

Original Research Article

EFFECTIVENESS OF PARENTAL HOLDING THERAPY AND MUSICAL THERAPY TO REDUCE PAIN SCALES IN INFANT DURING MEASLES IMMUNIZATION

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Abstract

Background: Cases of measles in Indonesia are among the 10 biggest diseases that occur in children aged 29 days - 4 years. At the age of 9 months the infant must get immunizations that can be given by subcutaneous which can give the baby pain experience.

Objectives: The purpose of this study was to determine the effectiveness of parental holding therapy and music therapy to reduce pain scales in the infants during measles immunization.

Methods: This type of research is quasy experiment with the pretest and posttest approach without control of the design group. The sampling technique in this study used a "purposive sampling" technique with a total sample of 24 respondents and research instruments using the FLACC scale observation sheet. The data were analyzed using computerization with an independent paired t-test with a confidence level of 95%, $\alpha < 0.05$.

Results: The results of this study indicate that the average reduction in pain scale before and after parental holding therapy is 4.2 while music therapy is 2.7. It was concluded that parental holding therapy more effectively to reducing the scale of pain in infants during measles immunization in Kubu Dalam Parak Karakah Village, Working Area of Public Health Center of Andalas, Padang City in 2019 with p-value = 0.017 ($p < 0.05$).

Conclusion: It is recommended that health workers be able to apply and find out the benefits and effects that are felt from parental holding therapies and music therapy so that parents do not feel afraid in giving therapy.

Keywords: Measles Immunization, Music Therapy, Pain, Parental Holding Therapy

INTRODUCTION

Immunization is a way and an effort that can be done to cause / enhance one's immunity against disease (Ministry of Health, 2016). Based on World Health Statistics data (2015),

the comparison of eleven countries in Southeast Asia (SEARO), Indonesia is known to have measles immunization coverage of 84%. Cases of measles in Indonesia are among the 10 biggest diseases that cause death in children

aged 29 days - 4 years (Ministry of Health, 2016). During infancy and childhood, immunization is one of the main sources of pain and suffering that causes anxiety and trauma, not only in infants but can also occur in families (Luthy, Beckstrand, & Pulsipher, 2013).

The way infants' express pain during immunization is different, one of which shows distress behavior (such as crying, grimacing, frowning, even crying that is difficult to quiet) (Hockenberry & Wilson, 2015). Various types of non-pharmacological pain management have been widely applied in the order nursing services, however, the use of non-pharmacological pain management in Indonesia is still not optimal.

Some of the interventions developed to reduce pain include embracing therapy and music therapy. This therapy is applied in accordance with the principles in pediatric nursing that is applying the principle of atraumatic care by minimizing anxiety and trauma in children, especially pain caused by immunization injections (Ismanto, 2015). Hugging intervention or parental holding, can be used as an alternative method that can reduce pain in infants during an injection (immunization). This method is considered more effective compared to breastfeeding babies (Chu, et.al, 2017).

Closing can reduce the response to painful procedures and are a means for parents to divert attention and calm their baby. According to WHO recommendations, babies should receive special attention during vaccination (Chu, et.al, 2017). Based on Kustati's research (2013), it states that there are differences in the average distress score in children who are given a parent's hug (2.30%) and those who do not get a parent's hug (3.25%) at the time of the infusion. In addition, embracing therapy is also in line with other child nursing principles, namely family centered care (Hockenberry & Wilson, 2015).

In addition to parental holding therapy, the selection of a comfortable music therapy when immunized can also affect the child's comfort and minimize the pain (Potter & Perry, 2005).

Music has been shown to show effects in reducing heart frequency, reducing anxiety and depression, and relieving pain (Natalina, 2013). Basic measles immunization is done at the age of 9 months and at that age the baby has been able to respond and socialize. At this age, babies are at the peak of discomfort when they are not with their parents or closest people.

According to data obtained in a preliminary survey from the Padang City Health Office in 2016, measles was included in an extraordinary event (KLB). Meanwhile, data for December 2017 at Public Health Center of Andalas were 663 children and a total of 1406 children at the end of 2017 had received measles immunization. The results of interviews with Public Health Centers' staff stated that breastfeeding and sucrose are the usual methods to minimize infant pain during immunization, while the application of parental holding therapy and music therapy has not been done. Based on the description above, researchers are interested in exploring the comparative effectiveness of parental holding therapy and music therapy to reducing the scale of pain in subcutaneous injection when measles immunization in infants.

