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The Relationship Between the Frequency of Infant Massage and the Increase in Body Weight of Infants Aged 6–18 Months at Ralla Community Health Center, Barru Regency

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Abstract. Infant growth and development can be monitored through anthropometric measurements, particularly body weight. Infants with low birth weight (LBW) (< 2500 grams) are at risk of growth disorders. One form of stimulation that can promote infant weight gain is infant massage. This study aimed to determine the relationship between the frequency of infant massage and the increase in body weight of infants aged 6–18 months at Ralla Community Health Center, Barru Regency. This was a quantitative study with a retrospective design. Resulting in 27 infant respondents. The results showed that most respondents received infant massage frequently (88.9%), and 24 infants experienced weight gain (88.9%). Fisher's Exact test yielded a p-value of 0.000 ($p < 0.05$), indicating a significant relationship between the frequency of infant massage and the increase in body weight of infants aged 6–18 months at Ralla Community Health Center. This study recommends that parents routinely practice infant massage to optimize infant growth and development, and encourages further research on other factors influencing infant body weight.

Keywords: Body Weight Increase; Growth and Development; Infant Development; Infant Massage; Low Birth Weight (LBW)

1. Introduction

Child growth and development are crucial aspects that must receive serious attention from an early age. Optimal growth and development in the first years of life are strongly influenced by appropriate stimulation, adequate nutrition, and responsive parenting (WHO, 2020; UNICEF, 2021). However, in many communities, these aspects are often overlooked, as parents tend to focus more on medical treatment when the child is ill, while preventive stimulation to support brain and physical development is still not fully prioritized (Roesli, 2021; Kemenkes RI, 2021).

Stimulation plays an essential role in optimizing infant intelligence through the formation of neuronal branches that strengthen communication between brain cells (Shonkoff & Phillips, 2000; Marni, 2019). One form of stimulation that can be provided is physical touch through infant massage. Infant massage, also referred to as stimulus touch, is a touch therapy that fosters comfortable communication between mother and infant while serving as an expression of affection through skin-to-skin contact that positively affects growth (Field, 2014; Marni, 2019).

At the age of six months, infants begin to move actively as they learn to sit and crawl, while also starting to consume complementary foods. This condition increases energy requirements, making balanced nutrition and proper stimulation essential to support optimal growth (Sembiring, 2019; Kemenkes RI, 2019). Body weight is one of the most sensitive anthropometric indicators for monitoring infant growth and nutritional status (WHO, 2019; UNICEF, 2020). To achieve optimal growth, stimulation in the form of infant massage has been shown to help stimulate digestive hormones such as insulin and gastrin, which enhance nutrient absorption and increase breastfeeding frequency, thereby supporting weight gain (Gilasi et al., 2020; Roesli, 2021). In addition, infant massage helps infants sleep more soundly, reduces fussiness, enhances bonding with parents, and stimulates brain development (Safitri, 2021; Field, 2010).

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Although the benefits of infant massage are widely recognized, the practice is still not well understood by many communities. Some parents continue to rely on traditional birth attendants for infant massage, even though improper techniques can cause adverse effects, such as bruising, injury, or even serious risks to the infant (Safitri, 2021; Sari & Puspitasari, 2020). Therefore, knowledge and skills related to infant massage that adhere to medical standards need to be strengthened through health education and community empowerment (Fitriani & Hidayat, 2019; Yuliastuti, 2021).

Globally, undernutrition among infants remains a major public health problem. WHO (2020) reported that the incidence of infants with low birth weight (LBW) is above 5%, with the prevalence of underweight in Southeast Asia reaching 26.9% and 14% globally. In Indonesia, the 2019 Demographic and Health Survey (DHS) reported that 3.5% of infants were categorized as underweight (BPS, BKKBN, & Kemenkes RI, 2020). In South Sulawesi, the prevalence of underweight among toddlers in 2020 was 9.8%, while in Barru Regency, the prevalence of undernutrition among toddlers increased from 1.0% in 2018 to 9.5% in 2020, approaching the provincial rate (South Sulawesi Provincial Health Profile, 2020).

Preliminary data from Ralla Community Health Center recorded 27 infants aged 6–18 months who received infant massage between January and April. Observations of parents indicated improvements in appetite, sleep quality, and reduced fussiness after the infants were massaged, supporting previous evidence that infant massage contributes positively to growth and development (Field, 2014; Gilasi et al., 2020).

2. Research Methods

This study was an analytical observational research with a retrospective design, in which the outcome variables were collected first and then traced back to the causal variables that had occurred in the previous period. This design was chosen to examine the relationship between the frequency of infant massage and the increase in infant body weight. The study population consisted of all infants aged 6–18 months who were recorded as receiving infant massage at Ralla Community Health Center, Barru Regency, in January 2022, totaling 27 infants. The sample was determined using a total sampling technique, in which the entire population was included as the sample. The inclusion criteria were infants aged 6–18 months who received infant massage at Ralla Community Health Center, while the exclusion criteria were infants with incomplete health records or medical conditions that could affect body weight growth.

The study was conducted at Ralla Community Health Center, Barru Regency, from April 6 to 18, 2025. Data were collected retrospectively from the MCH Book and the Growth Monitoring Card. The collected data included infant identity, frequency of infant massage, and body weight gain. Data processing was carried out through the stages of editing, coding, scoring, data entry, and tabulation. Univariate analysis was used to describe the frequency distribution of respondents' characteristics, frequency of infant massage, and body weight gain, while bivariate analysis was employed to determine the relationship between the frequency of infant massage and body weight gain using Fisher's Exact test with a significance level of 0.05.

