

## Effect of Baby Massage and Baby Gymnastics on Motoric Development of Infants Age 2-11 Months

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### ABSTRACT

**Background:** Approximately 5 to 10% of children are believed to have experienced developmental delays. Data regarding the exact incidence of general developmental delays are uncertain, but it is estimated that about 1-3% of children under the age of 5 encounter such delays. According to data extracted from Aceh's health profile in 2021, there were 10,350 live births. Given the high number of live births among infants, it becomes crucial to provide early stimulation during their formative years to prevent developmental delays from occurring.

**Method:** This study was a Quasi-Experimental design with two groups, utilizing a pre-test and post-test approach. The sample was 34 babies aged 2-11 months, with 17 babies receiving massage and baby gymnastic, and 17 babies were assigned to the control group.

**Results:** The study revealed notable differences in the motor development of infants aged 2-11 months before and after receiving massage and baby gymnastics, as indicated by a p-value of 0.000 ( $<0.05$ ). Similarly, there were significant differences in the motor development of infants aged 2-11 months within the control group, with a p-value of 0.000 ( $<0.05$ ). Furthermore, a distinction was observed in infant motor development between the massage and baby gymnastics group and the control group, supported by a p-value of 0.000 ( $<0.05$ ).

**Conclusions:** Baby massage and gymnastics exert a more pronounced influence on infant motor development. Consequently, infants who receive stimulation through baby massage and gymnastics exhibit greater improvements in motor development compared to those who do not receive any stimulation.

Key words : Baby Massage; Baby Gymnastics; Motor Development of Babies

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**Background.** Infants aged 0-11 months experience a critical and golden period of development. The growth and development of the baby is very short. Infancy is a golden and critical period in a person's development, where stimulation is essential to reduce developmental delays (Purwati, 2016).

The impact of a child experiencing delayed motor development includes potential difficulties in vocabulary and language development, social interactions, and energy distribution (Saadah, 2020).

According to Sugeng et al. (2019), the growth of children in Indonesia still requires serious attention. The rate of delayed growth and development is still relatively high, with approximately 5-10% experiencing delayed general development, 2 in 1,000 babies facing

motor development issues, 3-6 out of 1,000 babies experiencing hearing loss, and 1 in 100 children having intelligence deficits and delayed speech. This study indicate that 81.6% of children are developing at an appropriate age, 12.2% are doubtful, and 6.12% show deviations (Sugeng, 2019).

According to the Indonesian Pediatricians Association (IDAI), an estimated 5 to 10% of children experience delayed development. While exact numerical data on the incidence of delayed general development are not certain, it is estimated that approximately 1-3% of children under 5 years old experience delayed general development (Medise, 2013).

Reviewing data and information from Aceh Besar Health Center in 2021, there were

a total of 10,350 live births. Considering the high number of live births among infants, it becomes imperative to provide stimulation during this golden age to prevent developmental delays.

Development is the process of enhancing the functional capacity or ability of body organs to work in an increasingly organized and appropriate manner for their respective functions (Sudirjo, 2018).

According to RI Minister of Health No. 66 in 2014, to optimize a child's growth, certain conditions are required, including family support, a loving and healthy physical, mental, and social environment, access to healthcare services, balanced nutrition, early childhood stimulation, and opportunities for activities and games that promote development (Kemenkes, 2014).

Baby massage is one method for stimulating a child's development and providing the necessary stimulation. Baby massage is an inherited tradition from our ancestors, proven to be useful in stimulating development (Galenia, 2014).

Baby motor development encompasses gross motor and fine motor skills. Gross motor skills involve large muscle movements, such as kicking, holding, sitting, standing, walking, running, climbing stairs, and more (Widodo, 2015).

Based on research conducted by Setianingsih et al. (2015) on the connection between baby massage and infant motor development in the Village of Pundungsari, Bulu Sukoharjo, regular baby massage can enhance motor development appropriate for the child's age. Baby massage is one form of stimulation for promoting motor development, demonstrating the influence of baby massage on infant motor development (Setyaningsih, 2015).

Additionally, research by Harni et al. (2016) titled "The Effect of Baby Gymnastics on the Development of Babies Aged 3-12 Months in Bayu Kidul Plantation, Songgon, Banyuwangi" found that 11 infants who received infant exercise intervention initially

showed uncertain development. However, after 28 days of infant exercise intervention, 7 babies exhibited development appropriate for their age. This suggests that baby exercises have a positive influence on infant development.