METHODS

Study Design

This research is a quantitative study using the quasy experimental method with a pretest and posttest approach without control group design.

Setting

The study was conducted in Kubu Dalam Parak Karakah Village, working area of Public Health Center of Andalas, Padang City on 2019.

Research Subject

The population in this study were all infants who would be immunized against measles under the age of 1 year in the Kubu Village in Parak Karakah Andalas Padang Health Center working area with a total of 445 people in the 2018 visit period. The sample in this study was

12 infants for one intervention group so the total sample obtained as many as 24 infants. The sampling technique in this study used a non probability sampling technique with purposive sampling. The inclusion criteria for the sample in this study were all infants aged 9-12 months, healthy infants who did not have contraindications of immunization given, infants who received measles immunization through subcutaneous injections, infants who had never been embraced or music and were not get other distraction techniques. While the exclusion criteria in this study are infants given other distraction techniques such as breastfeeding, sucrose, giving a pacifier, infants who are not accompanied directly by biological mothers, infants who are malnourished, infants with neurological disorders (cerebral palsy), and infants who experience hearing disorders. This research was conducted on infants who had signed the inform consent from parents.

Instruments

Data were collected by using a standardized instrument, the FLACC scale (Face, Leg, Activity, Cry and Consolability) with the measurement result of scale 0 describing as not painful, scale 1-3 describing as mild pain / mild discomfort, scale 4-6 describing pain medium, scale 7-10 describes as severe pain / severe discomfort.

Intervention

Before giving an intervention, the researchers conducted an assessment using an

observation sheet first. The medias used in this study were MP3s, handphones, speakers and observation sheets which contained an assessment of the pain scale before and after the intervention. The implementation of each intervention gives on 15 minutes. After that, the researcher evaluates using observation sheets.

Data Analysis

A normality test is used, namely the Shapiro-Wilk test for the hypothesis that will be used on the pre-test and post-test of respondents. The Shapiro-Wilk test is used if the number of samples is less than 50. From the results of the normality test obtained a value of 0.547 for pre-test parental holding therapy, and a value of 0.738 for post-test parental holding therapy, while the value of 0.440 for pre-test music therapy and a value of 0.224 for post-test music therapy which means $p > 0.05$ indicates that the data were normally distributed, then the Independent Sample T-Test paired parametric test was performed which tested the mean difference between the two dependent data groups between before and after the parental holding therapy and also music therapy.

Ethical Consideration

When conducting the data collection, the researcher had asked beforehand about the willingness of the respondents in participating in this study. Researchers have also explained to respondents that the data obtained from this study will be used properly and guarantee the confidentiality of personal data of respondents.

RESULTS

Analysis of Pain Scales of the Infants Before and After Giving Treatment

Based on table 1, the average pain scale before giving holding parental therapy was 7.8 which was categorized as severe pain with a standard deviation of 1.4 and the range of minimum - maximum values was 5.0-10.0. While for music therapy is obtained an average pain scale 7.8 also, which was categorized as severe pain with a standard deviation of 1.1 and the range of minimum - maximum values was 6.0-10.0.

Based on the result in table below, the average pain scale after giving holding parental therapy was 3.6, which is categorized as moderate pain with a standard deviation of 1.6 and the range of minimum - maximum values is 1.0-7.0. While for music therapy is obtained the average pain scale after music

therapy was 5.1, which was categorized as moderate pain with a standard deviation of 1.6 and the range of minimum - maximum values was 2.0-7.0.

Based on the table 1 below, it can be seen that 12 of the respondents who received a parental holding therapy intervention experienced a decrease in pain scale with a difference of 4.2 while the results of the paired samples t-test were obtained $p = 0.000$ ($p < 0.05$), meaning that there were differences in scale pain before and after parental holding therapy the infants during measles immunization in the Kubu Dalam Parak Karakah Village, working area of Public Health Center of Andalas, Padang City on 2019. Likewise, for groups who get musical therapy, it can be seen that 12 of the respondents who received music therapy intervention experienced a decrease in pain scale with a difference of 2.7 while the paired samples t test results obtained $p = 0.000$ ($p < 0.05$), meaning that there were differences in scale pain before and after music therapy in infants during measles immunization in the Kubu Dalam Parak Karakah Village, working area of Public Health Center of Andalas, Padang City on 2019.

