



## **LITERATURE REVIEW: THE EFFECT OF BABY MASSAGE ON SLEEP QUALITY AND WEIGHT GAIN IN INFANTS**

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### **Abstract**

Sleep disturbances and suboptimal weight gain remain common problems in infants, especially due to inadequate stimulation, discomfort, anxiety, or colic. One non-pharmacological intervention that is widely used is baby massage, which through touch stimulation can increase comfort, relaxation, and help regulate hormones involved in the sleep cycle and the infant's body metabolism. This study aims to analyze the effect of baby massage on sleep quality and weight gain in infants. This study used a qualitative approach with a literature review method. Data sources were obtained from scientific journals, research reports, regulations, and other relevant literature. The literature selection process was carried out using the prisma flow, resulting in several studies that met the inclusion criteria to be analyzed qualitatively. The results showed that baby massage has a positive impact on sleep quality and infant weight gain. Baby massage performed routinely for approximately 30 minutes per day for two weeks was proven to reduce the frequency of nighttime awakenings and increase infant sleep duration. In addition, massage stimulation on the vagus nerve can increase digestive enzyme activity, accelerate gastric emptying, improve intestinal peristalsis, and enhance nutrient absorption, thereby contributing to weight gain in infants. In conclusion, baby massage is a simple, safe, and effective intervention in improving sleep quality and infant weight gain. The routine implementation of baby massage can be one of the recommended growth and development stimulation methods for parents and healthcare workers in supporting optimal infant health and development.

**Keywords:** Baby Massage, Sleep Quality, Infant Massage

### **Introduction**

*Golden period* is the period that babies go through in the developmental or growth process that they experience <sup>[1]</sup>. Based on further analysis explaining related to the *golden period*, babies get very rapid physical growth, for example in terms of the development of physiological functions, nervous system, increase in body length, and increase in infant weight <sup>[2]</sup>. One of the indicators used in determining the nutritional adequacy and health status of the baby can be reviewed from the baby's weight. Babies who get an optimal body weight are characterized by a well-running metabolic process and the fulfillment of the baby's nutritional needs <sup>[3]</sup>. However, if the baby's weight has a problem, then as parents we must pay special attention so that the baby's weight is optimal <sup>[4]</sup>.

Furthermore, in supporting the development of the baby, it can also be reviewed from the quality of sleep as one of the aspects of physical growth. Good sleep quality contributes to energy recovery, growth hormone regulation, and contributes to brain maturation <sup>[5]</sup>. Based on literature studies, it is explained that good sleep quality in babies can have an impact on optimal cognitive and motor development, have a better appetite, and babies become calmer (not fussy) <sup>[6]</sup>. However, some findings in the field show that not all babies get good sleep quality. Some sleep problems or disorders

in babies are affected by lack of proper stimulation, anxiety, colic, and discomfort felt by babies <sup>[7]</sup>.

One form of stimulation that is believed to provide benefits for the growth and quality of baby sleep is baby massage. Baby massage is a gentle and systematic touch technique that is carried out on the baby's body with the aim of providing physical and emotional stimulation <sup>[8]</sup>. This practice has long been known in various cultures and is now increasingly being applied as part of modern infant care. Touch given through massage is believed to stimulate the nervous system, improve blood circulation, improve the digestive system, and strengthen the emotional bond between parents and babies <sup>[9]</sup>.

Physiologically, baby massage can stimulate the activity of the vagus nerve which plays a role in improving gastrointestinal function and nutrient absorption. This increase in vagus nerve activity can accelerate gastric emptying and increase the production of digestive enzymes, so that the absorption of nutrients becomes more optimal <sup>[10]</sup>. Thus, the nutritional intake given to the baby can be utilized optimally by the body, which ultimately has an impact on weight gain. In addition, baby massage can also increase growth hormone levels as well as reduce levels of stress hormones such as cortisol, thereby creating physiological conditions that support growth <sup>[11]</sup>.

The touch given through *baby massage* can provide a sense of comfort and security, reduce muscle tension, and can provide relaxation <sup>[12]</sup>. The relaxation experienced by the baby can have an impact on the release of the hormones melatonin and serotonin which have a role in regulating the sleep cycle <sup>[13]</sup>. In previous studies, it was explained that babies will get a longer and more comfortable sleep frequency through *baby massage* compared to babies who do not get *baby massage*. Good sleep quality will support the secretion of growth hormone, which generally increases when the baby is in deep *sleep* <sup>[14]</sup>.

