

# The Effectiveness of Giving Favorite Videos on Intravenous Catheter Insertion Pain Children in The Emergency Room; Literature Review

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## ABSTRACT

**Background:** Pediatric nursing interventions to reduce pain resulting from inserting an intravenous catheter in an emergency room are not only science but also innovation.

**Purpose:** This study was conducted to determine the effectiveness of giving favorite videos to children on the pain of intravenous catheter insertion in the emergency room.

**Methods:** This research method uses an integrated literature review. Researchers used articles published in 2014-2021 in NCBI, Science Direct, Research Gate, Sage Pub, and Academia.Edu.

**Results:** Seven articles stated that giving the video to children before inserting an intravenous catheter can be an atraumatic implementation thereby reducing the incidence of hospitalization in children; can be a diversion; as well as reducing stress and anxiety in children which has been proven by the accuracy of the assessment instrument. Although not all articles describe the complexities and failures of intravenous catheter insertion, some suggest that it is important to present parents until the procedure is complete.

**Conclusion:** It can be concluded that giving videos to children with a full awareness level is safe and easy to give, both in the form of educational animated videos about infusion catheters, favorite cartoon videos, and music videos in the emergency room.

**Keywords:** Favorite videos; pain; children with full consciousness level; emergency room

## BACKGROUND

The insertion of an intravenous catheter is an invasive procedure that is commonly performed when the child has to take blood samples and get immediate medication due to illness (Trottier et al., 2019). This procedure is usually performed in the emergency department. It is undeniable that these actions cause children to feel pain and experience fear up to phobias (Cooke et al., 2018; Trottier, Doré-Bergeron, Chauvin-Kimoff, Baerg, & Ali, 2019). The fear they experience causes the perspective of nurses to be assumed to be someone who can hurt themselves (Cooke et al., 2018). Field findings reveal 70% of children experience pain and 10% of children experiencing phobias (Wieland, 2019). Another fact in the field that doctors and nurses often ignore regarding the insertion of intravenous catheters is the failure of this procedure so that children experience trauma while in hospital (McCarthy et al., 2010). Research conducted by Cooke et al. (2018) stated that the percentage of failure to insert an intravenous catheter in children was between 33% to 69%.

The reasons for the failure of intravenous catheter placement are usually due to, among others: improper installation in the area of the vein to be inserted; phlebitis; occlusion; infiltration, accidental removal of the intravenous catheter because the child has an active posture;

infection; and the anatomy of children's veins (Negri, Avelar, Andreoni, & Pedreira, 2012). The results of previous studies stated that the smaller the age of the child, the higher the level of complexity and failure (Kuensting et al., 2009). In addition, throughout the hospitalization, the parents should understand that the child likely will mobilize a lot in bed. Of which, needing close supervision or some immobilize measure to limit the possibility of IV insertion misplaced (Malyon et al., 2014).

The reason for this possible failure is inevitable and must be known to the patient's parents (Gerçeker, Ayar, Özdemir, & Bektaş, 2018; Malyon et al., 2014). Failure to insert an intravenous catheter can stir up parent's worries, upset, and/or degrade the staff's professional-expertise. Parents might be dissatisfied to the particular staff and complain over the quality care of the hospital as general; thus, harming the hospital care system credentials besides endangers the child physically and emotionally (Cooke et al., 2018)(Lamsal & Shrestha, 2019).

In addition to understanding the concerns of the patient's parents, we really need to understand the patient's negative feelings. This can cause the patient to become uncooperative so that it becomes a major factor in the success of the action (Kuensting et al., 2009; Malyon et al., 2014). The negative response of children to fear can be observed by their rebellious attitude towards doctors and nurses (Gerçeker et al., 2018). The movement of the child's hand cannot be controlled when this action is carried out so it requires several nurses to maintain a still body position by means of a stretch and the patient's hand is held. We can observe the negative response of the child to pain when taking action by hearing the child's screams and cries (Shaker & Taha, 2018).

To suppress fear and pain in children, it is necessary to innovate by nurses. From that, not only focus on completing medical tasks in the emergency room but also think creatively to be able to overcome the feeling of fear and pain of compos mentis-child during iv catheter insertion(Lamsal & Shrestha, 2019; Prottengeier et al., 2016; Sparks, Setlik, & Luhman, 2007). Therefore, one of the methods that researchers want to explore is related to the diversion method by providing a child's favorite video when inserting an intravenous catheter (Shaker & Taha, 2018; Yoo, Kim, Hur, & Kim, 2011).

## **OBJECTIVE**

The aim of this study was to determine the effectiveness of performing a favorite video on pain-diversion related to iv catheter insertion on children in the emergency room.

## **METHOD**

### **Research design**

The design used in this study is an integrated literature review. Search for articles discussed in this study using several databases, namely NCBI, Science Direct, Research Gate, Sage Pub, and Academia.Edu.

### **Search Strategy**

Where the researcher breaks it down in PICO form to make it easier for use the keywords presented in table 1. Alternative term for population (P) used "Child was Given an Intravenous Catheter" OR "Children with Blood Sampling" OR "Installation of Infusion for Children" OR "Pediatric Intravenous Insertion" OR "Veni Puncture in Child" OR "IV access in Child" OR "Peripheral Venous Access in Pediatric" OR "Intravenous Therapy in Child" OR "Peripheral

Intravenous Cannulation in Child” OR “Peripheral Intravenous Puncture in Child” OR “Intravenous Line Insertion in Child” OR “Intravenous Needle Insertions in Children”; Alternative terms for intervention (I) used “Favorite Videos” OR “Favorite Music Videos” OR “Favorite Cartoon Videos” OR “Favorite Movie Videos”; Alternative terms for comparison (C), researchers used “Standart Intervention Hospital” OR “Medicine” OR “Nothing Treatment”; Alternative terms for outcome (O), researchers used “Smile” OR “Relaxed” OR “Enjoyable” OR “Enjoyment” OR “Amenities” OR “Cry” OR “Shout out” OR “Scream” OR “Painful” OR “Nausea” OR “Reject” OR Angry”.

### **Selection Criteria**

This study uses inclusion criteria, including: taking journals that have been published in 2014 to 2021; research method quasi-experimental design and a randomized controlled study (RCT); original research; children with compos mentis level of awareness; children aged 1 to 12 years. The exclusion criteria included: discussing parents in children with intervening catheters; discussion papers; and conference papers; children with seizures by searching according to what the researcher has described in table 2 and flowchart 1.