Table 1. Analysis of Pain Scales of the Infants Before and After Giving Treatment (Parental Holding Therapy and Musical Therapy) in Kubu Dalam Parak Karakah Village, Working Area of Public Health Center of Andalas, Padang City, Indonesia on 2019.

	Parental Holding Therapy			Musical Therapy		
	Before	After	p-value	Before	After	p-value
Mean	7.8	3.6	0.000	7.8	5.1	0.000
Standard Deviation	1.403	1.614		1.114	1.585	
Min	1.0	1.0		6.0	2.0	
Max	7.0	7.0		10.0	7.0	

Sources: Primary Data of Questionnaire, 2019.

DISCUSSION

Pain scale before parental holding and music therapy for infants during measles immunization in the Kubu Dalam Parak Karakah Village, working area of Public Health Center of Andalas, Padang City on 2019

Based on the results of the study obtained an average pain scale before parental holding therapy that is 7.8. Of the 12 respondents, before parental holding therapy, the lowest-highest value range was 5.0-10.0.

This study is almost the same as the study conducted by Dyah (2007), about the effect of parental holding on the pain response in immunized full-term infants, yielding an average of 7.65 and the other equation is that many samples are used, Dyah (2007) uses 12 people infants 6-12 months old. This can happen because in the study of Dyah (2007) also uses the variable parental holding the infant where parental holding makes the infant

feel attached, safe and reduce the pain / pain experienced. In this study, the level of pain experienced by infants before being given a therapeutic intervention was in the category of severe pain.

According to Santrock (2007), infants who are hugged or cuddled only get a component of contact with the mother. So hugging or parental holding is the first form of response that can make it safe for infants, so the average results obtained in the same study.

Measles immunization has an effect that makes the infant will become a mild fever and there is redness in the vaccination area for 3 days which makes the pain that infants tend to feel is on the scale of moderate and severe pain in accordance with the response experienced. Pain is a condition in the form of unpleasant feelings that are very subjective. Pain feelings in each person are different in terms of scale or

level and only that person can explain or evaluate the pain they experience (Tetty, 2015).

According to Breivik's theory (2016), the pain scale is divided into four categories: no pain (0), mild pain (1-3), moderate pain (4-6), and severe pain (7-10). Based on the results of this study it was found that the average pain before parental holding therapy intervention was 7.8 or severe pain category. Severe pain is objectively the patient sometimes can not follow orders but can still respond to actions, can indicate the location of pain, can not describe the pain, pain can not be overcome by changing the position of a long breath and distraction, so the patient can not do daily activities.

According to Andarmoyo (2013), distraction technique is a technique that focuses on diverting attention to something other than pain or in other words the act of switching pain beyond pain. This age affects the distraction technique where the greater the infant's age the faster it will distract. Whereas in this study the respondents were infants aged 9-12 months where at that age the infant was able to respond well.

According to Nursalam (2016), the stage of development of infants aged 6-12 months is lifting their bodies, learning to stand for 30 seconds or holding on to a chair, can walk guided, reaching out arms / body to reach the desired toy, holding tightly a pencil, inserting objects into the mouth, repeating or imitating the sound heard, mentioning 2-3 syllables of the same meaningless, reacting to whispers, happy to be invited to play, getting to know family members and fearing other people who are not yet known.

According to the researchers' analysis, before being given a therapeutic intervention based on the mean values, almost all respondents felt severe pain. This shows that measles immunization has a painful effect that causes severe severe discomfort. This is also influenced by the lack of knowledge of the mother in the management of pain in infants.

This is evidenced from information related to pain management obtained from 12

respondents who never got information on how to manage pain both pharmacologically and non-pharmacologically. Based on information from the puskesmas, health education or information about the effects of pain was never directly submitted to the community because there was still lack of interest in sharing good information from the regional cadres even though and usually health workers were the main facility in delivering information.

While based on the results of the study obtained an average pain scale before being given music therapy that is 7.8. Of the 12 respondents, before being given music therapy, the lowest-highest value range was 6.0-10.0.

The results of this study are almost the same as the study conducted by Pramesemara (2012), showing that mozart classical music therapy is effective against changes in aggressive behavior in children with autism in SLB / A Denpasar because the value of $p = 0.000$ ($p < 0.05$). This is because the intervention variables used are the same in this study. children with autism have a disorder called trias or symptoms of autism that is a disorder in the field of social interaction, behavior and communication. Infants with pain also lose control of their behavioral, communication and metabolic responses. Pain in infants is a complex perception that involves nerve interactions that transmit impulses caused by tissue damage and an unpleasant sensory and emotional experience (Andarmoyo, 2013).

