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MIDWIFERY CARE OF BABY SWIM COMBINATION WITH MOZART'S CLASSICAL MUSIC ON BODY WEIGHT AND SLEEP QUALITY OF 6-9 MONTHS OLD INFANTS AT SUMIARIANI MIDWIFE CLINIC, MEDAN DISTRICT, JOHOR, MEDAN CITY NORTH SUMATRA 2023/2024

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Abstract.
Infant weight gain and sleep quality are important indicators of infant growth and development. Various stimulation methods have been developed to support these aspects, one of which is through a combination of baby swim with Mozart's classical music. This study aims to analyze the effect of a combination of baby swim with Mozart's classical music on infant weight and sleep quality aged 6-9 months at the Sumiariani Midwife Clinic, Medan Johor District, Medan City, North Sumatra in 2023/2024.

This study used a quantitative method with a quasi-experimental design. The study sample consisted of infants aged 6-9 months who met the inclusion criteria, which were divided into two groups, namely the intervention group (baby swim with Mozart's classical music) and the control group (no intervention). Infant weight data were measured using a digital scale before and after the intervention, while sleep quality was assessed based on the infant sleep questionnaire filled out by the parents.

The results showed that there was a significant increase in infant weight after being given a baby swim intervention with Mozart's classical music compared to the control group ($p < 0.05$). In addition, the quality of infant sleep in the intervention group also improved, which was indicated by an increase in sleep duration and a decrease in the frequency of waking up at night.

The conclusion of this study is that the combination of baby swim with Mozart's classical music can be an effective alternative non-pharmacological therapy in supporting the growth and sleep quality of babies aged 6-9 months. It is hoped that this method can be applied in health services and become part of education for parents in baby care.

Keywords: baby swim, Mozart's classical music, infant weight, infant sleep quality.

I. INTRODUCTION

Swimming is one of the motion stimulations, because when swimming almost all the muscles of the body move so that all muscles can continue to develop and can increase strength and can increase stimulation in babies (Dyna and Sri, 2016). In addition, there is a method of providing relaxation, namely by providing baby SPA, one of which is baby swim. Providing relaxation will help babies be calmer, more comfortable, quality and comfort of sleep longer so that body weight will increase (Rahayu, Suherni and Runjati, 2015). In babies who do baby swim, they will feel relaxation and experience increased function of their vagus nerve (10th cranial nerve). This will cause the

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production of gastrin and insulin absorption enzymes to increase, so that absorption of food essence becomes better (Damayanti, 2015).

According to research conducted by Apriany and Wulandari in 2016 on "Effectiveness of Development of Baby Swim in Cipageran Public Health Care Area Cipageran Cimahi" stated that baby swim can be useful for increasing stimulation in babies, making babies comfortable and can increase baby's weight (Dyna and Sri, 2016). Another study conducted by Yilmaz, Yanardag, Birkan and Bumin entitled "Effects of Swimming Training on Physical Fitness and Water Orientation in Autism" in 2004 stated that swimming can train balance, speed, agility, memory and can be one of the learning for autistic children. This is because when swimming, the movement of the upper and lower extremities will increase, so that it will train balance, speed and agility. Good movement of the upper and lower extremities can coordinate the balance of the brain in children, so that the child's memory becomes better (Yilmaz et al., 2004).

In addition to baby swim, there is the provision of music therapy for babies which is very influential in improving the function of the baby's brain, making the brain nerves work, creating a sense of comfort and calm so that it affects the metabolism and physiological ability of the brain in the sucking reflex (Sumawidayanti, Sulisnadewi and Suntari, 2015). The influence of Mozart's classical music can improve vital signs, sleep patterns and sucking reflexes in babies, so that the baby's nutrition can be met and increase the baby's weight (Dassler, Telsey and Homel, 2017).

The results of a study conducted by Sumawidayanti, Sulisnadewi and Suntari in 2015 entitled "The effect of classical Mozart music therapy on weight in LBW babies in the perinatology room of Wangaya Hospital" compared babies who were given classical Mozart music therapy and those who were not given classical Mozart music therapy. The results of this study were a significant increase in weight in babies who were given classical Mozart music therapy compared to babies who were not given classical Mozart music therapy. This is because the music that is played will affect the limbic system (hypothalamus) which functions to give effects on emotions and behavior, so that giving music can affect metabolism and physiological abilities of the brain including the sucking reflex in babies (Sumawidayanti, Sulisnadewi and Suntari, 2015).

