

# Audio Visual and Its Impact on Pain During Immunization

Aura Latifah Rahman<sup>1</sup>, Rizqi Nursasmita<sup>1\*</sup>, Andi Mayasari Usman<sup>1</sup>

<sup>1</sup>*Faculty of Health Sciences, Universitas Nasional, Indonesia*

\* *Corresponding Author: Rizqi Nursasmita, Universitas Nasional; Jakarta Indonesia;  
email: rizqi.nursasmita@civitas.unas.ac.id.*

Submission date: 25-03-2024; Date of received: 12-09-2024

## Abstract

**Background:** Immunization is an effort to increase the body's immunity to a disease and makes a significant contribution to reducing child mortality, when children are immunized, it will cause pain and the provision of audio visuals given to children is expected to reduce or divert pain during immunization.

**Purpose:** To determine the effect of audio visual on pain during immunization in toddler children (12-36 months) in the intervention group and control group.

**Method:** This research method is experimental which is a study by looking for the effect of audio visual on immunization pain between the intervention group and the group using a two-group posttest design involving 64 respondents who meet the inclusion criteria. Sampling using random sampling with research instruments using SOPs and FLACC.

**Results:** The results obtained were that in the intervention group there were 56.3% of respondents who experienced mild pain and the control group there were 75.1% of respondents who experienced severe pain. Subsequent analysis using the Mann Whitney test obtained a p value of 0.001 .

**Conclusion:** Providing audio visuals is proven to have an effect on the pain scale during immunization in toddler.

**Keywords:** audio visual, immunization, pain scale, toddler

## **Introduction**

Immunization is a simple, safe and effective way to protect a person from dangerous diseases before coming into contact with the causative agent of the disease. Immunization is an attempt to generate or actively increase a person's immunity to a disease so that if one day exposed to the disease will not get sick or only experience mild pain (World Health Organization, 2019). Immunization is an effort to actively increase immunity against a disease, not only protecting a person but also society and the community, the most effective prevention that has proven to make a significant contribution to reducing child mortality in Indonesia is immunization. The implementation of immunization as a primary health care program is currently the focus of the Ministry of Health's transformation pillar in 2023, currently the national complete routine immunization coverage is slowly increasing again, now around 94.9% of Indonesian children have been immunized.

Children will undergo routine immunization and immunization can cause pain. Pain is a highly individualized and subjective experience that can affect adults and children of all ages. Pain can stem from a number of causes, including disease processes, injuries, procedures and interventions. Children lack the verbal capacity to explain their pain, therefore pain is a major source of serious emotional distress. Pain experiences that are not addressed as early as possible can cause physiological and psychological consequences in children in the long term (Haris et al., 2020).

Efforts to minimize injury, pain and fear in children are the basic principles of pediatric nursing care (atraumatic care). Atraumatic care is therapeutic care through the provision of interventions that can reduce or minimize the physical and physiological stress of children and families during treatment (Hockenberry & Wilson, 2012). Distraction techniques can affect relaxation in children which stimulates endocrine hormones so that it can affect the decrease in pain which can help reduce pain, make pain more tolerable, reduce anxiety so that children are distracted from the pain they feel. Watching cartoon animation is an effective audiovisual distraction technique used in medical procedures that cause pain such as injection, infusion and blood collection as well as immunization (Setiawati & Novikasari (2021).

## Method

### 1. Research design

This study uses an experimental design which is a study by looking for the effect between the intervention group and the control group given to 12-36 months old toddler children during immunization. This study used a two-group posttest design, this design was carried out by means of an intervention group given audio visuals during immunization and in the audiovisual control group given after immunization.

### 2. Setting and samples

This research was conducted on December 2023 - January 2024 in Pasir Putih, Sawangan Subdistrict, Depok City, West Java, zip code 16519. The sample in this study totaled 64 respondents who met the inclusion criteria.

### 3. Measurement and data collection

The observation sheet used in this study was the FLACC form as well as to obtain respondent data such as name, gender, age and immunization history. This research instrument such as facial expressions, leg movements, activity, crying, and ability to calm down.

### 4. Data analysis;

Techniques used to analyze data using SPSS. Bivariate analysis in this study used normality and Mann Whitney tests. The test results are said to have an effect if the p value < 0.001.