In this study the infant felt pain caused by location due to sharp sensations such as being pricked by a needle. This pain usually lasts only briefly and is located. This pain can be diverted by pain management through non-pharmacological actions by performing distractions such as using music, soothing sounds that can divert the baby's attention to pain.

In this study, the average pain before music therapy intervention was 7.8, which was categorized as severe pain. This severe pain is objectively the baby sometimes can not follow orders but can still respond to actions, can indicate the location of pain, can not describe

the pain, pain can not be overcome by changing the position of a long breath and distraction. In accordance with the theory of Breivik (2008), above that pain can be divided into four categories, namely no pain (0), mild pain (1-3), moderate pain (4-6), and severe pain (7-10).

According to the analysis of researchers, before being given a musical therapy intervention on the reduction in infant pain scale based on the mean value found that it is still in the category of severe pain. This shows that pain management influences the response and pain felt by the infant. Based on the results of observations by researchers before getting intervention the infant looks withdrawn, cries with body pull and sweat. According to Lissauer and Fanaroff (2016), the pain response is seen from the behavior exhibited by infants in the form of facial expressions that grimace, body stretching, crying, body rigidity, hands gripping, facial redness, extremity flexion and anxiety.

The scale of pain after parental holding and music therapy for infants during measles immunization in the Kubu Dalam Parak Karakah Village, working area of Public Health Center of Andalas, Padang City on 2019

Based on the results of the study obtained an average of pain scale after parental holding therapy is 3.6. Of the 12 respondents, after parental holding therapy obtained the lowest-highest value range is 1.0-7.0.

The results of this study differ from the results of research conducted by Lia (2011) showing a decrease in the acute pain response in premature infants who performed an invasive procedure through the embrace method. The average pain response after intervention was 7.90. Another difference is also in the position given at the time of the intervention. This is because the parental holding method used by Lia (2011), is part of pain management that provides comfort to the infant such as adjusting the baby's sleeping position and reducing the incoming light. Because in theory premature infants can respond sensitively to the stimulation of pain experienced, it's just that the

response shown by premature infants both physiologically and behaviorally is sometimes different.

According to The Children Mercy Hospital (2010), parental holding / cuddling therapy is inseparable from giving a comfortable position to the infant. Giving this position is a technique that can help minimize the impact of distress on infants when various kinds of invasive measures are taken, one of which is immunization.

Research conducted by Lia (2011), provides interventions with swaddle position. This position is less effective given to premature infants in terms of how sensitive responses of premature infants. Meanwhile, according to The Children Mercy Hospital (2010) the position of sleeping is given to the infant by keeping the parents lying in bed. Parents maintain eye contact with their infants and embrace from legs to arms.

Researchers provide a parental holding therapy position that can provide a comfortable feeling that is by holding the family in the arms held by the infant sitting on the mother's lap in a face to face position, the child's chest rests on the mother's chest, the position of the legs straddling the lap and the mother's arms holding infant.

According to the Children's Hospital and Clinic of Minnesota (2007), pain management in non-pharmacological actions in infants includes changing the infant's environment such as reducing noise and excessive activity, giving pacifiers, putting the infant to sleep, distracting such as using music, hugging / holding.

According to the researchers' analysis, the granting of therapeutic intervention can reduce the scale of pain in infants during measles immunization. This is evident from the master table which shows a significant decrease occurred after the parental holding therapy is from respondent no. 1 with a pain scale score before parental holding therapy 8 and the pain scale score after hug therapy is 2 and also for respondent no 10 with the pain pain scale score before the parental holding therapy is 8 and the

pain scale score after the parental holding therapy is 1, this is because during the parental holding therapy research, the infant can respond to stimulation or stimulation through the mother's embrace quickly and well, the mother can also actively participate during the intervention and not do things that can cancel intervening therapeutic interventions.

While based on the results of the study obtained an average pain scale after being given music therapy that is 5.1. Of the 12 respondents, after being given music therapy, the lowest-highest value range was 2.0-7.0.

The results of this study are almost the same as the study conducted by Dian (2014), showing the effect of Mozart's music therapy on pain intensity in fracture patients in the operating room of the DR. Achmad Mochtar Bukittinggi Regional Hospital in 2014 with an average of 5.20 before giving mozart music therapy. and the average after being given mozart music therapy is 4.80. Research conducted by Dian (2014), using the duration of mozart music therapy for 15 minutes is the same as the duration of time that researchers did.