The difference between this study and previous studies lies in the independent variables, dependent variables and type of research. The independent variables of this study are baby swim and classical Mozart music, the dependent variables of this study are body weight and sleep quality, and this type of research uses pretest-posttest with control group. The intervention group was given a combination of baby swim and classical Mozart music and the control group was only given classical Mozart music.

Based on the description of the problem above, the researcher wants to conduct a study with the title "Midwifery Care Combination of Baby Swim with Mozart Classical Music Therapy on Body Weight and Sleep Quality of Babies Aged 6-9 months at the Sumiariani Midwife Clinic.

II. LITERATURE REVIEW

Newborn babies (neonates) are babies aged 0-28 days. A normal newborn has the characteristics of a birth weight of 2500-4000 grams, a gestational age of 37-40 weeks, the

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baby cries immediately, moves actively, has reddish skin, sucks breast milk well, and has no congenital defects.

Newborn babies have to adjust to extrauterine life. Shifting from absolute dependence on the mother to physiological independence. Three factors that influence changes in the function and vital processes of neonates are maturation, adaptation and tolerance. In addition, the influence of pregnancy and the birth process has an important role in morbidity and mortality.

All babies are examined immediately after birth to see if the transition from intra-uterine to extra-uterine life has gone smoothly and there are no abnormalities. A comprehensive medical examination is performed within the first 24 hours of life. A physical examination or assessment of the newborn is performed to find out if there are any abnormalities that require immediate action and abnormalities related to pregnancy, labor and delivery.Physical examination of the baby is carried out in two stages, namely:

1. The first stage is the assessment after the baby is born, which aims to assess the adaptation of the newborn from life in the womb to life outside the womb, namely by conducting an APGAR assessment. This assessment includes appearance (skin color), pulse (heart rate), grimace(reflex or response to stimuli), activity (muscle tone), and respiratory effort (breathing effort).
2. The second stage is assessing the physical condition of the newborn. This assessment is carried out to ensure that the baby is normal or does not experience any abnormalities.

Normal conditions of newborn babies:

a. Look at posture, tone and activity: Leg and arm positions are flexed. Healthy babies will move actively.
b. Look at the skin; Face, lips and mucous membranes, chest should be pink, without redness or ulcers.
c. Count the breaths and look at the lower chest wall pull when the baby is not crying; Normal breathing rate is 40-60 times per minute.minutes, No deep lower chest wall indrawing
d. Count the heart rate by placing the stethoscope on the left chest at the level of the apex of the heart; a normal heart rate is 100-160 beats per minute.
e. Take an armpit temperature measurement withthermometer; Normal temperature is 36.5 - 37.5º f. Look and feel the head; The shape of the head is sometimes asymmetrical due to adjustments during the labor process, which generally disappears within 48 hours.hours. The large crown is flat or not protruding, it can protrude slightly when the baby cries
g. Look at the eyes; No dirt/discharge
h. Look inside the mouth. Lips, gums, and palate are intact and there are no splits. Insert a gloved finger into the mouth and feel the palate. Assess the baby's sucking power. The baby will suck hard on the examiner's finger.
i. Look and feelstomach; The baby's stomach is flat, feels limp
j. See the ropecenter; No bleeding, swelling, pus, bad odor on the umbilical cord or redness around the umbilical cord

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a. Look at the back and feel the bonesBack; The skin looks intact, there are no holes or lumps on the spine.

l. Examination of upper and lower extremities; No syndactyly, polydactyly, siemenline, and foot abnormalities (pes equino varus and vagus).

m. See the holeanus ; Look at the anus and check if meconium has come out. Ask the mother if the baby has had a bowel movement; Usually meconium comes out within 24 hours after birth, Look and feel the external genitalia Baby girls sometimes have white or reddish vaginal discharge.

