JOURNAL OF COMPLEMENTARY NURSING
http://journals.sagamediaindo.org/index.php/JCN

# Giving Oral Massage is Effective in Increasing the Suction Reflex Stimulus of LBW Babies

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Research Article

Volume: 01

Issue: 03

Years: 2022

Editor: HF

Received: 21/03/2022

Reviewed: 31/08/2022

Published: 01/10/2022

Available Article: (doi)
10.53801/jcn.v1i3.45



**Abstract**
**Background:** Low birth weight is a health problem that requires special attention in developing countries or countries with low socio-economic conditions. One of the impacts of LBW babies is the immaturity of the system in the body, including the baby's sucking reflex. The baby's sucking reflex in LBW has delay which has an impact on the growth and development of the baby.
**Objectives:** this study was to determine the effectiveness of oral massage on increasing the suction reflex of LBW at RS UMMI, Bogor.
**Methods:** Types of a quantitative method with a pre-experimental design and a one-group pre/post-test design with a total of 22 LBW respondents. Oral massage is given once a day for 15 minutes for 10 days
**Results:** The results showed that oral massage affected increasing the suction reflex of LBW with a marked increase in the mean value from 0 to 6, based on its development that on day 10 of the action, 100% of respondents already had a strong suction reflex.
**Conclusion:** The conclusion is that oral massage affects increasing the suction reflex of LBW.

**Keywords:** lbw, oral massage, suction reflex

## Introduction

Based on the Millennium Development Goals (MDGs), one of the main indicators of public health is the infant mortality rate (IMR). In developing countries such as the Asia and Africa region, the low birth rate (LBW) is very high. The world health organization (WHO) seeks to reduce the incidence of LBW by 30% in 2025. The LBW rate is estimated to be around 15-20% of all births in the world and 20 million have LBW.[1] LBW cases occur in developing countries reaching 95% and 6% are found in East Asia and the Pacific.[2] Indonesia is the country with the second highest prevalence in ASEAN after the Philippines.[3]

LBW is a baby born weighing less than 2500g regardless of gestational age. Birth weight is the weight of a baby who is weighed within the first hour after birth. Health problems

in various developing countries or countries with low LBW economies are a special problem.[4] WHO (2017) divides LBW into 3 groups, namely LBW (1500-2499 g), LBW (1000-1499g), and LBW (<1000g). 60-80% of infant deaths are caused by low birth weight.[5] The infant mortality rate (IMR) is 29 people per 1000 births in 2017. The government continues to make policy directions and strategies in reducing the IMR which is the biggest contributor to infant mortality.[6]

Mortality and morbidity in infants are at greater risk for LBW. Pregnancy less than 37 weeks has a risk of complications in the maturity of the baby's organs. LBW babies have a greater risk of experiencing morbidity and mortality than babies born with normal weight. A gestation period of fewer than 37 weeks can cause complications in the baby because the growth of the organs in the body is less than perfect. The lower the baby's weight, the more important it is to monitor its development in the weeks after birth. One of the impacts of LBW babies is the immaturity of the system in the body, including the baby's sucking reflex. The baby's sucking reflex in LBW has been delayed and has an impact on the growth and development of the baby.[7]

The lower the baby's weight, the more susceptible the baby is to death.[2] The lower the baby's weight, the more important it is to maintain growth and development in the weeks after birth. Mothers with good nutritional status and adopting a good lifestyle will give birth to healthy babies.[8] According to Rajashreein Hartiningrum (2019), reporting the results of his research that LBW describes the situation of nutritional health, social development and economic level.[9]

LBW babies have a smaller chance of survival because they are susceptible to disease. Impaired cognitive development, mental retardation, infection are risks that are often experienced by LBW. The impact that often occurs in adults with a history of LBW is a degenerative disease.[10] LBW care and prevention carried out in increasing the baby's ability to survive can be carried out including maternal knowledge, skin-to-skin, kangaroo mother care, increasing ANC visits, monitoring babies from the time they are in the womb, nutrition and maternal behavior. One of these developments is the immature baby's sucking reflex. To increase the baby's suction stimulus reflex, intervention actions that can be carried out in treatment are reflex stimulation to increase the maturity of the baby. Stimulation that can be given during treatment is skin-to-skin, kangaroo mother care, including oral stimulation (oral massage).[11]