The similarity of the results of this study with the results of previous studies is possible because of the way the implementation of therapeutic interventions embraced in accordance with the minimum time of therapy that produces therapeutic effects. Mozart's music will produce a therapeutic effect if it is heard for a minimum of 15 minutes so that changes occur.

According to the American Association (2010), music therapy is used to evaluate nursing interventions given such as reducing the scale of pain due to perceived pain. Music therapy is an action called strategic research priority with one of the main objectives to advance the practice of evidence-based music therapy.

According to Haruman (2013), one suitable music is mozart music. Mozart music can stimulate and power the creative and motivational areas of the brain and provide comfort not only to the ears but also to the soul

when listening to them. Meanwhile, according to Djohan (2006), music therapy itself is the use of music as a therapeutic tool to improve, maintain, develop mental, physical and emotional health.

According to Advanced Nursing Therapy Music (2002), music produces changes in awareness status through sound, silence, space and time, the music must be listened to at least 15 minutes in order to have a therapeutic effect.

This is in accordance with the statement of Nurseha and Djaafar (2002), who said that classical music such as Mozart has the function of creating the power of concentration, memory, and perception of space, so that it can divert pain that is felt, calms the mind and emotions and can optimize tempo, rhythm, melody and harmony that can produce alpha and beta waves in the ear wave so that it provides calm that makes the brain ready to receive new input or relax effects.

According to the researchers' analysis, the administration of mozart music therapy interventions with a duration of 15 minutes can reduce infant pain. This is because during the research the baby showed a painful response as seen from the decline in baby's emotions. Research conducted by McCaffrey found that pain intensity decreased by 33% after music therapy using mozart classical music performed for 15 minutes (Jerrard, 2014).

Difference in Pain Scale Before and After Parental Holding Therapy

Based on the results of the study, the mean pain scale before therapy was 7.8 and the mean pain scale after therapy was 3.6. Of the 12 respondents, the average difference between before and after treatment was 4.2. T-independent test results obtained p-value of 0.000. Interpretation of the results of the p-value less than 0.05 is that there is a significant difference in the mean pain scale before and after parental holding for infants during measles immunization.

This study is almost the same as the study conducted by Lestari (2013), showing that there is an influence of family cuddling and giving a

sitting position to distress in children who performed infusion obtained the average results of distress scores in children who were given family cuddles when infusion was 3.30. Therefore the average results obtained in this study are the same, namely a decrease in the distress / pain scale score. Another similarity is the way of giving the same cuddle therapy, namely the sitting position, Lestari (2013), in his research provides a way of sitting position which will make the infant comfortable and feel protected.

Parental holding therapy is a part of the therapeutic holding performed restrain. The embracing of parents on their infants is one of the techniques used to facilitate parental involvement during invasive procedural actions. So, hugging and immobilizing the extremities in infants during the procedure will provide a sense of security and pleasure and comfort through direct contact with parents and positive parental participation (Yin, Cheng, Yang, Chiu, & Weng 2017).

Yin et al (2017) prove that the administration of cuddling and sitting position can reduce infant's distress during infusion and parents feel comfortable and satisfied for their direct involvement during the procedure by providing pain management and direct emotional support to their children. Significant differences in the level of satisfaction were also obtained from giving parents arms in an upright position compared to supine with a p value of 0.034.

Pediatric patients will also experience physical and psychosocial distress. In stressful conditions, brain waves are as high as beta (14-100 Hz). In this frequency a person can be said to be in a state of awake or fully aware and dominated by logic. When someone is in this wave, the left brain is being actively used for thinking, concentration and so on, so the waves rise. These high waves will stimulate the brain to release the hormones cortisol and neorepinephrine. This hormone expenditure causes anxiety and stress (Sentanu, 2017).

The theory of pain explains that when nurses inject needles it stimulates small nerve

fibers (pain receptors), thus causing inactive neuron inhibitors and open gates, at the same time the infant is given a parental holding therapy that provides a calming and stimulating effect on large nerve fibers that cause inhibitors neurons and projection of active neurons. Neuron inhibitors prevent projection of neurons sending signals to the brain, so that the gate is closed and the stimulation of pain received does not reach the brain (Suzanne, 2010).

