circumcision require adequate preparation in various aspects, including physical, emotional, and cognitive readiness appropriate to their age. Insufficient information, inadequate preparation, and exposure to reports of surgical errors can have both psychological and physiological impacts on children (Estria, Herdian, Riyaningrum, Supriyatno, & Wikantadi, 2025). Increasing preoperative awareness is an effective approach to reducing anxiety, stress, and pain in patients, as well as enhancing satisfaction and promoting better recovery processes.

Based on the statistical analysis, a p-value of 0.001 was obtained, indicating that distraction intervention through playing video games was effective in reducing children's anxiety prior to circumcision. Playing video games provides auditory and visual stimulation that functions as a form of distraction by diverting attention through enjoyable content (Mohamad, Nurhaeni, & Wanda, 2022). Audiovisual media favored by preschool-aged children include cartoons or animated images, which are highly attractive due to their strong imaginative capacity (Fatmawati, Syaiful, & Ratnawati, 2019). Play is an activity that allows children to express their thoughts, serves as a coping mechanism for problems, and supports mental development. When video game-based interventions are applied, children's attention can shift from fear and pain to the game itself. This redirection of attention can reduce the anxiety experienced by children. Therefore, play can be

considered a form of therapy for children undergoing circumcision, as it promotes calmness and cooperation (Hayati & Putro, 2021).

Playing video games can help children release pressure and stress, allowing them to divert their perception of pain through distraction and experience relaxation and happiness during gameplay. Play therapy is an essential component of pediatric care and is one of the effective methods for reducing or preventing anxiety before and after surgical procedures, thereby supporting optimal child development (Maftukhin, Palupi, & Mujtahiddah, 2022). Video game therapy has been shown to reduce anxiety levels in children by decreasing fear, increasing familiarity with nurses, and preventing boredom, as children's time is occupied with watching animated cartoons that provide enjoyment (Nuliana, 2022). Playing video games is effective in reducing anxiety in children undergoing circumcision (Karuja, Wanda, & Rachmawati, 2023).

CONCLUSION

Playing, especially video games, is a captivating activity for children. Playing can distract a child's attention, reducing their focus on the upcoming circumcision procedure. Enjoying video games can reduce anxiety in children before circumcision.

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