

# THE INFLUENCE OF MOTHER'S EMBRACE TO THE LEVEL OF INFANT PAIN DURING AN INJECTION

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## ABSTRACT

**Background.** An injection is a routine parenteral procedure which can cause infant pain. One of non-pharmacological managements to reduce infant pain is giving mother's embrace intervention (carrying infant by holding and embracing him).

**Objective.** This research is conducted to know the influence of mother's embrace to the level of infant pain during an injection in Puskesmas Indralaya Ogan Ilir.

**Methods.** This study is a quasi-experiment with a static group comparison design. Samples of this research are 24 infants (14 infants for a control group and 10 infants for an intervention).

**Results.** Characteristics of the infants are  $177,71 \pm 80,98$  days (mean  $\pm$  SD) and  $7091,67 \pm 1789,32$  gram (mean  $\pm$  SD) infants. The types of injection were an immunization injection of DPT (55%), Measles (29.3%) and Combo (15.7%). Using mann whitney test, it is known from the research's result that there are differences in the levels of pain (FLACC) ( $p=0,000$ ;  $\alpha = 0,05$ ) and durations of facial pain between the control group and the intervention. By FLACC parameter and durations of facial pain (face scale: 5), it is also known that the age of infants, weight of infants, and immunization types did not affect infant pain when mothers were embracing them during the immunization injections.

**Conclusion.** Mother's embrace, as a form of mother and infant's contact which can increase their bonding, provide analgesia effect that can reduce the level of infant pain during the immunization injection. It is recommended for health workers to apply this kind of embracing as the non-pharmacology management to reducing infant pain during the immunization injection.

**Keywords** : Mother's Embrace, Infant, Pain, Injection.

## INTRODUCTION

Newborn infants are currently exposed to repeated painful stimulation has behavioral responses indicating more stressful reactions during pre sekolah age. Premature infants and mature infants who experienced a higher number of procedures that injure the skin of a baby during the period also show the level of cognitive and motor development at toddler<sup>1</sup>.

Nurses act as a care giver is to teach her how to control pain to prevent or minimize injury or pain. This is one of the principle of atraumatic care in a nursing intervention. Atraumatic care or care that does not cause trauma to the

child and family care that is therapeutic because it is intended as a therapy for children. Mother's arms is one way of contact between mother and infant. Another way is to use skin-to-skin or kangaroo care with the method. Skin-to-skin contact can reduce the incidence of crying and grimacing by 82% and 65% of 15 newborns at the heel lance procedure. In addition, heart rate also decreased substantially with skin contact<sup>2</sup>

## METHOD

The study design is quasi-experiment design with a static group comparison design (static group comparison). In this study, the experimental group received the

treatment that is a mother's arms, followed by measurement using a pain scale of pain assessment tools Wong-Baker Faces Scale and FLACC, then the measurement results of the experimental group compared with the control group measured only the pain but was not given the scale of intervention .

Respondents in this study of 15 infants in the control group and 1 infant drop out, whereas in the intervention group who received immunization injections mothers' arms while a total of 11 infants and 1 infant drop out so that the data taken from 14 infants and 10 control infants of intervention. Respondents were infants who were immunized at the health center Indralaya from June 20 until July 11, 2011 to get a DPT injection, measles, and the combo in the thigh.

Inclusion criteria (1) a healthy baby and had no contraindications to immunization,

(2) Infants who received immunization injections in the thigh, (3) mother hugging her baby during the procedure would cause pain that lasts, and (4) Infants who are not breast-fed 5 minutes before immunization Based on the above inclusion criteria the researchers used a technique non-random (non - probability) sampling is purposive sampling to obtain the respondents.

Data collection tool used in this study is to use an observation sheet that behavioral responses of infant pain FLACC scale and face pain rating scale, a stopwatch and recorded using a digital camera.

Prior to data analysis, the homogeneity test conducted on the characteristics of respondents include demographic data of respondents are age, weight, ethnicity, gender, and type of immunization. After the homogeneity test is performed quantitative analyzes include u nivariate and bivariate analysis.