The problem of suboptimal weight gain and sleep quality disorders in infants is still a concern in maternal and child health services <sup>[15]</sup>. Simple, safe, and easy-to-do interventions such as baby massage have the potential to be an effective non-pharmacological solution. Therefore, it is important to study more deeply the impact of increasing baby weight and sleep quality affected by baby massage. This research is expected to make a scientific contribution in the field of child health, especially related to growth and development stimulation interventions that are easy to apply by parents and health workers.

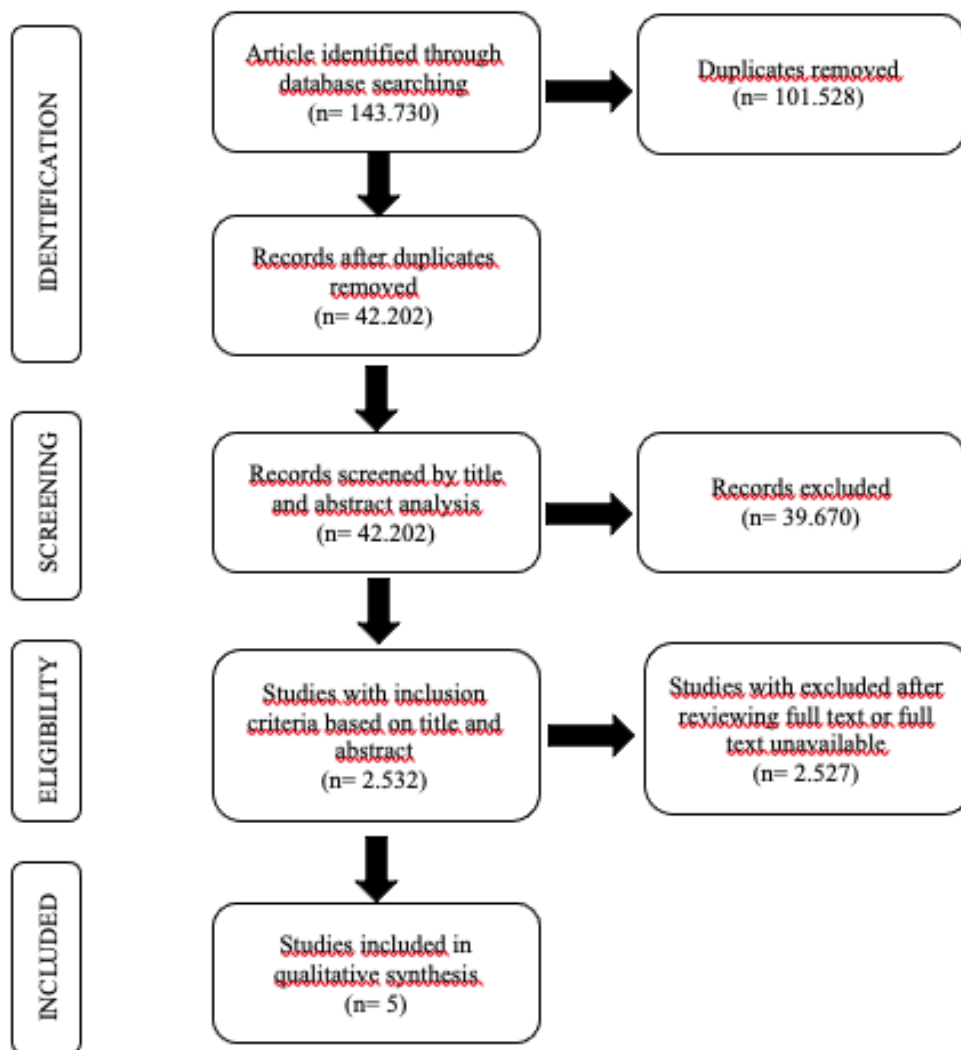
Previous research by Nurseha & Lintang (2022) conducted a study at the Kramatwatu Health Center which showed that the results of *baby massage* were effective in improving sleep quality and increasing infant weight <sup>[16]</sup>. This is because through the *baby massage* the baby will feel more relaxed, so that the baby is not fussy and it is easier to sleep at night or the baby sleeps better. Through *baby massage* applied, it can also smooth the baby's digestive system, so that it indirectly has an impact on increasing appetite. In this case, as a mother, you must first know the good and correct massage technique for the baby. Massage activities carried out by mothers trigger an increase in the affectionate relationship between mother and baby.

