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The Effect of Watching Video Method on Pain Level and Physiological Parameters During Vaccine Injection in Children: A Randomized Controlled Study

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ABSTRACT

Objective: The study aimed to determine the effect of the watching video method applied to children during vaccine injection on pain level and physiologic parameters. **Materials and Methods:** The study was conducted as a randomized controlled experimental study. The study sample consisted of 60 children who agreed to participate due to the power analysis and met the inclusion criteria. The data was collected using the Personal Information Form, FLACC Pain Scale, and Physiological Parameter Assessment Form. **Results:** When the pain level of the children was evaluated, it was determined that the FLACC Pain Scale scores of the children in the watching video group during and after the procedure were significantly lower than the children in the control group ($p<0.001$). When the physiologic parameter results were examined, it was determined that the heart rate values of the children in the intervention group were significantly higher than those of the control group after the procedure ($p<0.05$), and the oxygen saturation values of the children in the control group decreased significantly after the procedure compared to before the procedure ($p<0.05$). **Conclusion:** It was observed that the watching video method applied to children as a distraction during vaccine injection effectively reduced the pain level. In line with these results, it is recommended to use the video distraction method in order to decrease the pain level and positively affect the oxygen saturation values of children receiving vaccine injection**s.**

Keywords: Children, Distraction, Pain, Vaccines, Video Recording.

Çocuklara Aşı Enjeksiyonu Sırasında Uygulanan Video İzletme Yönteminin Ağrı Düzeyi ve Fizyolojik Parametrelere Etkisi: Randomize Kontrollü Çalışma

ÖZ

Amaç: Araştırma, çocuklara aşı enjeksiyonu sırasında uygulanan video izletme yönteminin ağrı düzeyi ve fizyolojik parametrelere etkisini belirmek amacı ile yapılmıştır. **Gereç ve Yöntem:** Araştırma randomize kontrollü deneysel çalışmadır. Araştırmanın örneklemini, yapılan güç analizi sonucunda çalışmaya katılmayı kabul eden ve örnekleme alınma kriterlerini taşıyan toplam 60 çocuk oluşturmuştur. Verilerin toplanmasında Kişisel Bilgi Formu, FLACC Ağrı Ölçeği ve Fizyolojik Parametre Değerlendirme Formu kullanılmıştır. **Bulgular:** Çocukların ağrı düzeyi değerlendirildiğinde, video izleme grubundaki çocukların işlem sırasında ve işlem sonrasındaki FLACC Ağrı Ölçeği puanlarının kontrol grubundaki çocuklardan anlamlı derecede düşük olduğu belirlenmiştir ($p<0,001$). Fizyolojik parametre sonuçları incelendiğinde, girişim grubundaki çocukların işlem sonrası kalp tepe atımı değerlerinin kontrol grubuna göre anlamlı derecede fazla olduğu ($p<0,05$), kontrol grubundaki çocukların işlem sonrasında oksijen satürasyonu değerlerinin işlem öncesine göre anlamlı derecede azaldığı ($p<0,05$) bulunmuştur. **Sonuç:** Çocuklara aşı enjeksiyonu sırasında dikkati dağıtma yöntemi olarak uygulanan video izletme yönteminin hissedilen ağrı düzeyini azaltmada etkili olduğu görülmüştür. Bu sonuçlar doğrultusunda, aşı enjeksiyonu uygulanan çocukların ağrı düzeyinin azalması ve oksijen satürasyonu değerlerinin olumlu yönde etkilenmesi için, video izletme yöntemi kullanılması önerilmektedir.

Anahtar Kelimeler: Çocuklar, Dikkat Dağıtma, Ağrı, Aşılar, Video Kayıt.

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INTRODUCTION

Pain is defined as "an unpleasant sensory and emotional experience associated with, or resembling that associated with, actual or potential tissue damage" (IASP, 2020). McCaffery defined pain as "whatever the experiencing person says it is, existing whenever the experiencing person says it does" (McCaffery & Ferrell, 1997). Pain is a highly complex and personal experience with multiple influencing factors such as previous pain experience, culture, and social support network (Törüner & Büyükgönenç, 2015; Brand, 2022).

