

# Pain assessment.



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## **CHAPTER-II**

### **REVIEW OF LITERATURE**

Review of literature is traditionally understood as a systematic and critical review of most important scholarly literature on a particular topic.

According to Abdullah (1965) review of literature helps the researcher to analyze existing literature to generate research questions to identify what is known and not known about the topic and describe methods of inquiry used in earlier work, including their success and shortcoming.

The purpose of review of literature involved in any research study is to become

Knowledgeable in that field as much as possible this is the in depth search of the prior research.

Research and non research literature were reviewed and organized under the following.

1. Studies and literatures related to pain and pain assessment
2. Studies and literatures related play distraction Techniques on Pain
3. Studies and literatures related to Music distraction on Pain

#### **1. Studies and literatures related to pain and pain assessment.**

Srouji R, et al., (2010) conducted a study on Pain assessment and non pharmacological management. He concluded that pain perception in children is complex, and is often difficult to assess. The distractions techniques are provided by nurses to manage pain in children is most effective when adapted to the developmental level of the child.

Stinson J, et al., (2008) had done the systematic reviews on the effectiveness of pharmacological and non pharmacological management of acute procedure-related pain in children (n= 1469) of one to 18 years. The reviewed findings suggested that distraction and hypnosis were effective for management of acute procedure-related pain in hospitalized children.

Hockenberry and Wilson et al., (2007) reported that brain perceives pain, there is a release of inhibitory neurotransmitters to hinder the transmission of pain and helps to produce an analgesic effect. This inhibition of the pain impulse is the fourth phase of the nociceptive process known as modulation. A protective reflex response also occurs with pain receptions. So while assessing pain intensity in children requires special techniques, therefore assessment requires using words such as owie, boo-boo. There are some unique tools available to measure pain intensity in children.

Wong's (2007) stated that pain is often associated with fears, anxiety, and stress and non-pharmacological techniques, such as distraction, relaxation, guided imagery, and cutaneous stimulation provide coping strategies that may help reduce pain perception, make pain more tolerable, decrease anxiety, and enhance the effectiveness of analgesics. The strategies are safe, non-invasive, and inexpensive, and most are independent nursing functions. The strategies that are appropriate for the child's age, pain intensity, interest, and abilities is often necessary to determine the most effective approach.

Herr and et. al., (2006) expressed that the child is unable to communicate the pain perception. So often the child requires special attention during

assessment. Children who are developmentally delayed, 15 are psychotic, critically ill, dementia are examined with various pain behaviors assessment tools. Although it is important to understand that the pain is measured by using a pain-behavior scale. These tools identify the presence of pain, but not determine the intensity of pain.

Joseph, & Zeltzer, (2000) They state that there are three factors to assess pediatric pain: pain sensitivity, coping skills, and cognitive ability. Pain Sensitivity ascertained that pain sensitivity highly depends on children's temperaments. Studies have shown that children with more pain-sensitive temperaments demonstrate increased reports of pain and anxiety during painful medical procedures. Significant differences in pediatric distress were found when those children received psychological interventions prior to the medical procedure. Their distress levels were significantly lower with the psychological intervention, which suggests that the interventions may benefit most children who are pain sensitive.

Lara J. Spagrud. et. al (2003) conducted a study that suggested that the face pain scale revise, is a useful self report tool for assessing pain intensity in preschool and school age children who may not be able to use other pediatric self report pain measurement tools such as visual analog or numeric rating scales.

Salanterä S, Lauri S, Salmi TT, Aantaa R (1999) had done a survey on nursing activities and outcomes of care in the assessment, management, and documentation of children's pain.(N= 303) and retrospective chart review of 50 consecutive cases of operation of acute appendicitis was carried out. The

results showed that nurses assess pain by observation of child's behavior and changes in physiology. The author suggested that development of pain assessment and documentation practices is needed in all settings.

