

THE INFLUENCE OF BABY MASSAGE ON THE FREQUENCY AND DURATION OF BREASTFEEDING IN INFANTS AGED 0-6 MONTHS

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ABSTRACT

The duration and frequency of breastfeeding in infants not only affects the infants but also their mothers, as the frequency of infant suckling influences maternal breast milk production. Data obtained from Suoh Village, the working area of the Bandar Negeri Suoh Health Center, revealed that 40% of infants were breastfeeding only 6-7 times a day, and 20% of infants were breastfeeding for just 5 minutes. One effort that can be made to increase the duration and frequency of breastfeeding is by providing infant massage therapy. The objective of this research is to determine the effect of infant massage on the frequency and duration of breastfeeding in infants aged 0-6 months in Suoh Village, the working area of Bandar Negeri Suoh Public Health Center, in the year 2023. This research employed a quantitative approach with a pre-experimental design and a one-group pretest and posttest design. The population in this study consisted of all infants aged 0-6 months in the working area of Bandar Negeri Suoh Public Health Center, with a sample size of 30 individuals. The sampling technique used was purposive sampling. The study was conducted in July 2023. The data analysis in this study employed the Wilcoxon test. The results of this study indicated that the average frequency of breastfeeding before infant massage therapy was 6.93 times, and after the therapy it increased to 10.37 times. The average duration of breastfeeding before infant massage therapy was 6.77 minutes, and after the therapy it was 10.27 minutes. The bivariate analysis results revealed that there was a significant effect of infant massage therapy on the frequency of breastfeeding with a p-value of 0.000. There was also a significant effect of infant massage therapy on the duration of breastfeeding with a p-value of 0.000. Anthe effect of infant massage on the frequency and duration of breastfeeding in infants aged 0-6 months in Suoh Village, the working area of Bandar Negeri Suoh Public Health Center, in the year 2023.

Keywords: Breastfeeding Duration, Breastfeeding Frequency, Infant Massage

INTRODUCTION

Mother's Milk (ASI) is a substance that is perfect for baby's growth and can accelerate the development of baby's weight. In addition, breast milk contains substances that repel/prevent

disease and can provide satisfaction and bring the hearts of mothers and babies closer as a means of establishing a loving relationship. Therefore the World Health Organization (WHO) / United Nations

Children's Fund (UNICEF) has recommended a gold standard for infant feeding, namely exclusive breastfeeding from birth to 6 months of age (Kemenkes, 2015).

Based on the WHO report (2018), there are 50% of mothers who exclusively breastfeed their babies. Data from 2019 found that 84.06% of mothers gave exclusive breastfeeding to their babies (Kemenkes RI, 2019). UNICEF data states that there has been an increase in exclusive breastfeeding in the world by 36% in 2000 to 41% in 2018, but this figure is still below the Sustainable Development Goals (SDGs) target of 50%. In general, the rate of breastfeeding in the world is quite low. Based on the Global Breastfeeding Scorecard report which evaluates breastfeeding data from 194 countries, the percentage of infants under six months who are exclusively breastfed is only 40%. In addition, only 23 countries have exclusive breastfeeding rates above 60% (WHO, 2019).

Nationally, the coverage of babies receiving exclusive breastfeeding in 2021 is 56.9%. The highest percentage of coverage of exclusive breastfeeding was in West Nusa Tenggara Province (82.4%), while the lowest percentage was in Maluku Province (13%). Meanwhile, Lampung Province ranks ninth with the highest achievement of exclusive breastfeeding with a percentage of 65% (Kemenkes RI, 2021).

The trend of babies receiving exclusive breastfeeding in Lampung Province in 2019 is 69.3%, in 2020 there are 70.1%, and in 2021 it will increase to 73.6%. While the achievement of babies who get exclusive breastfeeding in West Lampung Regency is 81.29% (Dinkes Provinsi Lampung, 2021).

The government has stipulated Government Regulation No. 33 of 2012 concerning exclusive

breastfeeding, the government regulation states that every baby must receive exclusive breastfeeding, namely breast milk given to babies from birth for 6 (six) months, without adding and or replacing it with other foods or drinks. except drugs, vitamins and minerals (Ministry of Health RI, 2013).

