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An Experimental Study To Assess The Effectiveness of breast feeding on the Level Of Pain During Immunization Among Infants Attending Selected Well Baby Clinics, Amritsar (Punjab).

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Abstract
Immunization, an inherent part of the health care delivery system for reducing the morbidity and mortality due to "immunization preventable diseases" is also the commonest health related procedure which children routinely undergo. Immunization procedure is a common source of pain and distress for the young children. Pain management in infants is difficult as they cannot verbally express pain and it is largely a neglected domain. The present study was carried out to assess the effectiveness of breast feeding on the level of pain during immunization among infants attending selected well baby clinics. A total of 60 infants receiving DPT immunization were randomly distributed into experimental group (n=30) and control group (n=30). Mothers in experimental group were encouraged to start breastfeeding to their infants, 2 minute before the administration of vaccine and continue it until the whole vaccine was not properly administered. Routine based well baby clinic care were provided to infants received immunization in control group. During the administration of vaccine, the level of pain perceived by infants was assessed by researcher. The level of pain was compared among the both groups. Significant difference in level of pain during immunization was observed among the infants in experimental and control group, t= 19.42 at df = 58 (p<0.05). It was concluded that the level of pain is less among the infants who receive breastfeeding during immunization.

Keywords: *Breastfeeding, Level of pain, Immunization, Infants, Wellbaby clinics.*

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I. Background Of The Study

"When thought becomes exclusively painful, action is the finest remedy".
Salman rushdie (2007)1

II. Introduction

Shobha Johnson (2006)2explained pain is highly unpleasant and subjective feeling that is unexplainable. Pain is a disagreeable physical and psychological experiences associated with actual and potential tissue damage.Assessingpain in human fetuses and newborns is a difficult task because pain is often defined as a subjective phenomenon. Neonatal pain is a condition in which newborns are often not given analgesics or anesthetics during invasive procedures, including surgery.

Cheryl Tansky& Claire E. Lindberg (2010)3have found that when adequate pain control is achieved, clinical outcomes improve, including evidence of reduced mortality, and neonatal pain is important. Perception of pain is often overlooked in the infant population, especially with regard to immunizations. Evidence shows that infants experience and remember pain, and it shows the powerful impacts of pain on other painful life processes.

Merskey H (2001)4says that pain is a discordant sensory and emotional component associated with actualor potential network damage. It is important to understand that not being able to communicate, verbally or otherwise, does not exclude the fact that a person is in pain and needs pain relief treatment. Pain can be acute, established, or chronic. They can also be classified as physiological, inflammatory, neuropathic, or visceral, with each of these categories further subdivided according to severity. Pain in newborns is very commonly overlooked, under recognized, and under-treated.

Ameican Academy of Pediatrics (2000)5stated that pain is "an unpleasant sensory and emotional experience associated with actual or potential tissue damage". Repeated pain experiences lead to changes in thermal nociception, sensitization to prolonged nociceptive stimulation, hypoalgesia, brief thermal nociceptive stimuli, and changes in pain pathway function that persists even after infancy. Painful experience can have immediate, short term, long term physiological and behavioral effects in infants

Sahebihag M (2009)6described pain is a global health problem which exists from the birth to the last stage of the life. It causes irritation and unpleasant response for infants. Infants routinely experience the pain in the hospitals especially during the vaccination procedure. Nowadays, usually painful procedures for babies in developed countries is vaccination, which involves continuous IM injections in the infancy period. Studies showed that the painful experiences of infants have significantly increased during the past two decades. Recently, it was believed that young infants and newborns were not able to feel the pain due to lack of evolution in the central nervous system. But nowadays, it is recognized that physiological, anatomical and nervous-chemical structures which lead the pain, have been well evolved several weeks before the birth.

Barrington KJ et al (2006)7stated that pain is the physiological mechanism that protects the individual from a harmful stimulus and serves as a warning to tissue damage. Keeping the importance of pain assessment in mind, many health care institutions have even adopted pain as a "fifth vital sign". A policy statement from the American Academy of Pediatrics states that every neonatal care facility should implement a pain prevention program through routine pain assessment.

Mitchell A & Boss BJ (2002)8investigated that the painful experience during vaccination can result in physiological changes within the nervous system. Many times, this procedure can lower the pain threshold, create hypersensitivity to pain, and have an immediate and long-term effect on the child's psyche. The use of distractions along with the painful procedures are helpful to distract the psyche of an infant. The nutritive and non-nutritive pharmacological techniques are used to reduces the pain level during painful events. Therefore, breastfeeding is a natural, safe, nutritious and cheap method with benefits for an infant as a distractor used during painful procedures like vaccination.

Lander JA & Weltman BJ (2002)9 revealed that full-term infants exposed to short- term pain in early life and have adopted increased sensitivity to later life painful procedures. Additionally, babies who have been repeatedly exposed to noxious stimuli may have an expectation of pain. Health care providers provide effective measures to manage the child's pain to provide comfort and help prevent long-term effects that can harm the child's overall health.

Mathew PJ & Mathew JL (2003)10consider that children do not feel pain but this has been disapproved by the researches done on newborns. They explained that though incomplete myelination may be present in infants but intra neuronal distance is much shorter because of infant's size, which leads to fast pain transmission. The density of nociceptor nerve endings beneath the new-born skin is also similar to or greater than that in adult skin. Though, kids feel pain in the similar way as adults, but are not able to vocalize it in words, so objective assessment of quality or intensity of pain is very essential in infants. Pain in children can have serious consequences ifnot properly assessed. The effects of pain in children include irritability, decreased appetite, behavioral problems, changes in pain, etc.

Kyle T (2008)11stated that pain is experienced by all and yet it is not easily understood by others who are not currently experiencing it, as it is an individual experience and self-report is often considered the good standard of pain measurement. Emotional, affective, behavioral, cognitive, sociocultural, and physiological components affect people with pain. Besides, there is no accepted instrument for measuring pain.

Kaur Lovepreet et al (2008)12investigated that routine vaccination is an inherent part of the health care delivery system as it is the most effective health interventionin reducing the morbidity and mortality. Most of the injectables are given in initial phase of child‟s life and always lead to fear for their parents as well as to the child. Evidence supports that pain of the neonates may lead to effects that continues even after the school age leading to psychological sequelae in neonates. Repeated pain experiences lead to changes in thermal pain sensitivity are characterized by sensitization to long-lasting pain stimuli, hypoalgesia to brief thermal pain stimuli, and changes in pain pathway function that persist beyond infancy. Painfulexperience can have immediate, short term, long term physiological and behavioral effects in infants.

Anu Antony(2012)13stated that immunization is a way of protecting an individual from a disease through the introduction of live, killed or attenuated organisms in the individual system. Immunization is an important part of promotion of health and strategiesofdiseaseprevention forall children. It is acollectivewayto protect many peoplefromvariousdiseases.Oneofthemostimpressiveachievementsinchildren is the reduction of infectious diseases due to the use of immunizations for preventable diseases.

WHO (2014)14stated that vaccines are organic preparations that increase immunity againstspecificdiseases. Vaccinesusuallycontainagentsthatmimicdisease-causing microorganisms and are often made from weakened or dead forms of microbes, their toxins or one of its surface proteins. The agent induces the immune system to recognize, destroy, and "remember" the agent as foreign, so that the immune system can more easily recognize and destroy any microorganisms it later encounters.

Esfahani MS et al (2013)15evaluated vaccination is usually a painful procedure in infants. most of the vaccines are given in initial stages of children‟s life. These vaccines cause discomfort to the child‟s which leads to physical as well as psychological disturbances in them. So use of interventions is necessary to alleviate these

circumstances.Breast feeding is the non-drug methods of pain relief. Therefore, breastfeeding during vaccination is useful to reduce discomfort in children.

Craig KD et al (1993)16revealed that instruments which are used to measure the intensity of pain among children are mainly based on observational methods that focus on nonverbal behaviour and have a vital role in paediatric pain assessment. Behavioural observation is the primary assessment approach for pre-verbal and non-verbal children and is an adjunct to assessment for verbal children. Observations focused on vocalization (eg, crying, crying, or moaning), speech, facial expression, muscle tone and stiffness, ability to comfort, protection of body parts, behavior, activity, and general appearance. Adequate reliability and validity documentation is lacking for behavioural observations, even though clinicians often attribute greater importance to non-verbal expression than to self-report.

Marshall (1980)17revealed that assessing pain in neonates is difficult because of the subjective nature of pain and the inability of neonates to verbalize pain. Surrogate measures used to describe pain in neonates include motor response. Growing concerns about managing pain in newborns and infants have raised some critical questions about the accuracy or assessment of acute and procedural pain scales in clinicalsettings.Behaviourobservationisalso beneficialandvaluablefor non-verbal

age group. Correct pain assessment by the nurses is essential in planning and implementation of the pain management strategies. Physiological measures of the response to pain require complex apparatus for evaluation thus a combination of behavioural and physiological parameters has been used in non-verbal pain assessment procedures.

Efe E & Ozer ZC(2007)18revealed that breast-feeding is an effective analgesic easily implemented and safe intervention against pain sensation in the newborn infants. Considering the short and long term negative effects of uncontrolled painand undeniable necessity of vaccination, an effective and secure pain controlling method seems necessary.Non pharmacological methods included sweet solutions suchasoralsucroseandglucose,pacifiers,skincontactandbreastfeeding.Sucroseis an available and non-sedative substance with short-term effects and the impact of Breastfeeding on relieving pain in infants indicated that this is a physiological, accessible, practical and safe method which could easily be accepted by the parents and health care providers.

Upadhyay A et al. (2004)19revealed that Breast-feeding links evolutionary biology and medical practice. This is of clinical interest because pain is routinelyexperienced in hospital settings even by healthy newborns and natural interventions are effective at a time when many pharmacologic interventions are not available. There are several studies showing that breast milk orosensorially affects pain response. Breast feeding along with expressed breast milk is linked with pleasant memories of being with mother for babies.

Sharek et al (2006)20reported that (16%) of the 211 newborns in their study at 12 hospitals received any form of non-pharmacologic analgesia during routine heel lancing. Researchers offered multiple explanations for this finding, including a lack of knowledge among staff regarding evidence-based neonatal pain protocols as well as difficulty in getting staff to "buy in" to a new policy.

American Academy of Pediatrics Committee on Infectious Diseases (2003)21recommended that Breast-feeding is more than nourishing infants with mother‟s milk; it provides comfort as well as serves as a pacifier for a non-pharmacological painrelievingduringpainfulprocedure.Routinevaccinationisacommonpainful procedure in infancy. Most of these injectionsareadministered in the initial phase of a child‟s life.

Schollin (2004)22stated that among the analgesics studied for neonatal pain, breastfeeding/breast milk is a natural, easily available, easy to use and potentiallyrisk free intervention. It is an intervention that could be easily adopted from the perspectives of health care providers and parents. No adverse effects ofbreastfeeding apart from rare transmission of micro-organisms have been reported.

Need of study

Sushma Y(2011)23estimated that healthy term neonates undergo multiple routine painful procedures including heel lancing shortly after birth and during the initial hospital admission.Pain is a global health problem which exists from the birth tothe last stage of the life. This is a very pleasant feeling that cannot be shared with others. Pain is defined as "a pleasant sensation and emotional experience caused by actual or potential tissue damage or caused by such damage."

Shantikumari S (2011)24concluded that Infants routinely feel pain in the hospitals especially during the vaccination procedure This is the most common source of iatrogenic pain in childhood. Immunizations are one of the scariest medical procedures for healthy babies and children. Studies based on 2005 census, revealed that immunization program could cover about 100% of target children in India. Only about 63% of children received all the vaccines (BCG, DPT, OPV and Measles). During immunization, infants undergo pain due to the prick. Pain associated with such injections is difficult for children. If not addressed, this pain can lead to pre procedural anxiety in the future and fear of needles. Painful procedures are linked with anticipatory and concurrent anxiety, usually considered together as possible related distress.

Dunbar et al (2006)25said it is important for nurses to do everything they can to reduce pain for neonates who experience heel pain. Because the evidence for nonpharmacologic pain relief in shoe lending is mixed, nurses should not onlyreview the literature on the topic, but also conduct research in their own institutions. Evaluatingalternativemethodsofnon-pharmacologicneonatalpaincontrolsupports the identification of practical and accessible techniques that nurses can incorporate into their practice.

Centre for Disease Control and Prevention (2014)26stated that infants of 18 months and younger are scheduled to receive a total of 27 required immunizations, including the oral rotavirus vaccine. These babies typically receive 18 of these shots between birth and 6 months of age, and may receive 1-6 shots at each visit. As the nurses working in CHC are the one who administer the shot, it is necessary for them to reduce child distress during immunization. Nurses who perform painfulprocedures and support infants and children during and after these procedures have long been concerned about how children respond to pain.

AnuAntony(2012)13estimatedthat"Tocuresometimes,torelieveoften,tocomfort always", is a 15th century French description of the role of the physician. Although the relief of pain is felt to be a cardinal principle of compassionate medicine, yet in practice, pain management is often an ignored aspect of care.Pain is a frequent and obvious part of childhood that could be part of routine care, immunizations,illnesses, frequent bumps, bruises or injuries.

Tisvy Thomas et al (2009)27concluded that newborns and infants often experience many painful procedures such as venepuncture, intramuscular injections, heel lancing, immunisation etc. The claim can no longer be made that newborn pain is momentary. Infants are capable of developing a physiological memory of pain and it may be manifested for months in exaggerated form or activity. Many pharmacological and non-pharmacological measures have been proved effective in pain reduction during immunisation.

Agarwal R (2011)28stated that as recently as two decades ago it was believed that neonates are incapable of experiencing pain. Since then, evidence continues tomount that neonate not only experience pain, but do so at much intensity in theadults or older children. Moreover, neonatal pain has long-term adverse effects onthe babies subsequent neurodevelopment. So Several pharmacological and non- pharmacological measures to prevent pain in neonates proved to be effective and are gradually making their way into clinical practice. There are sufficient reasons to believe whybreast-feeding or feeding breast milk should provide pain relief for pain related to the procedures conducted in neonates.