The articles obtained by viewing the title, abstract, content of the text that meet the criteria eligibility. Significant data from the study were examined by the critical appraisal skills program (CASP) which has been applied to assess the quality of published journals (CASP, 2018; JBI, 2017; Moola et al., 2017).

### **RESULTS**

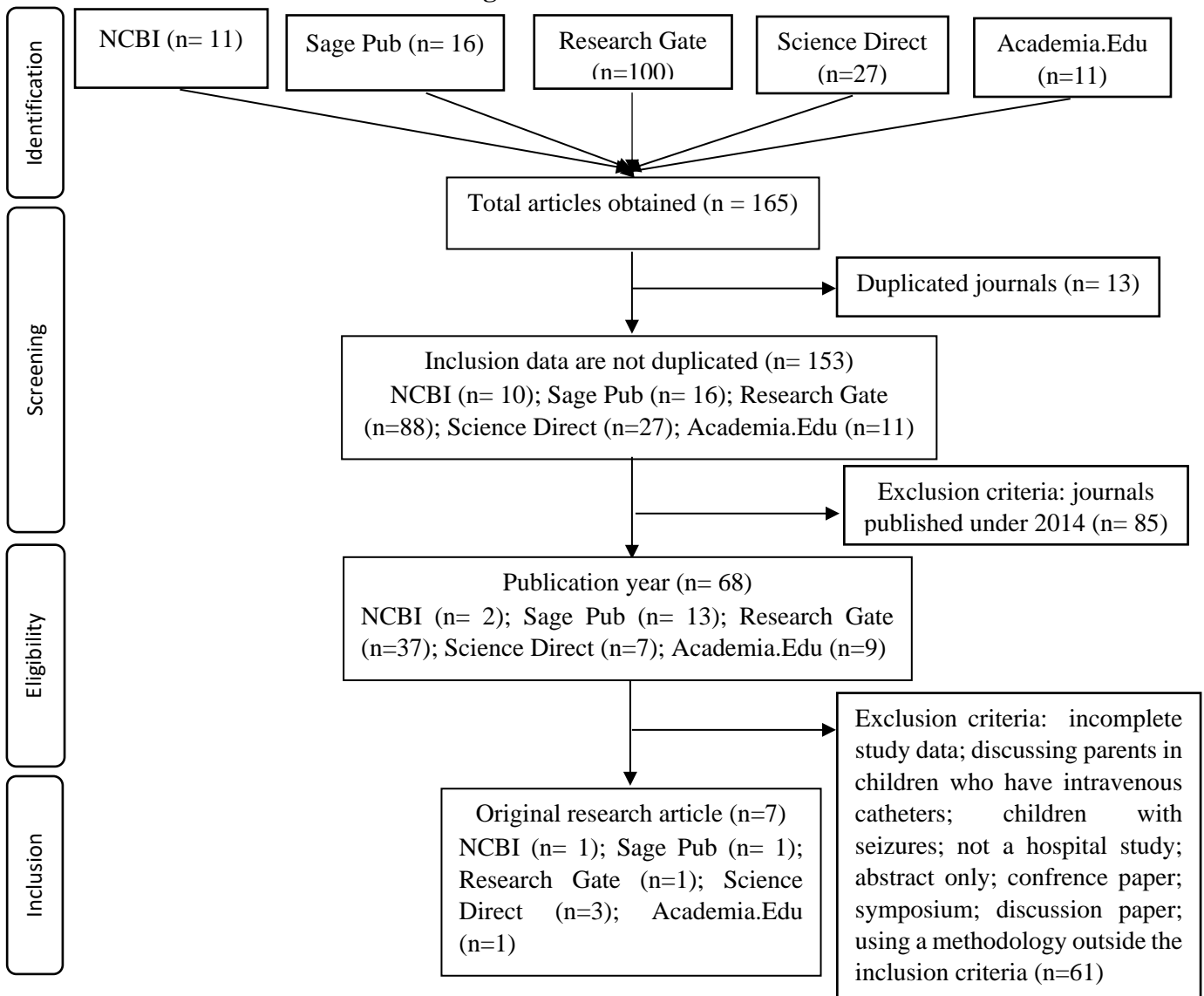
Inserting an intravenous catheter in a sick child with a full level of awareness is a contributing factor to trauma and hospitalization. Pain due to infusion catheter insertion makes children feel afraid, threatened, anxious, and anxious so it is necessary to look at the characteristics of the respondent before taking this action (Prottengeier et al., 2016; Yoo et al., 2011). Out of seven journals, feasibility checks have been carried out. using the Critical Appraisal Skills Program (CASP) related to delivering videos to children before the action is taken, showing good evaluation results, and is suitable for use in clinical practice (CASP, 2018; JBI, 2017; Moola et al., 2017).

#### **Characteristics of Respondents**

Researchers have summarized some demographic data as described in table 4. It is known that the highest number of respondents who received intravenous catheter insertion was reported in Turkey represented by 477 respondents (Düzakaya et al., 2021) The lowest number of respondents was reported in India only joined by 60 respondents (Gupta et al., 2014).

Based on the results of the study, the lowest average age of the respondents came from India at  $2.43 \pm 0.43034$  (Shrestha & J, 2018), while the average age of the highest participants came from Italy at  $9.4 \pm 2.30$ (Bergomi, Scudeller, Pintaldi, & Dal Molin, 2018). The most frequent intervention for intravenous catheter placement was dominated by boys 92 (57.9%) (Düzakaya et al., 2021); and girls were dominated in Taiwan, which was 48 (52.2%) (Kuo, Pan, Creedy, & Tsao, 2018). Meanwhile in Turkey, the majority of respondents who have had contact with children have had an intravenous catheter inserted 86.8%; and in Italy 97.3% (Bergomi et al., 2018) while the majority of children who have never had an intravenous catheter insertion experience in India are 80% (Shrestha & J, 2018).

**Flowchart 1. Literature Screening**



### The Importance of Parents' Presence

The presence of parents when accompanying children to undergo intravenous catheter placement is an implementation of atraumatic in children (Alves & Ramos, 2016). In addition, the presence of the child's parents in the emergency room is the child's right not to be separated from their parents. parents are advised to be by the side of the child in order to calm the child (Bergomi et al., 2018; Gupta et al., 2014; Hsieh et al., 2017).

