JKM (Jurnal Kebidanan Malahayati), Vol 11, No. 3. March 2025,
ISSN (Print) 2476-8944 ISSN (Online) 2579-762X, Hal 263-268

THE EFFECT OF MUROTTAL THERAPY ON PHYSIOLOGICAL ADAPTATIONS TO THE WEIGHT OF LBW BABIES WITHIN 10 DAYS OF BIRTH

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ABSTRACT

Infant morbidity and mortality rates are influenced by various factors, including the circumstances at birth, in this case babies born with low birth weight or LBW. One of the causes of infant mortality is Low Birth Weight (LBW). The LBW figure in 2020 is 44,000 cases. Low birth weight (LBW) babies are one of the main causes of newborn deaths. If a baby weighs less than 2,500 grams (2.5 kilograms), they are considered to have a low birth weight.

Even though infancy is an important period for preventing stunting. An important period in preventing stunting is the 1000th birth period, after the baby is born this is a critical period because the baby undergoes an adaptation process to life outside the uterus. This adaptation causes a decrease in the baby's weight of up to 10% in the first 10 days of the baby's life. Previous research on the effect of murotal therapy on the body weight and body temperature of LBW babies resulted in an increase in body weight and stability of the body temperature of LBW babies within 3 days of treatment at the hospital.

The aim of the research was to determine the effect of murottal therapy on the baby's weight during the 10-day adaptation period of birth. Method: quasi-experimental research with one group pre-test and post-test. The intervention given was that respondents were exposed to murotal therapy for 30-60 minutes once a day in the morning for 10 days, then the baby's weight was weighed before and after murottal therapy. The research population was all LBW babies in the perinatology room at Adadi Tjokrodipo Regional Hospital in 2024. Sample technique used purposive sampling technique. Data analysis used univariate and bivariate independent T tests.

Results: showed that there was a difference in the weight of bbw babies before murottal therapy and after murottal therapy with a v palue of 0.000.

Conclusion ; There is an influence on the weight of LBW babies during the 10 day birth adaptation period with Murotttal therapy intervention with no weight loss.

Suggestion: Murottal therapy can be given to LBW babies within 10 days of birth to prevent weight loss as a result of physiological adaptation.

Keywords : LBW Murottal, Physiological,

ABSTRAK : PENGARUH TERAPI MUROTTAL TERHADAP ADAPTASI FISIOLOGIS TERHADAP BERAT BADAN BAYI BBLR DALAM 10 HARI LAHIR

Angka kesakitan dan kematian bayi dipengaruhi oleh berbagai faktor, diantaranya keadaan saat dilahirkan dalam hal ini bayi lahir dalam keadaan berat badan yang rendah atau BBLR . Salah satu sebab kematian bayi adalah Berat Badan Lahir Rendah (BBLR) .Angka BBLR pada tahun 2020 adalah 44.000 kasus. Bayi dengan berat badan lahir rendah (BBLR) merupakan salah satu penyebab utama kematian bayi baru lahir. Jika bayi memiliki berat badan kurang dari 2.500 gram (2,5 kilogram), mereka dianggap memiliki berat badan lahir rendah .

Padahal masa bayi merupakan masa penting untuk pencegahan stunting. Masa penting dalam pencegahan stunting adalah masa 1000 kelahiran, setelah bayi lahir adalah masa genting karena bayi mengalami proses adaftasi terhadap kehidupan di luar uterus. Adanya adaftasi tersebut menyebabkan penurunan berat badan bayi hingga 10 % dalam 10 hari pertama kehidupan bayi. Penelitian terdahulu tentang pengaruh therapi murotal terhadap berat badan suhu tubuh bayi BBLR mendapatkan hasil adanya peningkatan berat badan dan stabilitas suhu tubuh bayi BBLR dalam masa 3 hari perawatan di RS .

Tujuan penelitian adalah ingin mengetahui pengaruh terapi murottal terhadap berat badan bayi dalam masa adaftasi 10 hari kelahiran. Metode : penelitian quasi eksperimen dengan *one grup pre tes dan post tes*. Intervensi yang diberikan adalah responden diperdengarkan terapi murotal selama 30-60 menit sekali sehari pada waktu pagi hari selama 10 hari kemudian berat badan bayi ditimbang sebelum dan setelah dilakukan therapi murottal.

Populasi penelitian adalah seluruh bayi BBLR yang ada di ruang perinatology di RSUD Adadi Tjokrodipo pada tahun 2024. Tehnik Sampel menggunakan *tehnik purposive sampling***.** Analisis data menggunakan univariat dan bivariat uji T independent.