According to the analysis of researchers, before parental holding therapy to reduce the scale of pain in infants during immunization based on the mean value of 7.8 in the category of severe pain. This shows that there is still a lack of understanding and application of parental holding therapy to reduce infant pain during immunization in the Kubu Dalam Parak Karakah Village, the working area of the Public Health Center of Andalas in Padang City.

According to the children's hospital and clinic of Minnesota (2007), pain management can reduce / reduce pain in infants, one of which is by holding / hugging the infant, this is so that the infant can relax the muscles and nerves that send signals to the brain.

The pain scale after parental holding therapy showed that the mean value was 3.6 in the moderate pain category. This shows that parental holding therapy has an effect in reducing pain in infants when measles immunization is carried out. According to Chu, et.al (2017), parental holding reduces the response to painful procedures and is a means for parents to divert attention and calm their baby.

In this study there were differences in pain scale scores before parental holding therapy and after parental holding therapy, the difference can be seen from the pain response felt by infants, this is evidenced by changes in facial expressions, grimacing, body stretching, crying, stiff body, gripping hands, anxiety, increased heart rate, changes in respiratory rate, sweating and an increase in stress hormones.

Difference in Pain Scale Before and After Music Therapy

Based on the research, the average pain scale before music therapy was 7.8 and the mean pain scale after music therapy was 5.1. T-independent test results obtained p-value of 0.000. The interpretation of the results of the p-value less than 0.05 is that there is a significant difference in the mean pain scale before and after music therapy is given to infants during measles immunization.

This study is almost the same as that conducted by Tubagus (2015) about the effect of music therapy on pain response in patients with postoperative care at A.Dadi Hospital in Bandar Lampung City. the music is 5.71. T-independent results obtained p-value of 0,000. The interpretation of the p-value results is less than 0.05. This is because the research variables conducted are the same as the research variables namely music therapy as an independent variable and pain response as the dependent variable. Other similarities are in the duration or time of giving the same therapy to give 15 minutes of intervention.

According to Natalina (2013), music has been shown to have an effect on decreasing heart rate frequency, reducing anxiety and depression, and relieving pain and stabilizing blood pressure. Music therapy is very easily accepted by the auditory organ and through the auditory nerve is transmitted to the part of the brain that processes emotions (limbic system). Listening to music can produce endorphins (morphine-like substances supplied by the body that can reduce pain / pain) which can inhibit the transmission of pain impulses in the central nervous system, so that pain sensations can be reduced.

In addition, music therapy will make changes in the body, such as reducing muscle tension, decreasing oxygen consumption, breathing and increasing the production of serotonin which causes a calm and comfortable feeling so that it will reduce pain. Serotonin is a neurotransmitter that has a role in modulating pain in the central nervous system. Serotonin causes the local neurons of the spinal cord to

secrete enkephalin. Enkephalin is thought to cause presynaptic and postsynaptic barriers in type C and A pain fibres. These analgesics can block pain signals at the site of entry into the spinal cord.

In the results conducted by Tubagus (2013), it also had a similarity in that there was a decrease in average pain before and after music therapy. In this study also using the same type of music, classical music has the benefits of making a person relaxed, comfortable and release the feeling of joy and reduce the level of anxiety and release pain in people who listen (Pratiwi, 2014).

According to Rejeki (2016), this music therapy must be listened to at least 15 minutes in order to provide a meaningful therapeutic effect. Often the duration of music therapy is 25-30 minutes, but for more specific health problems music therapy is given within 30 minutes to 45 minutes. When listening to music the client can lie down or in a position that feels comfortable. While the tempo should be around 50-70 beats / minute slower, using a quiet rhythm.

According to the analysis of researchers, based on the results of the study that there are differences in pain scale before and after music therapy with a difference of 2.7. This shows that there are significant differences in mean pain before and after music therapy. Providing music therapy to divert attention can reduce pain perception by stimulating the descending control system, which results in less pain stimuli transmitted to the brain. Someone who is less aware of pain or pays little attention to pain will be less disturbed by pain and more tolerance to pain (Smelther, 2014).

This decrease in pain scale can be caused by the effects of music that is sedative in response to emotional calm, relaxation, pulse and decreased systolic blood pressure, so the baby is able to control discomfort.

Comparison of Pain Scale Decrease Before and After Given Parental Holding Therapy and Music Therapy.