Oral massage is a stimulus that is given in the baby's mouth area. This therapy is one of the effective therapies to improve oral motor skills. This technique focuses on improving the use and function of the face (lips, tongue and jaw) through movement coordination and strength training. A good mouth function will make it easier for the baby to suck. Based on interviews and observations in the RS UMMI cases of 10 LBW babies, 90% had difficulty breastfeeding and 1% had problems with the suction reflex. This prompted researchers to conduct a study "The Effect of Oral Massage on the baby's sucking reflex stimulus in LBW at RS UMMI Bogor"

## Methods

This research is a quantitative study using a pre-experimental design by designing a one-group pre/post-test design. This study was given an intervention after oral massage and then assessed by comparing the pre-test and post-test with oral massage for 10 days. The population is 30 with inclusion criteria. Using the approach formula means that the sample used is 22 respondents. Before conducting the bivariate analysis, the researcher conducted a

normality test first, because the respondents were <50, the researcher used the Shapiro-Wilk test. Bivariate analysis used Wilcoxon nonparametric statistical test because the data were not normally distributed. this research has been conducted a research ethics test at the Research Ethics Commission of the Indonesia Maju University and has passed theethical test with No. 2519/Sket/Ka-Dept/RE/STIKIM/XI/2021, and this research was conducted at RS UMMI in July-December 2021.

## Results

**Table 1.** Frequency Distribution of Infant Gestational Age, Type of Birth at RS UMMI Bogor (n=22)

| Variable | Frequency (N) | Percentage (%) |
|---|---|---|
| **Infant Gestational Age** | | |
| 28-36 weeks | 20 | 90,9 |
| 37-42 weeks | 2 | 9,1 |
| **Type of Birth** | | |
| Section cesarea | 18 | 81,8 |
| Spontaneous | 4 | 18,2 |

Based on table 1 shows that babies with gestational age 28-36 weeks amounted to 20 respondents (90.9%) and babies with gestational age 37-42 totaled 2 respondents (9.1). Type of birth shows respondents (81.8%) were born with cesarean section and 4 respondents (18.2%) had spontaneous births.

**Table 2.** Frequency Distribution of Suction Reflex Ability Pre-Test and Post-Test at RS UMMI Bogor (n=22)

| Variable | | Frequency (N) | Percentage (%) |
|---|---|---|---|
| **Suction Reflex** | | | |
| Pre-Test | 0 | 22 | 100 |
| | 1 | 0 | 0 |
| | 2 | 0 | 0 |
| | 3 | 0 | 0 |
| | 4 | 0 | 0 |
| | 5 | 0 | 0 |
| | 6 | 0 | 0 |
| **Suction Reflex** | | | |
| Post-Test | 0 | 0 | 0 |
| | 1 | 0 | 0 |
| | 2 | 0 | 0 |
| | 3 | 0 | 0 |
| | 4 | 0 | 0 |
| | 5 | 0 | 0 |
| | 6 | 22 | 100 |

Based on table 2 shows that in the babies who had the pre-test 22 respondents (100%) experienced a suction reflex of 0 or no suction reflex. In the post-test after the oral massage intervention for 10 days, the score was 6 in 22 respondents (100%) the baby's suction reflex was strong.

**Table 3.** The intensity of LBW Suction Reflex on Oral Massage (n=22)

| | N | Mean | Std Dev | Min | Max | P-value |
|---|---|---|---|---|---|---|
| **Pre-test** | 22 | 0 | 0,000 | 0 | 6 | 0,000 |
| **Post-test** | 22 | 6 | 0,000 | 0 | 6 | |

Based on table 4 above, it can be seen that before and after oral massage therapy was given, there was an increase in the suction reflex in LBW infants at the RS UMMI Bogor, which was indicated by an increase in the mean value. In the pre-test data, the mean value was 0 and increased until the 10th day, the mean obtained was 6 with a p-value = 0.000. If the p-value < 0.05, it can be said that oral massage affects the baby's sucking reflex.

## Discussion

### Overview of Characteristics of Respondents

The results showed that there were 20 respondents (90.9%) of infants with a gestational age of 28-36 weeks and 2 respondents (9.1%) of infants with a gestational age of 37-42. Rhomawati (2016), the gestational age of respondents was 28-36 weeks 56.5%, and 43% aged 37-42 weeks and intervention was carried out by massage and the kangaroo method.[12] In line with research conducted by Ananda (2019), the respondents studied in his research were LBW infants with gestational age <37 weeks.[13] The study was conducted by Ramadhani (2016), and premature babies with age <37 weeks experienced suction reflex disorders.[14] Research conducted by Ferinawati and Sari (2020), the factor that influence affecting the incidence of LBW is gestational age.[15]

From the research conducted, respondents experienced LBW because their gestational age was between 28-36 weeks or preterm. The average preterm gestational age of the babies was in the LBW category. Respondents with LBW are pure preterm so the baby's maturity still needs to be stimulated, one of which is the sucking reflex. The researcher assumes that LBW babies generally occur because the gestational age is below <37 weeks and has impaired sucking reflexes.