Through the above study, the author took the title "The Effect of *Baby Massage* on Sleep Quality and Infant Weight Gain". The purpose of the research was to provide analysis results related to the effect of baby massage on sleep quality and infant weight gain. In this writing, there are limitations where the presentation of this journal data is only based on *library research* studies obtained based on several literature relevant to the formulation of titles carried out by researchers.

## Method

In the writing carried out, this is adopted related to the type of qualitative research. According to Sugiyono (2019) Explaining the qualitative approach, this research also applies a statutory approach where the analysis activities carried out are adjusted to the rules of several laws, regulations, or several applicable legal issues <sup>[17][18]</sup>. In this study, the data source technique obtained in the analysis of *library research* data is based on legislation, laws, regulations, reports, journals, and other relevant and supporting literature in solving a problem with the title <sup>[19]</sup>. In this writing, the keywords used in solving a problem are based on the title or specified based on "AUKUS", "China", and "trilateral cooperation".

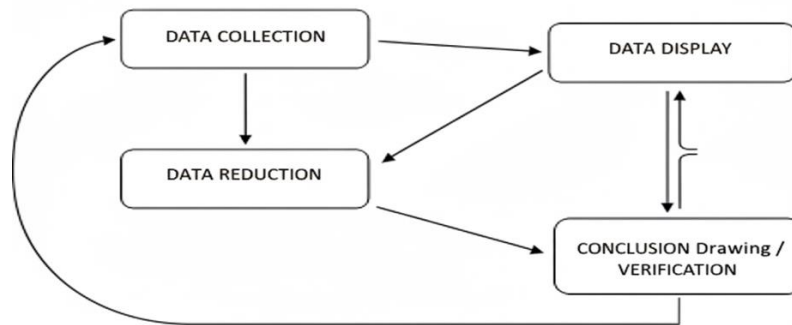
The following Figure 1 presents related to the PRISMA flow chart in the research conducted, namely:



**Figure 1. PRISMA Flowchart**

Source: Colizza, et. al., (2022)

The data analysis techniques in the results of the study of the research findings are presented in Figure 1 as follows:



**Figure 2. Data Analysis Techniques**  
Sources: Arif et al., (2022)

## Results

The results of the research conducted through the research title "The Effect of *Baby Massage* on Sleep Quality and Infant Weight Gain" are presented in Table 1 as follows:

**Table 1. Research Results**

No.	Research Title	Research Objectives	Analysis Results	References
1.	"The Effect of Infant Massage on Sleep Quality in Infants ( <i>Literature Review</i> )"	The writing of the journal provides the results of a study based on a <i>literature review</i> related to the topic of infant sleep quality which is influenced by <i>massage</i> performed on babies.	The results of the study were found to be related to the quality of baby sleep better when the baby has been given <i>massage</i> treatment. The results of the analysis were further stated that the frequency of waking in dominant infants was less and the time span for the infant to rest (sleep) longer. Furthermore, the impact of the <i>baby massage</i> carried out is that the baby becomes more cheerful, the frequency of crying is reduced, and the baby is not fussy. <i>Baby massage</i> activities carried out on babies have an increasing frequency of <i>massage</i> as the baby develops. The results of the study explained that the problem of baby sleep disorders can be solved by <i>baby massage</i> activities. After the baby gets a <i>massage</i> , it has an impact on the baby's sleep at night, so that the next day the baby does not cry more easily.	Siahaan & Juniah (2023).
2.	"The Effect of Baby Massage on Sleep Quality in Babies Aged 0-12 Months"	The purpose of the journal writing was to provide analysis results related to babies aged 0 months to 12 months who received baby <i>massage</i> treatment on the quality of sleep they got.	Babies in the age range of 0 months to 12 months can do <i>baby massage</i> when the baby's condition is fussy, unhealthy, often crying, especially at night, and getting other sleep disorders. The results of the study conducted explained that the improvement of the quality of baby sleep is influenced by <i>baby massage</i> . In babies who are <i>massaged</i> for 2 weeks with a duration per day of 30 minutes can have a minimal impact on waking up at night. The results of the study show that babies wake up very minimally/little, namely 3-4 times every	Putri, (2024).