### Intravenous Injection

The size of the intravenous catheter that will be installed in the child will not affect if the accuracy and speed of the nurse in placing the intravenous catheter is directly proportional to the length of the intravenous catheter. details for 3.5 minutes (Kuo et al., 2018). Moreover, several reviewed journals explain the length of intervention until installation for 1 minute to 23 minutes which is only presented in research procedures (Concepción & Guerrero, 2016; Düzkaya et al., 2021; Gupta et al., 2014; Shrestha & J, 2018). The success of venous puncture

is related to the experience of working nurses when installing venous catheters in their work (Haslina., 2016). Demographic data regarding intravenous catheter placement in Spain, identified nurses who worked more than 6 months more frequently to insert intravenous catheters<sup>33</sup> and Taiwan noted that nurses who frequently performed this procedure were more likely to work nurses with >3 years work experience (Hsieh et al., 2017).

#### Difficulty Level of Intravenous Catheter Installation.

The procedure for inserting an intravenous catheter is a very difficult and complicated procedure in pediatric patients. This is due to the smaller diameter of the veins, reduced visibility of the veins, and difficulty in palpating the veins (Inal & Demir, 2021). If the age of the pediatric patient is getting lower, then the placement of the intravenous catheter becomes more difficult (Erick et al., 2016; van Loon, Puijn, van Aarle, Dierick-van Daele, & Bouwman, 2018). From the nurse's perspective, failure to insert the intravenous catheter causes the child to experience negative feelings such as crying and rebelling, causing trauma to the child (Handayani & Daulima, 2020). From the article reviewed by researchers, only research conducted by Concepción & Guerrero (2016) classified the difficulty level of intravenous catheter placement.

#### The Effectiveness of Diversion of Giving Video on Pain in Intravenous Catheter Insertion.

The journal that has been reviewed states that giving a video when the child is about to get an intravenous catheter can distract the child's attention from pain from the action taken. The videos provided by previous researchers also varied, including: video simulating intravenous catheter insertion (Düzkaya et al., 2021), popular cartoon videos (Concepción & Guerrero, 2016; Düzkaya et al., 2021; Gupta et al., 2014; Shrestha & J, 2018), and favorite music videos (Hsieh et al., 2017). The success of this video can be seen from the assessment instrument described in table 5.

## **DISCUSSION**

Intravenous catheter insertion is a painful invasive procedure for the patient. Pediatric nurses must be able to use techniques that can reduce pain during these procedures. The method of switching to non-pharmacological measures provides advantages in some countries where nurses do not have full prescriptive authority and avoids some disadvantages such as possible side effects, additional time, and cost of care for patients (Basak, Duman, & Demirtas, 2020). Of the 7 articles that have been reviewed, all articles produced supporting evidence giving videos before and after the insertion of an intravenous catheter in children. Although the results of this study are encouraging, attention needs to be paid to the research methodology, especially the quasi-experimental method in the control group. It is hoped that there will be comparisons of other measures or not just standard therapy, considering that the principle of justice needs to be obtained by the control group.

**Table 1. PICO**

<b>Research Title</b>	The Effectiveness of Giving Favorite Videos on Intravenous Catheter Insertion Pain Children in the Emergency Room							
<b>PICO questions</b>	1. Can giving a favorite video reduce the child's pain when inserting an intravenous catheter is effective in the emergency department? 2. Does giving favorite videos have an impact on children's pain when an intravenous catheter is inserted in the emergency unit?							
<b>Research topics</b>		<b>P</b>		<b>I</b>		<b>C</b>		<b>O</b>
<b>Component</b>		<i>(POPULATION)</i>		<i>(INTERVENTION)</i>		<i>(COMPARATION)</i>		<i>(OUTCOME)</i>
<b>Key Term</b>		“Child was Given an Intravenous Catheter”	AND	“Favorite Videos”	AND	“Service Standards”	AND	“Pain”
<b>Alternative Term</b>	OR	Children with Blood Sampling	OR	Favorite Music Videos	OR	Nothing Treatment	OR	Cry
<b>Alternative Term</b>	OR	Installation of Infusion for Children	OR	Favorite Cartoon Videos		-	OR	Shout out
<b>Alternative Term</b>	OR	Pediatric Intravenous Insertion	OR	Favorite Movie Videos		-	OR	Angry

**Table 3. Review the Journal**

No	Author (s)	Country	Research design	Group Intervention / Control	Assessment Instruments	Aim
1	Effect of a Cartoon and an Information Video About Intravenous Insertion on Pain and Fear in Children Aged 6 to 12 Years in the Pediatric Emergency Unit: A Randomized Controlled Trial  (Düzıkaya et al., 2021)	Turkey	A Randomized Controlled Trial (RCT)	Divided into 3 groups: the informative animation video group, the cartoon group, and the control group.	Children’s Fear Scale dan Wong-Baker FACES Scale.	This study aims to compare the effects of watching cartoons and informational videos about infusion on the levels of pain and fear of children aged 6 to 12 years.
2	A Study to Evaluate the Effectiveness of Cartoon Based Diversional Therapy on Pain during Intravenous Medication among Preschoolers in Selected Hospitals, Bangalore	India	Quasi-experimental	The intervention group with animated cartoons and the control group were only carried out according to the usual routine.	FLACC Scale (Face, Legs, Activity, Cry, Consolability)	This study aims to compare the effectiveness of cartoon-based diversion therapy on pain during intravenous medication and to find out which demographic