## Results

**Based on data analysis in this study, the following results are known:**

**Table 1**  
**Characteristics of Intervention Group**

Variables	Frequency	Percentage (%)
Gender		
Male	15	46.9
Female	17	53.1
Age		
12-24 months	28	87.5
25-36 months	4	12.5
Weight		
7-11 kg	13	40.6
11-16 kg	11	34.4
16-21 kg	8	25

Immunization history		
Ever	32	100
Never	0	0

Based on Table 1, characteristic of respondents based on gender in shows that most of the respondents are female, namely 17 respondents (53.1%), most of the respondents are 12-24 months old as many as 28 respondents (87.5%), most of the weight of child are 7-10 kg (40.6%), and all of the participant from intervention group have been get immunization before.

**Table 2**  
**Characteristics of Control Group**

Variables	Frequency	Percentage (%)
Gender		
Male	18	56.3
Female	14	43.7
Age		
12-24 months	27	84.4
25-36 months	5	15.6
Weight		
7-11 kg	12	37.5
11-16 kg	14	43.8
16-21 kg	6	18.7
Immunization history		
Ever	32	100
Never	0	0

Based on Table 2, characteristic of respondents based on gender in shows that most of the respondents are male, namely 18 respondents (56.3%), most of the respondents are 12-24 months old as many as 27 respondents (84.4%), most of the weight of child are 11-16 kg (43.8%), and all of the participant from control group have been get immunization before.

**Table 3**  
**Characteristics of Participants Pain Scale During Immunization with Audio Visual**

Group	Frequency	Percentage (%)
<b>Intervention</b>		
No pain	8	25
Mild	18	56.3
Moderate	6	18.8
Severe	0	0
<b>Control</b>		
No pain	0	0
Mild	2	6.3

Moderate	6	18.8
Severe	24	75.1

Based on Table 3, the respondents from intervention group showed that the majority of the participant in mild pain 56.3% and the respondents from control group in severe of pain 75.1%.

**Table 4**  
**Bivariate Analyses**

Group	Frequency	Mean Rank	P value
Intervention	32	17.13	< 0.001
Control	32	47.87	

Based on Table 4, the Mann Whitney non-parametric statistical test results obtained in the intervention group were 17.13 and the control group was 47.88 and the significant number or probability value was ( $<0.001$ ), so  $H_a$  data was accepted and  $H_o$  was rejected, which means there is an influence on the provision of audio-visual on the pain scale in children during immunization at the Depok Community Health Center.

## Discussion

Based on the results of the Mann Whitney test in this study, it shows that the audio visual of watching animated cartoon films has a significant influence or there is a significant difference with the results of statistical tests, namely the Mann Whitney results obtained with a p value  $<0.001$  or  $H_a$  is accepted and  $H_o$  is rejected. And the average value shows that the pain scale of respondents in the intervention group was 18 (56.3%) on a scale of 1-3 with mild pain, then in the control group the average pain scale value of respondents was 7-10 with severe pain of 24 (75.1%) which means there is an influence on the provision of audio visuals on the pain scale in children during immunization at the Depok Community Health Center.

There is a difference or influence of audio-visual on the pain scale during immunization before and after being given audio-visual in the form of an animated cartoon film, this is due to the behavior given to the intervention group. According to Khasanah (2018), watching animated cartoon films is a pain diversion strategy that focuses the audio-visual child's attention rather than on the pain.

This is in accordance with research (Immawati., 2022) that the intervention of watching animated cartoon films with audio visuals can be used to reduce pain in children undergoing immunization. This is evident from the pain scale of children given audio visuals during immunization which is between no pain and mild pain. This is in accordance with research which showed that audio-visual during immunization had an effect on reducing the pain scale with a p value  $<0.001$ . There was a significant difference in the pain scale during immunization in the intervention group compared to the control group, indicating that there was an effect of providing audio-visual during immunization and after administration. immunization.

The researchers concluded that there was an effect of providing audio-visuals on the pain scale during immunization in toddler-aged children. By providing treatment to the intervention group, it could influence the pain scale in children when immunization was carried out on a light scale. This is in accordance with the theory that one way that can be used to divert pain is with audio-visuals and the child's attention during the injection procedure is diverted because of the animated cartoon film that the child likes and causes the child to become more relaxed and enjoy the film.