Throughout their developmental process, children are exposed to many invasive procedures in hospitals for reasons such as diagnosis, immunization, and treatment of diseases (Erdogan & Ozdemir, 2021). Children's experience of pain during these procedures has a negative impact on their lives (Güngör & Öztürk Şahin, 2021; Kudubeş et al., 2021). Childhood experiences of pain shape children's future pain responses. Effective and timely pain control during painful, invasive interventions to which children are exposed increases pain tolerance in subsequent interventions (Erdogan & Ozdemir, 2021).

Pain management is a professional and ethical responsibility. Inappropriate pain management leads to unexpected harmful consequences (Kudubeş et al., 2021). Pain causes changes in mental development in children and negatively affects growth (Güngör & Öztürk Şahin, 2021; Atak & Özyazıcıoğlu, 2021). It was determined that adults' fear of injection was caused by invasive interventions performed in childhood. Therefore, it is very important to make painful experiences in childhood less traumatic (Çalı, 2020; Erdogan & Ozdemir, 2021). For effective pain management in children, it is essential to use the nursing process to recognize, diagnose, and control pain with the active participation of all health professionals (Kudubeş et al., 2021; Törüner & Büyükgönenç, 2015).

Pharmacological and nonpharmacological or both methods can be used in pain management (Cobb & Cohen, 2009; Kudubeş et al., 2021). Nonpharmacological methods have benefits such as low cost, no side effects, and increased effects of analgesics or a reduced amount of their use (Kudubeş et al., 2021; Shen et al., 2022; Törüner & Büyükgönenç, 2015). The distraction method, which is one of the nonpharmacological methods, aims to focus on a stimulus other than pain during the procedure. This method controls pain by focusing on favorite things (Karakaya & Gözen, 2016; Kıran et al., 2013). When the literature is reviewed, it is stated that the most effective nonpharmacological pain reduction method in pediatric vaccine injections and the first seven years of life is "distraction" (Lobo & Umarani, 2013; Wang et al., 2008).

The distraction method is divided into two groups: active and passive. Active distraction encourages the child's participation in the activities during the procedures. Active techniques include singing songs, squeezing balls, balloon inflation, relaxation breathing, and playing with electronic devices (Abdelmoniem & Mahmoud, 2016; Kara & Bal Yılmaz, 2020). Health professionals use visual and auditory sources in passive distraction, and the child remains quiet. Passive distraction includes watching videos, listening to music, reading a book to the child, or telling him a story (Abdelmoniem & Mahmoud, 2016; Kara & Bal Yılmaz, 2020; Bayır & Günşen, 2017). Cartoons affect children's behavior, creativity, choices, learning skills, and success and contribute to lifelong learning. (Bayır & Günşen, 2017). Watching cartoon videos is a nonpharmacological method that is low-cost, does not require special preparation, can be easily applied, and can distract both visually and audibly. The literature supports the use of animated cartoon videos to relieve pain during invasive interventions. (Aşkan, 2022; Canbulat, Inal & Sönmezer, 2014).

When the literature is examined, it is seen that there is a limited number of studies investigating the effect of video watching method, which is one of the passive distraction methods, on pain and physiological parameters during vaccine injection. It is thought that the results of this study will contribute to reducing the pain and fear of the child, shorten the application time by facilitating the procedure, provide a scientific basis for nursing practices in clinical settings, and improve the quality of care by improving children's ability to cope with pain and fear. In this direction, the study was conducted to determine the effect of the watching video method applied to children during vaccine injection on pain level and physiological parameters.

Research Hypotheses

H0: The watching video method applied during vaccine injection in children has no effect on pain level and physiological parameter values

H1: The watching video method applied during vaccine injection in children reduces the level of pain.

H2: The watching video method applied during vaccine injection in children positively affects physiological parameter values.

MATERIALS AND METHODS

Study type

The study was conducted as a randomized controlled trial with a parallel design.