Hasil : menunjukkan ada perbedaan berat badan bayi bblr sebelum therapi murottal dengan setelah therapi murottal dengan v palue 0,000.

Kesimpulan ; terdapat pengaruh berat badan bayi BBLR dalam masa adaftasi 10 hari kelahiran dengan intervensi therapi murotttal dengan tidak ada penurunan berat badan

Saran : pemberian therapi murottal dapat diberikan kepada bayi BBLR dalam masa 10 hari kelahiran untuk mencegah terjadi penurunan berat badan sebagai akibat adaftasi fisiologis

Kata Kunci : BBLR,Murottal, Fisiologis

INTRODUCTION

One indicator of a child's growth and development until adulthood and provides an overview of the nutritional status of the fetus while it is still in the womb is birth weight (Astuti, 2023). LBW is still a problem related to nutritional deficiencies in developing countries (Alfiyah, 2023). LBW is a baby whose birth weight is <2,500 grams, regardless of the gestation period (Putriana & Aliyanto, 2021).

Newborn babies in the first few moments or hours will go through the extremes of the most dynamic period of the entire life cycle due to moving from total dependence to physiological independence, this process is known as the transition period (Anjani & Sulistyawati, 2024). Therefore, at every birth, it is important for midwives to think about the factors of pregnancy or childbirth that can cause disturbances in the first hours of life outside the womb, such as prolonged labor, birth trauma, infection, meconium discharge, and the use of drugs, so that maternal and infant mortality can be minimized (Anggraeni & Anggun, 2025). Death and morbidity in pregnant and postpartum women and newborns has long been a problem in developing countries like Indonesia (Azzahroh et al., 2020).

The infant mortality rate in Indonesia is projected to be 19.3 per 100 live births in 2023. According to WHO (2023), the most common causes of infant death are infections, LBW and birth defects (Dewi et al., 2019). Most newborn deaths occur in low- and middle-income countries. Improving the survival and health of newborns and ending preventable newborns, through coverage of quality antenatal care, skilled delivery services, postnatal care for mothers and babies, as well as services for small and sick newborns (Sumawidayanti et al., 2015).

According to WHO (2023) LBW and prematurity require things such as: if a low birth weight baby is identified at home the family must be assisted in finding a hospital or facility to care for the baby, increased attention to keeping the newborn warm, including skin to skin care, unless there is a medically justified reason to delay contact with the mother, assistance in the initiation of breastfeeding such as helping the mother to express breast milk to feed the baby from a cup or other means if necessary (Sarinengsih & Dirgahayu, 2021).

Problems experienced by LBW babies are not handled properly and there is a risk of death. Nursing intervention for LBW babies to prevent complications and stimulate the baby's growth and development is carried out by providing complementary therapy. One complementary therapy that can be used is murottal therapy. Murottal therapy is safe to use, practical and does not cause side effects when used. Apart from that, murottal therapy can also be given by parents of premature babies independently (Turlina & Nurhayati, 2017).

Treatment for LBW babies at the Adaditjokrodipo Hospital in Bandar Lampung is by placing the baby in an incubator. This treatment aims to prevent babies from becoming hypothermic, because LBW babies are at high risk of experiencing hypothermia because the temperature regulation center is not yet perfect. However, incubator care is only focused on maintaining the baby's body temperature. Previous research on murottal therapy for LBW babies provided benefits not only for temperature stability but also for increasing the baby's weight.

Research purposes want to know the effectiveness of morotal therapy on the temperature and weight of LBW babies during the 10 day birth adaptation period in the perinatology room at Adaditjokrodipo Hospital Bandar Lampung.

RESEARCH METHODS

The research design uses quasi experimental with pre and post test one group design. The research will be carried out at Adaditjokrodipo Hospital, Lampung. The research population was all LBW babies who were treated in the Perinatology Room. The sampling technique uses the probability sampling method (Yanti et al., 2023). (Yanti et al., 2023). The sample size was determined using the

 DOI 10.33024, http://ejurnalmalahayati.ac.id/index.php/kebidanan

hypothesis test formula for the difference between two means (Ulfah & Sari, 2019). The sample size was 30 respondents. The intervention carried out was by providing murotal therapy to LBW babies who met the inclusion criteria for 3 days in hospital followed by 7 days at home.