Efforts to increase this coverage are by providing correct and appropriate information about the various benefits of exclusive breastfeeding for both mother and baby so as to increase public awareness about the importance of exclusive breastfeeding for babies. Breast milk is useful for providing all the energy and nutrients a baby needs for the first months of life. Breastfeeding is an optimal way of providing nutrition and caring for babies, and with the addition of complementary foods in the second half of the first year, nutritional, immunological and psychosocial needs can be fulfilled until the second year and beyond (Safitri & Puspitasari, 2019).

The duration and frequency of babies not only affect the baby but also the mother, this is because the frequency of the baby's sucking will affect the mother's milk production. Given the importance of breastfeeding for the growth and development of infants, breastfeeding must be fulfilled so that it does not adversely affect their growth and development. The optimal breastfeeding frequency range is between 8-12 times per day with a duration of 15-20 minutes (IDAI, 2013).

One of the efforts that can be made to help increase the duration and frequency of breastfeeding is to provide baby massage care (Setyawandari, 2019). Baby massage causes the baby to become more relaxed and able to rest effectively

so that when the baby wakes up it will bring enough energy to move. Babies get hungry quickly when they are active optimally, so their appetite increases. This increase in appetite is also coupled with an increase in the vagus nerve (the brain's nervous system that works from the neck down to the chest and abdominal cavity) in moving peristaltic cells to push food into the digestive tract, so that the baby gets hungry faster or wants to suckle because his digestion is getting smoother (Falikhah & Hidayat, 2015).

The results of a pre-survey conducted in Suoh Village, Working Area of the Bandar Negeri Suoh Public Health Center on 10 breastfeeding mothers found that 40% (4 babies) only breastfed 6-7 times per day, 20% (2 babies) breastfed only for 5 minutes, and 40% (4 babies) breastfed with a frequency of 8-12 times a day with a duration of more than 15 minutes.

Based on the background description above, the problem formulation in this research was obtained: "Is there an effect of baby massage on the frequency and duration of breastfeeding in babies aged 0-6 months in Suoh Village, Bandar Negeri Suoh Health Center Working Area in 2023?"

This research aimed to determine the effect of baby massage on the frequency and duration of breastfeeding in babies aged 0-6 months in Suoh Village, Bandar Negeri Suoh Health Center Working Area in 2023.

LITERATURE REVIEW

Breast milk is the best food for babies in the first six months of life. All nutritional needs, namely protein, carbohydrates, fat, vitamins and minerals, are fulfilled by breast milk (Fikawati, 2018).

Breast milk emulates fat in a solution of protein, lactose and organic salts secreted by both mother's breast glands as the primary food for babies (Sutanto, 2018).

According to Miranti (2020), babies breastfeed 8-12 times per day in the first month. When the baby is 1-2 months old, the breastfeeding frequency will decrease to 7-9 times daily. The breastfeeding frequency for babies who receive breast milk differs from that of babies given formula milk. Breast milk is easier to digest, so babies get hungry more quickly. Apart from that, according to Sutanto (2018), babies should breastfeed at least ten times in 24 hours, but babies should be breastfed on an off-schedule basis because babies will determine their own needs (Sutanto, 2018).

The length of time a baby breastfeeds varies according to the baby's sucking pattern. Babies should breastfeed for 10 minutes on the first breast because the suction power is still strong and 10 minutes on the other breast because the baby's suction power is starting to weaken. During the newborn period, the baby's breastfeeding time is 20-45 minutes; the duration of breastfeeding also influences the ejection of breast milk during breastfeeding. When the baby cannot breastfeed, a stimulus for breast milk production is vital. However, according to Fikawati (2018), a normal and healthy baby can empty one breast in around 5-10 minutes, and the breast milk in the baby's stomach will empty in around 2 hours. Based on this, it can be concluded that the minimum duration of breastfeeding for healthy babies is 10-20 minutes (Fikawati, 2018).