Study group

The population of the study consisted of 12-24-month-old children who applied to Kaynaşlı District State Hospital Family Medicine for vaccine injection between November 2019 and March 2020. Sample calculation was made with the G*power 3.1.9.2 package program. With an effect size of 0.9, a significance level of 0.05, and a power of 80%, the minimum number of participants per group was determined as 21 people. Considering the possibility of missing cases, it was decided to include 30 children in each group. The study sample consisted of 60 children who met the sampling criteria (Figure 1). The inclusion criteria for the children were determined as being aged between 12-24 months old, the gestational age was 38-42 weeks, there was no significant disease/chronic disease (visual-hearing problems, neurological diseases, physical problems), the children

had not taken any analgesic in the last three hours, the parents voluntarily agreed to participate in the study and gave written informed consent. The children included in the study were randomly assigned to the study groups by randomization method and divided into two groups. Randomization was done using the simple lottery method. While forming the groups, a lottery was drawn blindfolded by a nurse other than the research nurse, and the children were assigned to one of the study groups.

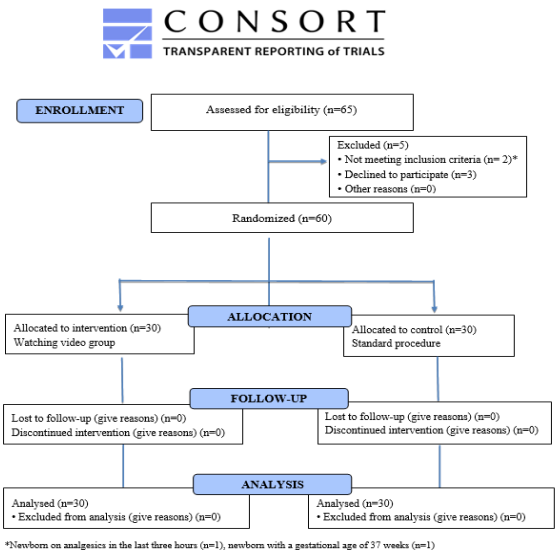

Figure 1. Consort diagram of the study

Data Collection Instruments

The study used the Personal Information Form, FLACC Pain Scale, and Physiological Measurement Form as data collection tools.

Introductory Information Form

The researchers developed the introductory information form after a literature review (Erbay, 2016; Güngör & Öztürk Şahin, 2021). This form consists of questions about family and children, including the child's age, gestational week, gender, height, weight, percentile value, name of vaccine, use of analgesic, significant disease and chronic disease status, and parent's age, educational level, socioeconomic status, place of residence, and family type.

FLACC Pain Scale

The scale was developed by Merkel et al. (1997) for use in acute pain, postoperative pain, and acute pain in intensive care for children aged 6 months to 5 years. It is a multi-purpose, simple, and consistent scale with a variety of uses. It is a pain scale that can be used safely in the assessment of pain and pain management during an interventional procedure (Okyay & Ayoğlu, 2018; Reisli 2018). It is a scale that was designed as the YBAAT pain scale in our country by Şenaylı et al. in 2006 and has proven its validity and reliability. Facial expression, leg movement, activity, cry, and consolability are each scored 0-2, for a total FLACC score of 0-10. A total score of 0 is considered calm, 1-3 as mild pain, 4-6 as moderate pain, and 7-10 as significant pain (Okyay & Ayoğlu, 2018; Reisli, 2018). In this study, the Cronbach alpha values of the scale were 0.854 before the procedure, 0.903 during the procedure, and 0.772 after the procedure.

Physiological Parameter Assessment Form

The form includes criteria for evaluating the children's physiological parameters (oxygen saturation, heart rate) before and after the procedure.

Data Collection

Before the study, the parents of the children were interviewed, given the necessary information, and asked to sign the informed consent forms. Since all children came to the vaccination with their mothers, interviews were conducted with mothers. The introductory information form for the parents and children was filled out during this interview. The researchers measured the weight and height of the children before the procedure.

The children's pain levels were evaluated three times, and physiologic parameters were evaluated twice. The first evaluation of pain was performed before the procedure, the second was performed during the procedure, and the third was performed after the completion of the procedure. The first evaluation of physiologic parameters was performed before the procedure, and the second evaluation was performed after the completion of the procedure. Children in the intervention group were shown an age-appropriate video (redfish). The children in the control group were only using standard vaccine injection procedures. Parents of the children were present during all steps of the procedure.