Cheryl. A. Gilbert et. al, (1999) conducted videotaped study to determine the pain level based on facial expression to assess post operative pain in the age group of 13-74 months (N= 48). Results demonstrated that face scale serve as a valid tool to assess persistent pain in young children.

Carroll et. al., (1998) Reported that the degree of pain to which a child focuses attention can influence pain perception. Increased attention has been associated with increased pain response. So the nurses have to apply the various pain relief interventions such as distraction, relaxation, guided imaginary and massage. etc.

Maikler VE. (1991) conducted a study on effects of a skin refrigerant and age on the pain responses of infants receiving immunizations. The results showed that MANOVA revealed fewer distress behaviors following refrigerant spray and more complex, varied behavioral responses for older infants. The findings provide further evidence that infants perceive pain and that nursing interventions for pain reduction should be tested and extended to the very young.

Rice L J. (1989) conducted a study on acute pain management in pediatric patients. Findings indicated that children often do not express pain in terms that are easily understood by adults. Distraction by parents or other factors may address the emotional component of pediatric pain. This review of acute

pain management in children examines traditional practices as well as recent developments in acute pain management in infants and children.

Schechter NL. (1985) conducted a study on pain control in children. He concluded that pain is not solely a fixed neurophysiologic response to a noxious stimulus but interaction of variables such as age, cognitive set, personality, ethnic background, and emotional state of the child. When approaching to pain in children, a high index of suspicion is necessary to determine the difficulty of verbalizing their discomfort. Play techniques are important in distraction from pain by nursing, medical, or child life personnel should be considered. Preparation of the child for procedures is often helpful as some of the fear of the unknown is eliminated.

## **2. Studies and literatures related play distraction Techniques**

Weiss KE, Dahlquist LM, Wohlheiter K. (2011) conducted a descriptive study on the effects of interactive and passive distraction on Cold Pressor pain in Preschool-aged Children (N= 60). Participants showed significantly higher pain tolerance during both interactive and passive distraction relative to baseline. They concluded that interactive and passive video game distraction appears to be effective for preschool-aged children during laboratory pain exposure.

Uman LS, McMurtry CM (2009) had done the randomized control trial (N= 1380) to examined the efficacy of seven psychological interventions like suggestion, breathing exercises, child directed distraction, parent-led distraction, nurse-led distraction on infants and children (1 month - 11 years) for reducing pain and distress during routine childhood immunizations. The

results showed that nurse-led distraction was effective in reducing distress (SMD, -0.40; 95% CI, -0.68 to -0.12;  $P = 0.005$ ). The study findings suggested that combined cognitive-behavioral interventions, breathing exercises, child-directed distraction, nurse-led distraction, are effective in reducing the pain and distress associated immunizations.

Miller K, et al., (2009) conducted a study on multimodal distraction to relieve pain in children undergoing acute medical procedures. They used hand held multimodal distraction device (MMD). Pain and anxiety scores were measured by Modified Faces, Legs, Activity, Cry and Consol ability Scale, Faces Pain Scale-Revised, Visual Analogue Scale and Wong-Baker Faces Pain Rating Scale. The study findings show MMD is more effective in reducing the pain and anxiety experienced by children in acute medical procedures. MMD is continuing to be trialed and is continuing to show positive clinical outcomes.

Murphy G. (2009) had done a study on the effectiveness of distraction techniques for venepuncture. The findings show that distraction has been shown to reduce procedural distress in children. Further the study revealed that passive distraction is more effective than active distraction during venepuncture and that the effectiveness of a particular technique depends on the attention capacity of the child and their engagement in the distraction activity.

Windich-Biermeier A (2007) had done a study on children and adolescents ( $N = 50$ ) ages 5 to 18, to evaluate the pain on distraction techniques during venipuncture by using self-selected distracters (i. e., bubbles, virtual reality

glasses, or handheld video games, play toys) The design adopted for this study was intervention-comparison group design (n= 28) and (n= 22). The study participants demonstrated significantly less fear ( $P < .001$ ) and distress ( $P = .03$ ) as rated by the nurse and approached significantly less fear ( $P = .07$ ) as rated by the parent. All intervention parents suggested that the needle stick was better because of the distracter. The authors concluded that distraction has the potential to reduce pain, fear and distress during venipuncture in children.