Amar M &Vilhekar KY (2005)29investigated that neonates who are admitted in NICU undergo numerous procedures that are associated with pain and manyof these procedures are performed without medication or therapy to reduce pain. Neonatesare more sensitive to pain than older infants, children, and adults. In this way, the neonates undergo various painful procedures like vaccination, venipuncture andother painful procedures without pain therapy. Procedural pain is an importantsource of discomfort for patients in ward. Among them, stem cell injection is a routine procedure that nurses often perform commit an act that causes pain and sufferingtotherecipient. Duringthepain. Invasiveproceduresaredifficult fordirect providers. So in this situation intensityof pain occurring during neonatal procedures can be reduced by encouraging the mothers to breastfeed their babies during the procedures.

JacobsonRM(2001)30estimatedthatImmunizationadministrationisthemostusual procedure performed on a healthy infant in a pediatric practice. Although parents understand the importance of immunizations, the pain and discomfort associatedwith this procedure is the primary reason parents elect not to perform timely vaccinations. Parents are not the only ones concerned about causing unwanted pain. Physicians and nurses are also feels the same. It is clear that clinicians would like to reduce the pain and parental anxiety, during and soon after vaccination; however, there is little evidence.

Pyrmula(2009)31estimastedthat80%pediatriciansusedacetaminophen,whichhas added sucrose for palatability as an oral analgesic, pre- or post vaccination, as apain-reducing mechanism. Researcher also found that giving breastfeed to infants during their vaccination significantly reduces antibody levels to several of the vaccine antigens. In light of this finding, it is prudent to re evaluate the use of breastfeeding as analgesic property during routine vaccination and provide alternative pain-reduction mechanisms.

Gray L & Miller LW (2002)32revealed that non pharmacologic pain relief may be the best option for infants undergoing painful procedures. According to studysucrose alone as effective analgesia for the immunization of infants.Although topical anesthetics work,they are generally not used in a busy practice because of expenseandaprolongedwaitingperiodafterapplication.Additionalmeasuresto decrease pain during procedures in neonates include non nutritive suck, breastfeeding, skin-to-skin, and swaddling.Finding of study reported moderate success at alleviating infant pain when combining 2 non pharmacologic techniques together: (1) swaddle and pacifier or (2) swaddle and sucrose. Psychological interventions, in which a parent or nurse distracts the infant with a toy or a parent is coached by a health care provider, have also shown some promise. Researcher have advocated for health care providers to consider combiningmultiple strategies to help mitigate pain and to enlist parental support when possible. Breastfeeding combines several analgesic effects (a comforting person [mother], skin to-skin contact, diversion of attention, and the sweetness of lactose) as effective for procedural pain.

Unfortunately, if the woman is no longer breastfeeding or if she would rather not breastfeed while the baby receives immunizations, than alternative analgesic techniques are necessary.

Wood C (2002)33concluded thatthe immunization among infants during their early age is a most distracting event. When children are in the hospital, they often have a hard time without understanding the reason behind it. The immunization among infantsduringtheirearlyageisamost distractingeventandpainfulprocedure. Inhis study 82 subjects were taken as sample and the nutritive technique (Breastfeeding)as an intervention were taken. A protocol for assessing, preparing and distracting children during procedures such as needle prick pain and cannulation were made. The results of study showed that decrease in levels of pain and distress reported by children, parents and nurses. He used a Pain thermometers and 'faces scale' as toolsto assess pain and anxiety levels of 82 children. The study conclude that use of nutritive techniques during immunization is an efficient means of analgesia. However, nurses have a responsibility to reduce children's pain and anxiety as much as possible so for that purposedistraction is one way of doing this.

Part-CofNRHM–immunization(2009)34estimatedthatchildrenbelongingtothe age group of 0-6 constitute about 13.6 %(2001 census) of the total population in Karnataka which is 5.273 crores.The achievement of BCG coverage in state is 1097468, DPT coverage is 1082879. Immunizations are the most hated medical procedureforotherwise healthyinfants and children and the most common sourceof childhood trauma.The unpleasant sensation and emotional response caused by the pain of immunization can create a fear of needles in these children. Based on the review of literature and the subjective experience of the investigator during clinical posting, found that many health care professionals in the clinics do not use any technique to reduce the intensity of pain amongst infants during immunization. Though the standard protocols are not available, still the literature supports the benefit of Breastfeeding as an effective treatment to reduce the level of pain during immunization among infants. As breastfeeding is a natural pain reducer without any side-effect to infants. So, the investigator felt the need to assess the effectiveness of breastfeeding which reduces pain during immunization among infants.

Research problem

An experimental study to assess the effectiveness of Breastfeeding on the Level of Pain during Immunization among Infants attending Selected Well Baby Clinics, Amritsar (Punjab).

Aim of study

The aim of study is to find out the effectiveness of breastfeeding on the level of pain during immunization among infants attending selected well baby clinics with a view to practice this intervention in routine also.

Objectives

1. To assess the level of pain during immunization among infants in experimental group.
2. To assess the level of pain during immunization among infants in control group.
3. To compare the level of pain during immunization among infants in experimental andcontrol group.
4. To determine the association of level of pain during immunization among infants in control and experimental group with selected demographic variables.

Operational definitions

Breastfeeding: involves the process of giving feed to the infants bythe mother from her breast before, during and after immunization.

Level of pain: refers to the extent or degree of pain perceived by the infants during immunization which is assessed by using MBPS (Modified Behavioural Pain Scale) given by Taddio et al (1999)35.

Immunization: It refers to the vaccination of DPT doses which is administered intramuscularly to the infants.

Infant: refers to those who are between the age group of6-17 weeks.

Wellbabyclinics:referstotheimmunizationclinicswhichcomesunderUrban Training Health Centre (PhawaraChownk) and CHC Verka.

Hypothesis

H0: Therewillbenosignificantdifferencebetweenpostinterventionallevelof pain in experimental and control group at $p < 0.05$ level of significance.

Delimitations
Thestudyis limited toinfants
- Betweentheage groupof6-17 weeks
- Infantswhoarebreastfed.
- Attendingselected well babyclinics.

Conceptual Framework

Conceptual framework for the current research is based on the Transaction Process Model of King‟s Goal Attainment Theory (1960‟s) which describe a dynamic, personal relationship that a person grows and develops to achieve certain goals.Modeldirectsnursinginterventionsthatleadtofavourablebyusingthephases of interaction, perception, communication, transaction as interventions which further leads to goal attainment process.

Concepts used:-
- Interaction: It is a process of communication and understanding between a person and his environment and through intentional verbal and non-verbal actions.

In present study: interaction refers to the meeting of nurse (Researcher) & patient (infants mothers). It is the first step in which nurse and patient relationship build-up and communication between both starts.
- Perception: It is the process of organizing, interpreting, and changing information from sensory information and memory into information that gives meaning to a person's experience, reflects reality, and affects their behavior.
- In present study: perception refers to the ones own sense of represent the real situation into number ofways. In this studythe nurses perception was that the infants have severe pain related to immunization and on other hand the mothers of infants perceives that breastfeeding during immunization is either safe or unsafe, they perceives threats regarding the complications related to immunization i.e fever due to immunization any reactions etc.
- Communication: it is defined as, “process whereby information is givenfrom one individual to another either directly in face-to-face meetings or indirectly through telephone, television, or written word.”

In present study: communication refers to the process of exchanging information between the researcher and mothers of infants. The verbalmethod was used by the researcher for communication process in which researcher communicate the benefits of breastfeeding during immunization to reduce the intensity of pain to the mothers. On other hand the mothers also inquire about their doubts regarding the procedure through communicating with researcher.
- Action: It is a system of behaviours involving mental & psychomotor action. The order is first mental action to recognize the presenting conditions; then physical action to begin activities related to those conditions; an finallymental action in an effort to exercise control over the situation, combinedwith physical action seeking to achieve goals.

In present study: action refers to the intervention done by both parties i.e by researcher & mothers. It includes the intervention done by researcher (assessment of intensityof pain byapplying MBPS duringimmunization) and by mother (start breastfeed to infants 2 minutes before and continue it few seconds after immunization).

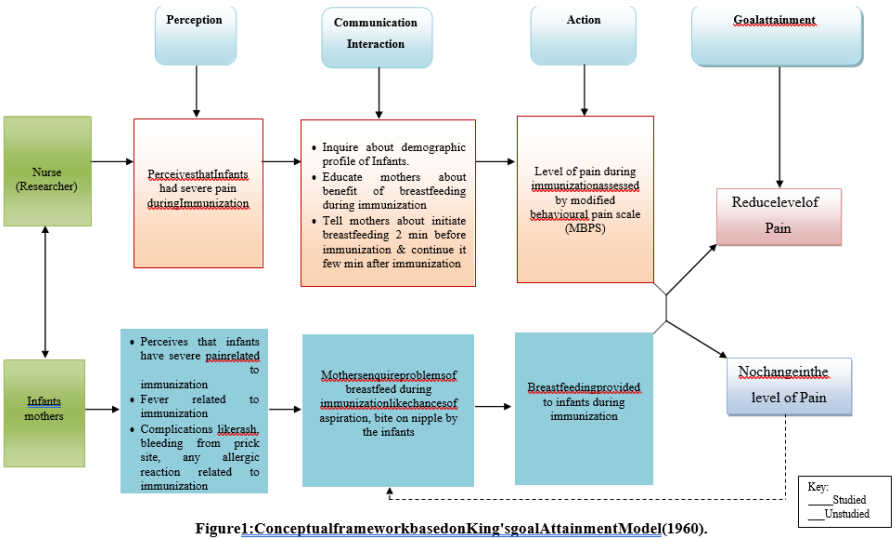


Figure1:ConceptualframeworkbasedonKing'sgoalAttainmentModel(1960).

- Transaction: It is a way of interaction characterized by communication of humans with environment to achieve the desired outcome; transactions to goal-directed human behaviours and if goals attained termination takes place and if goals will not be attained phase of re-intervention takes place.

In present study: Transaction denotes to the process of termination or endtime where the researcher check that the goal is attained or not. In this study the goal to minimize pain at the time of immunization by providing breastfeeding by mothers was attained. The intensity of pain in experimental group were less as compare to the control group. Re-intervention is not given and this part was unstudied in present study

Summary

This chapter dealt with the introduction of the study, need of the study, problem statement, aim of the study, objectives, operational definitions, delimitations, and conceptual framework.

III. Review Of Literature

Review of literature is essential to locate similar or related studies thathave already been completed which help the investigator to develop deeper understanding of the problem and gain information on earlier studies. The review provides a basis for future investigation, justifies the need for data collection, and relates the findings from one study to another with the hope to establish a comprehensive body of scientific knowledge in professional subject where reliable and relevant theory can be created.

Jiemin Zhu (2013)36conducted a randomized controlled trial of pain relief efficacy breastfeeding and during minor pain procedures for healthy full-term neonates in China. This study was conducted from August 2013 to February 2014 in the postpartum ward of a university-affiliated hospital in China. Participants were randomly divided into four groups - BF, MT, BF & MT, with no intervention - with 72 neonates in each group. Neonates in the control group received continuous care. Neonatal Infant Pain Scale (NIPS), latency to first cry and duration of first cry were recorded. The results revealed that the mean change in NIPS scores over time depended on the intervention provided. Neonates in the BF group and combined BF & MT have significantly delayed the first cry, shorter duration of the first cry, and lower pain scores during one minute after the procedure than the other two groups. No significant difference in pain response was found between the BF groups with or without music therapy. The MT group did not achieve a significant reduction in pain in all outcome measures. The study concluded that BF can significantly reduce pain in the long term. It is newly formed during the painful procedure. MT does not potentiate the analgesic effect of BF.

FSabety&MYaghoobi (2013)37conductedastudyto assess whetherit is good for pain preoperative dilation: Glucose, lidocaine or breast milk? The study aimed to compare effects of 2 cc oral glucose (50%), topical application of lidocaine, breast milk (BM), per oral for reducing pain before painful procedures. 121 term neonates weretakenassample.Therewere3 groupsof casesandone control group. Neonates were divided randomly into 4 groups. Two milliliter of glucose solution (50%), topical application of lidocaine, andbreast milk were used for group I, II, and III respectively.GroupIVwascontrolgroup.Forcontrolgroup,noadditionalmeasure was done. Data analysis was performed usingSPSS. Chi-square, t-test, and ANOVA were used for analysis. $P<0.05$ was considered significant. The results showed that theScore of DouleurAiguë Nouveau-né was considerably lesser in group III compared to other group ($P<0.05$, Tukey). Cryingtime in group IIIwas significantly lesser than group IV. Respiratory rate in group II was significantly lower than group IV ($P=0.018$). Pulse rate was significantly lower in group III compared to other group. Thus it was concluded thatbreastmilk is the safe and natural agents for reducing pain of neonates.

MitraSavabiEsfahani (2013)38conductedacomparativeStudyof Injection Pain in Mothers' Breastfeeding Practices During Infant Injections and Massage Therapy referring to the Navabsafavi Health Center in the hospital. 96 children wererandomly and sequentially divided into three groups (breastfeeding, massage and control group). The study population consisted of all infants, together with their mothers, referred to one of the health centers in Isfahan for B and DPT vaccinationat the age of 6 months and MMR at the age of 12 months. Data collection wascarried out using a questionnaire and the checklist [Newborn Pain Scale (NIPS)]. Data analysis was done using descriptive and inferential statistical methods with SPSS software. The results of the study showed that there was a statistically significant difference between the groups, namely massage therapy andbreastfeeding ($P = 0.041$), breastfeeding and control ($P < 0.001$), and massage therapy and control ($P = 0.002$). The researchers concluded that breastfeeding at the time of injection had a greater analgesic effect massage therapy. Therefore, it is proposed as a noninvasive, safe, and affordable method to reduce injection-related pain.