3. Results and Discussion

Table 1. Characteristics of Respondents by Infant Age (n = 27).

Variable	Median	Modus	Minimum	Maximum
Age (months)	8.00	6	6	18

Based on Table 1, with the youngest being 6 months and the oldest 18 months.

Table 2. Characteristics of Respondents by Sex (n = 27).

No.	Sex	Frequency	Percentage (%)
1.	Male	8	29.6 %
2.	Female	21	70.4 %
Total		**27**	**100.0%**

As shown in Table 2, the majority of respondents were female, with 21 infants (70.4%).

Table 3. Characteristics of Respondents by Parents' Occupation (n = 27).

No.	Frequency	Frequency	Percentage (%)
1.	Housewife	16	59.3 %
2.	Private Employee	2	7.4 %
3.	Entrepreneur	5	18.5 %
4.	Civil Servant	4	14.8%
Total		**27**	**100.0 %**

Table 3 shows that most parents were housewives, with 16 respondents (59.3%).

Table 4. Characteristics of Respondents by Maternal Education (n = 27).

No.	Education	Frequency	Percentage (%)
1.	Elementary School	1	3.7%
2.	Junior High School	7	25.9%
3.	Senior High School	13	48.1%
4.	Higher Education	6	22.2%
Total		**27**	**100.0%**

As presented in Table 4, most mothers had completed senior high school education (48.1%).

Table 5. Characteristics of Respondents by Frequency of Infant Massage (n = 27).

No.	Frequency of Infant Massage	Frequency	Percentage (%)
1	Frequent	24	88.9 %
2	Infrequent	3	11.1 %
Total		**27**	**100.0 %**

Table 5 indicates that most infants received frequent massage, with 24 respondents (88.9%).

Table 7. Cross-Tabulation of Frequency of Infant Massage and Body Weight Gain (n= 27).

Frequency of Infant Massage	Body Weight Gain		
	Increased	Not Increased	Total
Frequent	24	0	24
Infrequent	0	3	3
Total	**24**	**3**	**27**

Table 7 shows that 24 infants who received frequent massage experienced weight gain, while 3 infants who received infrequent massage did not gain weight. To determine the relationship between the frequency of infant massage and body weight gain, Fisher's Exact test was used as an alternative to the Chi-square test. This test was employed to verify the hypothesis regarding the presence of a relationship between the frequency of infant massage and infant body weight gain at Ralla Community Health Center.

Table 8. Fisher's Exact Test Results for the Relationship Between Frequency of Infant Massage and Body Weight Gain.

Test	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Fisher's Exact Test				.000	.000

4. Discussion

The findings of this study indicate that the majority of infants who routinely received infant massage (88.9%) experienced body weight gain, whereas infants who received massage infrequently (11.1%) did not. This reinforces the understanding that infant massage can serve as an effective form of early stimulation in supporting infant growth.

Infant massage is a tactile stimulation that can influence the development of the central nervous system, improve blood circulation, and enhance the release of digestive hormones such as insulin and gastrin. These conditions contribute to improved nutrient absorption and increased appetite, which in turn support body weight gain. In addition, infant massage promotes body relaxation, enabling infants to sleep more soundly, which further facilitates growth and development (Roesli, 2011; Yanuarini, 2020 in Damanik et al., 2022).

This study is consistent with Carolin et al. (2020), who stated that infant massage can provide both physical and emotional benefits, such as improving body weight, strengthening the immune system, and enhancing parent–infant bonding. Similarly, Heni (2020) reported that infant massage reduces cortisol levels associated with stress, resulting in calmer, less fussy, and healthier infants. These findings affirm that infant massage is not merely a traditional practice but also has a strong scientific foundation as a child health intervention.

Furthermore, the findings support the view of Jenny Sweliffe and Roesli (2013), who explained that infant massage stimulates the production of growth hormone, leading to faster weight gain among infants who are massaged regularly from birth. Research by Cahyaningrum and Sulistyorini (2014) also emphasized that infant massage improves sleep quality, enhances alertness, and strengthens the immune system, all of which positively influence infant growth.

The physiological mechanism of weight gain through infant massage can be explained further. Stimulation of the vagus nerve during massage increases gastrointestinal activity, which triggers enzyme secretion and enhances nutrient absorption, thereby making the digestive and metabolic processes more efficient (Roesli, 2011 in Elya et al., 2018). Consequently, infants who are massaged more frequently tend to show more consistent weight gain compared to those who are not massaged.

Nevertheless, infant weight gain is influenced not only by massage but also by internal factors such as genetics, sex, and health conditions, as well as external factors such as nutritional intake, feeding patterns, socioeconomic status, and environmental stimulation (Harahap, 2019). Therefore, infant massage should be regarded as a complementary intervention that supports infant growth, rather than as the sole determining factor.

5. Conclusion

Based on the findings of this study, it can be concluded that there is a significant relationship between the frequency of infant massage and body weight gain among infants aged 6–18 months at Ralla Community Health Center, Barru Regency. Most infants who routinely received massage experienced weight gain according to growth standards, whereas those who were massaged infrequently tended not to experience weight gain. These results indicate that infant massage can serve as a simple and effective form of stimulation to support infant growth, particularly in terms of body weight gain.

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