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The Effectiveness of Baby Massage on Weight Gain and Sleep Quality of Babies Aged 3-6 Months at the Main Clinic of Rufaidah Care Banda Aceh City

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ABSTRACT

Every baby experiences stages of growth and development in his or her lifetime. Growth and development is a continuous process, and growth is part of the developmental process, one of which is weight and sleep quality, many babies have sleep problems in Indonesia, which is around 44.2%. To determine the effectiveness of baby massage on weight gain and sleep quality of babies aged 3-6 months at the Rufaidah Care Main Clinic, Banda Aceh City Research Design. This study is a quasi-experimental research without a control group with a design one group pretest post test. This design uses one group of samples by taking one measurement before the treatment and after that another measurement is taken (post test). The population in this study is all babies aged 3-6 months as many as 27 people, the sampling technique is Total Sampling with a total sample of 27 people using the Paired t-test. that the application of Baby Massage was effective on weight gain and sleep quality because indigo p Value 0.00 ($p < 0.05$). Conclusion: Based on the results of the tests that have been carried out, it can be concluded that there is an effectiveness of baby massage.

Keywords: Baby Massage, Weight Loss, Sleep Quality

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INTRODUCTION

Low Birth Weight (LBW) is still a significant public health problem globally. The World Health Organisation (WHO) defines BBLR as a baby born weighing less than 2,500 grams, regardless of gestational age. WHO reports that around 20 million babies in the world are born with BBLR each year, and this condition contributes to the high rates of neonatal morbidity and death, especially in developing countries (WHO, 2023). UNICEF emphasizes that BBLR is an important indicator of maternal health status during pregnancy and reflects the quality of maternal health services and maternal nutritional adequacy (UNICEF, 2023).

Globally, the nutritional status of pregnant women is one of the main factors that are closely related to the incidence of BBLR. Chronic energy deficiency (KEK), anemia, and inadequate nutritional intake during pregnancy have been proven to increase the risk of BBLR. WHO emphasizes that improving the nutritional status of pregnant women is a key strategy in reducing the prevalence of BBLR and improving the quality of health of future generations (WHO, 2024). In Indonesia, BBLR is still a maternal and child health problem that needs serious attention. The Ministry of Health of the Republic of Indonesia reported that the prevalence of BBLR nationally is still relatively high and shows variation between regions. The nutritional status of pregnant women, especially SEZs and anemia, is still the main challenge in efforts to reduce the rate of BBLR (Ministry of Health of the Republic of Indonesia, 2023).

Low Birth Weight (BBLR) is a baby born weighing less than 2500-grams regardless of gestational age. Premature or under-term babies are babies born with a gestational age of < 37 weeks (Rahmania & Try Mentari, 2021). Low Birth Weight Babies (BBLR) are babies who are born weighing less than 2,500 grams. Low birth weight babies may be premature (less than months), or they may also be full-term (dismature) (Hendayani, 2019). Factors that affect fetal welfare include maternal factors, fetal factors and environmental factors. Maternal factors that affect fetal well-being are maternal age, parity, maternal education, nutritional status, pregnancy distance, socioeconomic status, gemel pregnancy, hypertension and preeclampsia in pregnancy, and premature rupture of the membranes (Yulisa, 2022). Risk factors that affect the incidence of BBLR include socio-demographic factors (race, education, socioeconomic status, maternal age, nutrition and body mass index (BMI), obstetric factors (amount of parity and pre-eclampsia), maternal

comorbid factors, environmental factors, gestational age <37 weeks), maternal habits (smoking or drinking alcohol) and infections (Riantika et al., 2022).

Aceh Province is one of the regions that is still facing nutritional problems for pregnant women and BBLR. The Aceh Provincial Health Office reported that cases of pregnant women with KEK and anemia are still found in various districts/cities, which has the potential to increase the risk of birth to babies with low body weight (Aceh Health Office, 2023). Factors that can cause the occurrence of BBLR according to WHO (2015) include mothers with poor nutritional status, mothers with anemia, health problems during pregnancy, high parity, poor pregnancy spacing, and pregnancy at a risk age (<20 or >35 years). The nutritional status of pregnant women is a very important part of both the mother and the fetus, because the food that enters the mother's body will be channeled to the fetus. Therefore, the nutrition of pregnant women needs to be considered because it is closely related to the nutrition obtained by the fetus in the womb (Mardiaturrahmah, 2020 in Salam, 2021).