Given the background presented above, researchers are keen to conduct a more in-depth study on the influence of baby massage on the motor development for infants aged 2-11 months in the Public Health Center in Darul Imarah, Aceh Besar.

**Methods:** This study was a analytic approach with a pseudo-experimental design (quasi-experiment). The research design utilized a pre-test and post-test with a control group, a purposeful research design aimed at assessing the impact of treatment on an experimental group (Hidayat, 2021).

The population of this study was all babies aged 2-11 months in Darul Imarah Public Health Center, Aceh Besar. The study sample was 34 babies aged 2-11 months, with 17 babies receiving interventions involving baby massage and baby gymnastics, and 17 babies did not receive any interventions. Respondents were selected sequentially, with the first chosen participant included in the intervention group and subsequent participants included in the control group. This process continued until all research participants were identified.

The data were collected from respondents' interviews. Additionally, data were obtained from midwives in Darul Imarah Public Health Center to determine the number of babies aged 2-11 months and their addresses.

Prior to administering treatment to the intervention and control groups, a pre-assessment was conducted using the KPSP sheet. Subsequently, home visits were conducted twice a week for 28 days. Researchers provided baby massage and baby gymnastics to the intervention group, with a massage duration of 15-20 minutes and baby gymnastics exercises lasting 5-10 minutes during each visit. Respondents were

selected sequentially for inclusion in both the intervention and control groups.

The study respondents was 34 babies who were divided into two groups; 17 babies as the intervention group, and 17 babies as the control group. Respondents were selected based on inclusion criteria. Once all criteria were met, informed consent was obtained, and respondents were alternately assigned to either the intervention or control group. The initial respondent was included in the intervention group, and the subsequent one was placed in the control group. This process continued until all research respondents were identified. After providing the intervention or treatment to the respondents for 28 days, post-intervention evaluation was conducted using the KPSP sheet.

**Result and Discussion**

**1. Baby Age**

Table 1. Distribution Frequency Baby Age Group Baby Massage and Gymnastics

No	Age	f	%
1	2 months	1	5.9
2	4 months	3	17.6
3	5 months	8	47.1
4	7 months	1	5.9
5	8 months	1	5.9
6	10 months	3	17.6
<b>Total</b>		<b>17</b>	<b>100</b>

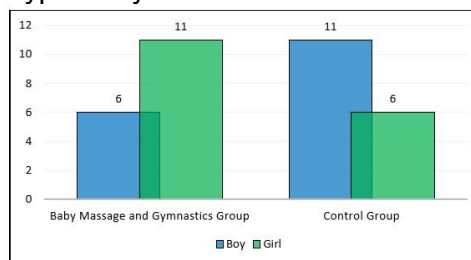
Based on table 1 can seen that age baby group the most baby massage and gymnastics is 5 months with the number of 8 respondents (47.1%).

Table 2. Distribution Frequency Baby Age Group Control

No	Age	f	%
1	2 months	2	11.8
2	4 months	4	23.5
3	5 months	5	29.4
4	8 months	4	23.5
5	10 months	2	11.8
<b>Total</b>		<b>17</b>	<b>100</b>

Based on table 2 can seen that age baby group control the most is 5 months with the number of 5 respondents (29.4%).

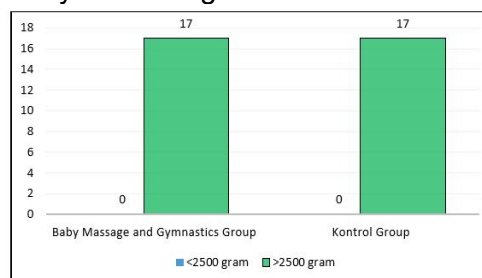
**2. Type Baby Gender**



Graph 1. Characteristics Respondents based on Type Baby Gender

Based on graph 1 can seen that type sex baby group baby massage and gymnastics the most is Woman with total of 11 respondents (64.7%) and groups control the most is man with the number of 11 respondents (64.7%).