Sheykhi S (2013)39conducted a comparative study on injection pain in Isfahan by mass therapy treatment and maternal breastfeeding method during injection. 96 babies were divided randomly and sequentially into three groups (breastfeeding, massageandcontrol group). Datacollectionwas donebyquestionnaireandchecklist [Newborn Pain Scale (NIPS)]. The study showed that the mean pain scores in the breastfeedinggroup, the massage therapygroup, and the control group were 3.4, 3.9, and 4.8, respectively, and werestatisticallysignificant. Nutrition when injected has a greater analgesic effect than massage therapy.

Sarah Smrat (2013)40conducted randomized Controlled Trial on Use of Pain Management Strategies during Infant Immunization at Mount Sinai Hospital. 197full term infants were taken as sample. The sample was collected by cluster randomized controlled trial. Subjects were segregated randomly into 2 groups: an experimental and a control group. In experimental group, breastfeeding taken as an intervention and on other hand in control group no intervention were taken. The results conveyed that there was a statistically significant difference ($p<0.01$). The study concluded that using breastfeeding as an analgesic interventions was effective in the control group.

Gaurav goswami& Amit upadhyay (2012)41conduct a study on Comparison of Analgesic Effect of Direct Breastfeeding, Oral 25%Dextrose Solution and Placebo during 1st DPT Vaccination in Healthy Term InfantsinMeerut.120 infants were taken who wererandomly enrolled in breast feed group, 25% dextrose fed groupanddistilledwaterfed group.Theresearch conveyed thatthemediandurationofcry was significantly lesser in breast fed [33.5 (17-54) seconds] and 25% dextrose fed babies[47.5 (31-67.5) seconds] as compared to babies given distilled water [80.5 (33.5-119.5) seconds]. So the direct breastfeeding and 25% dextrose act as analgesic in young infants undergoing DPT vaccination in young infants less than 3 month of age.

Stevens B & Yamada J (2010)42conducted meta-analysis on Breastfeeding and Sucrose for analgesia in infants experiencing painful procedures at canadian health care centre. The sample were taken randomly and sample was divided into 6 trial groups. Each group had two interventions half sample received breastfeeding and remaining were taken sucrose solution as an intervention. The meta-analysis of data from 6 trials showed that breastfeeding with or without non-nutritive sucking methods, alone significantly reduces acute pain from immunization as compared to placebo (sucrose water) which was assessed by validated pain tools.The results showed that from these 6 trial groups (of sucrose versus Breastfeeding), 5 comparisons favoured Breastfeeding while 1 showed same effect of both the interventions. The study concluded that adapting breastfeeding for infant immunization is effective pain reliever. Breastfeeding analgesia is alsorecommended for procedural pain management (for example heel lances or venipuncture) in newborn infants.

HELPin KIDS Team (2010)43introduced an evidence-based clinical practice guideline on reducing the pain during childhood vaccination. The guidelinesrevealed that Breastfeeding continuously throughout an injection has been shown to alleviatepainininfants. Thegoodlatchingisestablishedandmaintained throughout the procedure. Holding, skin-to-skin contact and the act of sucking (Breastfeeding) may additionally contribute to the effectiveness of this combined intervention that provides analgesia through sweet taste and other chemicals present in the breastmilk. Infants those whoare breastfed (BM) during small procedures those are painful have experience less pain as compare to those infants who are not provided any pain reduction intervention. Thus breastfeeding during immunization is recommended to reduce the immunization related pain.

Okan F&Ozdil A (2010)44conducted a randomised, controlled trial on Analgesic effects of skin-to-skin contact and breastfeeding in pain related to procedure in healthy term neonates. 107 neonates undergoing immunization were taken assample. Infants were randomly assigned to three groups: (i) breastfed with skin-to-skincontact(group1,n =35),(ii)heldinthemother'sarmswithskin-to-skincontact but not breastfed (group 2, n = 36), or (iii) lying on the table before, during and after painful stimuli (group3,n=36).

Physiologicalresponsestopainweremeasured by heart rate, and behavioral responses by crying and duration of crying. The results showed a significant decrease in heart rate and cry length in groups 1 and 2compared to group 3 ($p < 0.001$). No difference was found between group 1 and group 2. It was lower in group 2 than group 3 ($p<0.001$). The study concluded that breastfeeding reduces the physiological and behavioral effects of pain in mothers of healthyinfants. Breastfeeding by skin-to-skin contact on days 1-2 of pregnancydoes notenhancetheanalgesiceffectofskin-to-skincontactalone. Thus,it can beutilized for getting relief from pain during minor procedures in newborns.

Mohammadn Hasan & Ahmad Kosha (2009)45conducted quasi-experimental study to compare the efficacy of oral sucrose with breastfeeding on pain perception among infants in Tabriz.

120infantsunder3monthsofageweretakenanddivided into 4 groups (25%oral sucrose, breastfeeding, combined method and control groups). Neonatal Infant Pain Scale (NIPS) was used to determine the pain score. The result of research displayed that the lesser pain score and lesser crying time was in breast fedneonates. Breast feeding is a natural, useful and free intervention to relief pain and does not need any special facility, This method is suggested in pain management and control during painful procedures for infants.

Boroumandfar K &Khodaei F (2009)46conducted a study on comparison of vapocolant sprayduring vaccination and injection-related pain in breastfed infants in IbnuSina, Iran. 144 young children from 6 months, 48 people were recruited each study group was allocated by stratified random sampling (i.e., breastfeeding, vapocoolant spray, and control group). In 64.6% of the infants, breastfeeding during vaccinationcausedanalgesia.Theresultsrevealedthatbreastfeedingduringinjection in 6-month-old infants is an effective, natural, safe, accessible and inexpensive method without side effects to reduce injection-related pain.

Dilli D &Kucuk IG et al (2009)47conducted a study measures to minimize pain occurring during vaccination during infancy in Turkey.158 healthy infants of age till 6 months were taken. The sample were

segregated randomly into either the breastfeeding (n = 73) or control (n = 85) group. Compared to the control (non- breastfed) group, crying time and NIPS scores were on average lower in thebreastfed group. Inthestudy,the breastfeedinggroupwascompared withthecontrol group with P = 0.001; and NIPS scores of breastfed group versus control group. Research has found that breastfeeding is an effective and natural pain reliever.

Taddio A & Katz J (2009)48conducted to evaluate the efficacy and age-related changes of oral sucrose analgesia among 2- and 4-month-old infants as a primary intervention during routine immunization in 40 healthy term infants. They received 24% oral breastfeeding or the control solution of sterile water 2 minutes before routine immunizations at both their 2- and 4-month, well-child visits. Acute behavioral pain responses were measured using the University of Wisconsin Children's Hospital Pain Scale, 2 and 5 minutes after the solution. The results of the study showed that the breastfed babies had a significant reduction in behavioral pain 5 minutes after administration compared to the placebo group. In 2 minutes after the administration of the solution, breast-feeding with undiluted water showed the highest average score, indicating the highest pain intensity. In 5 minutes, the breast- fed group has decreased, while the placebo group has increased.

Tisvy Thomas & Asha P sheety (2009)49conducted role of breastfeeding on the responseofpainwhileconductingimmunizationofinfants.40infantsweretaken randomly for the study. Infants were assigned randomly to either the breastfeeding (n=20) who are encouraged to breastfed or the control group (n=20) who are not encouraged to breastfed during immunization. The results of research displayed that the pain score of experimental group lies between 4-6 (moderate pain) whereas the pain score of control group ranges between 7-9 (severe pain). The conclusions were that the pain score of experimental group was lesser than the pain score of control group, which means breastfeeding is effective for pain reduction during immunization.

Rieder MJ (2009)50conducted a meta-analyses systematic review on efficacy and tolerabilityofpharmacologicinterventionsandcombinationstoreduceinjectionpain during routine childhood immunization. The meta-analysis were done by 4 trials. 4 different settings (clinics) were taken & sample were extracted through randomization technique. The research revealed that breastfeeding during immunization significantly reduce pain compared to not breastfeeding, as measured using validated pain tools (SMD -2.03 95% CI -2.26 to -1.80, p<0.001). The study concluded that Breastfeeding is an effective pain management strategy forprocedures involving pain in neonates.

Codipietro L &Ceccarelli M (2008)51conducted a randomized, controlled trial of breastfeedingororalsucrosesolutioninneonatesundergoingminorpainprocedures. The study has reported that breastfeeding may be superior to sucrose. Following random assignment, 101 healthy term infants undergoing Vaccination were taken as sample. The sample were segregated into 2 groups: Breast feeding group & 1 mL sucrose solution group. The findings of studyrevealed that infants had lower median PIPP scores in the group of infants who were breastfeeding (3.0) when compared with the infants receiving 1 mL sucrose solution (8.5). In addition, physiological parameters and cry duration were significantly improved while breastfeeding. The mean increase in heart rate, decrease in oxygen saturation, and duration of the first cry were 13.0, -1, and 3 for the breast-fed group, and 22, -3, and 21 for the sucrose group, respectively. Increased heart rate (13 vs 22, P < 13). 005) and decreased oxygen saturation (-1 vs –3, P < .001). The study concluded that breastfeeding is superior to sucrose solution as a pain relieving intervention.

Efe E & Ozer ZC(2007)52conducted the research on using of breast-feeding for relieving pain during neonatal immunization injections in California. 66 full-term infantsweretaken randomly.Babies assigned to eitherthebreastfeeding group (n= 33) were encouraged to breastfeed or the control group (n = 33) whose leg was not injected and covered with a blanket during placement. soft surface treatment table. The results revealed that the duration of crying was significantly shorter in the breastfeeding group.

Prakash S & Lucia (2007)53conducted study on Breastfeeding exercises for procedural pain relief in neonates. This study was conducted to compare breast milk with a control group.Marked heterogeneity in management interventions and pain assessment measures was noted. The results of the study showed that the breastfed group experienced significantly less pain, less elevated heart rate, less crying time, and less crying duration than the non-breastfed group.

Shah PS (2006)54conducted a study breastfeeding for pain inducing procedures in neonates. This study was done to evaluate the effect of breast milk in reducing procedural pain in neonates. Relevant outcome data were extracted and effect sizes were estimated and reported as risk differences and mean differences. The study showed that neonates in the breastfeeding group had statistically significantly less pain, less elevated heart rate, less crying time, and less crying duration compared to the non-intervention group.

Phillipp et al (2005)55conducted a randomized controlled trial Analgesic action of Breastfeeding. 96 stable full term newborn infants were taken as a sample. The subjects wasundergoingimmunization as part of a routine newborn screening. The infants were assigned through randomization to one of the three following groups: breastfeeding, held by mother with use of pacifier, or held by research assistant with use of pacifier. Data collected included the parameters i.e percentage of infants that cried, proportion of cry time, and physiological change information (i.e., heart rate, blood pressure, and oxygen saturation). The results of study showed that breastfeeding

produced the highest analgesic effect but that there was also a significant difference in proportion of cry time between maternal and non-maternal holding in infants given a pacifier with maternal holding resulting in less distressed infants.Thestudyconcludedthatuseofbreastfeedingduringroutineimmunization proves to be an excellent analgesic intervention to reduce the distress or pain among infants.

Joshi M & Paul VK (2005)56performed a randomized, placebo-controlled, double-blindtrialontheanalgesiceffectofbreastmilkonproceduralpaininnewborns.This randomized, placebo-controlled, double-blind trial included 81 full-term newborns between 4 and 8 weeks postpartum who requiredvaccination. Two minutes beforethe procedure, 40 babies received breastfeeding, whereas forty-one babies in control group received 5 ml of distilled water (DW) as placebo. Two observers who were blinded to the intervention recorded heart rate and duration of crying and modified Neonatal Facial Coding Scores (NFCS)] after the procedure. There was nodifference in the basic features of the neonates in the two groups. The period of crying was significantly shorter in babies who were fed breast milk than in those were breastfed DW. The results showed that change in heart rate and crying timewas significantlylower in the breastfed group and returned to baseline values sooner than in the DW group. The study concluded Feeding before painful procedure is effective in reducing symptoms due to pain in term neonates.

Gradin M &Finnstrom O (2004)57conducted a randomised, controlled trial on Feeding and oral-glucose additive effects on a reducing the intensity of pain in newborns. 120 full term newborns were taken as sample and they were assigned randomlyto four groups: IBreast-fed and 1-ml placebo; IIBreast-fed and 1-ml 30% glucose; IIIFasting and 1-ml placebo; and IVFasting and 1-ml 30% glucose. Pain during needle prick was measured with the Premature Infant Pain Profile (PIPP). Crying time was recorded. The parents assessed their babies' pain on a Visual Analogue Scale (VAS). PIPP scores were significantly lower in infants receiving glucose than those not receiving glucose ($p = 0.004$). There was no significant difference in PIPP scores between breastfed and breastfed infants. PIPP score in group II is lower than in group I. There was a similar difference between group IV and group III. In groups I, II, III, and IV, the average time of crying in the first 3 minutes was 63, 18, 142, and 93 respectively. The researchers concluded that breastfeeding before the injection had any effect it hurts, but it's time to cry.The combinationoforalcavityandbreast milkshowedthelowest painscores andshorter duration of crying.