### **Limitation**

During conducting this research, the researcher realizes that there are limitations of the researcher such as: the number of respondents was only 64 toddlers, which was divided into two groups. The environmental factors were quite busy at the research site so that it was difficult for children to focus on the audio visuals provided, and the control group should have been given a comparison intervention.

### **Conclusion**

Based on the results of research conducted on 64 respondents regarding the effect of audio-visual administration on the pain scale during immunization in toddler-aged children at the Depok Community Health Center, it can be concluded that: the characteristics of children during immunization are more female, with an average age of 11-21 months and body weight with an average of 13 kg with a history of

immunization, the majority had already been immunized, the pain scale in the intervention group was 56.3% of children with mild pain and an moderate pain of 17.13 in the control group there were 75.1% of children with severe and moderate pain were 47.88%, and there is an effect of audio-visual administration on the pain scale in toddler-aged children during immunization at the Depok Community Health Center.

### **Ethical Considerations**

This research had an approval from the health research ethics committee.

### **Acknowledgment**

Thanks to all people and institutions who helped in the research.

### **Conflict of Interest**

There is no conflict of interest among authors.

### **Author Contribution**

We encourage authors to provide statements outlining their individual contributions or roles to the manuscript.

### **References**

1. Anggraeni, L. D., & Widiyanti, W. (2019). Distraction Techniques: Teling Stories to Decrease Pain for Children During Injection. *Jurnal Keperawatan Indonesia*, 22(1), 23-30
2. Dinkes Jawa Barat (2020). Profil Kesehatan Jawa Barat Tahun 2020. *In Dinas Kesehatan Provinsi Jawa Barat*. Dinkes Jabar.
3. Haris, H., Nurafriani, & Asdar, F. (2020). Pengaruh distraksi visual terhadap tingkat nyeri pada anak usia pra sekolah.
4. Kementerian Kesehatan RI. (2022). Buku Ajar Imunisasi.
5. Kementerian Kesehatan RI. (2023). Laporan Nasional Riset Kesehatan Dasar 2018. Jakarta: Kemenkes RI
6. Mulqiah, Zuraida; Santi, Eka; Lestari, Dhian Ririn. 2017. *Pola Asuh Orangtua Dengan Perkembangan Bahasa Pada Anak Toddler*. *Dunia Keperawatan*. Vol. 5, No.1 59-60.
7. Setiawati, S., & Novikasari, L. (2021). Aplikasi Pemberian Teknik Distraksi terhadap Skala Nyeri Anak Selama Prosedur Medis. *Holistik Jurnal Kesehatan*, 15(1), 140– 146.
8. World Health Organization. (2019). Immunization Coverage and Vaccine-preventable diseases.
9. Hockenberry, M & Wilson, D. (2012). *Wongs essentials of pediatric nursing*

- eight editions. Inc. St. Louis Missouri: Elsevier Mosby.
10. Rahayu, H. S., & Darmawan, D. (2020). Pemberian Teknik Distraksi Pemutaran Video Kartun untuk Menurunkan Nyeri pada Anak Post Operasi. *JIKO (Jurnal Ilmiah Keperawatan Orthopedi)*, 4(1), 1–9.
  11. Wahyuni, F., & Suryani, U. (2020). Efektifitas Terapi Mendekap Dan Terapi Musik Dalam Menurunkan Skala Nyeri Pada Bayi Saat Dilakukan Imunisasi Campak. *Jurnal Keperawatan Terpadu (Integrated Nursing Journal)*.
  12. Wandini, R., & Resandi, R. (2020). Pemberian Tehnik Distraksi Menonton Kartun Animasi untuk Menurunkan Tingkat Nyeri Prosedur Invasif pada Anak. *Holistik Jurnal Kesehatan*, 14(3), 479–485.
  13. Zahra, S. I., & Agustin, D. A. (2020). LR: Distraksi Audiovisual dapat Menurunkan Intensitas Nyeri Pemasangan Infus pada Anak Usia Sekolah. *Sentani Nursing Journal*, 3(2), 104–110.