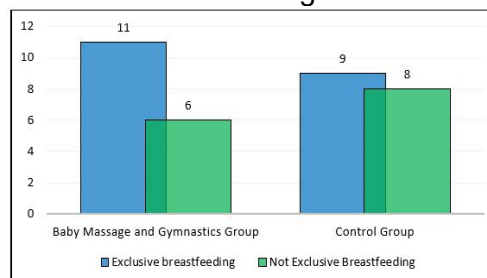
**3. Baby Birth Weight**



Graph 2. Characteristics Respondents based on Newborn Weight

Based on graph 2 can seen that baby weight new born into the group baby massage and gymnastics the most is > 2500 grams with the number of 17 respondents (100%) and groups control the most is >2500 gram with the number of 17 respondents (100%).

**4. Exclusive breastfeeding**



Graph 3 Characteristics Respondents based on a history of exclusive breastfeeding

Based on graph 3 can seen that history of exclusive breastfeeding group baby massage and gymnastics the most is get exclusive breastfeeding with total of 11 respondents (64.7%) and groups control the most is get exclusive breastfeeding with the number of 9 respondents (52.9%).

5. Number of Siblings in the Family

Table 3. Distribution of the Number of Siblings in the Baby Massage and Gymnastics Group Family

No	Number of siblings	f	%
1	One	8	47.1
2	Two	3	17.6
3	Three	4	23.5
4	Four	2	11.8
<b>Total</b>		<b>17</b>	<b>100</b>

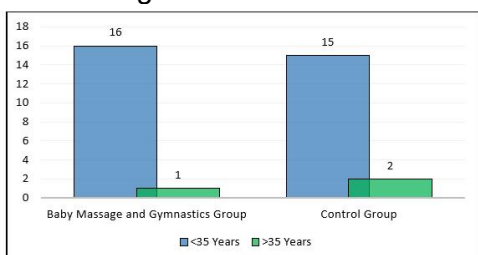
Based on table 3. can seen that amount you in family group baby massage and gymnastics the most is 1st child with the number of 8 respondents (47.1%).

Table 4. Distribution of the Number of Siblings in the Control Group Family

No	Number of siblings	f	%
1	One	5	29.4
2	Two	7	41.2
3	Three	3	17.6
4	Four	1	5.9
5	Five	1	5.9
<b>Total</b>		<b>17</b>	<b>100</b>

Based on table 4. can seen that amount you in family group control the most is 2nd child with the number of 7 respondents (41.2%).

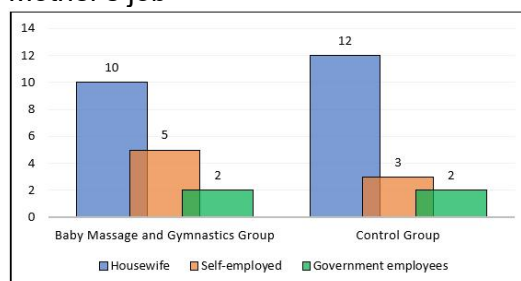
6. Mother's age



Graph 4. Characteristics Respondents based on Mother's age

Based on graph 4. can seen that age Mother group baby massage and gymnastics the most is <35 years with the number of 16 respondents (94.1%) and groups control the most is No rest with the number of 15 respondents (88.2%).

7. Mother's job



Graph 5 Characteristics Respondents based on Mother's job

Based on the research conducted, it was found that 2 babies had allergies to baby oil. As a response, olive oil was used as an alternative instrument in the study. Allergies in babies can result from a variety of factors, including genetic and environmental factors.

The distribution of frequency results in the baby's gender group consisted of female respondents (50%) and male respondents (50%). This did not significantly influence baby motor development, as supported by a study conducted by Apriloka (2020). Child motor development undergoes different phases corresponding to their age range, and they encounter varying levels of difficulty. In the reviewed research, gender did not show any significant differences in this context.

The distribution of frequency results in the group of newborn baby weights revealed that all respondents had newborns weighing over 2500 grams, which significantly affects development. This finding aligns with the research conducted by Khayat et al. (2019), which demonstrated a statistically significant connection between birth weight and toddler development. The p-value (0.000) indicated that toddlers with a history of low birth weight (LBW) were four times more likely to experience delayed development.

This result corresponds with the research conducted by Wulandari (2012), which highlighted a significant relationship between toddlers with a history of LBW and motor development. Toddlers with a history of LBW were 27.6 times more likely to experience delayed motor development compared to those with normal birth weights. They were also 8.18 times more likely to face developmental delays when compared to newborn toddlers with normal weights.