Data Analysis

Data were analyzed using the IBM SPSS Statistics 28 package program. In the study, descriptive statistics of continuous variables were presented with mean, standard deviation, median, minimum, and maximum values, and descriptive statistics of categorical variables were presented with numbers and percentages. Shapiro Wilk's test analyzed the normal distribution of the variables. When examining the differences between the groups, the Chi-Square test was used when examining the relationships between two independent categorical variables. Mann-Whitney U Analysis examined the differences between the two independent groups. Wilcoxon analyzed differences between two dependent numerical variables, and differences between more than two dependent numerical variables were analyzed by Friedman Analysis. The significance level was set at 0.05 (p-value) in statistical analyses.

Ethical Considerations

Written approval was obtained from the Düzce University Non-Interventional Health Research Ethics Committee to conduct the study (Decision No. 2019/117). Prior to the study, permission was obtained from the Düzce Governorship, Düzce Provincial Health Directorate, and Kaynaşlı District State Hospital. Parents were informed about the purpose of the study and the practices, and their verbal and written consents were obtained. The researchers followed the "principle of confidentiality" by explaining to the participants that their data would not be disclosed to others. The permission to use the FLACC Pain Scale was obtained from Dr. Yeşim Şenaylı, who conducted the validity and reliability study.

RESULTS

When the descriptive characteristics of the children according to the groups were compared, it was determined that there was no statistically significant difference between the groups in terms of age, gender, height, weight, percentile range, vaccination, use of analgesic in the last three hours, significant disease and variables (p>0.05) and that it was showed homogeneous distribution (Table 1). When the age, education level, employment status, economic status, residential area, and family type variables of the parents in the watching videos group and control group were compared in Table 2, it was determined that there was no statistically significant relationship between them (p>0.05) and that they were homogeneously distributed.

Table 1. Comparison of descriptive characteristics of children by groups.

	Watching Video (n=30)		Control (n=30)		Total (n=60)		χ2	p
	n	%	n	%	n	%		
Age	1.42±0.41		1.42±0.42		1.42±0.41			
12-18 month	14	46.7	14	46.7	28	46.7	0.000	1.000
18-24 month	16	53.3	16	53.3	32	53.3		
Gender								
Female	15	50.0	15	50.0	30	50.0	0.000	1.000
Male	15	50.0	15	50.0	30	50.0		
Height (cm)	79.40±5.56		80.57±5.72		79.98±5.63			
70-80 cm	18	60.0	17	56.7	35	58.3	0.069	0.793
81-91 cm	12	40.0	13	43.3	25	41.7		
Weight (g)	11,004±2,239.95		11,286.67±1,585.87		11,145.33±1,929.42			
3,300-11,000 g	14	46.7	13	43.3	27	45.0	0.067	0.795
11,001-15,100 g	16	53.3	17	56.7	33	55.0		
Weight percentile								
3-10	2	6.7	2	6.7	4	6.7		
10-25	4	13.3	4	13.3	8	13.3		
25-50	5	16.7	5	16.7	10	16.7	0.000	1.000
50-75	9	30.0	9	30.0	18	30.0		
75-90	5	16.7	5	16.7	10	16.7		
90-97	5	16.7	5	16.7	10	16.7		
Vaccination								
DaBT-İPA-Hib	8	26.7	8	26.7	16	26.7	0.000	1.000
Hep-A	8	26.7	8	26.7	16	26.7		
MMR	14	46.7	14	46.7	28	46.7		
Use of analgesic in the last three hours							-	-
Yes	0	0.0	0	0.0	0	0.0		
No	30	100.0	30	100.0	60	100.0		
Significant disease								
Yes	0	0.0	0	0.0	0	0.0	-	-
No	30	100.0	30	100.0	60	100.0		

Table 2. Comparison of descriptive characteristics of parents by groups (continued).