			night when <i>baby massage has been done</i> . The duration of the baby's sleep after the <i>baby massage</i> is that the baby can sleep up to nine hours every night. In this case, advice is aimed at parents to conduct training related to massage on babies which is carried out independently. This aims to ensure that babies have good sleep quality.	
3.	"The Effect of Baby Massage on Weight Gain in Babies Aged 0-6 Months"	The purpose of the journal writing is to provide analysis results related to weight gain in babies through <i>baby massage activities</i> at the age of 0 months to 6 months.	One of the applications of tactile stimulation in babies is alluding to the baby's massage activities. Because in massage babies have elements of movement, eye view, voice or speech, attention, affection, and massage. According to further literature studies, it explains the positive impact of <i>baby massage</i> , namely it can foster attachment between children and parents, make babies sleep better, increase immunity, increase weight, and increase the baby's appetite. The results of the study in the form of <i>a literature review</i> at the Pagurawan Health Center explained that baby weight can be increased through <i>baby massage</i> activities which is proven through the calculation of t calculation of 6.610 and the t score of the table is 2.0345. The massage therapy carried out is not only carried out in small villages, but several health care centers and hospitals also apply the massage method as one of the treatments and health care.	Damanik et. al., (2022).
4.	"The Effect of Baby Massage on Weight Gain of Babies Aged 3-6 Months in the Kedawung District, Sragen Regency, Central Java in 2022"	The writing carried out has the purpose of providing descriptive results on the increase in baby weight through the application of <i>baby massage</i> at the age of 3 months to 6 months. The case study was conducted in 2022.	The results of the research data carried out were that the baby's weight increased after a <i>baby massage</i> . The results of the study concluded that 19 baby subjects at the age of 3 to 6 months got an average body weight of 7378.50 after undergoing massage. The average weight score obtained before the baby massage was 6882.50. The increase in the baby's weight is influenced by stimulation of appetite. Through the massage technique given by stimulating the <i>vagus nerve</i> can have an impact on increasing enzymes in secreting insulin and gastrin. This can have an impact on faster gastric emptying as well as an increase in intestinal peristaltic and better absorption of food, so that babies can be more easily aroused by increased food appetite and can indirectly increase weight as a result of increased appetite.	Darwati & Christia-ni, (2022).
5.	"The Effectiveness of Baby Massage on Weight Gain"	The writing of the journal provides the results of studies related to	Research at the Kramatwatu Health Center shows that the results of <i>baby massage</i> provide effectiveness in improving sleep quality and increasing baby weight. This is	Nurseha & Lintang (2022)

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and Infant Sleep Quality at Kramatwatu Health Center"	the topic of baby sleep quality and infant weight gain influenced by <i>massage</i> performed on babies.	because through the <i>baby massage</i> the baby will feel more relaxed, so that the baby is not fussy and it is easier to sleep at night or the baby sleeps better. Through <i>baby massage</i> applied, it can also smooth the baby's digestive system, so that it indirectly has an impact on increasing appetite. In this case, as a mother, you must first know the good and correct massage technique for the baby. Massage activities carried out by mothers trigger an increase in the affectionate relationship between mother and baby.
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## Discussion

In supporting the development of the baby, it can also be reviewed from the quality of sleep as one of the aspects of physical growth. Good sleep quality contributes to energy recovery, growth hormone regulation, and contributes to brain maturation <sup>[20]</sup>. The results of the study were found to be related to the quality of baby sleep better when the baby has been given *massage* treatment. The results of the analysis were further stated that the frequency of waking in dominant infants was less and the time span for the infant to rest (sleep) longer. Furthermore, the impact of the *baby massage* carried out is that the baby becomes more cheerful, the frequency of crying is reduced, and the baby is not fussy. *Baby massage* activities carried out on babies have an increasing frequency of massage as the baby develops. The results of the study explained that the problem of baby sleep disorders can be solved by *baby massage* activities. After the baby gets a *massage*, it has an impact on the baby's sleep at night, so that the baby does not cry more easily <sup>[21]</sup>.