The frequency distribution results regarding the number of siblings in the family showed that, on average, respondents were the first child (38.2%). This finding is consistent with the research conducted by Saputra et al. (2019), which demonstrated a connection between the number of siblings and the development of children aged 4-6 years. This suggests that the total number of siblings can influence a child's behavior and development. Having many children can lead to a lack of attention and affection from parents.

The frequency distribution results for the age group of mothers indicated that the average age of the respondents was below 35 years (91.2%), with only 3 respondents aged over 35 years (8.8%). The age of the mother can significantly influence the development of the baby, as mothers aged 20-35 years are typically better equipped for parenting responsibilities. This aligns with the research conducted by Temmy et al. (2018), which found that appropriate child development is more frequently observed in mothers under the age of 35.

In the group of working mothers, it was found that, on average, 64.7% of the respondents were employed as housewives. This can have an impact on baby development. Working mothers come with both advantages and disadvantages for child development. One disadvantage is that working mothers spend less time with their children compared to non-working mothers, limiting their ability to provide motivation and stimulation for motor development tasks.

However, the advantage of working mothers is that they may have access to trained childcare providers, resulting in positive social interactions, rapid cognitive development, and increased physical activity in children, as compared to children who stay at home with their non-working mothers.

8. Difference development motor between group baby massage and gymnastics with group control to development motor baby ages 2-11 months

Table 5. Results of the Normality Test of Infant Motor Development Between the Infant Massage and Infant Gymnastics Groups with the Control Group

No	Group	df	Sign	
			Before	After
1	Baby Massage and Gymnastics	17	0.140	0.003
2	Control	17	0.746	0.216

Based on Table 5 shows the results of the increase in the normality test development motor baby in the massage and baby gymnastics group not normally distributed, where the value significance before intervention more big from alpha value ( $0.140 > 0.05$ ) and value significance after intervention more small from alpha value ( $0.003 < 0.05$ ) so that *the Wilcoxon test* is used.

Developmental normality test results motor baby on groups normally distributed controls, where the value significance before intervention more big from alpha value ( $0.746 > 0.05$ ) and value significance after intervention more small from alpha value ( $0.216 > 0.05$ ) so that the test is used Paired T-Test.

9. Distribution difference development motor baby before and after group intervention baby massage and gymnastics

Table 6. Distribution Difference Development Infant Motor in Groups Baby Massage and Exercise Before and After

No	Development motor	Means	SD	Sig.
1	Before	5,12	1.833	0.000
2	After	8,59	0.795	

Based on Table 6 shows that developmental average motor baby in the group baby massage and gymnastics before intervention is 5,12 and after intervention is 8.59.

10. Distribution difference development motor baby in the group control

Table 7 Distribution Difference Development Infant Motor in Groups Control

No	Development motor	Means	SD	Sig.
1	Before	4.65	2,060	0.000
2	After	6,18	1,704	

Based on Table 7 shows that developmental average motor baby in the group control on day 1 was 4.65 and day 28 was 6.18.

11. Developmental average difference motor baby before and after group intervention baby massage and gymnastics

Table 8 *Wilcoxon* Test Results Differences in Average Development Baby Motor Before and After Group Intervention Baby Massage and Gymnastics

No	Development motor	Means	Sig.
1	Before	5.12	0.000
2	After	8.59	

Based on table 8 can is known increased *Wilcoxon* test results development motor baby in the group baby massage and gymnastics own the mean value before intervention 5,12 and after intervention 8.59 and gain mark

significance more small from alpha value (0.000<0.05).

12. Developmental average difference baby in the group control

Table 9 Differences Paired T-Test Results Development Infant Motor in Groups Control

No	Development motor	Means	Sig.
1	Before	4.65	0.000
2	After	6,18	

Based on table 9 can is known results of the increase in *the* Paired T-Test development motor baby in the group control own mean value *pre* 4.65 and *post* 6.18 and get mark significance more small from alpha value (0.000<0.05).

13. Difference average development motor baby between group baby massage and gymnastics with group control

Table 10 Difference *Man-Whitney* Test Results Average Development Infant Motor Between Groups Baby Massage and Gymnastics with Group Control

No	Group	df	Mean Ranking	P-Value
1	Massage and Gymnastics	17	23.53	0.000
2	Control	17	11.47	

Based on table 10. can is known *Mann-Whitney* test results there is change the mean value in the group massage and baby and group gymnastics control. Statistical test results show mark *p-values* more small from alpha value (0.000<0.05). So got concluded that There is difference enhancement development motor between group massage and baby and group gymnastics control.