Based on the research, the results of the comparison between before and after parental holding therapy and music therapy, the average decrease in pain scale before and after parental holding therapy is 4.2, and the average decrease in pain scale before and after being given music therapy is 2.7. The difference between the reduction in pain scale with parental holding therapy and music therapy is 1.5. The statistical test results obtained p value is 0.017 ($p < 0.05$), it can be concluded that there is a significant decrease between parental holding therapy and music therapy in reducing pain scale in infants during measles immunization in Kubu Dalam Parak Karakah Village, working area of Public Health Center of Andalas, Padang City on 2019.

This study is almost the same as the study conducted by Ethycasari (2016), obtained the results of the effectiveness of the parental holding compared with cutaneous stimulation measures both seen from the average scale of parental holding pain is 4.60 and the average cutaneous stimulation pain scale is 2.60. This is because the research variables are the same as the research variables studied. Claspings the form of contact made with body contact that maintains a feeling of security in the infant. This experience makes the infant feel warm, safe, comfortable with limited space for movement. Physical contact between mother and infant through the skin makes the organs that function as the widest active receptors. This sensation is an active sense early in the baby because the infant has felt since the time of the fetus that is when surrounded and caressed by warm amniotic fluid.

According to Hogan, Probst, Wong, et al. (2014), cuddling for infants is the language they are most familiar with, which is immediately aware of small changes in texture or temperature. Touch allows the baby to develop a relationship with the environment before birth which is the most important sense in the early days of a infant's life. Infants react positively to

the warmth, tenderness, subtle pressure especially on the front surface of their body. The bond between mother and infant lasts from the time of pregnancy and during labor the bonding process gets stronger.

According to Hockenbery and Wilson (2015), Parental holding therapy can be said to be the use of a comfortable, safe, and temporary holding position that provides close physical contact with a trusted parent, whereas according to Chu, et al (2017), it also reduces the response to painful procedure and a means for parents to divert attention and calm their infant.

In a study conducted by researchers, group of parental holding therapy and music therapy both experienced decreased pain from severe pain to moderate pain. Judging from the t test with p value < 0.05 , it shows that in the therapy group the pain difference between before and after therapy was 4.20 and in the music therapy group the difference between before and after therapy was 2.70.

When a infant is embraced, parental holding greatly influences the baby's psychological well-being and makes it safe for the infant and is also said to be a process where the outcome of a continuous interaction between the infant and loving parents provides both emotional fulfillment and mutual need. Thus the bond between parent and infant makes the mother always wants to hug her infant. Touch, hug, eye contact, skin-to-skin contact which is often another expression of affection that is very unusual for parents to help infants get comfort and calm when the infant loses response.

According to Uman, Birnie, Noel, et al (2013) pain results in long-term potential in infants in the form of psychological problems, increased somatic complaints without apparent cause, increased physiological response and behavior towards pain, increased prevalence of neurological deficits, rejection of human contact . Impacts that can be observed include developmental retardation, neurobehavioral disorders, cognitive decline, learning disorders, decreased motor performance, behavioral

problems, attention deficits, poor adaptive behavior, inability to deal with new situations, problems with impulsivity and social control, emotional temporal changes in times of emotion infants and young children, and increased hormonal stress in their later lives.

According to the analysis of researchers that this study showed the effectiveness of parental holding therapy compared to music therapy seen from the decrease in pain scale in infants. The influence is seen from the physiological response, behavioral response and metabolic response in infants who experience changes due to the baby feeling comfort, warmth and well-being that they get from the embrace of parents who influence the pain scale of the infant (Lissauer & Fanaroff, 2016).

CONCLUSION

Based on the results of this study it can be concluded there are differences in the scale of pain before and after being given a parental holding therapy as well as the pain scale difference before and after being given music therapy.

SUGGESTIONS

From these results it is known that parental holding therapy is more effective in infants when measles immunization is carried out. It is hoped that posyandu service workers and puskesmas can implement this therapy, and for further researchers to be able to distinguish the effectiveness between the arms of a father, mother or other caregiver, and the type of embrace.

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DECLARATION OF CONFLICTING INTEREST

There is no conflict of interest in this study.

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AUTHOR CONTRIBUTION

Fitri Wahyuni: Prepare research proposal, conducting study design, collecting data, writing the first draft of manuscript, doing data interpretation, compile research report and discussion, and preparation of the final manuscript.

Ulfa Suryani: Collecting data, doing data interpretation, compile research report and discussion, and preparation of the final manuscript.

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