Baby massage causes the baby to become more relaxed and able to rest effectively so that when the baby wakes up, he will have enough

energy for activities. Babies become hungry quickly when doing optimal activities, so their appetite increases. This increase in appetite is also coupled with increased activity of the vagus nerve (a brain-loaded system that works from the neck down to the abdominal cavity) in moving peristaltic cells to push food into the digestive tract so that babies get hungry more quickly or want to eat because their digestion becomes smoother (Simanungkalit, 2019).

RESEARCH METHODOLOGY

This type of research is a quantitative study with a pre-experimental design and one group pretest and posttest design. The population in this study were all

infants aged 0-6 months in the working area of the Bandar Negeri Suoh Community Health Center with a sample of 30 people. The sample technique used is purposive sampling. The inclusion criteria in this study were babies born at term, babies 0-6 months, average birth weight (> 2500 grams and < 4000 grams), babies in good health, and babies exclusively breastfed. Meanwhile, the exclusion criteria in this study were sick babies and babies who were not exclusively breastfed. This research was conducted in July 2023. The researchers conducted a baby massage intervention which was carried out 2 times a week for 15 minutes. Data analysis in this study used the Wilcoxon test.

RESEARCH RESULT

Table 1
The average frequency of breastfeeding before and after baby massage in infants aged 0-6 months

Breastfeeding Frequency	N	Means	Standard Deviation	Min-Max
Before baby massage	30	6,93	0.907	5-8
After baby massage	30	10.37	1,542	8-13

Based on the table above, it is known that before the baby massage, the average frequency of breastfeeding was 6.93 times, the standard deviation was 0.907 times, the frequency of breastfeeding was a minimum of 5 times and a

maximum of 8 times. Meanwhile, after the baby massage, the average frequency of breastfeeding was 10.37 times, the standard deviation was 1.542 times, the frequency of breastfeeding was a minimum of 8 times and a maximum of 13 times.

Table 2
Average duration of breastfeeding before and after baby massage in infants aged 0-6 months

Duration of Breastfeeding	N	Means	Standard Deviation	Min-Max
Before baby massage	30	6,77	1,755	5-12
After baby massage	30	10,27	1,721	7-15

Based on the table above, it is known that before the baby massage, the average duration of breastfeeding was 6.77 minutes, the standard deviation was 1.755 minutes, the duration of breastfeeding was a minimum of 5 minutes and a maximum of 12

minutes. Meanwhile, after the baby massage, the average duration of breastfeeding was 10.27 minutes, the standard deviation was 1.721 minutes, the duration of breastfeeding was a minimum of 7 minutes and a maximum of 15 minutes.

Table 3
The effect of baby massage on the frequency of breastfeeding in infants aged 0-6 months

Breastfeeding Frequency	N	Means	P-value
Before doing baby massage	30	6,93	
After doing the baby massage	30	10.37	

Based on the table above, it is known that the average frequency of breastfeeding before baby massage is 6.93 times and after baby massage increases to 10.37 times. The results of the Wilcoxon test obtained a p

value of 0.000 <0.05, meaning that there was an effect of baby massage on the frequency of breastfeeding in infants aged 0-6 months in Suoh Village, the Work Area of the Bandar Negeri Suoh Health Center in 2023.

Table 4
The effect of baby massage on the duration of breastfeeding in infants aged 0-6 months

Duration of Breastfeeding	N	Means	P-value
Before doing baby massage	30	6,77	
After doing the baby massage	30	10,27	

Based on the table above, it is known that the average duration of breastfeeding before the baby massage is 6.77 minutes and after the baby massage increases to 10.27 minutes. The results of the Wilcoxon test obtained a p value of 0.000

<0.05 meaning that there was an effect of baby massage on the duration of breastfeeding in infants aged 0-6 months in Suoh Village, the Work Area of the Bandar Negeri Suoh Health Center in 2023.

DISCUSSION

1. The average frequency of breastfeeding before and after baby massage in infants aged 0-6 months

The results of this study indicate that prior to infant massage, the average frequency of breastfeeding was 6.93 times, the standard deviation was 0.907 times, the frequency of

breastfeeding was a minimum of 5 times and a maximum of 8 times. Whereas after the baby massage, the average frequency of breastfeeding was 10.37 times, the standard deviation was 1.542 times, the frequency of breastfeeding was a minimum of 8 times and a maximum of 13 times.