Veerapen S (2003)58conducted a Randomised controlled trial on the effect of Analgesia of breastfeeding in term neonates. 180 term newborn infants undergoing immunizationweretaken as sample. Thesampleof45 infants wereassigned through randomization in each 4 group : breast fed (group 1), ones whorested in his mother's arms without breast feeding (group 2), given 1 ml of sterile water as placebo (group 3), orgiven1 ml of30%glucose followed bypacifier(group4). Video recordings of the procedure were assessed by two onlookers were blinded to the purpose of the research. Pain related behaviours evaluated with two acute pain rating scales: the DouleurAiguë Nouveau-né scale (range 0 to 10) and the premature infant pain profile scale (range 0 to 18). The results showed the Median pain scores(interquartile range) for breast feeding, held in mother's arms, placebo, and 30% glucosepluspacifiergroupswere1(0-3),10(8.5-10),10(7.5-10),and3(0-5)with

theDouleurAiguëNouveau-né scaleand 4.5 (2.25-8), 13 (10.5-15), 12 (9-13),and 4 (1-6) with the premature infant pain profile scale. Analysis of variance showed significantly different median pain scores ($P<0.0001$) among the groups. There were significant reductions in both scores for the breast diet and glucose and theremaining group compared with the other two groups ($P < 0.0001$, two-tailed Mann- Whitney U test between groups). The difference in the DouleurAiguë Nouveau-né score between breastfeedingand the glucose and rest groups was not significant ($P = 0.16$). The study concluded that breastfeeding reduces the pain-relieving effectduring minor invasive procedures in neonates.

Carbajal et al (2003)59conducted randomized controlled trial on the effect of breastfeeding as an Analgesic in term neonates. 179 full-term newborn infants were taken. The subjects were assigned randomly into 4 groups : Breastfeeding group, Mothers arm group, placebo-sterile water group, 30% glucose plus pacifier group all are having median age of 3 days. Research concluded that breastfeeding reduces painresponse during minimally invasive procedures in full-term infants.

Blass EM (2002)60conducted a prospective, randomized, controlled trial was conducted in the obstetric service at Boston Medical Center and Beverly Hospital, Massachusetts. 30 full-term infants were taken as a sample. The sample were assigned through randomization into 2 groups: breastfeed group and non interventional control group. Infants in the intervention group were held and breastfedbytheirmothersduringimmunization.Infantsinthecontrolgroup experienced the same immunization while receiving the standard hospital care of being swaddled in their bassinets. Differences in crying, crying, and heart rate were analyzed between breastfed babies and controls before, during, and after the procedure. Results showed a 91% and 84% reduction in crying and crying, respectively, from control infants during the immunization period. Heart attacks are also significantly reduced breastfeeding. The study concluded that breastfeeding is a powerful analgesic intervention for newborns during painful procedures such as immunizations.

IV. Methodology

The research methodology is the most important part of research as it is the framework for conducting a study. Research methodology defines what that the activity of research is, how to proceed and how to measure progress. It indicates the general pattern for organizing the procedures to gather valid and reliable data for an investigation. This chapter deals with the methodology adopted for "An experimental study to assess the effectiveness of breastfeeding on the level of pain during immunization among infants attending selected well baby clinics, Amritsar (Punjab)."

This chapter includes:

- Research approach
- Research design
- Variables under study
- Research setting
- Target population
- Sample & sampling technique
- Inclusion & Exclusion criteria
- Selection & development of the tool
- Description of the tool
- Criterion measures
- Validity of the tool
- Reliability of the tool
- Permission for study
- Ethical considerations
- Pilot study
- Data collection procedure
- Plan for data analysis
- Summary

Research approach

Sharma Suresh K (2011)61stated that the research approach involves thedescription of the plan to investigate the phenomenon under study in a structured (quantitative), unstructured (qualitative) or a combination of the two methods (quantitative-qualitative integrated approach). Therefore, the approach helps to decide about the presence or absence as well as manipulation and control over variables.

For the present study, the Quantitative research approach was considered appropriate as it aimed to assess the effectiveness of breastfeeding on the level of pain during immunization among infants attending selected well baby clinics, Amritsar (Punjab).

Research design

Sharma Suresh K (2011)61stated that research design refers to the plan of organization of scientific investigation. The research design spells out the strategies that the researcher adapts to gain information that is accurate, objective and meaningful.

For the present study, experimental research design (post test only control group design) was selected to achieve the objectives of the study.

E X O2

C O2

Research setting

The present study was conducted in well baby clinics of UTHC (Phuwarachownk) & CHC Verka (Amritsar) Punjab.From the staff of well baby clinics, researcher got more help regarding how to get sample easily. The rationale for selection of the present setting for the study was researcher‟s familiarity with the setting, convenience, feasibility, expected cooperation from the authorities in getting permission, language and geographical proximity.

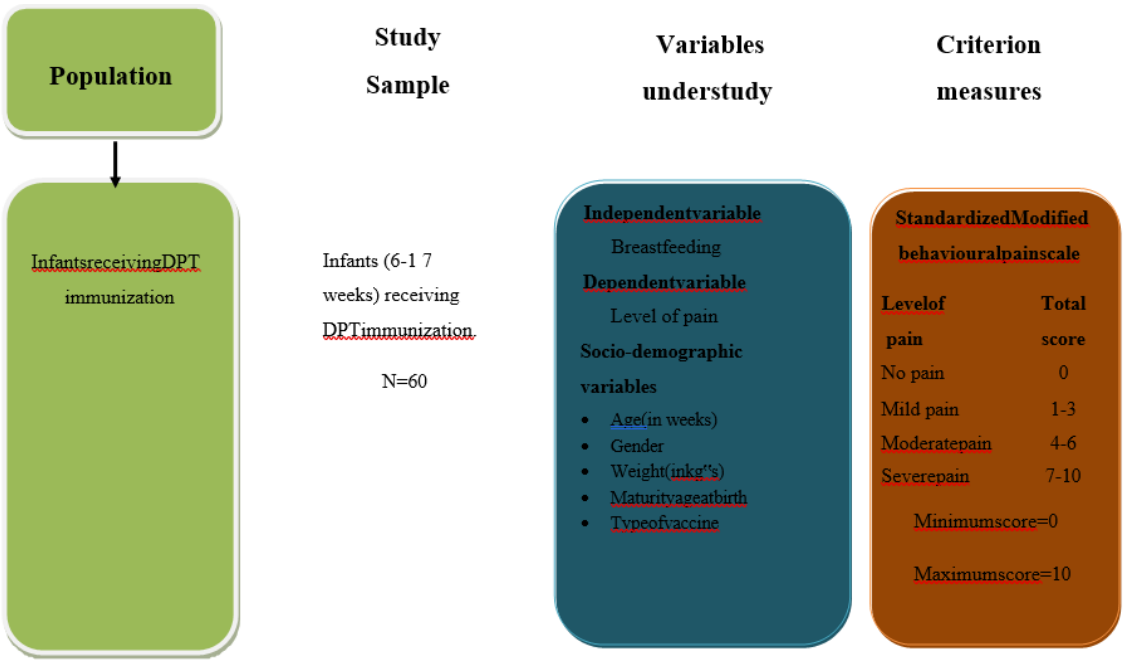


Figure-2:ResearchDesign

Target population

Sharma SK (2005)61refer to population as the entire aggregate or totalityof all the objects, subjects, cases or members that conform to as designated set of specifications or criteriafor researcher.

The target population of present study were infants receiving immunization from well baby clinics & accessible population were infants receiving immunization from well baby clinics of Urban Training Health Centre (PhawaraChownk) and CHC Verka.

Sample & Sampling technique

Basavanthappa BT (2007)62stated that sampling is the process of selecting a representative segment of the population under study and sample is representative unit of a target population.

For the present study the sample was infantsbetween the age group of 6-17 weeks and receiving DPT immunization (1st, 2nd&3rd dose of DPT vaccine)from selected well baby clinics of Amritsar (Punjab) . A total sample of 60 infants were selected for the present study and Simple random sampling technique was used to select the sample.

Variables under study
Independent variable
Breast feeding

Dependent variables
Level of Pain

Extaneous variables
Age, gender, weight, maturity age at birth, type of vaccine.

Inclusion and exclusion criteria
Inclusion criteria
Infantswhoare:

- Receiving DPT immunization from selected well baby clinics, Amritsar.
- Between the age group of 6-17 weeks of age
- Healthy infants without any diseases or complications.
- Infants belonging to both sex groups.
- Infants who areheld bytheirmothers.
- WhoseMothers arewillingto participate

Exclusioncriteria
- InfantsHavingcongenitaldisorders(Cleft LipandCleftPalate)
- Lessthan 6 weeks andmorethan17weeksofage.
- Receivingaboosterdose ofDPT immunization.
- Motherswhowerenot lactating
- Motherswithchronicillness

Selectionoftool

Asthe studyis to assess theeffectiveness ofbreastfeedingon thelevel ofpain during immunization among infants attending selected well baby clinic of Amritsar,a standardized Modified behavioural pain scale was be used to collect data.

Descriptionoftool

PART1:Socio-demographicdata

This part includes items for obtaining personal information of infants such as age, gender, weight, maturity age at the time of birth and type of vaccine.

PART 2: Modified behavioural pain scale to assess the post-interventional level of pain.

Modified behavioural pain scale was given byTaddio et al in 1999. The level of pain was evaluated during the procedure.

Thescale contains3 parametres:
Facialexpression (0-3)
Cry (0-4)
Movements (0-3)

Interpretation:
- minimumscore:0
- maximumscore:10

Validity of tool

For content validity, the socio-demographic profile & modified behavioural pain scale was given to the experts in the field of Medical-Surgical Nursing, Community Health Nursing, Maternal and Child Health Nursing, Psychiatric and Mental Health Nursing. TheModified behavioural pain scale was standardized so no changes were made in that tool, changes were only made in socio-demographic profile as per opinions given by experts.

Reliability of tool

Reliability refers to the accuracy and consistency of the measuring tool. The tool was standardized and reliability was r=0.86. Thus tool was reliable.

Pilot study

Pilot studywas conducted on 18th January, 2022 to 21st January, 2012 at CHC (Verka), Amritsar and Slum area Dispensary (Chheharta), Amritsar to ensure the reliabilityof tool and feasibilityof the study. The Data was collected from 10 infants (5 in experimental group and 5 in control group) who were in age group of 6-17 weeks and were received DPT immunizationfrom respective well baby clinics by using simple random sampling technique. Formal permission was obtained from officialauthoritiesofthewellbabyclinicsbefore approachingthesubjects.Informed consent was taken from the mothers of infants before data collection and they was assured that their responses werekept confidential and information will beused only for research purposes. Socio-Demographic profile was used to collect personal information of subjects. Modified behavioural Pain Scale was used to assess thelevel of pain among infants during immunization. Mothers in experimental group were encouraged to start breastfeeding to their infants 2 minute before the administration of vaccine and continue it until the whole vaccine was not properly administered. During the administration of vaccine, the level of pain perceived by infants was assessed by applying modified behavioural pain scale and encouraged motherstocontinuebreastfeedingforfewminutesafterthevaccinationandroutine based well babyclinics care were provided to infants received vaccination in control group.

Datawasanalyzedbyusingdescriptivestatistics(mean&standarddeviation) and inferential statistics i.e. t-test, ANOVA, and graphical representation.

Data collection procedure

Dataforthe final study was collected in themonth of March 04, 2022 to 15th March 2022. The Data was collected from 60 infants (30in experimental group and 30in control group) who were in age group of 6-17 weeks and were received DPT immunizationfrom selected well baby clinics of UTHC (Phuwarachownk) & CHC (Verka) by using simple random sampling technique. Formal permission was obtained from official authorities of the well baby clinics before approaching the subjects. Informed consent was taken from the mothers of infants before data collection and they was assured that their responses were kept confidential and information will be used onlyfor research purposes. Socio-Demographic profile was used to collect personal information of subjects & Modified behavioural Pain Scale was used to assess the level of pain among infants during immunization. Mothers in experimental group were encouraged to start breastfeeding to their infants, 2 minute before the administration of vaccine and continue it until the whole vaccine was not properly administered. During the administration of vaccine, the level of pain perceived by infants was assessed by applying modified behavioural pain scale and encouraged mothers to continue breast feedingfor few minutes after the vaccination. Routine based well baby clinics care were provided to infants received vaccinationin control group & same tool was used to assess the level of pain during immunization.

Ethical considerations

Informed consent was taken from the mothers of infants who were willing to participate in the study. To gain their confidence, they were told that their responses will be kept confidential and the information will be used only for research purpose. Subjects were given information about Benefits of breastfeeding during immunization. Theywerealso informed about theirright to refuse from participating in the study. Anonymity of study subjects and confidentiality of information was maintainedthroughoutthedatacollectionprocedure.Keepinginmindthelegal rights of the subjects, only those subjects who were willing to participate were included in the study.

Plan of data analysis

Descriptive and inferential statistics was used for data analysis. The collected data was presented in form of tables, diagrams and graphs. Mean, median,percentage and standarddeviation was used for descriptive statistics. Unpaired t- test was used to do comparison between the groups and within the group.ANOVA test was used to find out association with demographic variables.

Summary

Thischapterdealtwiththeresearchapproach,researchdesign,researchsetting, target population, sample & sampling technique, variables under study, inclusion & exclusion criteria, selection & development of tool, description of the tool, criterion measure, content validity of the tool, reliability of the tool, pilot study, datacollection procedure, ethical considerations and plan for data analysis.

V. Analysis & Interpretation

Analysis is the examination and evaluation of the relevant information to select the best course of action from various alternatives systematic investigation to establish facts or principles or to collect information on a subject, to carry out investigation into a particular sequence. Analysis is the process of carefully scrutinizing the data by placing it in categories and applying the statistical procedures.

The data was obtained from the sample of 60 infants (30 in experimental group and 30 in control group) and compiled in a master data sheet. Then it was analyzed & interpreted by using the latest version of SPSS, by using descriptive statistics i.e calculating Frequency and percentage, mean, standard deviation (SD) and inferential statistics i.e. ANOVA test, chi square test and t-test. The $p < 0.05$level of significance was selected for the study.

Objectives:

1. To assess the level of pain during immunization among infants in experimental group.
2. To assess the level of pain during immunization among infants in control group.
3. To compare the level of pain during immunization among infants in experimental and control group.
4. To determine the association of level of pain during immunization among infants in control and experimental group with selected demographic variables.