Inclusion criteria : birth weight; 1000-2499 grams, gestational age 34 weeks to 36 weeks, no current illnesses. exclusion criteria; The baby's weight is below 1500 grams, babies with comorbidities, babies with congenital disorders, before and after being given murotal therapy, the baby's weight is weighed. Therapy is given using sound speakers, given for 30 to 60 minutes with a sound strength of 50 decibels. The speaker is placed near the baby's feet at a distance of 30 cm. Murottal therapy is applied to babies for 10 days. 3 to 4 days in hospital then continued at home. Body weight was measured on the first day before murottal therapy and after the 10th day after administration.

RESEARCH RESULTS

Based on table 1, it can be seen that the mothers/parents of LBW respondents are in healthy reproductive age, in this case 25-35 years old, there are 25 people (75%). The majority of respondents' mother's occupation was as a housewife, as many as 28 people (90%). For gestational age characteristics, the highest number was 34 weeks, 14 people (30%). The most common method of delivery was caesarean section, 24 (80%). The most common gender of respondents was male, 25 people (83%). For ANC data, all respondents stated that they were regular, 20 people (100%). The most frequent places for ANC examinations were in hospitals, 29 people (90%).

Table 1
Respondent Characteristics

Category	F	%
Maternal age		
< 20 years	1	5
20-35 years	25	75
>35 years	4	20
Mother's job		
Housewife	28	90
Private sector employee	2	10
Gestational age		
30 weeks	3	10
31 weeks	5	16,7
32 weeks	4	13,3
33 weeks	3	10
34 weeks	9	30
35 weeks	1	3,3
36 weeks	4	13,3
38 weeks	1	3,3
Mode of delivery		
Normal	24	80
S.C	6	20
Gender		
Man	25	83
Woman	5	17
Anc's visit		
Regular	30	100
Irregular	0	0
Anc place		
Hospital	29	90
Health Center	1	10

Table 2
Weight on day 1 and day 10

Variable	Mean	SD	Std error mean	Min	Max
Weigth pre	1824,433	480,13573	87,66039	1000	2500
Weigh apter	2091,5	616,03173	112,47149	3100	2091,5

Paired sample correlations

	N	Correlation	Sig
Pair 1 pre test dan post tes	30	0,844	0,000

Based on table 2, it can be seen that the average body weight before murottal therapy was 1824.433 grams. And the average body weight after being given murottal therapy was 2091.5 grams.

Bivariate results

Table 3
Bivariate T test results

Var	Mean	std deviasi	95% Ci lower	95% Ci Upper	P value
Pre Post	-267,06667	332,88581	-391,36827	-142,76506	0,000

Based on table 3, we get the results of the T test with a Ci of 95%, we get a p value of 0.000. So the value is <0.05, thus H1 is accepted, which means there is a difference in body weight before being given murottal therapy and after being given murottal therapy. This difference occurred in an increase in body weight after being given murottal therapy.

DISCUSSION

Univariate analysis

The results of this study were the same as the ages of the babies used in the study (Putriana & Aliyanto, 2021). The age of the baby in question is in the range of 33-34 weeks and also research conducted by (Dewi et al., 2019). The difference is that in this study, the Yassin letter murottal was used for 30 minutes. On (Dewi et al., 2019) using the letter Al Ikhlas.

The results of the study showed that there were no contraindications for administering murrotal therapy in the first week of life for LBW babies. What differentiates this study from the two researchers above is the length of days of murottal therapy.

The aim of the study was to measure the effect of murottal therapy on increasing baby weight from 1 day to 10 days of age. Murottal therapy carried out on newborns has many confounding factors that cause weight loss because physiologically babies lose weight within 10 days of birth, as compensation the baby adjusts to the environment outside the uterus, while weight begins to increase at the age of 12 and 14 (Farida et al., 2024). Neonates born preterm have a different physiological system from late term neonates. Because various organ functions are not yet mature (Bobak et al., 2005).

BIVARIATE ANALYSIS

Based on the dependent T test analysis, a p value of 0.000 was obtained. These results show that there is a difference in the weight of LBW babies from the first day of birth to the weight of LBW babies on day 10. There is an increase in body weight with an average increase of 267.0667 grams.

Murottal is a type of music therapy with an intensity of 60 decibels which has a positive influence on listeners (Bahrir & Komariah, 2020). Murottal is a voice recording of the Qur'an sung by a qori (reader of the Qur'an). The recitation of the Qur'an physically contains elements of the human voice, humans are healing instruments and tools that are easily accessible (Elzaky, 2010) dan (Farhan, 2015). Sound can reduce stress hormones, activate natural endorphins, increase feelings of relaxation and divert attention from fear, anxiety and tension, improve the body's chemical system thereby lowering blood pressure and slowing down breathing, heart rate and brain wave activity. A longer or slower breathing rate is very good for causing calm, emotional control, deeper thinking and better metabolism (Dwi Nur Anggraeni et al., 2023).