**Table 3. Review the Journal**

No	Author (s)	Country	Research design	Group Intervention / Control	Assessment Instruments	Aim
	(Shrestha & J, 2018)					variables affect the intervention and control groups.
3	Efficacy of Non pharmacological Methods of Pain Management in Children Undergoing Venipuncture in a Pediatric Outpatient Clinic: A Randomized Controlled Trial of Audiovisual Distraction and External Cold and Vibration  (Bergomi et al., 2018)	Italy	A Randomized Controlled Study (RCT)	Divided into 4 groups, namely the group using the Buzzy® device (resembling a bee to reduce pain during injection); the group uses cartoon videos; groups using Buzzy® devices + cartoon videos; and the non-intervention group	Wong-Baker Faces Pain rating scale (WBFP) dan Children's Emotional Manifestation Scale (CEMS)	This study aimed to evaluate two non-pharmacological techniques, vibration combined with cryotherapeutic topical analgesia using the Buzzy® device and animated cartoons, in terms of relieving pain and anxiety during intravenous catheter insertion in children.
4	Distraction-Based Interventions for Children Undergoing Venipuncture Procedures: A Randomized Controlled Study  (Kuo et al., 2018)	Taiwan	A Randomized Controlled Study (RCT)	The intervention group 1 was given story books and the intervention group 2 was given watching cartoon videos; control group	Observational Scale of Behavioral Distress-Revised (OSBD-R)	To determine the effect of the intervention on behavioral disorders related to venipuncture procedures in children in Taiwan aged 3 to 7 years.
5	Effectiveness of Cognitive-behavioral Program on Pain and Fear in School-aged Children Undergoing Intravenous Placement  (Hsieh et al., 2017)	Taiwan	Quasi-experimental design	In the intervention group, music video therapy was given by watching and listening, while the control group only received standard therapy	Numerical Rating Scales (NRSs)	This study aims to evaluate the effect of cognitive-behavioral programs on pain and fear in inpatient school-age children who receive intravenous insertion.
6	Video-Distraction System to Reduce Anxiety and Pain in Children Subjected to Venipuncture in Pediatric Emergencies  (Concepción & Guerrero, 2016)	Spain	A Randomized Controlled Study (RCT)	A diversion technique by providing a short video of the cartoon most watched by children in Spain	Wong-Baker FACES dan Level of Child Anxiety-Groninger Distress Scale	This study aims to determine the efficacy of giving cartoon videos in reducing pain in children when an intravenous catheter is inserted
7	Comparison between the analgesic effect of two techniques on the level of pain perception during venipuncture in children	India	Quasi-experimental design	Giving animated videos + holding respondents in the intervention group and	FLACC (Face, Leg, Activity, Cry and Consolability) pain scale	To determine the feasibility and effect of therapeutic ballet interventions designed

**Table 3. Review the Journal**

No	Author (s)	Country	Research design	Group Intervention / Control	Assessment Instruments	Aim
	up to 7 years of age: A quasi-experimental study  (Gupta et al., 2014)			holding respondents in the control group during venipuncture		specifically for children with cerebral palsy.

**Table 4. Characteristics of Literature Data**

No	Data	(Düzakaya et al., 2021) M ± SD or n (%)	(Shrestha & J, 2018) M ± SD or n (%)	(Bergomi et al., 2018) M ± SD or n (%)	(Kuo et al., 2018) M ± SD or n (%)	(Hsieh et al., 2017) M ± SD or n (%)	(Concepción & Guerrero, 2016) M ± SD or n (%)	(Gupta et al., 2014) M ± SD or n (%)
1	Respondents	477	60	152	282	68	140	70
2	Age	8.76 ± 1.96	2.60 ± 1.96	9.4 ± 2 8.6 ± 2.1	4.56 ± 2.55	8.26 ± 1.64	6.82 ± 0.78	2.43 ± 0.430
3	Sex							
	- Girl	67 (42,1%)	19 (63.3%)	21 (56.7%), 26 (68.4%)	48 (52.2%)	20 (57.1%)	-	15 (42.86%)
	- Boy	92 (57.9%)	11 (36,7%)	16 (43.3%), 12 (31.6%)	44 (47.8%)	15 (42.9%)	-	20 (57.14%)
4	Experience intravenous attachments							
	- Never	21 (13.2%)	24 (80%)	1 (2.7%), 1 (2.7%)	-	20(57.1%)	-	-
	- Have	138 (86.8%)	6 (20%)	36 (97.3%), 36 (97.3%)	-	15 (42.9%)	-	-
5	Intervention Duration (minute)	-	-	4.2 ± 2.6 3.9 ± 1.8	3.5 ± 1.8	-	-	-
6	Difficulty of Intravenous Catheter Installation							
	- Very easy	-	-	-	-	-	34 (24.3)	-
	- Easy	-	-	-	-	-	63 (45.0)	-



**Table 4. Characteristics of Literature Data**

No	Data	(Düzakaya et al., 2021) M ± SD or n (%)	(Shrestha & J, 2018) M ± SD or n (%)	(Bergomi et al., 2018) M ± SD or n (%)	(Kuo et al., 2018) M ± SD or n (%)	(Hsieh et al., 2017) M ± SD or n (%)	(Concepción & Guerrero, 2016) M ± SD or n (%)	(Gupta et al., 2014) M ± SD or n (%)
	- Ordinary						39 (27.9)	
	- Hard						4 (2.9)	
	- Very difficult						0 (0.0)	
7	Parent or Child's Family Companion	-	-	37 (100%), 37 (100%)	-	34 (97.1%)	-	3.86 ± 0.430
	- Yes	-	-	0 (0%), 0 (0%)	-	1 (2.9%)	-	
	- No							
8	Nurse work experience (years)	-	-	-	-	< 2 : 7(20%) 3-6 : 14(40%) > 6 :14(40%)	< ½ : 27 (19.3%) > ½ :113 (80.7%)	-

**Table 5. Pain Response to Intravenous Catheter Insertion**

No	Assessment Instruments	(Düzakaya et al., 2021) (P Value)	(Shrestha & J, 2018) (P Value)	(Bergomi et al., 2018) (P Value)	(Kuo et al., 2018) (P Value)	(Hsieh et al., 2017) (P Value)	(Concepción & Guerrero, 2016) (P Value)	(Gupta et al., 2014) (P Value)
1	FLACC	-	< 0.05	-	-	-	-	<0.0001
2	Wong-Baker FACES	0.001	-	0.02 0.13	-	-	<0.001	-
3	Level of Child Anxiety-Groninger Distress Scale	-	-	-	-	-	0.001	-
4	Numerical Rating Scales (NRSs)	-	-	-	-	0.004	-	-
5	Observational Scale of Behavioral Distress-Revised (OSBD-R)	-	-	-	0.001	-	-	-
6	Children's Emotional Manifestation Scale (CEMS)	-	-	0.09 0.02	-	-	-	-
7	Children's Fear Scale	0.001	-	-	-	-	-	-