The analyzed data was organized according to the objectives and presented under the following major headings:
Section I: Sample Characteristics
Section II: Objective wise analysis

Section-I
Sample Characterristics

Table-1
Frequency and percentage distribution of infants in experimental and control group according to socio-demographic variables
N=60

Socio-demographic Variables	Experimental Group n=30		Control Group n=30		df	χ^2
	n	%	n	%		
Age(weeks)						
6-9	13	43.3	12	40	2	0.29^{NS}
10-13	11	36.7	13	43.3		
14-17	6	20	5	16.7		
Gender						
Male	20	66.7	16	53.3	1	0.11^{NS}
Female	10	33.3	14	46.7		
Weight (kgs)						
3.5-4.0	13	43.3	12	40	2	0.29^{NS}
5.0-5.5	11	36.7	13	43.3		
6.0-6.5	6	20	5	16.7		
Maturityageat birth						
Pre-term	3	10	2	6.7	1	0.21^{NS}
Term	27	90	28	93.3		
Post-term	0	0	0	0		
TypeofVaccine						
DPT-1	13	43.3	12	40	2	0.29^{NS}
DPT-2	11	36.7	13	43.3		
DPT-3	6	20	5	16.7		

NS-Nonsignificantatp<0.05

Table 1 reveals frequency and percentage distribution of sample characteristics. A total of 60 infants receiving immunization from selected well baby clinics were selected as sample to assess the effectiveness of breastfeeding on level of pain during immunization. Among them, 30 subjects were in experimental and 30 were in control group for whom the socio-demographic characteristics were analysed and present in table 1.

Accordingto ageofinfants in experimental group, majority(43.3%)was in age group of6-9 weeks &(36.7%)was in age groupof10-13 weeks and remaining (20%)was in age group of 14-17 weeks, whereas in control group, majority (43.3%) were in age group 10-13 weeks followed by (40%) in age group of 6-9 weeksand remaining (16.7%) were in age group 14-17 weeks. According to Gender, majority (66.7%) infants in experimental group were males and remaining (33.3%) infants were females, whereas in control group, majority (53.3%) infants were males andremaining (46.7%) infants werefemales. According weight of infants in experimental group, majority (43.3%) had weight between 3.5-4.0(kgs), followed by (36.7%) infants had weight between5.0-5.5(kgs)

and remaining (20%) infants had weight between 6.0-6.5(kgs), whereas in control group majority (43.3%) infants had weight between 5.0-5.5(kgs) followed by (40.0%) infants had weight between 3.5-4.0(kgs) and remaining (16.7%) infants had weight between 6.0-6.5(kgs).

According to maturity age at birth, majority (90%) of infants were born at term and remaining (10%) infants were born premature in experimental group, whereas in control group majority (93.3%) of infants were born at term and remaining (6.7%) of infants were born pre-mature. According to type of vaccine, in experimental group, majority (43.3%) of infants received DPT-1 type of vaccine, followed by (36.7%) of infants received DPT-2 type of vaccine and remaining (20.0%) infants received DPT- 3 type of vaccine, whereas in control group majority (43.3%) of infants receivedDPT-2 type ofvaccine, followed by(40.0%) infants were received DPT-1 type of vaccine and remaining (16.7%) infants were received DPT-3 type of vaccine.

Hence, the above description showed that the sample in experimental and control group were homogenous in characteristics at $p<0.05$ level of significance.

Figure3(a):Percentagedistributionofinfantsaccordingtoage(inweeks)in experimental group.

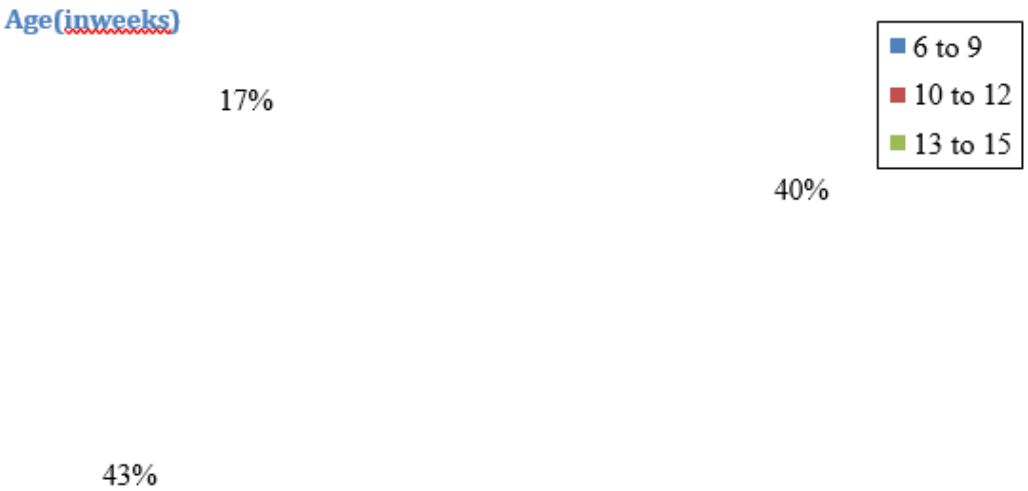


Figure3(b):Percentagedistributionofinfantsaccordingtoage(inweeks)in control group

Figure4(a):Percentagedistributionofinfantsaccordingto genderin experimental group.

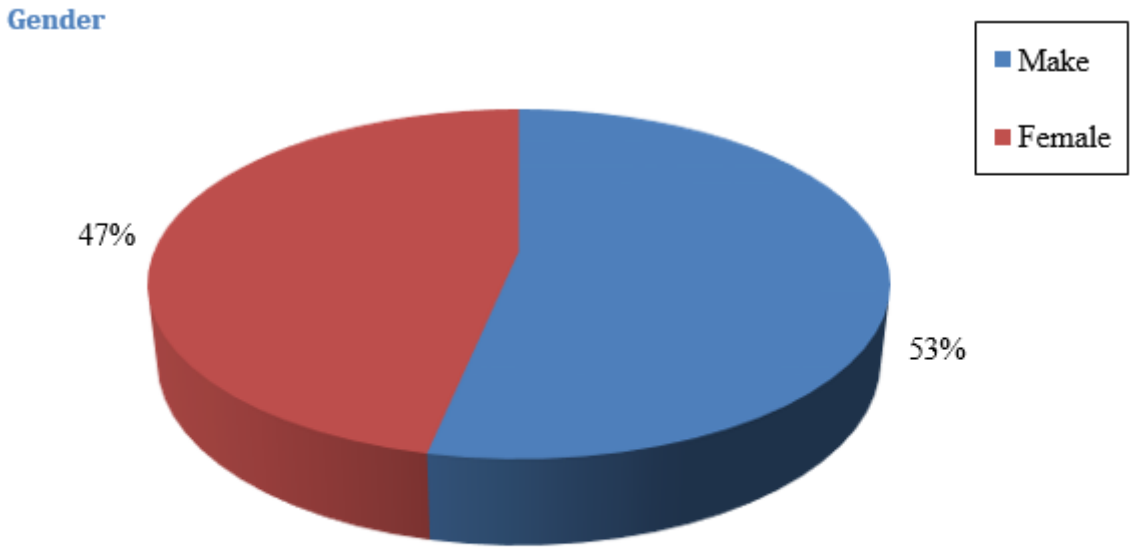


Figure4(b):Percentagedistributionofinfantsaccordingtogendercontrol group.

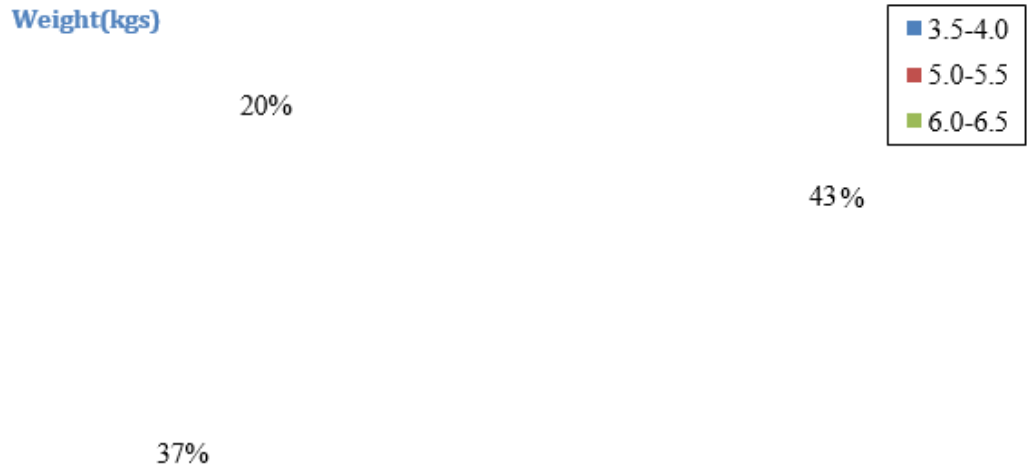


Figure5(a):Percentagedistributionofinfants accordingtoweight(kgs)in experimental group.

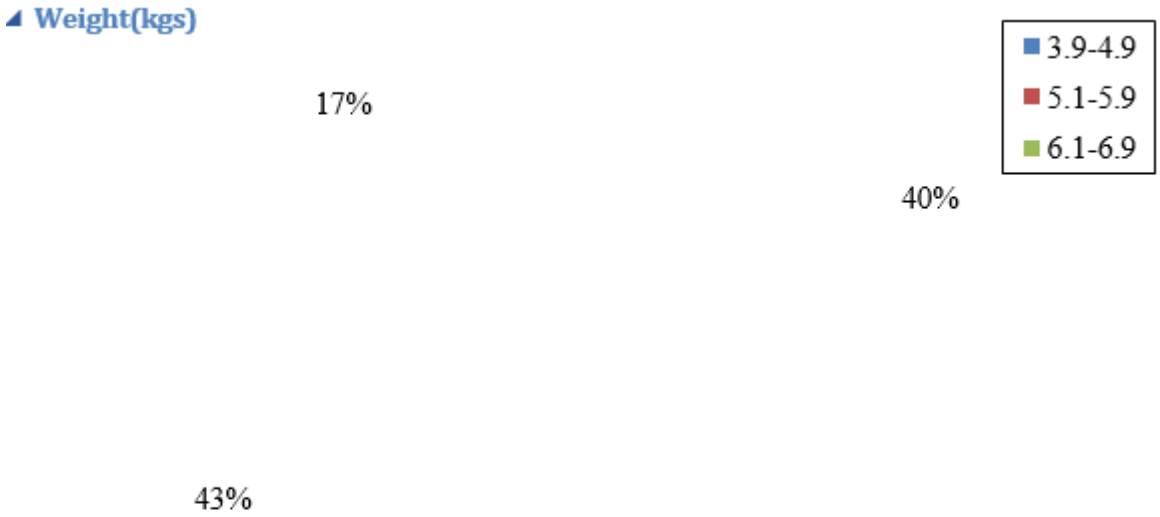


Figure5(b):Percentagedistributionofinfantsaccordingto weight(kgs)in control group.

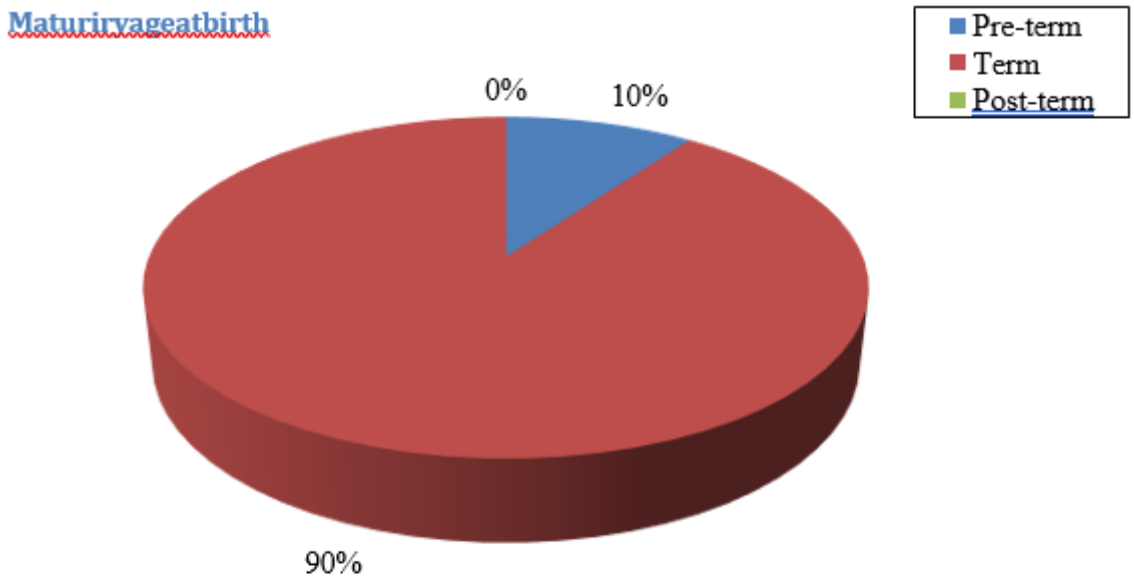


Figure6(a):Percentagedistributionofinfantsaccordingto maturityageat birth in experimental group.