Based on the research conducted, the statistical test results indicate an average difference in baby motor development before and after the baby massage and gymnastics intervention in Darul Ijarah Public Health Center. The p-values are significantly smaller

than the alpha value ( $0.000 < 0.05$ ). Therefore, it can be concluded that there is a difference in baby motor development in the baby massage and gymnastics group before and after the intervention, with babies experiencing an average motor development improvement of 3.47.

This finding aligns with the study conducted by Setyaningsih et al. (2015), which suggests that regularly massaged babies and irregularly massaged babies have the same probability of experiencing motor development within the normal, late, and significant categories. However, it can be observed that regularly massaged babies show a significant increase in motor development, with 5 out of 9 respondents (55.56%) falling into this category. In contrast, irregularly massaged babies did not exhibit a normal increase in motor development, with 0 out of 24 respondents (0%) showing such development.

The objective of baby massage or stimulation massage is to optimize the growth and development of babies by providing tactile, motion, and other forms of stimulation. Stimulation massages should be conducted in a favorable atmosphere, with a massage duration of about 15-20 minutes, provided regularly, and without restrictions on the frequency of massage sessions (Roesli, 2001).

This study is also consistent with research conducted by Hariani et al. (2016), which emphasizes that baby motion abilities can be influenced by stimulation, such as baby exercise or gymnastics. Gymnastics is essential for babies, just as adults require it for fitness. Babies can benefit from gymnastics by enhancing their motor development.

The objective of baby gymnastics is to optimize a baby's growth, improve motor development, build strength and muscle endurance for greater flexibility, and enhance coordination, balance, and alertness, ensuring that motor development aligns with age (Aryunani, 2022).

Based on the researcher's observations, there is a noticeable influence from baby

massage and gymnastics on the motor development of babies aged 2-11 months. This aligns with research results that demonstrate a difference before and after the application of baby massage and gymnastics, which aim to optimize growth and development by providing tactile stimulation, strengthening muscles, and enhancing coordination and balance.

The statistical test results also show an average difference in baby motor development in the control group within the Darul Imarah Public Health Center's working area. The p-values are significantly smaller than the alpha value ( $0.000 < 0.05$ ). Consequently, it can be concluded that there is a difference in baby motor development in the control group before and after the intervention, with babies experiencing an average motor development improvement of 1.53.

This conclusion is consistent with the study conducted by Wayan et al. (2018), which included 20 respondents in the baby spa group and the control group. The research results showed a significant difference in growth between the control group and the baby spa group, as indicated by a p-value of 0.021. Therefore, it can be concluded that baby growth can increase after receiving stimulation through baby spa sessions.

Based on the researcher's observations, it is evident that the average improvement in baby development before and after the control group intervention only reaches the standard set by SDIDTK (Integrated Service Post for Children Development). This is because respondents did not receive baby massage and exercise stimulation.

In terms of Mean Rank, there are differences between the two groups. The baby massage and gymnastics group has a Mean Rank value of 23.53, while the control group has a Mean Rank value of 11.47. This results in a difference in Mean Ranking of 12.06. Therefore, it can be concluded that baby massage and gymnastics have a more significant influence on the motor

development of babies aged 2-11 months compared to babies who did not receive any treatment.

Respondents in the baby massage and gymnastics group exhibited differences in motor development before and after the intervention. This is further supported by factors such as exclusive breastfeeding, a birth weight of >2500 grams, being the first child in the family, having mothers who work at home, and mothers aged between 20-35 years. However, gender did not have a significant influence on the enhancement of baby development.

Based on the researcher's observations, it is evident that the average improvement in baby development before and after the control group intervention only reaches the standard set by SDIDTK. This is because respondents did not receive baby massage and exercise stimulation.

Respondents in the control group also showed differences in motor development on day 1 and day 28. This is further supported by factors such as exclusive breastfeeding, a birth weight of >2500 grams, being the first child in the family, mothers fulfilling the role of a stay-at-home mother, and mothers aged <35 years.

**Conclusion and Suggestions.** Based on the results of the research, significant differences were observed in the motor development of infants aged 2-11 months before and after baby massage and gymnastics, with a p-value of ( $0.000 < 0.05$ ). Likewise, there were significant differences in the motor development of infants aged 2-11 months in the control group, also with a p-value of ( $0.000 < 0.05$ ). Additionally, a significant difference in infant motor development was found between the baby massage and gymnastics group and the control group, with a p-value of ( $0.000 < 0.05$ ). Baby massage and gymnastics exerted a greater influence on the motor development of infants, resulting in increased motor development in babies who received this

stimulation compared to those who did not receive any stimulation.