**Table 6. Distribution of main results from selected studies**

No	Author (s)	Main Results
1	(Düzıkaya et al., 2021)	<ul style="list-style-type: none"><li>- No significant differences were found between the information video group, the cartoon group, and the control group before the intervention in terms of pain scores;</li><li>- Respondents who watched informational videos before the IV insertion procedure and watched cartoons during the procedure had lower mean fear scores than children in the control group;</li><li>- Watching cartoons and animated informational videos is effective in controlling pain and fear in children during the IV insertion procedure;</li><li>- Can be used as an implementation to reduce child trauma</li></ul>
2	(Shrestha & J, 2018)	<ul style="list-style-type: none"><li>- Therapy with cartoon videos proved to be effective in reducing pain to respondents during intravenous treatment</li><li>- It is important for healthcare professionals, to take on the challenge of relieving pain by paying attention to the respondent's concerns;</li><li>- This study was conducted to administer cartoon video-based diversion therapy for pain during intravenous treatment;</li><li>- All respondents in the control group experienced severe pain during intravenous administration</li></ul>
3	(Bergomi et al., 2018)	<ul style="list-style-type: none"><li>- The results showed the effectiveness of non-pharmacological methods in pain management during and after intravenous catheter insertion;</li><li>- Giving animated cartoons is superior to pain relief when compared to using Buzzy® alone;</li><li>- The combination of giving cartoon intervention + Buzzy® is significantly more effective in dealing with pain in children, especially in children under 9 years old.</li></ul>
4	(Kuo et al., 2018)	<ul style="list-style-type: none"><li>- Intervention by watching cartoons proved effective in reducing stress in children undergoing invasive intravenous insertion procedures;</li><li>- The provision of animated videos used in clinical practice requires only a relatively small fee</li></ul>
5	(Hsieh et al., 2017)	<ul style="list-style-type: none"><li>- Mean scores of pain and fear decreased in the experimental group; The intensity of fear in the experimental group was significantly lower than in the control group;</li><li>- The cognitive-behavioral program used using music videos of hospitalized school-age children had a positive impact on reducing fear during IV placement</li></ul>
6	(Concepción & Guerrero, 2016)	The provision of video in an emergency can be a useful method of reducing anxiety and pain in children receiving intravenous catheters
7	(Gupta et al., 2014)	Reducing the effects of pain during intravenous catheter insertion by providing animated videos plus the presence of family members

Research that conducted pretest and posttest assessments of the provision of videos was only 29% of all journals reviewed by researchers. The video was given to children as a whole in the study before the insertion of an intravenous catheter (Table 6). Most of the studies identified were conducted in developed and developing countries.

It was found that 86% of the articles reviewed used a pain scale instrument in children to assess the success of the intervention given (Bergomi et al., 2018; Düzakaya et al., 2021; Gupta et al., 2014; Hsieh et al., 2017; Panteliadis & Vassilyadi, 2018; Shrestha & J, 2018). Düzakaya et al., (2021), Bergomi et al. (2018), and Concepción & Guerrero (2016) used 2 assessment instruments to see the accuracy of the child's pain response by looking at the child's facial expressions and seeing the child's anxiety before and after the action was taken. The rest use emotional instruments to children the effectiveness of giving videos.

It is known that only 29% of articles discussed the duration of video administration to the insertion of an intravenous catheter in detail; explain the experience of working nurses who perform the insertion of intravenous catheters. Only 14% of the articles that have been reviewed by researchers discuss the level of difficulty faced by nurses when performing intravenous catheter procedures. In addition, 43% of articles that have been reviewed explain the importance of the role of parents accompanying children to reduce anxiety and fear.

Giving video therapy to children can also be combined with other therapies such as research conducted by Bergomi et al. (2018) by comparing giving cartoon videos and combining giving cartoon videos with giving Buzzy®. The results of his research show that combining video and Buzzy® is more effective than giving cartoon videos alone.

This study has limitations, only two previous studies carried out intervention time calculations, two previous studies included the experience of working nurses during intravenous catheter insertion, and only one researcher classified the level of venous difficulty. In addition, all the journals that have been reviewed have not reported the frequency of failure of intravenous catheter insertion when the video is given to children. In addition, this study has not used qualitative research methods so that it cannot know the child's feelings when the intervention is carried out and what if the child experiences an intravenous installation failure while giving a favorite video.

## **CONCLUSION**

Giving video is an effective non-pharmacological action given to children when the insertion of an intravenous catheter affects pain. The videos given to children can be in the form of cartoons, music, and educational animated videos about the procedure for inserting an intravenous catheter.

Based on the results of the research above, we need to remember that children must be free from pain. Nursing actions to reduce pain by watching favorite or educational videos or music or cartoons can reduce anxiety in children when an intravenous catheter is inserted. However, it is very unfortunate because not all hospitals in Indonesia have implemented this intervention so that children experience trauma due to hospitalization due to pain due to these actions. In addition, it is necessary to socialize about giving videos to children which aim to reduce pain due to intravenous catheter placement in the emergency unit.

