Original Article

JHAS 2023; 13(1): 62-66
DOI:https://doi.org/10.37107/jhas388

Effectiveness of Using Video Clip on Reduction of Anxiety During Venipuncture among Children in a Selected Hospital of Eastern Nepal

Shova Khatri[1], Upendra Yadav[2], Ramanand Chaudhary[2], Basant Kumar Karn[2], Sirjana Tiwari[1], Santosh Subedi[3], Sami Lama[2]

[1] School of Health and Allied Sciences, Faculty of Health Sciences, Pokhara University, Kaski, Nepal
[2] B.P. Koirala Institute of Health Sciences, Dharan,
[3] Manipal Teaching Hospital, Pokhara, Nepal

ABSTRACT

Introduction: Venipuncture can produce extreme anxiety to children who undergo it. Video clip as distraction is a simple technique which does not require any specific training and can be implemented by nurses, parents or other health staff members in any settings. Besides, it has a minimal cost and implies no risks for the children. This study aimed to assess the anxiety of children during venipuncture and determine the effectiveness of video clip in reducing anxiety.

Methods: A posttest only experimental research was conducted in BP Koirala Institute of Health Sciences (BPKIHS), Dharan Nepal including 50 school age children undergone venipuncture. Random sampling technique was applied to recruit respondents. Respondents were randomly assigned either to the experimental or control group with 25 in each. The Experimental group were shown video clip 3 minutes prior to the venipuncture till 3 minutes after completion of venipuncture while Control group had gone a routine venipuncture procedure only during venipuncture. Pearson's chi square test and Fisher's exact test was used for the analysis of anxiety response of both group.

Results: Showing video clips was effective in reducing venipuncture in children (p=0.001). Among the participants, 72% had high anxiety in control group while it was 24% in experimental group. In a same way 76% had low anxiety in the experiment group while it was 28% among control group. There is a significant difference in the anxiety level between the study and control group (p=0.001).

Conclusion: This study suggests that video clip is safe and cost effective method in reduction of anxiety in children undergoing venipuncture.

Keywords : *Anxiety, Children, Venipuncture, Video Clip*

INTRODUCTION

Anxiety is a negative emotional state arising from stressful or threatening circumstances. Surveys have found that more than 50% of children and adolescents who undergo venipuncture for routine blood sampling experience moderate to severe level of distress or pain in different intensity. Venipuncture and venous cannulation represent highly invasive and painful procedures commonly employed in the treatment of hospitalized children, often serving as a major source of anxiety and distress,[1] anxiety, characterized as a negative emotional state stemming from stressful or threatening circumstances, significantly impacts pediatric patients undergoing routing blood sampling through venipuncture. Survey indicate that over 50% of children and adolescents experience moderate to severe distress during such procedure, with younger children reporting heightened level of pain intensity.[2]

Various non-pharmacological approaches proved to alleviate procedural related anxiety among children. These include techniques such as showing cartoons, animated videos, blowing bubbles, non-procedural talk, listening to short stories, humor and listening to music.[3] Distraction, a simple technique that require any specific training, can be implemented by nurses, parents or other health staffs. Besides, it has a minimal cost and implies no risks for the patient.[4] Numerous studies have been concluded that audiovisual methods, incorpo rating techniques like video clips, are feasible and have been increasingly integrated into reducing pain and anxiety in various pediatrics settings, including immunization, wound dressing, dental

Correspondence: Shova Khatri, School of Health and Allied Sciences, Pokhara University, Pokhara, Nepal. Email: shova69086@gmail.com

extractions, intra muscular injection and venipuncture.[5]

The primary objective of the present study is to assess children anxiety level during venipuncture and evaluate the effectiveness of video clips in reducing anxiety in hospital settings by especially focusing on visual techniques, the research aim to contribute adio valuable insights into managing anxiety in diverse medical and nursing scenarios where children commonly experience pain and distress. If video clips are found to be effective, this intervention could have widespread implication for improving overall experiences of children undergoing various medical procedures including immunization and nebulization. This study addresses the significant issue of anxiety in pediatric patients during venipuncture, drawing on established non pharmacological interventions. The emphasis on visual techniques, such as video clips, aligns with previous research indicating the efficacy of audio-visual methods in reducing anxiety.

Methods

A Posttest only design of a true experimental research design was adopted for the study. The study was conducted at BP Koirala Institute of Health Sciences, Dharan, Nepal from January 2018 to July 2018. Ethical approval letter (Reference no 341) from Institutional Review committee BP Koirala Institute of Health Sciences. Written informed consent were taken from the parents of each children and verbal ascent were taken From children. Facial Anxiety Scale (FAS) a self-administered tool of anxiety (FAS) was used to measure the level of anxiety in children which contains 5 pictures representing no anxiety to very high anxiety. Data was collected from accompanying parent or guardian and anxiety level was assessed from the 6-12 years old children who were undergoing venipuncture for either i.e. canulation or for blood sample collection or both in pediatric ward I, pediatric ward II and in emergency department. Children with diagnosed mental or neurological disorder, altered sensorium, child with more than two attempt of venipuncture, patients who has already sign of acute stress or anxiety before initiation of procedure and children who had poor vision or difficulty to see video were ex cluded in the study.