	Watching Video (n=30)		Control (n=30)		Total (n=60)		χ2	p
	n	%	n	%	n	%		
Age	30.60±5.61		29.57±5.67		30.08±5.62			
19-29	13	43.3	15	50.0	28	46.7	0.268	0.605
30-40	17	56.7	15	50.0	32	53.3		
Educational Level								
Illiterate	3	10.0	0	0.0	3	5.0		
Primary School	3	10.0	6	20.0	9	15.0		
Middle School	10	33.3	10	33.3	20	33.3	6.623	0.250
High School	8	26.7	9	30.0	17	28.3		
University	5	16.7	5	16.7	10	16.7		
Master's degree	1	3.3	0	0.0	1	1.7		
Employment Status								
Working	3	10.0	5	16.7	8	13.3	0.144	0.706
Not working	27	90.0	25	83.3	52	86.7		
Economic Status								
Income less than expenses	3	10.0	5	16.7	8	13.3	3.598	0.254
Income equals expense	27	90.0	23	76.7	50	83.3		
Income more than expenses	0	0.0	2	6.7	2	3.3		
Place of Residence								
District	20	66.7	21	70.0	41	68.3	0.077	0.781
Village	10	33.3	9	30.0	19	31.7		
Family Type								
Nuclear family	25	83.3	23	76.7	48	80.0	1.561	0.458
Extended family	5	16.7	6	20.0	11	18.3		
Parents separated	0	0.0	1	3.3	1	1.7		

When the FLACC Pain Scale scores of the children included in the study are examined in Table 3, no statistically significant difference exists between the children in the watching video group and the control group regarding FLACC Pain Scale scores before the procedure ($p>0.05$). At the same time, there is a statistically significant difference in FLACC Pain Scale scores during and after the procedure ($p<0.05$). Accordingly, the FLACC Pain Scale scores of the children in the watching video group during and after the procedure were significantly lower than those in the control group.

When the FLACC Pain Scale scores of the children included in the study measured at repeated times were examined in Table 3, it was determined that the pain scores of the children in the watching video group and control group during the procedure were significantly higher than the pain scores before and after the procedure. The difference between them was statistically significant ($p<0.05$).

Table 3. Comparison of FLACC scores according to groups and processing time.

FLACC	Watching Video (n=30)		Control (n=30)		Z	p
	Mean ±SS	Median (Min-Max)	Mean±SS	Median (Min-Max)		
Before procedure	1.73±1.87	1.0(0-5)	2.57±2.37	2.0(0-9)	-1.262	0.207
During procedure	6.20±3.20	7.0(0-10)	8.43±2.27	9.5(3-10)	-3.383	**0.000***
After procedure	1.43±1.50	1.0(0-4)	3.40±1.71	3.0(0-7)	-3.995	**0.000***
Fr; p	41.029; **0.000***		46.383; **0.000***			
Difference	During the procedure-Preprocedural During the procedure-Postprocedural		During the procedure-Preprocedural During the procedure-Postprocedural			

Z: Mann Whitney U, Fr: Friedman Analyses, *p<0.05

When the before-procedure and after-procedure heart rates of the children included in the study are compared in Table 4, there is no statistically significant difference between the children in the watching video group and the control group regarding the before-procedure heart rate (p>0.05). At the same time, there is a statistically significant difference in after-procedure heart rate (p<0.05). Accordingly, the after-procedure heart rate of the children in the watching video group was significantly higher than that of the children in the control group. When the children's heart rate in the watching video group and control group measured at repeated times were analyzed in Table 4, it was determined that the heart rate after the procedure was significantly higher than in both groups (p<0.05).

When the SPO2 values of the children included in the study before and after the procedure were compared, there was a statistically significant difference between the children in the watching video and control groups in terms of SPO2 values before the procedure (p<0.05). At the same time, there was no statistically significant difference in SPO2 values after the procedure (p>0.05). Accordingly, the SPO2 levels of the children in the control group before the procedure were significantly higher than the children in the video monitoring group. When the SPO2 values of the children included in the study measured at repeated times were examined, there was no statistically significant difference between the SPO2 values of the children in the watching video group before and after the procedure (p>0.05). At the same time, there was a statistically significant difference between the SPO2 values of the children in the control group before and after the procedure (p<0.05). Accordingly, the SPO2 levels of the children in the control group decreased significantly after the procedure compared to before.