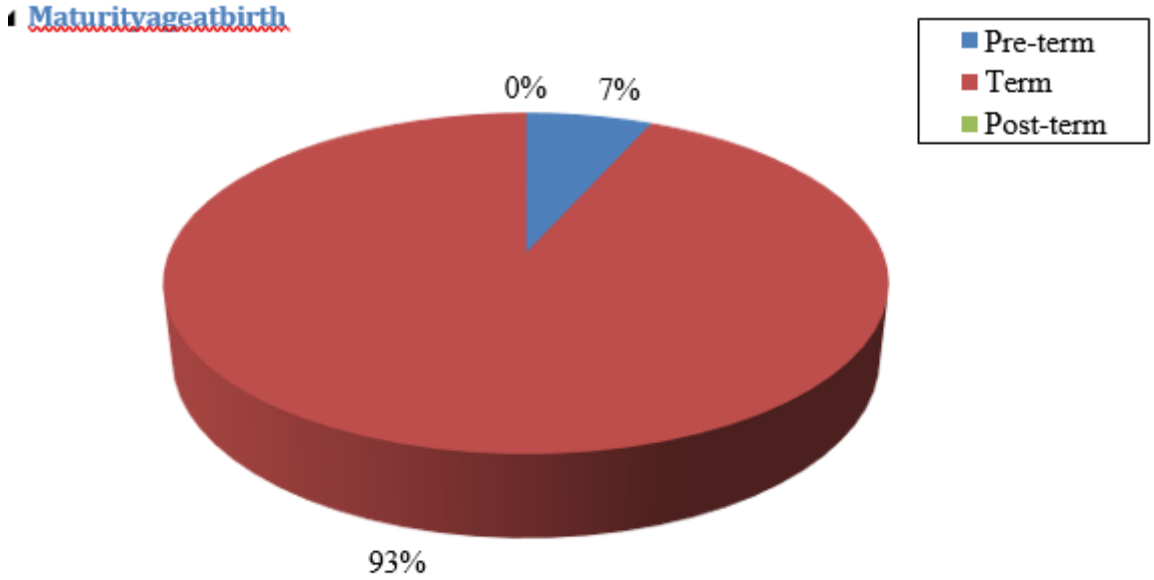


Figure6(b):Percentagedistributionofinfantsaccordingto maturityageat birth in control group.

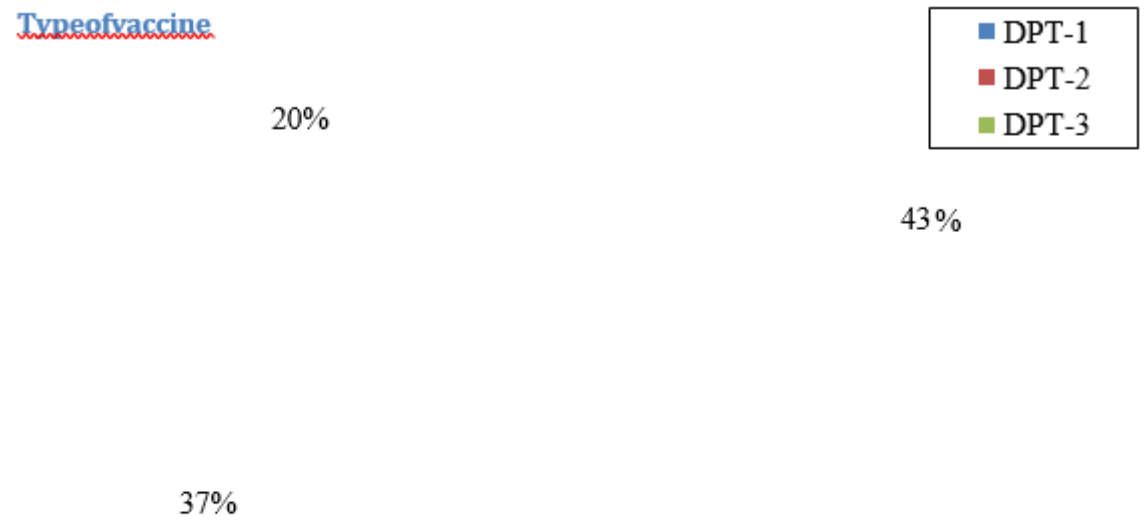


Figure7(a):Percentagedistributionofinfantsaccordingto typeofvaccinein experimental group.

Figure7(b):Percentagedistributionofinfantsaccordingto typeofvaccinein control group.

SECTION-II

MAINANALYSIS

Objective1:Toassessthelevelofpainduringimmunizationamonginfantsin experimental group.

Table-2

Frequencyandpercentagedistributionofinfantsaccordingtolevelofpain during immunization in experimental group.

N=30

Levelofpainduring immunization	**Experimental Group**			
	n	**%**	**Mean**	**SD**
No Pain(0)	0	0		
MildPain (1-3)	0	0		
			4.97	0.850
ModeratePain(4-6)	30	100		
SeverePain(7-10)	0	0		

MaximumScore=10
Minimum Score=0

Table 2 & Fig. 8 depicts the frequency and percentage distribution of infants according to level of pain during immunization in experimental group. All (100%) infants in the experimental group had moderate level of pain during immunization.

Hence, it was concluded that all infants in experimental group had moderate level of pain during immunization.

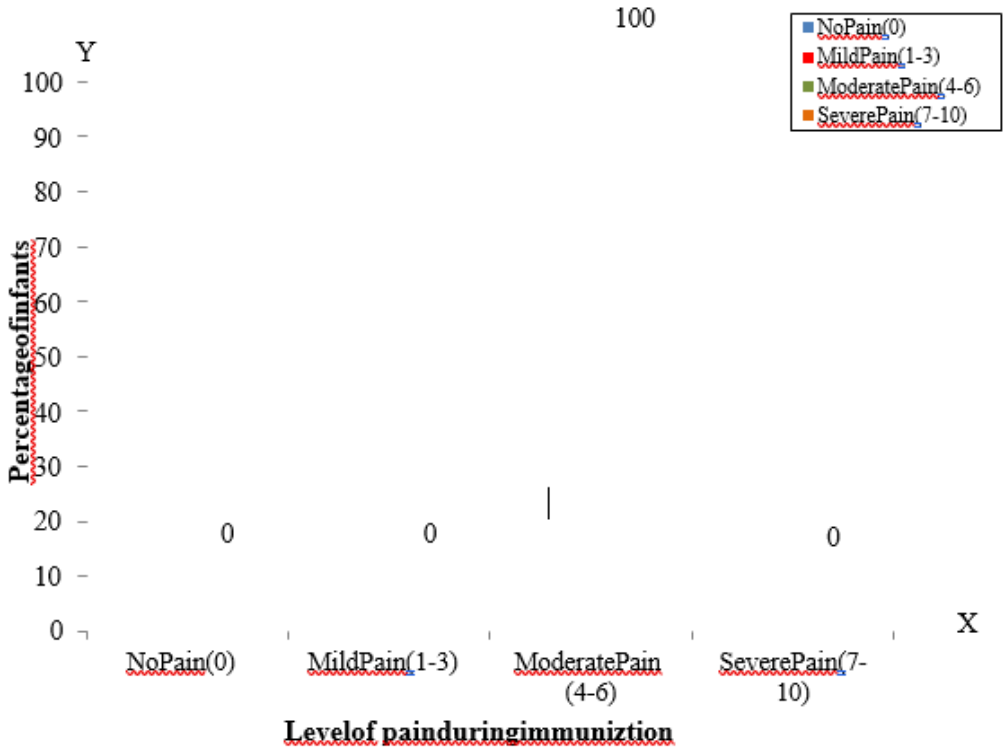


Figure8:Percentagedistributionofinfantsaccordingtolevelofpainduring immunization in experimental group.

Objective2:Toassessthelevelofpainduringimmunizationamonginfantsin control group.

Table-3

Frequencyandpercentagedistributionofinfantsaccordingtolevelofpain during immunization in control group.

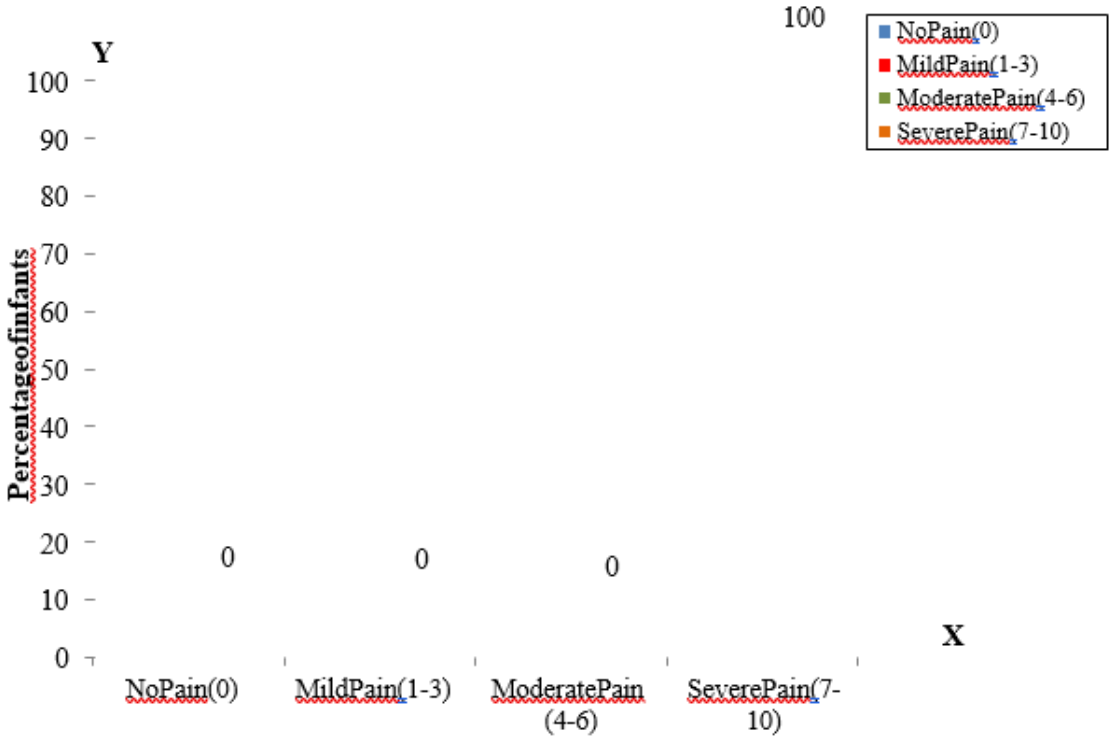
N=30

Levelofpainduring immunization	**Control Group**			
	n	**%**	**Mean**	**SD**
No Pain(0)	0	0		
MildPain (1-3)	0	0		
			8.90	0.712
ModeratePain(4-6)	0	0		
SeverePain(7-10)	30	100		

MaximumScore=10
Minimum Score=0

Table3 & Fig. 9 depicts frequency and percentage distribution of infants according to level of pain during immunization in control group. All (100%) infants in the control group had severe level of pain during immunization.

Hence, it was concluded that all infants in control group had severe level of pain during immunization.



Objective3:Tocomparethelevelofpainduringimmunizationamonginfantsin experimental and control group.

Table-4

Comparisonoflevelofpainamonginfantsduringimmunizationinexperimental and control group.

N=30

Levelofpainduring immunization	Mean	SD	df	t
ExperimentalGroup	4.97	0.85	58	19.42
Control Group	8.90	0.71		

MaximumScore=10 ***Significantatp<0.05**
MinimumScore=0 **NS-Nonsignificantat p<0.05**

Table 4depicts the comparison of level of pain among infants during immunizationin experimental and control group. The mean (4.97) level of pain duringimmunization in experimental group was less than the mean (8.90) level of pain during immunization among infants in control group. The comparison between the level of pain during immunization in experimental and control group had significant difference with „t" value (19.42) at $p<0.05$ level of significance.

Therefore,itwasconcludedthattherewas asignificantdifferencebetween the level of pain during immunization among infants in experimental group and control group. Hence, null hypothesis was rejected.

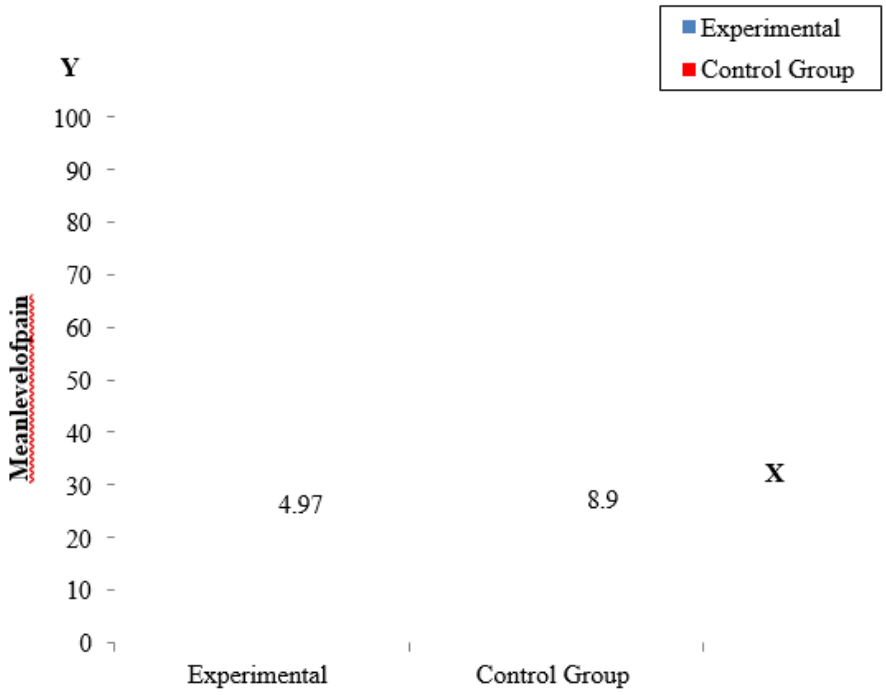


Figure10:Comparisonbetweenlevelofpainduringimmunizationin experimental and control group.

Objective4:Todeterminetheassociation oflevelofpainduringimmunization among infants in experimental and control group with selected socio- demographic variables.

Table-5(a)

Associationoflevelofpainduringimmunizationamonginfantsinexperimental and control group with age.