Sample size was calculated by taking the prevalence from the study done in Spain.[6] using formula

$$n = \frac{2\,(z_{\alpha/2}+z_{\beta})^2\,pq}{(P_1-P_2)^2}$$

$$n = \frac{2\,(1.96 + 1.28)^2\ 0.25x0.75}{(0.029-0.47)^2}$$

n= 20.150

Thus, total sample size= 20.15 in each group.
Adding the 20% of the sample total sample taken were 25 in each group.

Simple random sampling technique was adopted for this study and random allocation was done by Fishbowl draw method (lottery method) to form experimental and control group. A child friendly video clip of 12 minutes duration, prepared by assembling the videos from you-tube which had only motion pictures with music and children English song but without verbal communication. The clips were taken from cartoons like Mickey Mouse and other animated cartoons. Lenovo tablet of 10/5 inch was used to display the video. One parent or a guardian was accompanied with the child during the data collection.

The collected data was coded and entered in Microsoft excel 2010. Data was analyzed using statistical package for social sciences (SPSS) version 18. Data was analyzed using descriptive and inferential statistics. Association of anxiety with socio demographic characteristics was tested using Pearson's chi square test.

We compare a control group and an experimental group in identical aspects excepts for one difference in the experimental group manipulation.

Experimental group

- Display of video clip 3 minutes before the venipuncture, throughout the venipuncture and 3 minutes after the venipuncture.
- Show the child the Facial Anxiety Scale and ask to select /rate the level of fear he felt during venipuncture by his finger.
- The selected face would rate the level of anxiety he/she felt.
- Encircle the picture he/she showed by the researcher.

Control Group

- Stay with the child throughout the venipuncture.
- Show the child the Facial Anxiety Scale and ask to select /rate the level of fear he felt during venipuncture by his finger.
- The selected face would rate the level of anxiety he/she felt.
- Encircle the picture he/she showed by the researcher

Flow diagram of study procedure

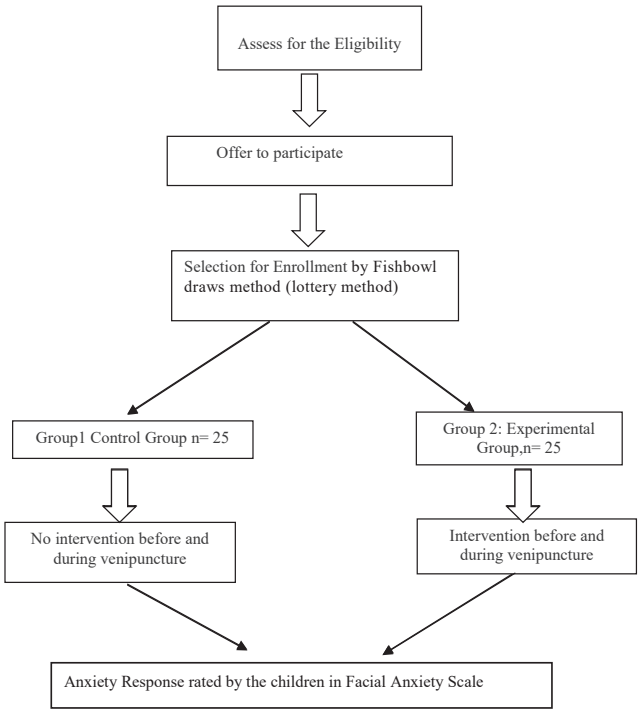

Figure 1: Flow diagram of the study procedure

RESULTS

Table 1: Socio Demographic Characteristics of Children (n=50)

Variables		Experimental Group n=25	Control-Group n=25	Chi Square Value	*p* value
		n(%)	n (%)		
Age	6-9 years	14 (56)	16 (64)		
	10 to 12 years	11 (44)	09 (36)	0.33	0.565
		Mean age ±SD: 8.80±2.00 years	Mean age ±SD: 8.80±1.95 years		
Sex	Male	14 (56)	13 (52)		
	Female	11 (44)	12 (48)	0.81	0.777
Ethnicity	Brahmin/ Chetri	09 (36)	05 (20)		
	Janajati	14 (56)	11 (44)		
	Others	02 (08)	09 (36)	5.96	0.051
Religion	Others	02 (08)	09 (36)	5.96	0.051
	Hindu	16 (64)	20 (80)		
Level of education	Others	09 (36)	05 (20)	1.65	0.401
	Basic Level	04 (84)	05 (20)		
	Primary	21 (56)	20 (80)	0.14	0.722

Among the respondents, 60% were of age 6-9 years. Of them, 64% were in control group and remaining were in experimental group. And in the age group 10-12 years, most 11 (44%) were in experimental group and 9(36%) were in control group. There were 56% male in experimental group and 52% male in control group. There was no significant difference in sex in both groups (p=0.77).