A good frequency of breastfeeding, which is around 8-12x/day, will increase body weight and prevent possible problems with growth and development disorders in infants. The frequency of breastfeeding in infants will greatly affect the baby's physical and emotional state with the frequency of breastfeeding will improve calm conditions for the baby and the baby's weight will increase (Simanungkalit, 2019). In this study, it was found that the maximum frequency of breastfeeding babies was 13 times. This is said to be normal, because according to (Sutanto, 2018) a baby is said to have enough breast milk and to breastfeed properly if the baby feeds at least 10 times in 24 hours. In addition, according to Haryono and Setianingsih (2014) it is stated that babies should be breastfed non-scheduled (on demand), so that babies do not have to be scheduled for breastfeeding, but babies will determine their own needs (Haryono & Setianingsih, 2014).

Efforts that can be made to increase the frequency of breastfeeding is by doing baby massage. Baby massage causes the baby to become more relaxed and able to rest effectively so that when the baby wakes up it will bring enough energy to move. Babies get hungry quickly when they are active optimally so their appetite increases. This increase in appetite is also coupled with increased activity of the vagus nerve (a brain-laden system that works for the neck down to the chest and abdominal cavity) in moving peristaltic cells to push food into the digestive tract, so the baby gets hungry faster or

wants to suckle because digestion is getting smoother (Fatimah, 2014).

This research is in line with research conducted by (Apriani & Desak Made Firsia Sastra Putri, 2019) which showed that the average frequency of breastfeeding for neonates before infant massage therapy was carried out was 6.40 and after infant massage therapy was obtained an average of 11.13.

According to the researchers' assumptions, the optimal breastfeeding frequency range is between 8-12 times per day. From the results of the study there was an increase in the frequency of breastfeeding after baby massage to 8-13 times every day. When breastfeeding a baby, you shouldn't need to schedule it, because the baby will determine his own needs. The mother must breastfeed her baby if the baby is crying for no other reason or the mother already feels that she wants to breastfeed her baby.

2. Average duration of breastfeeding before and after baby massage in infants aged 0-6 months

The results of this study indicate that prior to infant massage, the average duration of breastfeeding was 6.77 minutes, the standard deviation was 1.755 minutes, the duration of breastfeeding was a minimum of 5 minutes and a maximum of 12 minutes. Meanwhile, after the baby massage, the average duration of breastfeeding was 10.27 minutes, the standard deviation was 1.721 minutes, the duration of breastfeeding was a minimum of 7 minutes and a maximum of 15 minutes.

The duration of breastfeeding is related to the existence of a prolactin reflex which is a lactogenic hormone that is important for initiating and maintaining milk secretion. The baby's sucking stimulus will send a message to the hypothalamus which stimulates the anterior pituitary to release prolactin, a hormone that increases milk production by the alveolar cells of the mammary glands. The amount of prolactin secreted and the amount of milk produced is related to the magnitude of the sucking stimulus, namely the frequency, intensity and duration of the baby sucking. A normal, healthy baby can empty one breast in about 5-10 minutes and the milk in the baby's stomach will be empty in about 2 hours (Fikawati, 2018).

The duration of breastfeeding in infants can be increased by doing baby massage. Baby massage is a touch after birth, and can provide assurance of continuous body contact that can maintain a comfortable feeling for the baby. Touch therapy, especially massage for babies can produce beneficial physiological changes (Roesli, 2014).

Baby massage is a technical method in midwifery care for neonates, infants and toddlers by doing massages gently and sequentially from face to toe, where by massaging the baby all the baby's muscles will be relaxed, blood circulation will be smooth and the baby will sleep soundly. Apart from that, baby massage will increase the frequency and duration of breastfeeding so that the baby will feel comfortable and calm when breastfeeding. With the

regularity of the baby while breastfeeding, it is hoped that the baby's weight will increase and the baby's nutritional intake will be fulfilled (Fitriahadi, 2016).