N=60

Age(weeks)	Experimental group n=60			Control group n=60		
	n	Mean	SD	n	Mean	SD
6-9	13	5	0.91	12	9.17	0.57
10-13	11	5	0.89	13	8.69	0.75
14-17	6	4.97	0.75	5	8.80	0.83
Variance	**Df**	**F**		**df**	**F**	
(B/G)	2	0.86^{NS}		2	1.49^{NS}	
(W/G)	27			27		

MaximumScore=10
Minimum Score=0

***Significantatp<0.05**
NS=NonSignificantatp<0.05
(B/G) Between group
(W/G)Withingroup

Table 5(a) & Fig. 10(a) depicts the association of level of pain during immunization among infants in experimental and control group with age. It showsthat in experimental group, the highest mean score of level of pain (5) was found in age group 6-9 & 10-13 (weeks) and lowest mean score (4.97) was found in age group 14-17 (weeks). In control group, the highest mean score of level of pain (9.17) was found in age group 6-9 (weeks) and lowest mean score (8.69) was found in age group 10-13 (weeks). On applying ANOVA test it was found to be statistically non- significant among infants in experimental and control group at $p<0.05$ level of significance.

Hence, it was concluded that there was no association of level of pain during immunization among infants in experimental and control group with age.

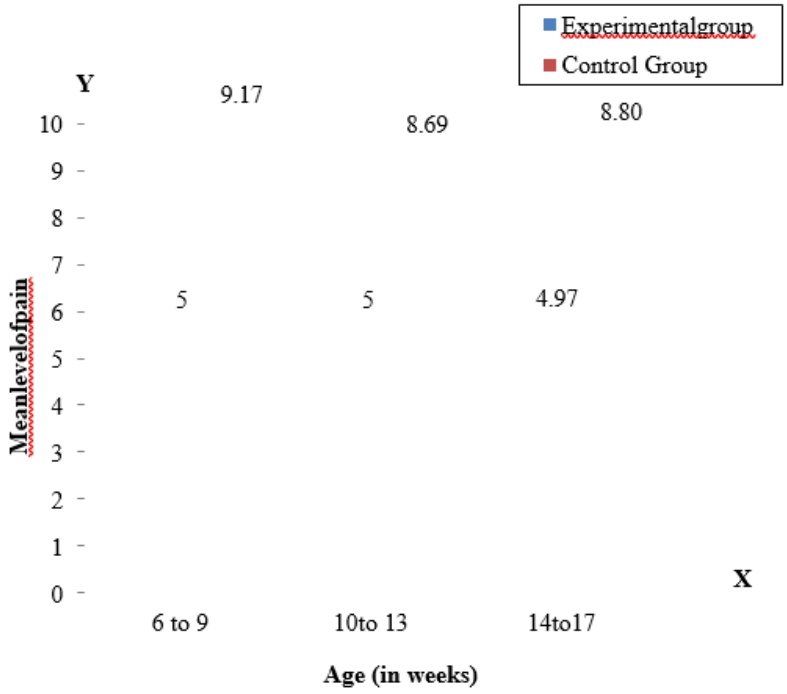


Figure11(a):Associationoflevelofpainduringimmunizationamonginfantsin experimental and control group with age (in weeks).

Table-5(b)

Associationoflevelofpainduringimmunizationamonginfantsinexperimental and control group with gender.

N=60

Gender	Experimental group n=60			Control group n=60		
	n	Mean	SD	n	Mean	SD
Male	20	4.95	0.88	16	8.75	0.77
Female	10	5	0.81	14	9.05	0.61
Variance	**df**	**F**		**df**	**F**	
(B/G)	1	$.022^{NS}$		1	1.55^{NS}	
(W/G)	28			28		

MaximumScore=10
Minimum Score=0

***Significantatp<0.05**
NS=NonSignificantatp<0.05
(B/G) Between group
(W/G)Withingroup

Table 5(b) & Fig. 10(b) depicts the association of level of pain during immunization among infants in experimental and control group with gender. It shows that in experimental group, the highest mean score of level of pain (5) was found in females and lowest mean score (4.95) was found in males. In control group, the highest mean score of level of pain (9.05) was found in females and lowest mean score (8.75) was found in males. On applying ANOVA test, it was found to be statistically non- significant among infants in experimental and control group at $p<0.05$ level of significance.

Hence, it was concluded that there was no association of level of pain during immunization among infants in experimental and control group with gender.

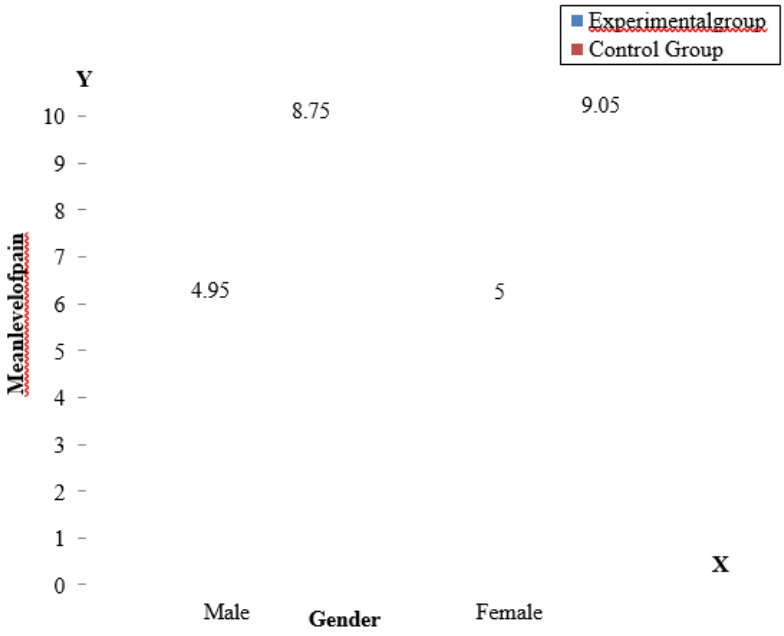


Figure11(b):Associationoflevelofpainduringimmunizationamonginfantsin experimental and control group with gender

Table-5(c)

Associationoflevelofpainduringimmunizationamonginfantsinexperimental and control group with weight.

N=60

Weight	Experimental group n=30			Control group n=30		
	n	Mean	SD	n	Mean	SD
3.5-4.0	13	5	0.91	12	9.17	0.57
5.0-5.5	11	5	0.89	13	8.69	0.75
6.0-6.5	6	4.83	0.75	5	8.80	0.83
Varinace	**df**	**F**		**df**	**F**	
(B/G)	2	0.08^{NS}		2	1.49^{NS}	
(W/G)	27			27		

MaximumScore=0
Minimum Score=10

***Significantatp<0.05**
NS=NonSignificantatp<0.05
(B/G) Between group
(W/G)Withingroup

Table 5(c) & Fig. 10(c)depicts the association of level of pain during immunization among infants in experimental and control group with weight. It shows that in experimental group, the highest mean score of level of pain (5) was found in infants whoseweight was between 3.5-4.0 &5.0-5.5 (kgs)and lowest mean score (4.83)was found in infants whose weight was between 6.0-6.5 (kgs). In control group, thehighestmean score of level of pain (9.17) was found in infants whose weight was between 3.5- 4.0 (kgs) and lowest mean score (8.69) was found in infants whose weight was between 5.0- 5.5 (kgs). On applying ANOVA test, it was found to be statistically non-significant among infants in experimental and control group atp<0.05 level of significance.

Hence, it was concluded that there was no association of level of pain during immunization among infants in experimental and control group with weight.

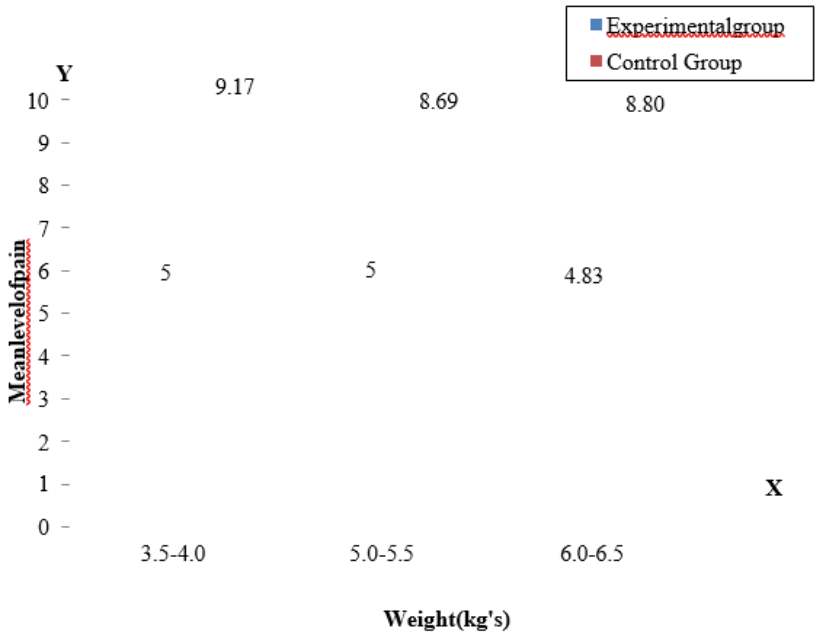


Figure11(c):Associationoflevelofpainduringimmunizationamonginfans in experimental and control group weight (kg's)

Table-5(d)

Associationoflevelofpainduringimmunizationamonginfantsinexperimental and control group with Maturity age at birth.

N=60

Maturityage atbirth	**Experimental group n=30**			**Control group n=30**		
	n	**Mean**	**SD**	**n**	**Mean**	**SD**
Pre-term	3	4.67	1.15	2	9	0
Term	27	5	0.83	28	8.89	0.73
Post-term	0	0	0	0	0	0
Variance	**df**	**F**		**df**	**F**	
(B/G)	1	0.40^{NS}		1	0.41^{NS}	
(W/G)	28			28		

MaximumScore=10
Minimum Score=0

***Significantatp<0.05**
NS=NonSignificantatp<0.05
(B/G) Between group
(W/G)Withingroup

Table 5(d) & Fig. 10(d) depicts the association of level of pain during immunization among infants in experimental and control group with maturity age at birth. It shows that in experimental group, the highest mean score of level of pain (5.00) was foundin infants who were born at term and lowest mean score (4.67) was found in pre-term infants. In control group, thehighest mean score oflevel ofpain (9) was found in pre- term infants and lowest mean score (8.89) was found in infants who were born atterm. On applying ANOVA test, it was found to be statistically non-significance among infants in experimental and control group at $p<0.05$ level of significance.

Hence, it was concluded that there was no association of level of pain during immunization among infants in experimental and control group with maturity age at birth.

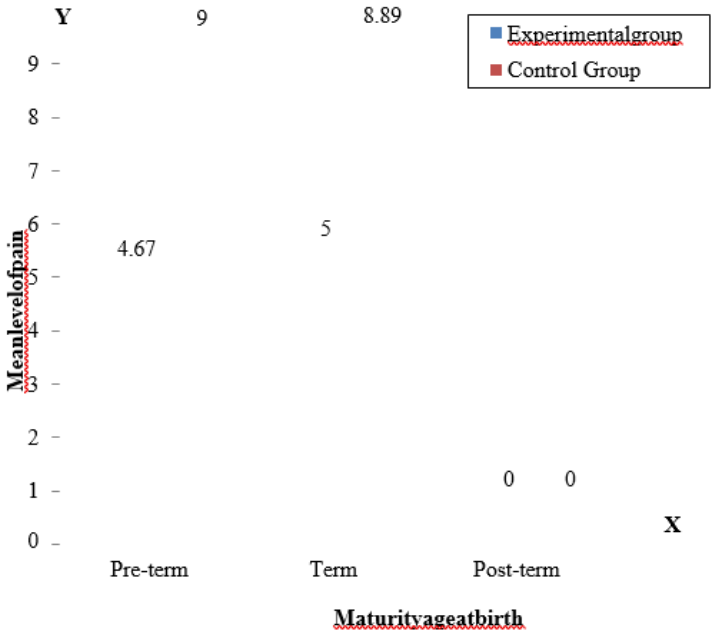


Figure11(d):Associationoflevelofpainduringimmunizationamonginfans in experimental and control groupwith maturity age at birth.

Table-5(e)

Associationoflevelofpainduringimmunizationamonginfantsinexperimental and control group with type of vaccine.

N=60

Typeof Vaccine	Experimental group n=30			Control group n=30		
	n	Mean	SD	n	Mean	SD
DPT-1	13	5.00	0.91	12	9.17	0.57
DPT-2	11	5.00	0.89	13	8.69	0.75
DPT-3	6	4.83	0.75	5	8.80	0.83
Variance	**df**	**F**		**df**	**F**	
(B/G)	2	0.08^{NS}		2	1.49^{NS}	
(W/G)	27			27		

MaximumScore=10
Minimum Score=0

***Significantatp<0.05**
NS=NonSignificantatp<0.05
(B/G) Between group
(W/G)Withingroup

Table 5(e) & Fig. 10(e) depicts the association of level of pain during immunization among infants in experimental and control group with type of vaccine. It shows that in experimental group, highest mean score of level of pain (5) was found in infants who received DPT-1 &DPT-2 type of vaccine and lowest mean score (4.83) was found in infantswhoreceivedDPT-3typeofvaccine. In control group, the highest mean score of level of pain (9.17) was found in infants who received DPT-1 and lowest mean score (8.69) was found in infants who received DPT-2 type of vaccine. On applying ANOVA test, it was found to be statistically non-significant among infants in experimental and control group at $p<0.05$ level of significance.

Hence, it was concluded that there was no association of level of pain during immunization among infants in experimental and control group with type of vaccine.