By learning how to assess and physically examine newborns, if there are problems with newborns, they can be treated immediately and appropriately, thereby reducing mortality and morbidity rates.

IV. RESEARCH RESULTS AND DISCUSSION

Discussion

1. The Effect of Body Weight and Sleep Quality on

Infants Aged 6-9 Months Before and After Given a Combination of Baby Swim with Mozart Classical Music. Measurement of infant weight and sleep quality in this case was carried out at the first face-to-face meeting before the combination of baby swim with Mozart classical music was given to the treatment group. Table 4.4 shows the average infant weight before being given a combination of baby swim with Mozart classical music was 7935.22 grams and a sleep quality score of 9.78 (mild sleep problems). Then there was an increase after being given treatment for four weeks, with an average weight of 8611.28 grams and a sleep quality score of 12.83 (no sleep problems) with a p value of weight and sleep quality of 0.000 (p value <0.05) which means there is a significant difference in infant weight and sleep quality between before and after being given a combination of baby swim with Mozart classical music.

This is in accordance with research conducted by Apriany and Wulandari in 2016 which stated that baby swim can be useful for increasing stimulation in babies, making babies comfortable and can increase baby's weight (Dyna and Sri, 2016). According to (Damayanti, 2015) when babies are baby swimmed it will create relaxation in babies and experience increased function of their vagus nerve (10th cranial nerve). This will cause the production of gastrin and insulin absorption enzymes to increase, so that absorption of food essence becomes better. And can activate the parasympathetic autonomic nervous system of the raphe nucleus and nucleus solitarius which are sensory regions of the medulla and pons that enter the brain through the vagus and glossovargeus nerves which can cause sleep (Melati, 2017).

As for music therapy itself, it can stimulate neurons to transmit impulses through neuroendocrine. Neuroendocrine will increase the performance of dehydroepiandosterone (DHEA) which will cause an increase in glucocorticoid hormones, which are hormones that play a role in nutrient metabolism, with increased nutrition it will increase infant growth (Hariati, 2010). As for the quality of infant sleep, it can be obtained from cells in the limbic system and autonomic nerves, so that immunity increases and stimulates the release of endorphins and serotonin. Serotonin is a chemical that transmits nerve impulses throughout the space between nerve cells or neurons and has a role in preventing anxiety, vomiting, and

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migraines. Changes in serotonin levels can create a calm, relaxed atmosphere. So that it can improve sleep quality (Djohan, 2009).

2. The Effect of Body Weight and Sleep Quality on Infants Aged 6-9 Months Before and After Being Given Mozart's Classical Music.

Measurement of infant weight and sleep quality in this case was carried out at the first face-to-face meeting before being given classical Mozart music to the control group. Table 4.4 shows the average infant weight before being given classical Mozart music was 7373.11 grams and a sleep quality score of 10.44 (mild sleep problems). After being given classical Mozart music for 4 weeks, measurements were taken again with an average weight of 7830.72 grams and a sleep quality score of 12.56 (no sleep problems). The results of the p value of infant weight before and after treatment in the control group were 0.000 (p value <0.05) thus through the results obtained it can be interpreted that statistically there is a significant difference in infant weight between before and after being given classical Mozart music. Then for the sleep quality score, the p value results before and after in the control group were 0.000 (p value <0.05) so there was a difference in sleep quality scores before and after in the control group.

According to research conducted by (Wiwi, 2013) stated that classical music is one type of sedative music or relaxation music so that it can lower heart rate and blood pressure, lower the level of stimulation in general so that it makes the listener calm. Mozart's classical music can activate cells in the limbic system and autonomic nerves so that it stimulates the release of endorphins and serotonin. Serotonin is a chemical that transmits nerve impulses throughout the space between nerve cells or neurons and has a role in preventing anxiety, vomiting, and migraines. Changes in serotonin levels can create a calm, relaxed atmosphere. So that it can improve sleep quality (Djohan, 2009) and stimulate neurons to transmit impulses through neuroendocrine. Then neuroendocrine will increase the performance of dehydroepiandosterone (DHEA) which will cause an increase in glucocorticoid hormones, namely hormones that play a role in nutrient metabolism, with increased nutrition it will increase infant growth (Hariati, 2010).