## REFERENCES

- Alves, J., & Ramos, R. (2016). Advantages of the presence of the family in pediatric resuscitation Vantagens da presença da família numa reanimação pediátrica ou em procedimentos Ventajas de la presencia de la familia en la reanimación pediátrica replace or dismiss health care professi. *Enfermeria Global*, 41, 399–409.
- Basak, T., Duman, S., & Demirtas, A. (2020). Distraction-based relief of pain associated with peripheral intravenous catheterisation in adults: a randomised controlled trial. *Journal of Clinical Nursing*, 29(5–6), 770–777. <https://doi.org/10.1111/jocn.15131>
- Bergomi, P., Scudeller, L., Pintaldi, S., & Dal Molin, A. (2018). Efficacy of Non-pharmacological Methods of Pain Management in Children Undergoing Venipuncture in a Pediatric Outpatient Clinic: A Randomized Controlled Trial of Audiovisual Distraction and External Cold and Vibration. *Journal of Pediatric Nursing*, 42, e66–e72. <https://doi.org/10.1016/j.pedn.2018.04.011>
- CASP. (2018). Critical Appraisal Skills Programme (CASP). *Qualitative Checklist*, (2018), 6.
- Concepción, M., & Guerrero, G. (2016). Video-Distraction System to Reduce Anxiety and Pain in Children Subjected to Venipuncture in Pediatric Emergencies. *Pediatric Emergency Care and Medicine: Open Access*, 1(1), 1–8. Retrieved from <http://pediatric-emergency-care.imedpub.com/archive.php>
- Cooke, M., Ullman, A. J., Ray-Barruel, G., Wallis, M., Corley, A., & Rickard, C. M. (2018). Not “just” an intravenous line: Consumer perspectives on peripheral intravenous cannulation (PIVC). An international cross-sectional survey of 25 countries. *PLoS ONE*, 13(2), 1–18. <https://doi.org/10.1371/journal.pone.0193436>
- Düzakaya, D. S., Bozkurt, G., Ulupınar, S., Uysal, G., Uçar, S., & Uysalol, M. (2021). The Effect of a Cartoon and an Information Video About Intravenous Insertion on Pain and Fear in Children Aged 6 to 12 Years in the Pediatric Emergency Unit: A Randomized Controlled Trial. *Journal of Emergency Nursing*, 47(1), 76–87. <https://doi.org/10.1016/j.jen.2020.04.011>
- Erick, M. C. J., Miranda, G., Sandra, D., Argueta, E., Wachter, N. H., Silva, M., ... Faizi, M. F. (2016). Pengaruh terapi bermain walkie talkie terhadap tingkat kecemasan akibat hospitalisasi pada anak usia prasekolah di rsud dr. Moewardi. *Revista CENIC. Ciencias Biológicas*, 152(3), 28. Retrieved from [file:///Users/andreataquez/Downloads/guia-plan-de-mejora-institucional.pdf%0Ahttp://salud.tabasco.gob.mx/content/revista%0Ahttp://www.revistaalad.com/pdfs/Guias\\_ALAD\\_11\\_Nov\\_2013.pdf%0Ahttp://dx.doi.org/10.15446/revfacmed.v66n3.60060.%0Ahttp://www.cenetec](file:///Users/andreataquez/Downloads/guia-plan-de-mejora-institucional.pdf%0Ahttp://salud.tabasco.gob.mx/content/revista%0Ahttp://www.revistaalad.com/pdfs/Guias_ALAD_11_Nov_2013.pdf%0Ahttp://dx.doi.org/10.15446/revfacmed.v66n3.60060.%0Ahttp://www.cenetec).
- Gerçeker, G. Ö., Ayar, D., Özdemir, E. Z., & Bektaş, M. (2018). The impact of the difficult vascular access, fear, and anxiety level in children on the success of first-time phlebotomy. *Journal of Vascular Access*, 19(6), 620–625. <https://doi.org/10.1177/1129729818765598>
- Gupta, H. V., Gupta, V. V., Kaur, A., Singla, R., Chitkara, N., Bajaj, K. V., & Rawat, H. C. L. (2014). Comparison between the analgesic effect of two techniques on the level of pain perception during venipuncture in children up to 7 years of age: A quasi-experimental study. *Journal of Clinical and Diagnostic Research*, 8(8), 1–4. <https://doi.org/10.7860/JCDR/2014/9731.4675>
- Handayani, A., & Daulima, N. H. C. (2020). Parental presence in the implementation of atraumatic care during children’s hospitalization. *Pediatric Reports*, 12, 11–14. <https://doi.org/10.4081/pr.2020.8693>
- Haslina. (2016). Faktor yang berhubungan dengan kepatuhan perawat Dalam menjalankan Protap pemasangan Kateter Uretra Di ruang perawatan bedah dan interna RSUD Syekh Yusuf Gowa. *Jurnal Medicoeticolegal Dan Manajemen Rumah Sakit*, 5(1), 49–55. <https://doi.org/10.18196/jmmr.5106>. Pengaruh

- Hsieh, Y. C., Cheng, S. F., Tsay, P. K., Su, W. J., Cho, Y. H., & Chen, C. W. (2017). Effectiveness of Cognitive-behavioral Program on Pain and Fear in School-aged Children Undergoing Intravenous Placement. *Asian Nursing Research*, 11(4), 261–267. <https://doi.org/10.1016/j.anr.2017.10.002>
- Inal, S., & Demir, D. (2021). Impact of Peripheral Venous Catheter Placement With Vein Visualization Device Support on Success Rate and Pain Levels in Pediatric Patients Aged 0 to 3 Years. *Pediatric Emergency Care*, 37(3), 138–144. <https://doi.org/10.1097/PEC.0000000000001493>
- JBI. (2017). Checklist for Quasi-Experimental Studies. *The Joanna Briggs Institute*, 1–7.
- Kuensting, L. L., DeBoer, S., Holleran, R., Shultz, B. L., Steinmann, R. A., & Venella, J. (2009). Difficult Venous Access in Children: Taking Control. *Journal of Emergency Nursing*, 35(5), 419–424. <https://doi.org/10.1016/j.jen.2009.01.014>
- Kuo, H. C., Pan, H. H., Creedy, D. K., & Tsao, Y. (2018). Distraction-Based Interventions for Children Undergoing Venipuncture Procedures: A Randomized Controlled Study. *Clinical Nursing Research*, 27(4), 467–482. <https://doi.org/10.1177/1054773816686262>
- Lamsal, S., & Shrestha, R. (2019). Nurses' knowledge and practice regarding intravenous therapy in a teaching hospital, Bharatpur. *Journal of Chitwan Medical College*, 9(1), 13–19. <https://doi.org/10.3126/jcmc.v9i1.23777>
- Malyon, L., Ullman, A. J., Phillips, N., Young, J., Kleidon, T., Murfield, J., & Rickard, C. M. (2014). Peripheral intravenous catheter duration and failure in paediatric acute care: A prospective cohort study. *EMA - Emergency Medicine Australasia*, 26(6), 602–608. <https://doi.org/10.1111/1742-6723.12305>
- McCarthy, A. M., Kleiber, C., Hanrahan, K., Zimmerman, M. B., Westhus, N., & Allen, S. (2010). Factors explaining children's responses to intravenous needle insertions. *Nursing Research*, 59(6), 407–416. <https://doi.org/10.1097/NNR.0b013e3181f80ed5>
- Moola, S., Munn, Z., Tufanaru, C., Aromataris, E., Sears, K., Sfetcu, R., ... Mu, P.-F. (2017). Checklist for Analytical Cross Sectional Studies. *Joanna Briggs Institute Reviewer's Manual*, 1–7. Retrieved from <http://joannabriggs.org/research/critical-appraisal-tools>.
- Negri, D. C. de, Avelar, A. F. M., Andreoni, S., & Pedreira, M. da L. G. (2012). Predisposing factors for peripheral intravenous puncture failure in children. *Revista Latino-Americana de Enfermagem*, 20(6), 1072–1080. <https://doi.org/10.1590/s0104-11692012000600009>
- Panteliadis, C. P., & Vassilyadi, P. (2018). Cerebral palsy: A historical review. *Cerebral Palsy: A Multidisciplinary Approach, Third Edition*, pp. 1–12. [https://doi.org/10.1007/978-3-319-67858-0\\_1](https://doi.org/10.1007/978-3-319-67858-0_1)
- Prottegeier, J., Albermann, M., Heinrich, S., Birkholz, T., Gall, C., & Schmidt, J. (2016). The prehospital intravenous access assessment: A prospective study on intravenous access failure and access delay in prehospital emergency medicine. *European Journal of Emergency Medicine*, 23(6), 442–447. <https://doi.org/10.1097/MEJ.0000000000000291>
- Shaker, N., & Taha, A. (2018). Effectiveness of Distraction Therapy on Children's Pain Perceptions During Peripheral Venous Cannulation at Pediatric Teaching Hospital in Erbil City. *Erbil Journal of Nursing & Midwifery*, 1(2), 74–83. <https://doi.org/10.15218/ejnm.2018.10>
- Shrestha, R., & J, J. J. B. (2018). A Study to Evaluate the Effectiveness of Cartoon Based Diversional Therapy on Pain during Intravenous Medication among Preschoolers in Selected Hospitals, Bangalore. 8(November), 185–193.
- Sparks, L. A., Setlik, J., & Luhman, J. (2007). Parental Holding and Positioning to Decrease IV Distress in Young Children: A Randomized Controlled Trial. *Journal of Pediatric Nursing*, 22(6), 440–447. <https://doi.org/10.1016/j.pedn.2007.04.010>
- Trottier, E. D., Doré-Bergeron, M. J., Chauvin-Kimoff, L., Baerg, K., & Ali, S. (2019). Managing pain and distress in children undergoing brief diagnostic and therapeutic