Table 4. Comparison of physical parameter values according to groups and processing time.

	Watching Video (n=30)		Control (n=30)		Z[a]	p
	Mean±SS	Median (Min-Max)	Mean±SS	Median (Min-Max)		
Heart rate						
Before procedure	106.83±14.31	102.0(82-147)	102.30±6.78	102.0(90-120)	-0.589	0.556
After procedure	115.33±15.51	117.0(86-148)	107.83±8.35	108.0(90-122)	-1.964	**0.049***
Z[b];p	-3.992;**0.000***		-4.314;**0.000***			
SPO2						
Before procedure	96.07±1.11	96.0(95-99)	97.13±1.20	97.0(95-99)	-3.396	**0.000***
After procedure	96.03±0.93	96.0(95-99)	96.57±1.19	97.0(95-99)	-1.937	0.053
Z[b];p	-0.237;0.813		-2.568;**0.010***			

Z[a]: Mann-Whitney U, Z[b]: Wilcoxon Analizi, *p<0.05

DISCUSSION

This study aimed to determine the effect of the watching video method applied to children during vaccine injection on pain level and physiologic parameters. Children are exposed to many painful procedures throughout their developmental process (Erdogan & Ozdemir, 2021). Age, gender, developmental level, body mass index, genetic characteristics, temperament, past experiences, parental perspective on pain, parental reactions, social and cultural characteristics, socioeconomic status, parental feelings, and expectations affect the perception of pain and reactions to pain in children (Çalı, 2020; Güngör & Öztürk Şahin, 2021). When descriptive characteristics of the children and mothers included in the study and control groups were compared in the study, no statistically significant differences were found between the groups (p>0.05). This shows that children and mothers in the watching video and control groups are homogenous in terms of descriptive characteristics (Table 1-2). In the experimental studies, it is desired that the groups have similar descriptive characteristics and statistically insignificant differences between them. The similarity between the variables that may affect the study's outcome decreases bias and increases the reliability of the study. In this study, homogeneity was ensured between the groups, and the results of the research were not affected. When the literature is reviewed, it is seen that experimental studies conducted to evaluate pain in children are homogeneous between groups in terms of the same characteristics (Aşkan, 2022; Başkaya, 2019; Çalı, 2020; Güngör & Öztürk Şahin, 2021; Krishnegowda et al., 2023).

When the pain level of children before the procedure was examined in the study, there was no statistically significant difference between the groups regarding FLACC scores, and the groups were homogeneous (p>0.05, Table 3). The similarity of characteristics between groups increases the reliability of the study and reduces bias. In the study, when the pain levels of children were compared during and after the vaccine injection procedure, it was determined that the pain level of children in the watching video group was lower than the control group, and the difference between them was found to be statistically significant (p<0.05, Table 3). These findings show that the video method applied to the intervention group effectively drew children's attention in different directions and reduced pain. It is seen that the

findings obtained in the study are similar to the findings of other studies in the literature (Aşkan, 2022; Cerne et al., 2015; Cohen et al., 1997; Gates et al., 2020; Gökoğlu, 2020; Inan & Inal, 2019). Cerne et al. (2015) found that the mean pain score of the group shown a cartoon video during vaccine injection was significantly lower than that of the group that received vaccine injection with the standard technique. Cohen et al. (1997) found that the pain score of the group in which children received vaccine injection by watching videos was significantly lower than the group in which routine vaccine injection was performed. When the results of other studies in the literature were examined, no study was found that examined the effect of using the watching video method on pain during vaccine injection. However, it was observed that studies were reporting that the use of video method decreased the pain level in invasive procedures such as peripheral venipuncture and venous blood sampling in children (Aşkan, 2022; Erbay, 2016; Gates et al., 2020; Gökoğlu, 2020; Inan & Inal, 2019; Krishnegowda et al., 2023).