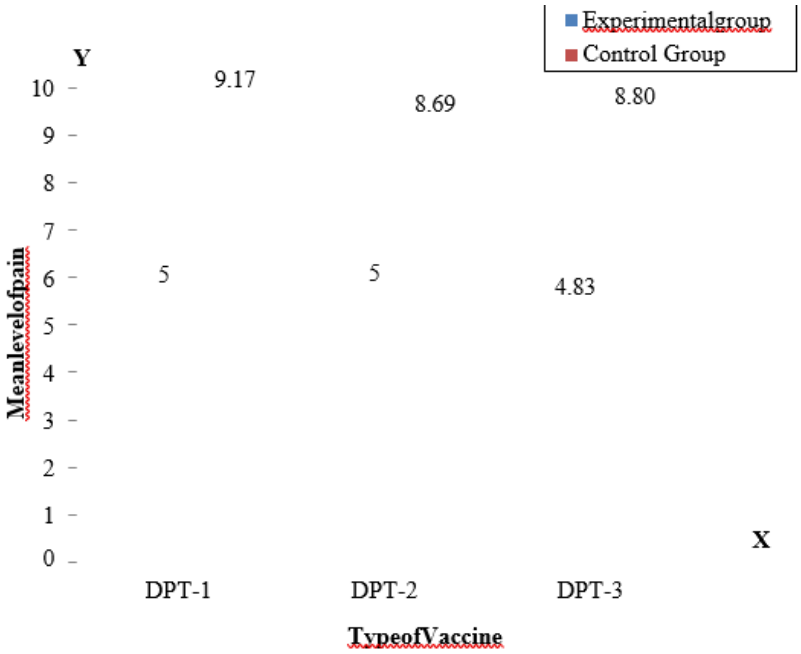


Figure11(e):Associationoflevelofpainduringimmunizationamonginfansin experimental and control group type of vaccine.

VI. Major findings

The analysis of the data revealed the following headings:

Sample characteristics

It was found that out of 60 study sample,

- Majoritywas in age group 6-9 weeks.
- Maximuminfantswere male.
- Majoritywerehaving weight between 3.5-4.0kgs.
- Majorityofthem were terminfants.
- MostoftheinfantswerereceivedDPT-1&DPT-2 typeofvaccine.

Objective 1:To assess the level of pain during immunization among infants in experimental group.

- In the present study, all the infants in experimental group had moderate level of pain.

Objective 2: To assess the level of pain during immunization among infants in control group.

- All(100%)oftheinfantsincontrolgrouphadseverepainduringimmunization.

Objective3-Tocomparethelevelofpainduringimmunizationamonginfantsin experimental and control group.

The Mean±SD of level of pain during immunization among infants in experimental group was 4.97±0.85 and Mean±SD of level of pain during immunization among infants in control group was 8.90±0.71. The mean difference between level of pain during immunization among infants of experimental andcontrol group was calculated by t-test & was found statisticallysignificant at $p<0.05$ level of significance. Hence, null hypothesis was rejected & it was concluded that breastfeedingwasaneffectivestrategyforreducingpain duringimmunizationamong infants.

Objective 4 - To determine the association of level of pain during immunization among infants in control and experimental group with selected demographic variables.

In order to find association of level of pain among infants during immunization in control and experimental group with selected demographicvariables, analysis of variance ant t-test was computed and findings revealed that there was no significant association with socio-demographic variables like age (in weeks),gender,weight(inkg‟s),maturityageatthebirthandtypeofvaccineatp<0.05levelof significance.

Summary

This chapter dealt with analysis and interpretation of data collected from 60 patients. Major findings of the study were discussed according to objectives, it was analyzed and interpreted using descriptive statistics by calculating percentage, mean, standard deviation (SD) and inferentialstatistics i.e. ANOVA test and t-test were used. The findings of the analysis were depicted through the use of frequency distribution tables and bar diagrams.

VII. Discussion

This chapter deals with the findings of the present study, "An experimental study to assess the effectiveness of Breastfeeding on the Level of Pain during Immunization among Infants attending Selected Well Baby Clinics." In this chapter, an attempt has been made to discuss the findings of the study with the other studies. The present study was conducted in two well baby clinics i.e. UTHC (PhuwaraChownk) & CHC Verka, Amritsar. The Data was collected from 60 infants (30 in experimental group and 30 in control group) who were in age group of 6-17 weeks and were received DPT immunization from respective well baby clinics by using simple random sampling technique. Formal permission was obtained from official authorities of the well baby clinics before approaching the subjects. Informed consent was taken from the mothers of infants before data collection and they was assured that their responses were kept confidential and information will be used only for research purposes. Socio-Demographic profile was used to collect personal information of subjects. Modified behavioural Pain Scale was used to assess the level of pain among infants during immunization. Mothers in experimental group were encouraged to start breastfeeding to their infants, 2 minute before the administrationof vaccine and continue it until the whole vaccine was not properly administered. During the administration of vaccine, the level of pain perceived by infants was assessed by applying Modified Behavioural Pain scale and encouraged the mothers to continue breast feeding for few minutes after the vaccination. Routine based wellbaby clinics care were provided to infants received vaccination in control group & same tool was used to assess the level of pain during immunization.

Objective 1: To assess the level of pain during immunization among infants in experimental group.

The analysis of data regarding the level of pain during immunization in experimental group revealed that all of infants had moderate pain during immunization. Similar study on role of breastfeeding on pain response during immunization among 40 infants in banglore by Tisvy Thomas (2009)50revealed that thepain scoreof experimental group lies between 4-6 which means all (100%)infants in experimental group had moderate level of pain during immunization.Anotherstudyoneffectivenessofbreastfeedingonlevelofpainduringimmunizationamong 64 infants from the rooming-in of hospital Das clinics by LIMA, Ana Henriques (2013)63revealedthatinfantsinbreastfeedinggroup,100%infantshadmoderatelevel of pain.

Objective2:Toassessthelevelofpainduringimmunizationamonginfantsin control group.

The analysis of data regarding the level of pain during immunization among infants in control group revealed that all infants had severe pain duringimmunization. Similar study on breastfeeding is analgesic in healthy neonates during immunization among 30 infants in maternity ward in Boston hospital by Gray L (2002)32revealed that all (100%) infants in control group experience more pain, had high crying rateandheartrate.Majorityofinfantsincontrol group hasseverepainduringneedleprick procedure.Anotherstudyonbreastfeedingandpainreliefinfull-termneonatesduring immunization in Hospital of Iran by Maryam Modarres (2006)64revealed that in control group all the infants (100%) scored in the ranfe of 6-8 (severe pain) during 1st few minutes of immunization. Another one study to assess the effectiveness of diversion therapy on pain among infants at selected clinic of Manglore by PriyaAranha (2013)65revealed that the entire sample in control group (100%) experienced severe pain during injection.

Objective 3: To compare the level of pain during immunization among infants in experimental and control group.

The analysis of data regarding the level of pain in experimental and control group revealed that there was a significant difference between „t‟ values (19.42) of level of pain among infants during immunization in experimental and control groupat p<0.05 level of significance. Similar study on breastfeeding and pain relief in full- term neonates during immunization among 60 infants at Mirza Kochak Khan Hospital, Tehran, Iran by MaryamModarres (2006)64revealed that there was significant difference between post-interventional level of pain

among experimental and control group with the „t" value of 18.98 which was statistically significant at p<0.001 level of significance. The study concludes that breastfeeding during immunization is an effective measure to reduce pain.

Objective 4: To determine the association of level of pain during immunization among infants in control and experimental group with selected demographic variables.

In order to find association of level of pain during immunization among infants in control and experimental group with selected demographic variables, analysis of variance and t-test was computed and findings revealed that there was no significant association with socio-demographic variables like age (in weeks), gender, weight (in kg"s), maturity age at the birth and type of vaccine at $p < 0.05$ level of significance. These findings were supported by Raman Kalia et al (2009)66who conducted a randomized control trial study to assess the analgesic effect of breast feeding in infants during immunization injections. This study was showed that there was no association of level of pain during immunization among infants in experimental and control group with baseline characteristics at $p < 0.05$ level of significance.

VIII. Summary, Conclusion And Recommendations

This chapter deals with the brief description of the study undertaken including the conclusion drawn from the major findings implications of the study and recommendations for the future research.

Summary

The present study was conducted to assess the effectiveness of breastfeeding on the level of pain during immunization among infants. An experimental design was adopted to conduct the present study. Study was conducted in Urban Training Health Centre (PhawaraChownk) and CHC (Verka). By using simple random sampling technique 60 infants from both well baby clinics were selected. The data wascollected through numerical pain ratingscale to assess the level of pain amonginfants of experimental and control group. A pilot study was rehearsed before the final study project over a sample size of 10 infants.

The data has been analyzed using descriptive and inferential statistics. Calculation of percentage, mean, standard deviation, paired t-test and ANOVA was done. The data has been represented in the form of tables, pie diagrams and bar graphs. Data analysis was done using the statistical software SPSS 16 version i.e. Statistical Package for the Social Sciences.

It was found that out of 30 infantsin experimental groupmajority (43%) infantswereinage group of6-9weeks,majorityweremales,had weight between 3.5-4.0kg"s, born at term and receiving DPT-1 type of vaccine.Whereasoutof30infants in control group majority (47%) were in age group of 10-13 weeks, majority were males, had weight between 5.0-5.5 (kg"s), born at term and receiving DPT-2 type of vaccine. Results revealed that all (100%) infants in experimental group had moderate level of pain, whereas in control group all (100%) infants had severe level of pain.The mean difference between level of pain amonginfants in experimental and control group was calculated by using t-test was found statistically significant at p<0.05 level of significance.

Results related to the association of level of pain during immunization among infantswithselecteddemographicvariablessuchasage(inweeks),gender,weight (kg"s), maturityage at birth and type of vaccine showed that there was nosignificant associationat p<0.05 level of significance level of significance.

Limitations of th estudy

The study was limited to infants

- Between the age group of 6-17 weeks and attending selected well babyclinics of UTHC (Phuwarachownk) and CHC (Verka).
- Thestudywas confinedto only60infants.

Conclusion

This study provides clinical evidence that breastfeeding act as pain relief in healthy-term neonates during minor invasive procedures. Although breastfeeding is primarily mother-driven, breast feeding during immunization is ultimately nurse- enabled. The understanding of the effectiveness of breastfeeding on pain relief could help to promote its use during immunization in clinical practice. The results of this study confirm the effectiveness of breast feeding on pain relief for healthy-term neonates undergoing immunization. Health care professionals such as nurses and midwives need to be trained in the effectiveness of breastfeeding on pain relief and how to incorporate it into practice. So, it is important to enhance the usage of breastfeeding for management of pain during immunization among infants with less expensive, less side effects and easily available methods.

Implications

The study findings have certain important implications for the nursing profession i.e. in clinical practice, nursing education, nursing administration and nursing research. In these entire areas, nurse acts as an educator, organizer, leader, counselor and motivator and can motivate the mothers regarding breastfeeding during immunization and its benefits to reduce pain during immunization.

Nursing education

- The study has an important implication in the nursing education and other field. In the revised curriculum of basic nursing education & in postgraduation much emphasis is laid on alternative therapies to treat immunization related pain.
- Teaching learning activities should include health education on prevention of problems related to immunization and promotion of knowledge regarding Breastfeeding as pain management during immunization.
- Nurses should provide guidance and counseling services to mothers of infants which will lead to promotion of healthy life of infants.
- In service, continuing education needs to be planned and implemented for clinical nurses to enrich their information on recent researches regarding effect of breastfeeding to reduce the pain during immunization among infants.
- The knowledge and learning experience of students on breastfeeding as pain relieving intervention and adopting these non-pharmacological measures in reducing pain during immunization. The findings of the study have implications for further exploration of other alternatives therapies to reduce pain during immunization.

Nursing research

The findings of the study will act as a catalyst to carry out more extensive research. A very limited research studies conducted to assess the effectiveness of breastfeeding on the level of pain during immunization among infants in India. Immunization pain isthe most commonconditionamong infants. Infants in childhood already suffers from psychological problems, behavioral changes and physiological changes; additionally pain during immunization can also worsens the situation. The nurses should motivate the mothers to practice breastfeeding to their infants during immunization as it is one of the simple and non-pharmacological measures to reduce the level of pain. This study can be conducted in other geographical areas and among larger samples. Despite renewed interest in the breastfeeding during immunization, relatively few studies have been undertaken to examine its effects on other painful procedures among infants.

Nursing practice

When working in the clinical settings, nurses may came across that many infants had severe pain during immunization and other painful procedures which causes too much discomfort in the infants and cause psychological, behavioural and physiological problems among them. If nurses have knowledge regarding the non pharmacological techniques like use of breastfeeding to reduce level of pain, she can teach this to the mothers of infants so that they will get knowledge on non-invasive, non-pharmacological measures and treatment without side effects. Therefore, there is a need for counseling which can provide knowledge and prevent situation at three levels.

1. At primary level, the nurses can assess the prevalence of pain related immunization.
2. At Secondary level, the measures like breastfeeding and other non- pharmacological therapies can be used to enhance the health status and better alternatives to reduce the level of pain during immunization.
3. At tertiarylevel, a nurse motivate the mothers to readapt this practice in future also during child immunization.
4. The evidence based practice is the need of today‟s practice. Based on evidence, nursing practice can be modified and improved.

Nursing administration

- Nursing administrator can conduct in-service education and training programmes on use of breastfeeding to reduce pain during immunization among nurses working in different health centres.
- Nurse administrator motivate the higher authorities to impart this information through media like news papers, television, radio, internet etc so that this practice should be incorporated successfully in each health care settings.
- Nurse administrators should organize awareness campaign for mothers of infants receive immunization from clinics to educate them regarding the benefits of breastfeeding to reduce pain during immunization.

Recommendations

Onthebasisof findingsofthe studyitis recommended that:

1. A Similar studycan be under-taken on a large sample for making a more valid generalization.

2. A comparative study can be conducted regarding effectiveness ofbreastfeeding as pain reducers with other non-pharmacological therapies like glucose solution during immunization.
3. Similarstudycanbeconductedin different setting.
4. A true experimental study can be done on another technique to relieve pain during immunization.

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