At the district level, especially in Southwest Aceh Regency, BBLR is still one of the indicators of maternal and infant health problems. Based on a report by the Southwest Aceh Regency Health Office, BBLR cases are still found in health service facilities, including at the Teungku Peukan Regional General Hospital in Southwest Aceh. One of the factors that is suspected to play a role is the nutritional status of pregnant women who are not optimal during pregnancy, both in terms of nutritional intake and routine health monitoring (Southwest Aceh Regency Health Office, 2024).

The low nutritional status of pregnant women can cause a decrease in blood volume or inadequate cardiac output which will affect blood flow to the placenta to decrease, so that the size of the placenta shrinks and can interfere with the supply of nutrients from mother to fetus, as a result of which babies are born with BBLR (Warastuti and Nengsih, 2020 in syarif, 2020). In addition, malnutrition in pregnant women can also cause babies born prematurely, abortion to stillbirths. During childbirth, there can also be a risk of bleeding, infection, long labor, and other difficulties that may require surgery (Ratnaningtyas et al., 2022). Babies with BBLR are at risk of impaired growth, cognitive development, and an increased risk of non-communicable diseases later in life. Therefore, understanding the relationship between the nutritional status of pregnant women and the incidence of BBLR is very important as a basis for

planning maternal and child health interventions (Halimatussakdiah, 2023).

METHOD

This type of research is a structured way to obtain answers to the problems being researched. The research design includes various stages starting from problem identification, hypothesis formulation, determination of operational definitions, data collection techniques, to data analysis carried out by researchers (Masturoh & Anggita, 2018). The research design used in this study is observational analysis with a cross sectional correlation approach. The cross sectional correlation approach is a study conducted by measuring independent variables and dependent variables simultaneously at the same time of observation, using research instruments that have been prepared with ethical principles (usman Chairul, 2017) and Huda, C. (2017). with the aim of determining the correlative relationships between variables (Nursalam, 2020) and (Prastiwi, D. 2024) This research was carried out in the working area of the Teungku Peukan Regional General Hospital, Southwest Aceh Regency.

The time for the research will be carried out in February 2026. The population in this study is all infants in the working area of the Teungku Regional General Hospital, Peukan Southwest Aceh. Population is the entire object that is the target of the research (Notoatmodjo, 2018) in (Huda et al., 2025; Huda & Waluyo, 2022). Samples are part of a population that can represent population characteristics and are selected through certain sampling techniques (Nursalam, 2020). The sample in this study is all babies in the working area of the Teungku Peukan Regional General Hospital, Southwest Aceh, who meet the criteria set by the researcher. The inclusion criteria in this study are infants who have birth weight data recorded in the infant cohort register book, have data on the size of the mother's Upper Arm Circumference (LILA) recorded in the mother's cohort register book, and babies born in living conditions. Meanwhile, the exclusion criteria in this study are babies who are transferred or not born in the working area of the Teungku Peukan Regional General Hospital, Southwest Aceh.

RESULTS AND DISCUSSION

The results of this study This study was carried out in February 2026 in the working area of the Teungku Peukan Regional General Hospital, West Aceh with an observational design of a cross sectional approach. Data were obtained through observation sheets based on records in the maternal and infant cohort register books in accordance with the inclusion and exclusion criteria that have been set. The number of samples in this study was 60 respondents (mothers and infants) who met the research criteria.

Distribution of Nutritional Status of Pregnant Women

Table 1. Distribution Table of Nutritional Status Frequency of Pregnant Women

Maternal Nutritional Status	Frequency (f)	Percentage (%)
Poor Nutrition (LONG < 23.5 cm)	22	36,7
Good Nutrition (LONG ≥ 23.5 cm)	38	63,3
Quantity	60	100%

Based on the table above, it is known that most pregnant women have a good nutritional status, namely 38 people (63.3%), while mothers with poor nutritional status are 22 people (36.7%).