## RESULT

### A. Univariate Analysis

Table 1  
Distribution of Respondents by Age Infants (day) and weight  
n=24

Variabel	Mean	Median	SD	Min – Mak	95% CI	P Value
<b>Age</b>						
Control group	170,50	159,50	80,33	72 – 277	124,12 – 216,88	0,951
Intervension	187,80	162,50	85,11	88 – 323	126,92 – 248,68	
<b>Weight</b>						
Control group	6807,14	6700,00	1932,501	3000 – 10500	5691,35 – 7922,94	0,361
Intervension	7490,00	7150,00	1576,529	5900 – 11400	6362,22 – 8617,78	

The analysis shows that there is no variation in age (P value = 0.951 ;  $\alpha$  = 0.05) significantly among he members in the control group and intervention group and no variation in body weight (P value = 0.361;  $\alpha$  = 0.05) significantly between members in the control group and intervention group.

Table 2  
Distribution of responden by sex  
n=24

N	sex	female		male		N
		n	%	n	%	
1	Control	7	50	7	50	14
2	Intervension	5	50	5	50	10

### B. Bivariate Analysis

Homogeneity analysis of immunization Type Intervention Group and Control Group showed that there was no

difference in the type of immunization (P value = 1.000;  $\alpha$  = 0.05) significantly

between the control group with the intervention group.

Table 3  
Deference of FLACC pain scale Skala and duration face pain scale 5  
n=24

N	Variabel	n	Mean	SD	P Value
FLACC					
1	Control	14	8,5	1,29	0,001
2	Intervention	10	5,7	1,77	
duration face pain scale 5					
1	Control	14	26,71	13,02	0,037
2	Intervention	10	17,30	6,36	

Mann-Whitney test showed no significant difference demonstrated between the control group with the intervention group (P value = 0.001;  $\alpha$  = 0.05). While the average duration of facial pain scale 5 showed no significant difference between the control group with the intervention group (P value = 0.037;  $\alpha$  = 0.05).

## DISCUSSION

### A. Mother's embrace

Hugs are supposed to reduce pain as it can be useful as an analgesic and a simple method for sedating infants utilize maternal-child closeness and ability to calm the baby through the mother's touch in his arms. The ease with analgesics have been induced through behavioral interventions such as in newborns that have improved functionality pentingannya mother-infant interaction as a way to prevent or reduce pain and stres<sup>2</sup>. Analgesic effect of contact between mother and infant may also be mediated by multisensory stimuli that touch, the smell of the mother, and mother's heartbeat may block nosiseptik afferent stimulation to stimulate the central nervous system, by activating the descending inhibitory pathways (IDP) from the cortex and the

limbic system and / or by activating the spinal nerves gates<sup>3</sup>.

Mother's arms through skin-to-skin contact for 15 minutes at a time before, during and after the heel prick procedure showed reduced levels of nyeri<sup>4</sup>. The level of pain measured by NFCS (Neonatal Facial Coding System). Skin-to-skin 2 minutes before the procedure showed a decrease compared control group<sup>3</sup>.

Researchers used a method of maternal-infant contact in the form of hugs given when the baby started to get action for immunization procedures and did not happen-to-skin contact the skin directly in the mother's chest. However, the baby's body parts are not covered by clothing can still skin-to-skin contact with mother.

Researchers saw that the skin-to-skin contact that occurs in the baby's leg with his mother at the mother embracing the infant can reduce the time of injection imunsasi kicking motion. Some babies who have low levels of pain show a state of relaxed legs and body in the normal and calm. Interventions that increase tactile stimulation in infants ("therapeutic touch") and mother-infant contact has been shown to increase the infant's ability to set themselves<sup>5</sup>.

Effects induced analgesia via maternal-infant contact can reduce the stress that can be coordinated limb movements in response to stress, thereby

reducing the movement of the baby's feet kicking or pulling the leg.