Based on literature studies, it is explained that good sleep quality in babies can have an impact on optimal cognitive and motor development, have a better appetite, and babies become calmer (not fussy) <sup>[22]</sup>. Babies in the age range of 0 months to 12 months can do *baby massage* when the baby's condition is fussy, unhealthy, often crying, especially at night, and getting other sleep disorders. The results of the study conducted explained that the improvement of the quality of baby sleep is influenced by *baby massage*. In babies who are *massaged* for 2 weeks with a duration per day of 30 minutes can have a minimal impact on waking up at night. The results of the study show that babies wake up very minimally/little, namely 3-4 times every night when *baby massage has been done*. The duration of the baby's sleep after the *baby massage* is that the baby can sleep up to nine hours every night. In this case, advice is aimed at parents to conduct training related to massage on babies which is carried out independently. This is so that babies have good sleep quality <sup>[23]</sup>.

One of the indicators used in determining the nutritional adequacy and health status of the baby can be reviewed from the baby's weight. Babies who gain optimal weight are characterized by a well-running metabolic process and the fulfillment of the baby's nutritional needs <sup>[16]</sup>. One of the applications of tactile stimulation in babies is alluding to the baby's massage activities. Because in massage babies have elements of movement, eye view, voice or speech, attention, affection, and massage. According to further literature studies, it explains the positive impact of *baby massage*, namely it can foster attachment between children and parents, make babies sleep better, increase immunity, increase weight, and increase the baby's appetite. The results of the study in the form of a *literature review* at the Pagurawan Health Center explained that baby weight can be increased through *baby massage* activities which is proven through the calculation of t calculation of 6.610 and the t score of the table is 2.0345. The massage therapy carried out is not only carried out in small villages,

but several health care centers and hospitals also apply the massage method as one of the treatments and health care <sup>[17]</sup>.

The touch given through *the baby massage* can provide a sense of comfort and security, reduce muscle tension, and can provide relaxation <sup>[18]</sup>. As for the relaxation experienced by the baby, it can have an impact on the release of the hormones melatonin and serotonin which have a role in regulating the sleep cycle <sup>[22]</sup>. The results of the research data carried out were that the baby's weight increased after a *baby massage*. The results of the study concluded that 19 baby subjects at the age of 3 to 6 months got an average body weight of 7378.50 after undergoing massage. The average weight score obtained before the baby massage was 6882.50. The increase in the baby's weight is influenced by stimulation of appetite. Through the massage technique given by stimulating the *vagus nerve* can have an impact on increasing enzymes in secreting insulin and gastrin. This can have an impact on faster gastric emptying as well as increased intestinal peristaltics and better absorption of food, so that babies can be more easily aroused by increased appetite and can indirectly increase weight as a result of increased appetite <sup>[23]</sup>.

Overall, the results of the study are in line with the research of Nurseha & Lintang (2022) conducted a study at the Kramatwatu Health Center which showed *that the results of baby massage* provide effectiveness in improving sleep quality and increasing infant weight <sup>[29]</sup>. This is because through *the baby massage* the baby will feel more relaxed, so that the baby is not fussy and it is easier to sleep at night or the baby sleeps better. Through *baby massage* applied, it can also smooth the baby's digestive system, so that it indirectly has an impact on increasing appetite. In this case, as a mother, you must first know the good and correct massage technique for the baby. Massage activities carried out by mothers trigger an increase in the affectionate relationship between mother and baby.

## **Conclusion**

The conclusion drawn through the review of the research above is that the baby's weight and the quality of the baby's sleep can be improved through *baby massage*. In babies who are *massaged* for 2 weeks with a duration per day of 30 minutes can have a minimal impact on waking up at night. The results of the study show that babies wake up very minimally/little, namely 3-4 times every night when *baby massage has been done*. The duration of the baby's sleep after the *baby massage* is that the baby can sleep up to nine hours every night. Furthermore, the increase in the baby's weight is influenced by stimulation of appetite. Through the massage technique given by stimulating the *vagus nerve* can have an impact on increasing enzymes in secreting insulin and gastrin. This can have an impact on faster gastric emptying as well as increase intestinal peristaltics and better absorption of food, so that babies can be more easily aroused by increased food appetite and can indirectly increase weight as a result of increased appetite.

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