Distribution of Low Birth Weight Incidence (BBLR)

Table 2. BBLR Occurrence Frequency Distribution

BBLR Incident	Frequency (f)	Percentage (%)
BBLR (< 2500 gram)	18	30,0
No BBLR (≥ 2500 grams)	42	70,0
Quantity	60	100%

Based on the table above, 18 babies (30.0%) experienced BBLR, while 42 babies (70.0%) did not experience BBLR.

Bivariate Analysis

Table 3. Relationship between Nutritional Status of Pregnant Women and the Incidence of BBLR

Maternal Nutritional Status	BBLR	No BBLR	Total
Malnutrition	12	10	22
Good nutrition	6	32	38
Quantity	18	42	60

The results of the Chi Square test obtained a value of $p = 0.002$ ($p < 0.05$), so it can be concluded that there is a significant relationship between the nutritional status of pregnant women and the incidence of BBLR in the working area of the Teungku Regional General Hospital, Peukan Southwest Aceh. The Contingency Coefficient value (C) of 0.41 indicates that the strength of the relationship is in the medium category.

DISCUSSION

This study aims to analyze the relationship between the nutritional status of pregnant women and the incidence of Low Birth Weight (BBLR) in the working area of the Teungku Regional General Hospital, Peukan, Southwest Aceh. Based on the results of the study, it was found that there was a significant relationship between the nutritional status of pregnant women measured through the Upper Arm Circumference (LILA) and the incidence of BBLR. Mothers with poor nutritional status tend to have a higher risk of giving birth to babies with low birth weight than mothers with good nutritional status.

The results of univariate analysis showed that most mothers had good nutritional status, but there were still mothers with a LILA of < 23.5 cm who were classified as at risk of experiencing Chronic Energy Deficiency (SEZ). This condition shows that nutritional problems in pregnant women are still a challenge in health services. The nutritional status of the mother reflects the adequacy of energy and nutrient intake during pregnancy which is indispensable to support the growth of the fetus. Nutritional deficiencies can lead to a decrease in the mother's energy reserves and interfere with physiological function during pregnancy.

Biologically, mothers with less nutritional status are at risk of developing uteroplacental blood flow disorders (Nurhayati, 2021) that cause reduced supply of oxygen and essential nutrients to the fetus. This condition can inhibit intrauterine growth and increase the chances of a baby being born weighing less than 2500 grams. Therefore, LILA measurement as a simple indicator of maternal nutritional status has an important role in detecting the risk of BBLR. The results of bivariate analysis showed that mothers with nutritional status gave birth to more or less BBLR babies, with a p value of < 0.05 . This confirms that there is a meaningful relationship between the nutritional status of pregnant women and the incidence of BBLR. However, nutritional status is not the

only factor that affects birth weight. Other factors such as maternal age, parity, pregnancy distance, health conditions, and the quality of antenatal services also play a role.

In the context of health services, the results of this study show the importance of regularly monitoring the nutritional status of pregnant women through LILA examinations. In addition, education about a balanced diet, adherence to supplement consumption, and supplemental feeding for at-risk mothers needs to be improved. Integrated promotive and preventive efforts are expected to reduce the incidence of BBLR. Overall, this study confirms that the nutritional status of pregnant women has an important role in determining the birth weight of the baby. Improving the quality of maternal nutrition during pregnancy is a strategic step in improving maternal and infant health and reducing the incidence of BBLR.

CONCLUSION

Based on Based on the results of the study, it can be concluded that there is a significant relationship between the nutritional status of pregnant women and the incidence of Low Birth Weight (BBLR) in the working area of the Teungku Regional General Hospital of Southwest Aceh. Mothers with poor nutritional status have a higher risk of giving birth to babies with BBLR than mothers with good nutritional status. The results of this study show that the nutritional status of pregnant women is an important factor that affects the baby's birth weight. Therefore, efforts are needed to improve monitoring and improve maternal nutritional status through routine checkups, nutrition education, and appropriate interventions during pregnancy. The next study is expected to examine other factors that contribute to the incidence of BBLR in order to obtain a more comprehensive picture.

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