The results showed that 18 respondents (81.8%) were born with cesarean section and 4 respondents (18.2%) had spontaneous births. Most of the LBW babies are based on research conducted by Novitasari (2020) regarding the prevention and control of LBW in Indonesia including increased knowledge, skin-to-skin, KMC, increased ANC visits, monitoring of babies in the womb, nutrition, and behavior.[11] Different studies show that respondents LBW due to section surgery at <37 weeks of gestation.

### Suction Reflex Ability

The results of the study showed that infants who had a pre-test got a score of 0 or there were no suction reflexes for 22 respondents. this is in line with the research conducted by Syaiful, Fatmawati, Sholikhah (2019), that before the oral stimulation intervention 97% of respondents experienced a lack of suction reflex.[16] Also in line with research conducted by Supari (2021) that the average baby's suction reflex was 3 .30 less.[17] Another similar study conducted by Rhomawati (2016) that the average suction reflex of respondents with a mean of 0.00. The ability of the suction reflex of LBW infants was mostly impaired.[12] This is because the maturity of infants in LBW has an impact on the growth and development of infants, so the need for stimulation. The researcher assumes that LBW babies have sucking reflex problems ranging from none to weak.

The results showed that the post-test on the 10th day was 100%, and it was found that 6 experienced a strong suction reflex. This is not in line with the research of Syaiful, Fatmawati, and Sholikhah (2019), that the post-test was carried out on the 7th day of giving oral stimulation therapy.[16] So that the increase in the suction reflex was not measured based on the intervention given every day. Research conducted by Syaiful, Fatmawati, and Sholikhah (2019), that the majority of post-oral stimulation interventions were found to have sufficient suction reflexes

(64%).[16] This is in line with research conducted by Supari (2021), that the post-test results after the Oral motor stimulation intervention showed an increase in average.[17] This could be due to an increase in the ability of the suction reflex due to oral stimulation or oral massage which affects the increase in the sucking reflex of LBW infants.

**The intensity of Oral Massage Against the Suction Reflex LBW**

Based on the results of the study, it can be seen that before and after oral massage therapy was given, there was an increase in the suction reflex in LBW infants at the RS UMMI Bogor, which was indicated by an increase in the mean value. In the pre-test data, the mean value is 0 and has increased from post-test to 6 with a p-value = 0.000 <0.05, which means that the oral massage action that has been given has a significant effect on increasing the suction reflex. This is in line with what was done by Supari (2021), that after being given oral motor stimulation there was an increase in the mean from 3.30 to 7.45 with a p-value of 0.00.[17] In line with research conducted by Syaiful, Fatmawati, Sholikhah (2019), that giving Oral stimulation for 7 days increased the sucking reflex with p-value = 0.000.[16] In line with Maghfuroh et al., there was a significant relationship between oral motor and the increase in the baby's sucking reflex. The increase in LBW suction reflex given by oral massage can be done at least 5 times by giving oral massage stimulation.[18]

The suction reflex is part of the reflex sequence to find the nipple and suck it according to a certain pressure. Suction strength in infants is different, the reflex is said to be positive when the baby sucks the stimulus. Reflexes are reduced because the baby has been fed, is weak, premature, or has neurological disorders. Premature conditions in LBW babies are the main factor that babies don't have a strong suction reflex, so they need oral massage stimulation to increase the ability of the suction reflex.

**Conclusion**

This study can be concluded that LBW infants with gestational age 28-36 weeks amounted to 90.9%, and 81.8% were delivered by cesarean section. LBW who were pre-tested 100% had no suction reflex. After the action of oral massage, 1 time per day for 15 minutes for 10 days obtained 100% strong suction reflex. In this study, before and after oral massage therapy was given, there was an increase in the suction reflex in LBW infants at the RS UMMI Bogor in 2021, which was indicated by an increase in the mean value with a p-value = 0.000, which means that there was an effect of giving oral massage to increase the suction reflex ability of LBW.

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