- procedures. *Paediatrics and Child Health (Canada)*, 24(8), 509–521. <https://doi.org/10.1093/pch/pxz026>
- van Loon, F. H. J., Puijn, L. A. P. M., van Aarle, W. H., Dierick-van Daele, A. T. M., & Bouwman, A. R. A. (2018). Pain upon inserting a peripheral intravenous catheter: Size does not matter. *Journal of Vascular Access*, 19(3), 258–265. <https://doi.org/10.1177/1129729817747531>
- Wieland, L. S. (2019). Psychological Interventions for Needle-Related Procedural Pain and Distress in Children and Adolescents: Summary of a Cochrane Review. *Explore*, 15(1), 74–75. <https://doi.org/10.1016/j.explore.2018.10.014>
- Yoo, H., Kim, S., Hur, H. K., & Kim, H. S. (2011). The effects of an animation distraction intervention on pain response of preschool children during venipuncture. *Applied Nursing Research*, 24(2), 94–100. <https://doi.org/10.1016/j.apnr.2009.03.005>
- Alves, J., & Ramos, R. (2016). Advantages of the presence of the family in pediatric resuscitation Vantagens da presença da família numa reanimação pediátrica ou em procedimentos Ventajas de la presencia de la familia en la reanimación pediátrica replace or dismiss health care professi. *Enfermeria Global*, 41, 399–409.
- Basak, T., Duman, S., & Demirtas, A. (2020). Distraction-based relief of pain associated with peripheral intravenous catheterisation in adults: a randomised controlled trial. *Journal of Clinical Nursing*, 29(5–6), 770–777. <https://doi.org/10.1111/jocn.15131>
- Bergomi, P., Scudeller, L., Pintaldi, S., & Dal Molin, A. (2018). Efficacy of Non-pharmacological Methods of Pain Management in Children Undergoing Venipuncture in a Pediatric Outpatient Clinic: A Randomized Controlled Trial of Audiovisual Distraction and External Cold and Vibration. *Journal of Pediatric Nursing*, 42, e66–e72. <https://doi.org/10.1016/j.pedn.2018.04.011>
- CASP. (2018). Critical Appraisal Skills Programme (CASP). *Qualitative Checklist*, (2018), 6.
- Concepción, M., & Guerrero, G. (2016). Video-Distraction System to Reduce Anxiety and Pain in Children Subjected to Venipuncture in Pediatric Emergencies. *Pediatric Emergency Care and Medicine: Open Access*, 1(1), 1–8. Retrieved from <http://pediatric-emergency-care.imedpub.com/archive.php>
- Cooke, M., Ullman, A. J., Ray-Barruel, G., Wallis, M., Corley, A., & Rickard, C. M. (2018). Not “just” an intravenous line: Consumer perspectives on peripheral intravenous cannulation (PIVC). An international cross-sectional survey of 25 countries. *PLoS ONE*, 13(2), 1–18. <https://doi.org/10.1371/journal.pone.0193436>
- Düzkaya, D. S., Bozkurt, G., Ulupınar, S., Uysal, G., Uçar, S., & Uysalol, M. (2021). The Effect of a Cartoon and an Information Video About Intravenous Insertion on Pain and Fear in Children Aged 6 to 12 Years in the Pediatric Emergency Unit: A Randomized Controlled Trial. *Journal of Emergency Nursing*, 47(1), 76–87. <https://doi.org/10.1016/j.jen.2020.04.011>
- Erick, M. C. J., Miranda, G., Sandra, D., Argueta, E., Wachter, N. H., Silva, M., ... Faizi, M. F. (2016). PENGARUH TERAPI BERMAIN WALKIE TALKIE TERHADAP TINGKAT KECEMASAN AKIBAT HOSPITALISASI PADA ANAK USIA PRASEKOLAH DI RSUD DR. MOEWARDI. *Revista CENIC. Ciencias Biológicas*, 152(3), 28. Retrieved from [file:///Users/andreataquez/Downloads/guia-plan-de-mejora-institucional.pdf%0Ahttp://salud.tabasco.gob.mx/content/revista%0Ahttp://www.revistaalad.com/pdfs/Guias\\_ALAD\\_11\\_Nov\\_2013.pdf%0Ahttp://dx.doi.org/10.15446/revfacmed.v66n3.60060.%0Ahttp://www.cenetec](file:///Users/andreataquez/Downloads/guia-plan-de-mejora-institucional.pdf%0Ahttp://salud.tabasco.gob.mx/content/revista%0Ahttp://www.revistaalad.com/pdfs/Guias_ALAD_11_Nov_2013.pdf%0Ahttp://dx.doi.org/10.15446/revfacmed.v66n3.60060.%0Ahttp://www.cenetec)
- Gerçeker, G. Ö., Ayar, D., Özdemir, E. Z., & Bektaş, M. (2018). The impact of the difficult vascular access, fear, and anxiety level in children on the success of first-time phlebotomy. *Journal of Vascular Access*, 19(6), 620–625. <https://doi.org/10.1177/1129729818765598>
- Gupta, H. V., Gupta, V. V., Kaur, A., Singla, R., Chitkara, N., Bajaj, K. V., & Rawat, H. C. L.

