COMPARISON OF VIBRATION VS CARD DISTRACTION ON PROCEDURAL PAIN RELIEF DURING IV CANNULATION AMONG SCHOOL AGE CHILDREN

Nagalakshmi K[1] (PhD Scholar), Dr. Abirami M[2] (Vice-Principal), Sharmila G[3]
[1]Department of Psychiatric Nursing, Bhaarath College of Nursing, Bharath Institute of Higher Education and Research, Chennai
[2]Vice–Principal, Department of Psychiatric Nursing, Bhaarath College of Nursing, Bharath Institute of Higher Education and Research, Chennai
[3]Department of Child Health Nursing, Bhaarath College of Nursing, Bharath Institute of Higher Education and Research, Chennai

Abstract

Procedural pain during intravenous cannulation is a common and distressing experience among hospitalized children. Non-pharmacological interventions such as vibration and distraction techniques have been increasingly utilized to minimize pain perception. The present study aimed to compare the effectiveness of vibration versus card distraction on procedural pain relief during IV cannulation among school-age children. A true experimental post-test-only design was adopted with 60 children aged 6–12 years, divided equally into vibration and card distraction groups. Pain was assessed using the Color Analogue Scale. Findings revealed that children exposed to vibration experienced significantly lower pain scores compared to those receiving card distraction. The study concludes that vibration is a simple, safe, and effective intervention for reducing procedural pain during IV cannulation among children.

Keywords: Vibration, Card Distraction, Procedural Pain, IV Cannulation, School Age Children

1. INTRODUCTION

Children constitute a vulnerable population in healthcare settings and are frequently subjected to painful medical procedures. Intravenous cannulation is one of the most common invasive procedures performed in hospitalized children and is often associated with pain, fear, and anxiety. Unrelieved procedural pain can lead to long-term psychological consequences and negative attitudes toward healthcare. Effective pain management is therefore an essential component of pediatric nursing care.

Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage. Children admitted to hospitals are frequently exposed to painful procedures, among which intravenous cannulation is one of the most commonly performed invasive procedures. School age children possess a greater cognitive awareness of pain compared to younger children, yet they may still lack adequate coping mechanisms to manage procedural pain effectively.

Intravenous cannulation often evokes fear, anxiety, and distress in children, which can interfere with cooperation during procedures and contribute to negative healthcare experiences. Inadequate pain management may result in long-term psychological consequences, including needle phobia and avoidance of medical care. Therefore, effective management of procedural pain is an essential responsibility of pediatric nurses.

Non-pharmacological interventions are widely recommended for children as they are safe, inexpensive, easy to administer, and free from adverse effects. Among these, vibration technique and distraction methods are commonly used to divert attention and reduce pain perception during invasive procedures.

2. NEED FOR THE STUDY

Studies have reported that nearly 50–80% of hospitalized children experience moderate to severe pain during invasive procedures. Despite the availability of pharmacological analgesics, procedural pain in children often remains under-treated due to concerns regarding side effects and feasibility. Non-pharmacological methods provide an effective alternative or adjunct to pharmacological pain management.

Vibration technique works on the principle of the Gate Control Theory of Pain, where sensory stimulation inhibits the transmission of pain impulses. Card distraction involves engaging the child's attention through visual stimuli, thereby reducing the perception of pain. Although both techniques are commonly practiced, there is limited evidence comparing their effectiveness in reducing procedural pain during intravenous cannulation among school age children. Hence, the present study was undertaken.

3. OBJECTIVES

- To assess the level of procedural pain during intravenous cannulation among school age children
- To evaluate the effectiveness of vibration technique on procedural pain relief
- To evaluate the effectiveness of card distraction on procedural pain relief
- To compare the effectiveness of vibration technique and card distraction on procedural pain relief

4. METHODOLOGY

A true experimental post-test-only research design was adopted. The study was conducted in pediatric and emergency wards of a tertiary care hospital in Coimbatore. Sixty school-age children were selected using purposive sampling and randomly assigned to vibration and card distraction groups. Pain perception was measured using the Color Analogue Scale immediately after IV cannulation.