Cohen LL, et al., (2006) in their randomized control study on infants (n= 136) (range= 1-21 months; M= 7.6 months, SD= 5.0 months) and their parents to investigate the effectiveness of movie distraction in reducing immunization distress during their routine vaccinations. The behaviors were assessed by visual analog scale and a behavioral observation rating scale. The results indicated that parents and infants in the study group engaged in higher rates of distraction than experimental group both prior to and during recovery from the injection. The study findings suggested that a simple and practical distraction intervention can provide some distress relief to infants during routine injections.

D'Antonio IJ. (2006) conducted a study on use of therapeutic play in hospitals. He stated that play can be a tool to understand and intervene with pediatric patients. They develop a plan for purposeful play programs or play sessions with nurses who are clinical specialists, early childhood educators, and others who have expert knowledge of children and play equipment for the special needs of hospitalized children. For some children, hospitalization is a challenging experience that promotes a sense of competence and for



others hospitalization is an experience that results in a negative outcome.

Nurses can use play to provide pediatric patients with emotional and cognitive growth-promoting activities which facilitate a more positive hospital experience and long-term outcome.

Cohen LL.

(2002) had done

the randomized

trial (N= 90) on

reducing infant

immunization

distress through

nurse directed

distraction.

Infants and their

parents were

randomly

assigned to a

distraction

condition (i. e.,

nurses used

stimuli to divert

infants'

attention) or a

typical care

condition. The

research  
outcome was  
measured by  
observational  
scale, parent  
and nurse  
ratings, and  
infant heart  
rate. Results  
indicated that  
infants engaged  
in distraction  
showed reduced  
behavioral  
distress.

ThitipornUdomki  
tti(2001)  
investigated the  
effect of  
distraction on  
acute pain in  
infants. Results  
revealed that  
acute pain in  
infants who

were distracted by a toy during receiving immunization had significantly lower mean of behavioral pain scores ( $p < .001$ ) and heart rate ( $p < .05$ ) than in infants who were not distracted by a toy.

Sparks (2001) examined the effect of two forms of distraction on injection pain in a convenience sample of 105 preschool children. The results showed

that both forms  
of distraction,  
bubble blower  
and touch,  
significantly  
reduced pain  
perceptions ( $P <$   
. 13).

Bowen AM,  
(1999) had done  
the study to  
compare two  
brief,  
inexpensive  
distraction  
techniques for  
children  
receiving  
immunizations.

Preschool  
children ( $n =$   
80) were  
assigned to a  
party blower  
intervention, a

pinwheel

intervention, or

a control group.

Nurses were

instructed to

use " standard

instructions" for

the control

group, and to

simply provide

the distracter

and encourage

use, but not to

spend time

trying to train

the child or

force them to

use it, for the

other groups.

Results of

planned

comparisons

indicated

significant party

blower results in

the children's

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ratings of  
reduced distress  
( $P < .01$ ) and  
the parents'  
ratings of  
having to hold  
their child less  
strongly ( $P = .$   
 $04$ ), and showed  
it to be more  
distracting than  
the pinwheel ( $P$   
 $< .02$ ). The  
overall pattern  
of results on all  
rating scales  
supports the  
efficacy of using  
a party blower  
for reducing  
children's  
immunization  
distress, with  
minimal staff  
training and no  
procedural

delay.

Megal, Houser,

& Gleaves

(1998)

examined the

effects of audio

taped lullabies

on physiological

and behavioral

distress and

perceived pain

among children

during routine

immunization.

The samples

were 99 healthy

children age 3-6

years old. Half

of them

received the

musical

intervention

during the

immunization,

while the other

half did not.

Children in each

group were

assessed pain

and distress

during five

phases:

baseline, pre

immunization,

during the

immunization,

after Band-Aid

application, and

2 minutes after

phase 4.