When the physiological parameter results of the children were examined, it was found that the heart rate values of the children in the watching video group were significantly higher than those of the control group after the procedure ($p<0.05$). The experience of pain in children is a stressful situation. The body shows some physiological changes as a stress response. These changes start with stimulation of the sympathetic nervous system and adrenal medulla. In response to stress, heart rate, blood pressure, and respiratory rate increase, and ventilation of the lungs decreases (Birnie et al., 2018; Brand, 2022). In this study, it is thought that the high peak heart rate of the children in the intervention group was due to the short duration of the method applied. In the literature, it is reported that it is challenging to detect physiological changes, indicating that the autonomic nervous system is stimulated in short-term interventions such as vaccine injection and blood sampling. Since the procedure is short, the changes return to normal rapidly, and physiological adaptation develops quickly (Miozzo et al., 2016). When the SPO2 values of the children included in the study measured at repeated times were examined, the SPO2 values of the children in the control group decreased significantly after the procedure compared to before the procedure ($p<0.05$). Accordingly, there was no significant decrease in the mean oxygen saturation of the children in the watching video group after the procedure. In contrast, the oxygen saturation levels of the children in the control group decreased significantly after the procedure (96.57±1.19) compared to before (97.13±1.20). The oxygen saturation levels of children in the control group, in which no intervention was applied, were negatively affected.

When the literature was examined, no study was found that examined the effect of using the watching video method on physiological parameters during vaccine injection. However, it was observed that there were studies examining the effect of the use of the watching video method on physiological parameters in invasive procedures such as peripheral venipuncture and venous blood sampling in children. When these studies were examined, it was seen that there were different study results. In the study by Erbay (2016), in which the effect of watching a cartoon video during peripheral venipuncture was examined, no significant difference was found between the watching video and control groups regarding heart rate and oxygen saturation. Gökoğlu (2020) examined the effect of watching cartoon videos and playing video games during invasive procedures (venipuncture/blood collection) in children. It was determined that the heart rate of the video game-playing group was significantly lower than the control group. However, there was no significant difference between the cartoon-watching, video game-playing, and control groups regarding oxygen saturation.

Watching cartoons is a nonpharmacological method that is used to distract both visually and audibly. It is low-cost, does not require special preparation, and is easy to apply. This study will significantly contribute to the literature due to its positive effect on pain levels and the lack of studies on the subject. Using video monitoring methods in interventional procedures such as vaccine injections to reduce children's pain levels will enable healthcare professionals to perform procedures safely. It will be beneficial in terms of patient safety.

Limitations

This research's limitations were that the sample was limited to children aged 12-24 months, and the findings cannot be generalized to children in other stages of development.

CONCLUSION

The study observed that watching videos as a distraction during vaccine injection was effective in reducing the level of pain. In line with these results, it is recommended to use this method to decrease the pain level and positively affect the oxygen saturation values of children receiving vaccine injections. In addition, parents need to be involved in the care of children in pain management.

Health professionals should use appropriate measurement tools to assess the children's pain status and regularly monitor physiological parameters. They should also receive the necessary training to learn about physiological and behavioral responses to pain. Besides, it is suggested that evidence-based studies be conducted evaluating the effectiveness of video methods in different age groups and different painful interventions.

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Conflict of Interest

The author declares no potential conflicts of interest concerning this article's research, authorship, and/or publication.

Author Contributions
Plan, design: KT, DKŞ; **Material, methods, and data collection:** KT, DKŞ; **Data analysis and comments:** KT, DKŞ; **Writing and corrections:** KT, DKŞ

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Ethical Considerations
Written approval was obtained from the Düzce University Non-Interventional Health Research Ethics Committee to conduct the study (Decision No. 2019/117). Prior to the study, permission was obtained from the Düzce Governorship, Düzce Provincial Health Directorate, and Kaynaşlı District State Hospital. Parents were informed about the purpose of the study and the practices, and their verbal and written consents were obtained. The researchers followed the "principle of confidentiality" by explaining to the participants that their data would not be disclosed to others. The permission to use the FLACC Pain Scale was obtained from Dr. Yeşim Şenaylı, who conducted the validity and reliability study.

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