Murottal therapy can be used as therapy in treating respiratory function disorders. Murottal chants that are played to the baby will make the baby feel comfortable. When the baby reaches comfort it will affect the body's production of endorphin hormones. This will make the body's system improve, breathing slows down, so that the baby's respiratory frequency, which was originally fast/short, will become normal (Ermawati & Kusumadewi, 2023) dan (Fadhilah et al., 2024).

When someone listens to the soft strains of the Koran, the signal will be picked up by the earlobe. Next, the reading impulse will be forwarded to the thalamus (part of the brain stem). If someone understands the language or its meaning, impulses will be transmitted to the primary and secondary auditory areas, then processed in Wernicke's area to interpret the meanings. Then the impulses will be associated to the frontal area so that there is expansion of thought or deepening of meaning which plays a role in determining the hypothalamus' response to these meanings. The results obtained in the Wernicke area will be stored as memory. Then it is sent to the amygdala to determine the emotional reaction. Therefore, if we understand the meaning of chanting the Koran, we will gain peace of mind (Mayrani & Hartati, 2013).

Apart from that, research in 2018 by Nuhan et al regarding therapy using Al-Qur'an reading with Al-Qur'an murottal stimulants can be used as a new alternative as relaxation therapy, because Al-Qur'an stimulation gives rise to a 63.11% spread of thetha waves. Using Arrahman audio has been previously researched and proven to be effective in reducing anxiety levels and is able to relax patients (Lestari, 2020).

 DOI 10.33024, http://ejurnalmalahayati.ac.id/index.php/kebidanan

Surah Yasin is the 36th letter in the Koran which is located in verses 22 and 23 with a total of 83 verses. According to researchers, terqpi murottql is a form of therapy taught by the Prophet Muhammad SAW, who in the time of the apostles was known as thibun nabawi. Murotttal therapy can be used as a complementary alternative therapy to accelerate healing of various diseases. This therapy can be applied in various health service facilities such as community health centers, midwife practices and hospitals (Noviana et al., 2020). Several studies show that Murottal Surat Yasin therapy can have an effect on reducing blood pressure in hypertensive patients. Murottal is one way that can be done and has a positive effect on the listener by stimulating alpha waves, causing the listener to become calm, peaceful and peaceful (Putriana & Aliyanto, 2021) dan (Al-Kaheel, 2010).

Alpha waves are brain waves that appear when someone is daydreaming, meditating or doing certain activities such as aerobics or listening to a singing bowl. This wave has a frequency of around 8-12 Hz. When the brain operates at alpha frequency, a person can easily absorb new information. These alpha waves are in the middle of the random wave spectrum, between theta waves and beta waves. Brain waves are electrical activity that occurs in the brain which is caused by the communication of brain cells (neurons) with each other. Alpha waves have many benefits including 1) reducing stress and anxiety 2) increasing creativity 3) reducing symptoms of depression 4) managing chronic pain 5) increasing focus and concentration 6) improving long-term memory 7) increasing self-confidence 8) improving performance and mood (Zahrofi, 2014).

Alpha waves provide an excellent way to induce sleep and it has been shown that alpha rhythms are associated with NREM (Non-Rapid Eye Movement) at the start of sleep. A brain that is continuously full of alpha waves is not good for your health because it can make it difficult to sleep and calm your mind. It is also frequently associated with insomnia and migraine headaches.[12] Therefore, murottal therapy was given only 30 – 60 minutes a day in this study. The increase in weight of LBW babies within 10 days of birth is thought to be due to good sleep patterns due to the induction of alpha waves in LBW babies. This good sleep pattern causes optimal absorption of nutrients. The sleep pattern of newborn babies is around 16.5 hours per day. Consists of 8 hours of nap and 8.5 hours of sleep at night. The baby will wake up in 2-3 hours to eat. Doesn't sleep all night (6-8 hours) without waking up until 3 months old or weighs 12-13 pounds. Sleep is one of the important things for babies, especially for newborns. Newborn babies basically don't have a perfect circadian cycle or sleep cycle. This causes some babies to appear to wake up more frequently at night with long periods of sleep during the day. Thus, murottal therapy induces LBW babies to sleep well so that their body development processes become optimal.

CONCLUSION

There is an effect of murottal therapy on the weight adaptation of LBW babies within 10 days of birth with a p value of 0.000

RECOMMENDATION

Hospitals can apply murottal therapy during hospitalization and continue at home for 10 days of birth as an effort to prevent weight loss in BBLR babies.

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