While in mother's arms, the baby is positioned the same as when the baby was given breast milk is the right hand is under axilla mother meanwhile, left hand held in the arms of the mother and the baby's arm attaches to the mother's chest to the abdomen. This position is an easy way to restrain the movement of baby without making a baby feel disturbed because the baby has been used in that position. During feeding the baby will get a touch of the mother. Mother's touch is provided for mothers to breastfeed their babies is one of the practice of nursing care especially on non pharmacological pain management.<sup>6</sup>

In addition, mothers will also be easy to be taken in cooperation during the procedure and the restraints that women can do well coordinated. The results showed that all mothers who participated in this study can quickly understand the procedures for granting the mother's arms when immunization injections are used for positioning the baby at the mother to embrace the position of the mother during breastfeeding for the infant. Being in the arms of the mother can provide opportunities for mothers to give love and affection to the child when your child is upset, so as to strengthen the psychological relationship between mother and child in the arms of the mother being the baby able to feel safe and secure<sup>7</sup>. Therefore, it can be concluded that the intervention arms of the mother is one of the methods that are useful to reduce pain, reduce the distress caused by painful procedures, improve maternal-infant bonding, and increase the baby's ability to regulate itself. In addition, the role of nurses as educators can enhance the involvement of the mother during the procedure.

#### 1. A. The embrace of the pain scale

From the results of this study shows that babies who embraced the mother during

immunization injections will be seen more easily calm and relaxed compared to the immunization of babies in bed, because the arms of the mother to provide warmth and comfort for the baby so as to reduce motor movement caused by the pain and distress. This is because the presence of the mother when the baby is uncomfortable with the stimulus of pain due to injection of immunization, will help your baby develop a sense of comfort to believe that the needs will be met by mother.<sup>6</sup>

The results in the intervention group showed a different level of anxiety in the control group. In general, infants in the intervention group did not nervous when I started to determine the location of injection and injection site disinfection.

In the control group, some babies seem agitated when placed in bed (35.71% of control infants) because there is the effect of separation that occurs suddenly and temporarily. Anxiety will increase as the baby being held by a nurse hands the baby or the mother to begin preparations early immunization injection. This reaction caused the baby can begin to associate the situation surrounding environment associated with the emergence of a sense of pain<sup>6</sup>. In addition, Farewell to the parents is a stressor for children and can enhance the experience of pain. This is known as the "separation of anxiety", and generally occurs between the ages of 9-12 months, and can be prolonged until the age of 5 years in the stressful conditions such as having nyeri<sup>6</sup> conditions. The presence of parents is very important for children who are experiencing of pain<sup>8</sup>.

The study was supported by the results of clinical trials of neonates who received skin-to-skin 15 minutes before the injection procedure hepatitis B vaccine showed an average total duration of crying in the procedure (pre-injection, procedure, and recovery) injection of the intervention group was lower than with the control

group (infants in incubators) 10. The same was done in this study. The benefits of mother-infant contact obtained from the intervention arms of the mother which showed that mothers' arms may decrease the duration of crying (duration of facial pain scale 5) infant (0-330 days) post-injection immunization. This could be due to the effects of mothers' arms that can reduce infant pain. In addition, it can be concluded that the mother's arms without inducing skin-to-skin contact is effective in lowering the level of pain in older infants. This statement is reinforced oleh<sup>2</sup>, contact induced analgesia in accordance with the idea that directly or indirectly have substantial benefits in reducing pain and stress through one of the components of feeding and energy savings.

Results showed the intervention group infants will soon be soothed by the mother and baby after it is injected in the arms of the mother during the mother had care-related information from nurses, medicines and post-reactions produced by immunization. This is in contrast with the infant immunization in bed. Some babies are more difficult to control group calmed by the mother after the infant immunization injections, but after a mother soothing a baby with arms control groups, the baby will look more calm and 5 faces pain scale decreased. This is because babies get a distraction from the intervention group mothers during injection preparation procedure. This distraction is more benneficall for mothers and babies. So as to reduce anxiety and tension in the mother or the baby. One form of distraction that can be given for the baby in the arms of the mother is a mother's smile and voice. Babies will be easy to focus attention on the mother during the infant in mother's arms. because of eye contact between mother and infant. While

immunization of babies are in bed, focus attention on the environment. If the circumstances are considered attractive environment for the baby then the baby got the distraction effect of the environment, but if not, then the baby will experience anxiety due separation on immunization procedures. There is a difference of pain perception in infants who have injections in the arms of mothers with infant injection in the bed.