Physiological

methods

included heart

rate and blood

pressure and

self-report pain

assessment by

using the

Oucher Scale

were used to

measure pain

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intensity.

Besides, they

were also

assessed

behavioral

distress. Results

indicated that

no significant

differences were

found between

experimental

and control

groups for heart

rate, blood

pressure, or

Oucher scores.

It may be

possible that the

reflective of the

ages of children

in the studies, 3-

6 years, may

not be able to

focus their

attention on

distraction

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devices.

However, total distress scores of the experimental group were significantly less than the control group.

French, Painter, & Coury (1994) studied the effect of distraction technique on pain in preschool children receiving diphtheria, pertussis, and tetanus immunization. The samples were 149 children aged 4 to 7 years old who received the injection, one with and one without taught to blow out air repeatedly during the injection, as if they were blowing bubbles. Although self-report measures by parents, children, and nurses were not different between control and experiment Conditions, children who were taught to blow out air repeatedly during the injection had significantly fewer pain behaviors ( $P < .04$ ) and demonstrated a trend toward lower subjectively reported pain ( $P = .06$ ).

## **2. Studies and literatures related to Music distraction on Pain**

Balan R, (2009) had done the comparative study on Indian classical instrumental music and local anesthetic cream on children aged 5-12 yrs in terms of in reducing pain during venepuncture was conducted at a tertiary care center. They were randomly assigned to 3 groups: local anesthetic (LA), music or placebo (control) group. The study findings showed that, using

EMLA or Indian classical instrumental music can be significantly reduced pain in children. The difference between VAS scores with LA and music is not always significant.

Bufalini A. (2009) conducted a study on pediatric patients undergoing painful procedures (lumbar injection, bone marrow aspiration, and arterial catheter) to assess the role of interactive music. Data significance was accepted with values of  $P < 0.05$ . The findings of the study shows that the degree of satisfaction of children, parents and staff provides a beneficial effect of interactive music on the occasion of painful procedures.

Evans S (2008) conducted a study on complementary and alternative medicine for acute procedural pain in children. He suggested that music therapy also has gained some attention and for the most part shows promise in the pediatric acute pain setting.

Noguchi LK. (2006) had done the study on the effect of music versus non music on behavioral signs of distress and self-report of pain in pediatric injection patients. Music has been examined as a potential distraction during pediatric medical procedures, but research findings have been mixed, due, in part, to the fact that children were primarily instructed to merely "listen to the music." (n= 64) The children 4- to 6(1/2) -years receiving routine immunizations were randomly assigned to one of three conditions: musical story, spoken story, or standard care/control. Participants in the musical story condition tended to be less distressed and report less pain than participants in the other two conditions, although these differences were not statistically significant. Subsequent analysis indicated that children who

received more injections tended to benefit more from the music intervention, in terms of their perceived pain.

Loewy, J. V.(1997) states that music distraction using live, familiar music with unusual instruments can be effective in capturing and holding the child's attention during painful procedure, such as needle punctures.

Malone (1996) conducted a study that focused on studying the effects of live music on the distress of pediatric patients receiving venipunctures, intravenous starts, and heel sticks. The study results indicated that all age groups appear to benefit from the live music as an effective method of distraction. The patients that demonstrated the most significant difference were children under the age of one. The distraction techniques were less cognitively advanced than the music therapy approaches for older children; rather, they attempt to soothe and relax the infant in order to distract him from his surroundings.

Fowler-Kerry S, (1987) Conducted the study to assess the value of two cognitive strategies (suggestion and music distraction) in reducing pain in children. Two hundred children, aged 4. 5-6. 5 years, receiving routine immunization injections were randomly assigned to one of the intervention groups in this factorial study. The groups were designated as: distraction, distraction with suggestion, suggestion and control. Subjects reported their pain using a 4-point pain scale. Distraction was found to significantly decrease pain whereas suggestion did not. The results of this study support the use of music distraction in the reduction of injection pain in children.