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Effectiveness of sucrose solution on immunization pain among infants

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Abstract

Pain is an un-pleasure experience to all or any individual; infants are more sensitive to pain than older children and adults, thanks to their still- developing brains. The pediatric pain experience involves the interaction of physiologic, behavioral and situational factors. The present study aims to assess the effectiveness of sucrose solution on immunization pain among infants. A quantitative quasi experimental research design was conducted among 30 infants by employing a convenience sampling technique and 15 were divided on top of things and experimental group. The demographic data was collected using structured interview questionnaire. The pre-test was done to assess level of immunization pain by visual analogue scale for both the experimental and control group. The experimental group was given sucrose solution to regulate group. A routine care then the post test was done. The study results show that the extent of pain was considerably reduced within the experimental group than the control group within the post test at $p < 0.005$. This means that sucrose solution is simpler non pharmacological method and price effective's methods to treat immunization pain among infants. The results of the study were that sucrose solution as no side effects and it easy and cozy methods which may be practiced to treat immunization pain.

Keywords: Immunization, pain, sucrose solution, infants

Introduction

Pain is an unpleasure experience to any or all individual. Every individual experiencing pain needs care. Infants are more sensitive to pain than older children and adults due to their still-developing brains ^[1]. this is often the rationale that almost all of the kids seek treatment. Acute pain is one among the foremost common adverse effects experienced by children occurring as a results of injury or illness and that they need necessary medical procedures. The pediatric pain experience involves the interaction of physiologic, psychologic, behavioral, and situational factors. The literature describes a way to evaluate and treat acute pain in children using low-cost, widely available, convenient and safe methods ^[2]. Even though there are best-practice guidelines and standards associated with pain management, many hospitalized children have unrelieved pain. So it's important to assess the pain so as to spot and manage it effectively ^[3]. The frequent painful procedures were performed in babies within the pediatric unit represents a greater challenge for nurses to specialize in providing a "pain free" environment during diagnostic and therapeutic procedures ^[4]. Offering an infant with oral sucrose instillation is a good therapy before all types of painful procedure, especially, procedure like DPT immunization. The pediatric nurses are to blame for eliminating pain and sufferings in children whenever possible and that they should advocate for the suitable treatment of pain in children ^[5]. A study showed that the administration of two ml of 24% oral sucrose solution, 2minutes before routine immunization is effective in decreasing maximum immunization pain in infants. The heightened behavioral pain responses observed in infants receiving sterile water reflect greater pain intensity compared with infants who received sucrose ^[6]. At only once it absolutely was believed that newborns failed to feel pain. The very fact that newborn brains demonstrate less differentiated responses to stimuli, and their nerves don't seem to be fully accustomed substantiate this belief ^[7]. Non pharmacologic interventions within the management of pain are found to be highly effective for a few children and for a few procedures. Sucking (NNS) have analgesic effect on procedural pain in infants. Health care professionals should state that painful experiences and monitors the condition of youngsters accordingly ^[8]. The infant pain is ongoing assessment of the presence and severity of pain and also the child's response to treatment is important. Pain in early infancy has only recently been recognized as a section requiring systematic study in nursing ^[9].

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This has emerged as an element thanks to recognition of the necessity for an empathetic base for pediatric pain management Research has shown that past beliefs about infants' perceptions of pain were incorrect. Infants do feel and remember pain [10]. Intramuscular site is more often related to pain during injection compared to intravenous or subcutaneous. The tetanus vaccine is usually singled out as a very painful shot thanks to the character of the tetanus bacteria itself that amounts to the pain experience. DPT vaccination causes severe crying and unsettled behavior [11]. The present study aims to assess the effectiveness of sucrose solution on immunization pain among infants.

Methods and Materials

A quasi experimental research design was used to assess the effectiveness of sucrose solution on immunization pain among infants. The study was conducted on Saidpet primary health centre. The non-probability convenience sampling technique was adopted to conduct a study among 30 infants people who fulfill the inclusion criteria. The inclusion criteria were infants between the age 6- 14 weeks, mother who are willing to participate and who understand Tamil and English, The exclusion criteria were pre term baby, low birth weight babies and, mothers who aren't willing to participate. Demography data was collected and pain was measured by using the visual analog pain rating

scale. After assessing the pain, 2 drops of sucrose solution was given to the infants after the immunization to cut back the pain. After one hour again the pain was measured and therefore the effectiveness of the sucrose water was identified. Confidentiality was maintained throughout the procedure. Collected data were analyzed by using descriptive and inferential statistics. The project has been approved by the ethics panel of the Institution.