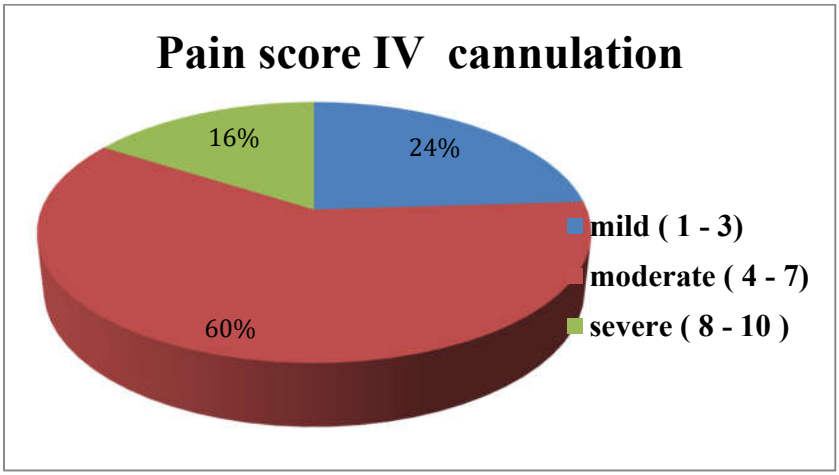
5. RESULTS

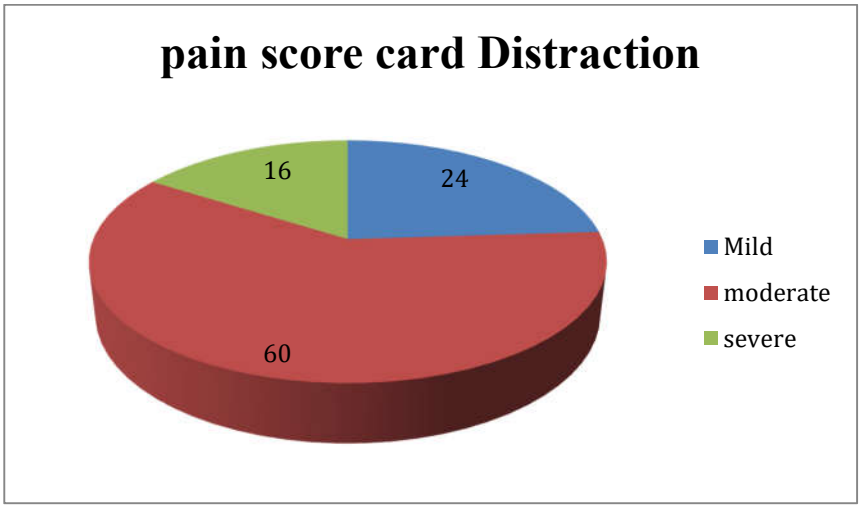
Results revealed that the majority of children in the vibration group experienced mild pain, whereas children in the card distraction group reported moderate pain. The mean pain score in the vibration group was significantly lower than that of the card distraction group, indicating superior effectiveness of vibration.

Table 1: Comparison of the effectiveness of post-test level of pain between vibration and card distraction. (N = 50)

S.no	variables	Post test	mean	SD	"t" value
1	Pain score in vibration technique	Only	3.24	1.50	4.84
2	Pain score in card distraction	Only	6.24	1.24	4.24

Figure 1: Level of pain in children during IV cannulation and Card distraction





6. DISCUSSION

The findings support the Gate Control Theory of Pain, suggesting that sensory stimulation through vibration interferes with pain transmission. The results are consistent with previous studies that demonstrated the effectiveness of vibration devices in reducing procedural pain among children.

7. CONCLUSION

Vibration technique was found to be more effective than card distraction in reducing procedural pain during IV cannulation among school-age children. Incorporating vibration as a routine non-pharmacological intervention can enhance pediatric pain management practices.

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