This research is in line with research conducted by (Farida et al., 2018) which showed that the average frequency of breastfeeding in the first week was 15.50 times/day with a standard deviation of 1.72 and the average frequency of breastfeeding in the fourth week was 17.23 times / day with a standard deviation of 1.57.

According to the researchers' assumptions, the average duration of breastfeeding in infants after infant massage increased to 7-15 minutes. This is in accordance with one of the benefits of massage for babies, namely increasing the duration of breastfeeding. The increase in the duration of breastfeeding is due to the prolactin reflex which is a lactogenic hormone that is important for initiating and maintaining milk secretion. The baby's sucking stimulus will send a message to the hypothalamus which stimulates the anterior pituitary to release prolactin, a hormone that increases milk production so that after baby massage, the baby feels hungry quickly.

3. The effect of baby massage on the frequency of breastfeeding in infants aged 0-6 months

The results of this study indicated that the average frequency of breastfeeding before infant massage was 6.93 times and after infant massage increased to 10.37 times. The Wilcoxon test results obtained a p value of 0.000 <0.05, meaning

that there is an effect of baby massage on the frequency of breastfeeding in infants aged 0-6 months in Suoh Village, the Work Area of the Bandar Negeri Suoh Health Center in 2023.

A good frequency of breastfeeding, which is around 8-12x/day, will increase body weight and prevent possible problems with growth and development disorders in infants. The frequency of breastfeeding in infants will greatly affect the baby's physical and emotional state with the frequency of breastfeeding will increase the calm conditions for the baby and the baby's weight will increase. The frequency of breastfeeding is related to the ability to stimulate the two hormones in the breast glands, namely the hormones prolactin and oxytocin (Riksani, 2012).

It is better if breastfeeding the baby is not scheduled, so that the act of breastfeeding the baby is carried out whenever the baby needs it, because the baby will determine his own needs. Babies suckle at least 8-12 times per day. When a baby is 1-2 months old, the frequency of breastfeeding will be reduced to 7-9 times a day. The frequency of feeding babies who are breastfed is different from babies who are given formula milk. This is because breast milk is easier to digest, so babies get hungry faster (Haryono & Setianingsih, 2014).

Baby massage stimulates the vagus nerve which will affect the absorption mechanism of food in infants. An increase in vagus nerve tone will lead to an increase in the absorption of gastrin and insulin enzymes so that food absorption becomes better and the baby's weight

increases. The activity of the vagus nerve increases the volume of breast milk, better absorption of food due to increased activity of the vagus nerve causes the baby to get hungry quickly and will breastfeed more often from his mother so that more milk will be produced (Korompis et al., 2018).

Increasing the duration and frequency of breastfeeding will affect the breastfeeding process, where the baby's suction plays an important role in the breastfeeding process. When the baby suckles the breast, a hormone called prolactin is produced, which regulates the cells in the alveoli to produce milk. The baby's sucking will also stimulate the production of another hormone, namely oxytocin, which makes the muscle cells around the alveoli contract, so that milk is pushed towards the nipples. So the more often the baby sucks, the more milk will be produced (Perinesia, 2011).

This research is in line with research conducted by Farida (2018) which shows that there is an influence between baby massage and the frequency of breastfeeding in infants with a P value (0.000). In addition, it is supported by Fitriahadi's research (2016) which shows that there is an effect of baby massage on the frequency and duration of breastfeeding in infants at BPM Wife Utami Sleman.

According to the researchers' assumptions, the frequency of suckling babies is more likely to increase in babies 1-2 months old, this is in accordance with the theory which states that the older the baby is, the frequency of

breastfeeding the baby will decrease. Baby massage can affect the frequency of breastfeeding in infants because through the action of baby massage the activity of the Vagus Nerve affects the mechanism of absorption of food in babies who are massaged so that an increase in vagus nerve tone will increase the enzymes for absorbing gastrin and insulin so that food absorption becomes better. The activity of the Vagus Nerve will automatically increase comfort and the mother's milk will increase so that the absorption of food is absorbed properly and the baby becomes hungry quickly and will breastfeed his mother more often.