Results and Discussion

Section A: Description of the Demographic Variables of the Infant

In the experimental group, most of them 8(53.3%) were within the people of 9-11weeks, 7(46.7%) had male infants, 8(53.3%) were urban, 11(73.3%) were the infant of first dose of DPT immunization given infants, 10(66.7%) were urban, 11(73.3%) are Christian, 12(80%) belonged to extended family. Whereas within the control group, most of them 6(40%) were within the age bracket of 9-11 weeks, 8(53.3) are male, 10(66.7) of them were Hindu, 8(53.3) were joint family

Section B: Assess the extent of Pain among Infants Receiving Immunization after administering the Oral Sucrose Solution within the Experimental and Control Group

Table 1: Frequency and percentage distribution of level of pain among infants within the experimental and control group. N = 30(15+15)

Group	Test	No pain		Mild		Moderate		Severe	
		No.	%	No.	%	No.	%	No.	%
Experimental Group	Pretest	0	0	2	13.33	9	60.0	4	26.67
	Post Test	0	0	7	46.67	8	53.33	0	0
Control Group	Pretest	0	0	2	13.33	7	46.67	6	40.0
	Post Test	0	0	2	13.33	8	53.33	5	33.33

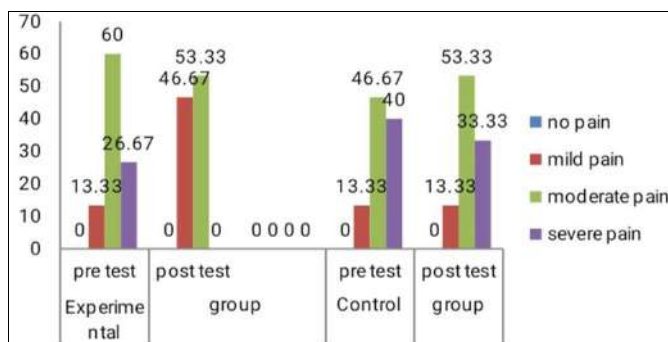


Fig 1: Shows pre and post test

The above table shows that within the pretest of experimental group, 9(60%) had moderate pain, 4(26.67%) had severe pain and 2(13.33%) had mild pain. Whereas within the post test, 8(53.33%) had moderate pain and 7(46.67%) had mild pain.(Table 1) The result was supported by similar study conducted by Jeyabarathi and Arunima Mohan(2019) Effectiveness of oral sucrose solution on pain perception among infants receiving immunization injection in Ashwin Hospital at Coimbatore. Among experimental group the bulk 20 infants (67%) perceived mild pain and also the least 10 infants (33%) perceived moderate pain. No infant perceived severe pain after administering sucrose solution. Among control group the bulk 29 infants (97%) perceived severe pain and also the least 1 infant (3%) perceived moderate pain. it absolutely was inferred that the

pain level was reduced after the administration of oral sucrose solution before injection among infants [12].

Section C: Comparison of Pain among Infants between the Experimental and Control Group

Table 2: Effectiveness of sucrose solutions on immunization pain among infants within the experimental group. N = 15

Variables	Test	Mean	S.D	Paired 't' Test Value
Pain	Pretest	5.47	1.50	t = 8.573 p = 0.0001S***
	Post Test	4.07	1.49	

***p< 0.001, S – Significant

The pretest mean score of pain among infants was 5.47±1.50 and therefore the posttest mean score was 4.07±1.49. The calculated paired't' test value of t = 8.573 was found to be statistically highly significant at p< 0.001 level. The above finding clearly infers that sucrose solutions administered to infants had significant effect which resulted within the reduction within the level of pain among infants within the experimental group. (Table 2)

The present study was supported by Maninderjit Kaur *et al.* (2017) A quasi experimental study was conducted to assess the effectiveness of administration oral sucrose on level of pain among infants during pentavalent vaccination. The study results revealed those experimental groups mean score was 4.2250±1.059 and au fait group was 6.6750±1.071. Calculated t-value; 9.444which was over tabulated 1.990 t

value. So, null hypothesis was rejected. It had been found highly significant with p -value $0.000 < p$ -value 0.05 at df 78. The study concluded that there's statistically significant difference within the mean score of experimental and control group after administration of oral sucrose to scale back level of pain among infants during Pentavalent vaccination^[13].

Section D: to search out the association between posttests level of pain with selected demographic variables among experimental group infants

The study shows that none of the demographic variables had not shown statistically significant association with posttest level of pain among infants within the experimental group.

The present study supported by Chattopadhyay D, Kundu P, Gunri S, Bisoi S (2018) Effectiveness of Oral Sucrose on Level of Pain during DPT Immunization among Infants at Selected Hospital Salem. The results of this study showed that almost all of the infants in experimental group had reduction of pain during injection after administration of oral sucrose. There's no significant association within the level of pain with age, weight and dose of DPT immunization up to speed group, aside from the variable gender, where significant association was found^[14].

Conclusion

The present study concluded that sucrose solution is more effective non pharmacological method and cost effective methods to treat immunization pain among infants. The results of the study were that sucrose solution as no side effects and it easy and comfortable methods which can be practiced to treat immunization pain.

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