There are two mechanisms, namely distracting the reticular activating system inhibits the painful stimulus if someone receives sensory input is sufficient or excessive and unpleasant sensory stimuli cause the release of endorphins. Distraction can transfer infant's attention to other things thus lowering even increase the awareness of pain tolerance<sup>8</sup>. Effectiveness of mother-infant contact is highly dependent on the mother as a source of peace of contact, who hugged the baby comfortably, but still consider skin contact infant-mother. Infants showed a positive emotion during face to face interaction that occurs when the mother-infant contact. Mothers expressed positive feelings during the contact through KMC<sup>9</sup> method. Thus, it can be concluded that the mother's emotional state can be attributed to the emotional state and level of emotional pain and calm the baby because the mother can affect the ability of mothers to soothe the baby when the baby is experiencing pain. Parents, especially mothers, were able to estimate the meaning of their baby's crying, so they quickly made efforts to meet the needs of baby<sup>6</sup>.

## RECOMMENDATIONS

Health care workers to routinely apply the method of immunization injection when the mother's arms are made of injection in the thigh.

## REFERENCES

1. Morrow, C., Hidinger, A., & Faulk, D.W. (2010). Reducing Neonatal Pain during Routine Heel Lance Procedures. *The American Journal Of Maternal/Child Nursing*, 35 (6), 346-354.
2. Gray, L., Watt, L., & Blass, E.M. (2000). Skin-to-Skin Contact Is Analgesic in Healthy Newborns. *Official Journal of The American Academy of Pediatrics*, 105 (1), 1-6.
3. Chermont, A.G., Falcao, L.F.M., Silva, E.H.L., Balda, R.C.X., Guinsburg, R. (2009). Skin-to-Skin Contact and/or Oral 25% Dextrose for Procedural Pain Relief for Term Newborn Infants. *Official Journal of The American Academy of Pediatrics*, 124 (6), 1101-1107.
4. Castral, T.C., Warnock, F., Leite, A.M., Haas, V.J., & Scochi C.G.S. (2008). The Effects of Skin-to-Skin Contact During Acute Pain in Preterm Newborns. *European Journal of Pain*, 12(10), 464-471.
5. Feldman, R. & Weller, A. (2003). Emotion Regulation and Touch in Infants: The Role of Cholecystokinin and Opioids. *Peptides*, 24(03), 779-788
6. Rahayuningsih, S.I. (2009). *Efek Pemberian ASI Terhadap Tingkat Nyeri dan Lama Tangisan Bayi Saat Penyuntikan Imunisasi Di Kota Depok Tahun 2009*. Tesis Strata Dua, Magister Ilmu Keperawatan Kekhususan Keperawatan Anak Program Pasca Sarjana Fakultas Ilmu Keperawatan Universitas Indonesia. Depok. (tidak dipublikasikan).
7. Rezky, B. (2010). *Be A Smart Parent, Cara Kreatif Mengasuh Anak Ala Supernanny*. Yogyakarta: Penerbit Jogja Bangkit Publisher.
8. Potter, P.A., & Perry, A.G. (1997). *Fundamentals of Nursing: Concepts, Process, and Practise (4<sup>th</sup> Ed.)*. Diterjemahkan Oleh Komalasari, R., Evriyani, D., Noviestari, E., Hany, A., Kurnianingsih, S. Edt. Ester, M. Yulianti. D., Parulian, I. (2005). *Buku Ajar Fundamental Keperawatan: Konsep, Proses, dan Praktik (Edisi 4, Vol. 2)*. Jakarta: EGC.
9. Johnston, C.C., Yeo, M.C., & Fernandes, A. (2008). *Kangaroo Mother for Procedural Pain in Pre-term Neonates*. Dari <http://www.touchbriefings.com/pdf/3253/fernandes.pdf> diperoleh 29 Juni 2011.
10. Vivancos, R.B.Z., Leite, A.M., Scochi, C.G.S., & dos Santos, C.B. (2010). The Skin to Skin Contact at Birth and Newborn Crying During Vaccination Against Hepatitis B. *Original Article Acta Paul Enferm*, 23(4), 461-465.