- (2014). Comparison between the analgesic effect of two techniques on the level of pain perception during venipuncture in children up to 7 years of age: A quasi-experimental study. *Journal of Clinical and Diagnostic Research*, 8(8), 1–4. <https://doi.org/10.7860/JCDR/2014/9731.4675>
- Handayani, A., & Daulima, N. H. C. (2020). Parental presence in the implementation of atraumatic care during children's hospitalization. *Pediatric Reports*, 12, 11–14. <https://doi.org/10.4081/pr.2020.8693>
- Haslina. (2016). Faktor yang berhubungan dengan kepatuhan perawat Dalam menjalankan Protap pemasangan Kateter Uretra Di ruang perawatan bedah dan interna RSUD Syekh Yusuf Gowa. *Jurnal Medicoeticolegal Dan Manajemen Rumah Sakit*, 5(1), 49–55. <https://doi.org/10.18196/jmmr.5106>.Pengaruh
- Hsieh, Y. C., Cheng, S. F., Tsay, P. K., Su, W. J., Cho, Y. H., & Chen, C. W. (2017). Effectiveness of Cognitive-behavioral Program on Pain and Fear in School-aged Children Undergoing Intravenous Placement. *Asian Nursing Research*, 11(4), 261–267. <https://doi.org/10.1016/j.anr.2017.10.002>
- Inal, S., & Demir, D. (2021). Impact of Peripheral Venous Catheter Placement With Vein Visualization Device Support on Success Rate and Pain Levels in Pediatric Patients Aged 0 to 3 Years. *Pediatric Emergency Care*, 37(3), 138–144. <https://doi.org/10.1097/PEC.0000000000001493>
- JBI. (2017). Checklist for Quasi-Experimental Studies. *The Joanna Briggs Institute*, 1–7.
- Kuensting, L. L., DeBoer, S., Holleran, R., Shultz, B. L., Steinmann, R. A., & Venella, J. (2009). Difficult Venous Access in Children: Taking Control. *Journal of Emergency Nursing*, 35(5), 419–424. <https://doi.org/10.1016/j.jen.2009.01.014>
- Kuo, H. C., Pan, H. H., Creedy, D. K., & Tsao, Y. (2018). Distraction-Based Interventions for Children Undergoing Venipuncture Procedures: A Randomized Controlled Study. *Clinical Nursing Research*, 27(4), 467–482. <https://doi.org/10.1177/1054773816686262>
- Lamsal, S., & Shrestha, R. (2019). Nurses' knowledge and practice regarding intravenous therapy in a teaching hospital, Bharatpur. *Journal of Chitwan Medical College*, 9(1), 13–19. <https://doi.org/10.3126/jcmc.v9i1.23777>
- Malyon, L., Ullman, A. J., Phillips, N., Young, J., Kleidon, T., Murfield, J., & Rickard, C. M. (2014). Peripheral intravenous catheter duration and failure in paediatric acute care: A prospective cohort study. *EMA - Emergency Medicine Australasia*, 26(6), 602–608. <https://doi.org/10.1111/1742-6723.12305>
- McCarthy, A. M., Kleiber, C., Hanrahan, K., Zimmerman, M. B., Westhus, N., & Allen, S. (2010). Factors explaining children's responses to intravenous needle insertions. *Nursing Research*, 59(6), 407–416. <https://doi.org/10.1097/NNR.0b013e3181f80ed5>
- Moola, S., Munn, Z., Tufanaru, C., Aromataris, E., Sears, K., Sfetcu, R., ... Mu, P.-F. (2017). Checklist for Analytical Cross Sectional Studies. *Joanna Briggs Institute Reviewer's Manual*, 1–7. Retrieved from <http://joannabriggs.org/research/critical-appraisal-tools>.
- Negri, D. C. de, Avelar, A. F. M., Andreoni, S., & Pedreira, M. da L. G. (2012). Predisposing factors for peripheral intravenous puncture failure in children. *Revista Latino-Americana de Enfermagem*, 20(6), 1072–1080. <https://doi.org/10.1590/s0104-11692012000600009>
- Panteliadis, C. P., & Vassilyadi, P. (2018). Cerebral palsy: A historical review. *Cerebral Palsy: A Multidisciplinary Approach, Third Edition*, pp. 1–12. [https://doi.org/10.1007/978-3-319-67858-0\\_1](https://doi.org/10.1007/978-3-319-67858-0_1)
- Prottegeier, J., Albermann, M., Heinrich, S., Birkholz, T., Gall, C., & Schmidt, J. (2016). The prehospital intravenous access assessment: A prospective study on intravenous access failure and access delay in prehospital emergency medicine. *European Journal of Emergency Medicine*, 23(6), 442–447. <https://doi.org/10.1097/MEJ.0000000000000291>
- Shaker, N., & Taha, A. (2018). Effectiveness of Distraction Therapy on Children's Pain

- Perceptions During Peripheral Venous Cannulation at Pediatric Teaching Hospital in Erbil City. *Erbil Journal of Nursing & Midwifery*, 1(2), 74–83. <https://doi.org/10.15218/ejnm.2018.10>
- Shrestha, R., & J, J. J. B. (2018). A Study to Evaluate the Effectiveness of Cartoon Based Diversional Therapy on Pain during Intravenous Medication among Preschoolers in Selected Hospitals , Bangalore. 8(November), 185–193.
- Sparks, L. A., Setlik, J., & Luhman, J. (2007). Parental Holding and Positioning to Decrease IV Distress in Young Children: A Randomized Controlled Trial. *Journal of Pediatric Nursing*, 22(6), 440–447. <https://doi.org/10.1016/j.pedn.2007.04.010>
- Trottier, E. D., Doré-Bergeron, M. J., Chauvin-Kimoff, L., Baerg, K., & Ali, S. (2019). Managing pain and distress in children undergoing brief diagnostic and therapeutic procedures. *Paediatrics and Child Health (Canada)*, 24(8), 509–521. <https://doi.org/10.1093/pch/pxz026>
- van Loon, F. H. J., Puijn, L. A. P. M., van Aarle, W. H., Dierick-van Daele, A. T. M., & Bouwman, A. R. A. (2018). Pain upon inserting a peripheral intravenous catheter: Size does not matter. *Journal of Vascular Access*, 19(3), 258–265. <https://doi.org/10.1177/1129729817747531>
- Wieland, L. S. (2019). Psychological Interventions for Needle-Related Procedural Pain and Distress in Children and Adolescents: Summary of a Cochrane Review. *Explore*, 15(1), 74–75. <https://doi.org/10.1016/j.explore.2018.10.014>
- Yoo, H., Kim, S., Hur, H. K., & Kim, H. S. (2011). The effects of an animation distraction intervention on pain response of preschool children during venipuncture. *Applied Nursing Research*, 24(2), 94–100. <https://doi.org/10.1016/j.apnr.2009.03.005>