3. Comparison of the Effects of Combination of Baby Swim with Mozart's Classical Music on Body Weight and Sleep Quality of 6-9 Month Old Babies.

Based on table 4.5, the results of the difference in sleep quality in the baby swim combination group with Mozart classical music have an average score of 3.0556 points (from sleeping with mild problems to having no problems sleeping). Meanwhile, incontrol group average sleep quality score is 2.1111. Then for the p value of the difference in baby sleep quality of 0.004 thus the p value is smaller than the value of α (5%) or 0.05 so that Ha is accepted, and through the results that have been obtained it can be interpreted that statistically there is a difference in baby sleep quality between the treatment group and the control group. So it can be concluded that giving a combination of baby swim with classical Mozart music has a greater effect on baby sleep quality compared to giving classical Mozart music alone.

The influence of baby swim on increasing baby sleep has been proven by research by (Melati, 2017) which shows that the quantity of sleep of babies aged 3-6 months after baby SPA was given twice a week was higher (average 730.42 minutes) than before baby SPA was

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given (average 200.75 minutes). Thus, it shows a significant difference between the quantity of sleep of babies aged 3-6 months before and after being given baby SPA twice a week in Bebengan Village, Boja District, Kendal Regency.

This is in accordance with the theory of stimulation given to the baby's body in this study is that baby swim will activate the parasympathetic autonomic nervous system in the raphe nucleus and solitarius nucleus which are sensory regions of the medulla and pons entering the brain through the vagus and glossovaryngeal nerves which can cause sleep. In addition, the raphe nucleus causes the secretion of corticotropin releasing factor (CFR) which can stimulate the pituitary gland so that the body relaxes, feelings become calm so that tension is reduced and makes it easier for babies to fall asleep (Barret et al., 2002).

In addition, when babies are given classical Mozart music therapy, it can activate cells in the limbic system and autonomic nerves so that the body's immunity increases and stimulates the release of endorphins and serotonin. Changes in serotonin levels can create a calm and relaxed atmosphere. So that it can improve sleep quality (Djohan, 2009).

This is in accordance with the theory of the mechanism of the influence of baby swim on babies, namely to stimulate the activity of the autonomic nervous system which causes the response of the pancreas (islets of Langerhans) so that there is an increase in insulin and glucagon secretion which functions to improve food absorption to be better (Melati, 2017). The mechanism also occurs in the stomach and intestines (sphincter) which relaxes and in the noradrenergic impulse response there is a contraction so that the empty stomach (hunger contraction) will stimulate appetite (Barret et al., 2002).

V. CONCLUSIONS AND RECOMMENDATIONS

Conclusion

Based on the analysis of the research results and discussions that have been carried out, it can be concluded that the effect of the combination of baby swim with Mozart classical music on the weight and sleep quality of babies aged 6-9 months is as follows:following:

1. In the combination group of baby swim with Mozart classical music, there was a significant difference in the weight and sleep quality of babies before and after treatment was given to babies aged 6-9 months.
2. In the Mozart classical music group, there was a significant difference in the weight and sleep quality of babies before and after treatment was given to babies aged 6-9 months.
3. There is a significant difference in the weight and sleep quality of the baby between the treatment group and the control group. So the combination of baby swim with classical Mozart music is more effective in increasing weight and sleep quality compared to the control group (classical Mozart music).

Suggestion

Based on the conclusions of the research results, the following suggestions can be given:

1. For Patients
   It is hoped that parents can choose a combination of baby swimming with Mozart classical music from trained therapists as an alternative to increase weight and sleep quality in their children.
2. For clinics

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It is hoped that clinics, especially midwives, can provide advice or solutions to parents when experiencing various complaints in babies to provide a combination of baby swim with Mozart classical music and provide an understanding to parents that the combination of baby swim with Mozart classical music is not dangerous for babies if carried out by a therapist or trained health worker.

3. For Next Writers
   It is hoped that further authors can develop this research using the true experiment research method in order to control other variables that affect infant weight gain and sleep quality and to assess sleep quantity objectively.

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