4. The effect of baby massage on the duration of breastfeeding in infants aged 0-6 months

The results of this study indicated that the average duration of breastfeeding before infant massage was 6.77 minutes and after infant massage increased to 10.27 minutes. The results of the Wilcoxon test obtained a p value of $0.000 < 0.05$ meaning that there was an effect of baby massage on the duration of breastfeeding in infants aged 0-6 months in Suoh Village, the Work Area of the Bandar Negeri Suoh Health Center in 2023.

The duration of breastfeeding is related to the existence of a prolactin reflex which is a lactogenic hormone that is important for initiating and maintaining milk secretion. The baby's sucking stimulus will send a message to the hypothalamus which stimulates the anterior pituitary to release prolactin, a hormone that increases milk production by the alveolar cells of the mammary

glands. The amount of prolactin secreted and the amount of milk produced is related to the magnitude of the sucking stimulus, namely the frequency, intensity and duration of the baby sucking (Roesli, 2014).

The duration of breastfeeding varies according to the baby's suction pattern. A normal and healthy baby will empty one breast in about 5-20 minutes (Fikawati, 2018). If breastfeeding lasts too long (more than half an hour) or too short (less than 4 minutes), this indicates a possible problem with attachment between the baby and the mother's nipple (Jamil et al., 2017). Babies aged 0-1 months at the beginning of the breastfeeding period, babies need 20 minutes and sometimes even up to 45 minutes to be full. As they get older, the length of time a baby breastfeeds is only around 10-15 minutes (Nisa, 2020).

Baby massage can be started immediately after the baby is born, according to the wishes of the parents. By starting massage sooner, the baby will benefit more. Especially if massage can be done every day from birth to 6-7 months old. The benefits of baby massage include increasing body weight and growth, increasing endurance, increasing baby's concentration and making babies sleep soundly, fostering bonds of affection between parents and children (bonding), increasing milk production. In addition to having benefits, baby massage also has impacts and complications if done incorrectly due to massager errors such as trauma or bruising to the skin and muscles, pain in the baby so that the baby becomes fussy, muscle and bone

injuries, swelling, the baby is increasingly fussy. But as long as baby massage is done properly and gently, then baby massage is safe to do, even beneficial. One of the benefits of baby massage is to increase milk production, if milk production is sufficient, the duration and frequency of breastfeeding will also increase because there is sufficient milk (Astuti & Barus, 2021).

This research is in line with research conducted by Ritonga et al (2020) which showed that there was a significant effect between before and after baby massage on the duration of breastfeeding in infants at the Nining Pelawati clinic in 2020.

According to the researchers' assumptions, baby massage is very useful in increasing the duration of breastfeeding because in addition to providing a sense of comfort, through the baby massage process the baby's digestive system will become smoother so that after the massage process is usually the baby will get hungry easily and feed more often. Baby massage causes the baby to become more relaxed and able to rest effectively so that when the baby wakes up it will bring enough energy to move. with optimal activity, the baby becomes hungry quickly so that his appetite increases and he will breastfeed for a longer duration.

CONCLUSION

1. The average frequency of breastfeeding before infant massage was carried out for infants aged 0-6 months in Suoh Village, the Working Area of the Bandar Negeri Suoh Public Health Center in 2023 was 6.93 times

and after infant massage was 10.37 times.

2. The average duration of breastfeeding before infant massage was carried out for infants aged 0-6 months in Suoh Village, the Working Area of the Bandar Negeri Suoh Public Health Center in 2023 was 6.77 minutes and after infant massage was 10.27 minutes.
3. There is an effect of baby massage on the frequency of breastfeeding in infants aged 0-6 months in Suoh Village, Working Area of the Bandar Negeri Suoh Public Health Center in 2023 with a p value of 0.000.
4. There is an effect of baby massage on the duration of breastfeeding in infants aged 0-6 months in Suoh Village, Working Area of the Bandar Negeri Suoh Health Center in 2023 with a p value of 0.000.

Suggestion

For future researchers, they should develop research using other variables such as knowledge and breast milk production that have not been studied in relation to baby massage.

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