Table 2: Past and Present Hospitalization Characteristics (n=50)

Characteristics		Experimental Group n=25	Control Group n=25	Chi square Value	*P-Value*
		n (%)	n(%)		
Previous hospitalization	Yes	16 (64)	13(52)	0.74	0.400
	No	09 (36)	12(48)		
length of hospitalization	<2 months back	03(18.8)	06(46.2)		0.118*
	>2 months back	13(81.3)	07(53)		
Length of present hospital stay	≤7 days	25(100)	24(96)		0.02*
	>7 days	0(0)	01(4)		
Reason of venipuncture	To obtain blood	05(20)	03(12)	0.84	0.601
	For cannulation	05(20)	07(28)		
	Both	15(60)	15(60)		
Experience of nurse in venipuncture	≤6 months.	10(40)	06(24)	1.48	0.232
	>6 months.	15(60)	19(76)		
No. of attempts	Single	16(64)	19(76)	0.86	0.365
	More than one	09(36)	06(24)		

*Fisher's exact test

Table 2, depicts 64% of children in the experimental group and 52% in the control group had previous hospitalization experience. There was no significant difference in both group in previous hospitalization with p value 0.40. Regarding the length of present hospitalization at the day of data collection, there is a significant difference between two groups (p=0.02). About the reason for venipuncture, most 15 (60%) for both canulation and to obtain blood for sample. Majority 19(76%) children had successful venipuncture in single attempt in control group while remaining 16 (64%) of children had a single attempt in experimental group.

Table 3: Level of anxiety in participants (n=50)

Variables	Experimental Group n= 25	Control Group n=25	χ^2	p value
Low Anxiety	19(76)	07(28)	11.54	0.001
High Anxiety	06(24)	18(72)		

Only 6 (24%) had experienced high anxiety in experimental group. In the control group, 18 (72%) experienced high anxiety. There was a significant difference in the anxiety level between the two groups with p value of 0.001 (Table 3).

DISCUSSION

The finding of this study suggest that there was a significant difference in the level of anxiety between experimental and control group with p-value = 0.001. This finding is supported by a study done in Madrid, Spain in which 3-11 year children who require venipuncture, a short video of the Spanish cartoons was applied to the study group. In the total group of children, significantly lower levels of real anxiety were observed in the video-distraction group (p<0.001) during the procedure.[6–8] But it contrast with the findings from the study conducted at Menoufia University Hospital Egypt which revealed that the application of virtual reality distraction had appositive effect on reducing pain and anxiety during the venipuncture among school age children and it is recommended that applying virtual reality goggle during the venipuncture in clinical setting to reduce pain intensity and anxiety level.[9] The reason behind this could be using different tool for assessing data during the study which is similar with the study done in Western Reserve University, USA, Lowa and in Chitwan Nepal which shows that there is decrease in heart rate in the video group and, video distraction was used to minimize the anxiety in children undergoing cast room procedure[9–12] which was consistent with the findings of other research.[13,14] Previous studies have reported that the effectiveness of application in reducing the preoperative anxiety in children with differences in group with p value = 0.003 which is consistent with our studiy.[9,15]

The study also based on parent's perception on fear level and anxiety during their child undergoing immunization. The parent's perception of their child's level of fear and anxiety during immunizations was significantly lower in the iPad distraction group compared to the control group (p = .006). The parents in the iPad distraction group also reported their child did not need to be held down as much during their immunizations when compared to children in the no distraction group (p = .0004). The amount of crying perceived by the parents of children in the iPad group was significantly less.[16–18]

This study supports various studies which have concluded effective use of video clip as a distraction in children in different painful and discomfort procedures to reduce the procedural related anxiety.

This study address the significant issue of anxiety in pediatric patients during venipuncture , drawing on established non-pharmacological interventions.[19,20] The emphasis on visual techniques, such as video clips aligns with previous research indicating the efficacy of audiovisual methods in reducing anxiety. The findings of this study could extend beyond venipuncture, impacting various medical and nursing settings where children face pain and anxiety.

CONCLUSION

The study concludes that the use of video clip in reduction of anxiety during veinpuncture procedure was effective. The similar type of technique can be utilized in the pediatric setting by the nurses and other health professionals while performing the nursing and medical procedures.

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