For readers, it is expected that this study serves as a valuable source of information, demonstrating that baby massage can enhance both gross and fine motor skills, language development, and social independence in infants. For public health centers, it is recommended that midwives, nurses, and nutrition experts at the Darul Imarah Public Health Center consider providing baby massage as part of their healthcare services to promote optimal infant development. For the parents who participated in this study, it is hoped that they will expand their knowledge by seeking more information about the benefits of baby massage for enhancing infant motor development. For future researchers, it is suggested that they conduct further studies by differentiating variables such as gender, exclusive breastfeeding history, maternal age during pregnancy, maternal employment status, and the number of siblings. Additionally, researchers can explore combinations of different variables in their future studies.

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## References

- Adriana D. *Tumbuh Kembang Dan Terapi Bermain Pada Anak*. 2nd ed. (Susila A, Utami T, eds.). Penerbit Salemba Medika; 2017.  
<https://opac.perpusnas.go.id/DetailOpac.aspx?id=1164057>
- Anggraini TL, Handajany S. Pengaruh Karakteristik Ibu terhadap Perkembangan Anak di Posyandu Mawar II Desa Pasir Gombang Kabupaten Bekasi Tahun 2018. 2018;000:1-23.
- Apriloka DV. Keterampilan Motorik Kasar Anak Usia Dini Ditinjau Dari Jenis Kelamin. *J Pendidik Raudhatul Athfal*. 2020;3(1):61-67. doi:10.15575/japra.v3i1.8106
- Aryunani, Taufiqoh S, Anifah F. *Asuhan*

- Kebidanan Neonatus, Bayi, Balita & Anak Pra Sekolah.* (Mardiyana NE, ed.). Penerbit Rena Cipta Mandiri; 2022. [https://www.google.co.id/books/edition/Asuhan\\_Kebidanan\\_Neonatus\\_Bayi\\_Balita\\_da/foifEAAAQBAJ?hl=id&gbpv=1&dq=senam+bayi&pg=PA113&printsec=frontcover](https://www.google.co.id/books/edition/Asuhan_Kebidanan_Neonatus_Bayi_Balita_da/foifEAAAQBAJ?hl=id&gbpv=1&dq=senam+bayi&pg=PA113&printsec=frontcover)
- Besar DA. *CAKUPAN BAYI*. Published online 2021.
- Galenia. *Home Baby Spa.* (Marta E, ed.). Penerbit Plus+; 2014. [https://www.google.co.id/books/edition/Home\\_Baby\\_Spa/2IkOBwAAQBAJ?hl=id&gbpv=1&dq=home+baby+spa&pg=PA8&printsec=frontcover](https://www.google.co.id/books/edition/Home_Baby_Spa/2IkOBwAAQBAJ?hl=id&gbpv=1&dq=home+baby+spa&pg=PA8&printsec=frontcover)
- Hariani WF, Arisandhi D. Pengaruh Senam Bayi Terhadap Perkembangan Bayi Usia 3-12 Bulan Di Perkebunan Bayu Kidul Kecamatan Songgon Kabupaten Banyuwangi 015 9. *J Kesehat.* 2016;4(1):9-17.
- Hidayat AA. *Cara Mudah Menghitung Besar Sampel.* (Aziz NA, ed.). Health Books Publishing; 2021. [https://www.google.co.id/books/edition/Cara\\_Mudah\\_Menghitung\\_Besar\\_Sampel/qqMaEAAAQBAJ?hl=id&gbpv=1&dq=cara+mudah+menghitung+besar+sampel&pg=PA19&printsec=frontcover](https://www.google.co.id/books/edition/Cara_Mudah_Menghitung_Besar_Sampel/qqMaEAAAQBAJ?hl=id&gbpv=1&dq=cara+mudah+menghitung+besar+sampel&pg=PA19&printsec=frontcover)
- Kemendes 2014. Pemantauan Pertumbuhan, Perkembangan, dan Gangguan Tumbuh Kembang Anak. *Ber Negara Republik Indones Tahun 2014 Nomor 1524*. Published online 2014:365.
- Kementerian Kesehatan Republik Indonesia. *Pedoman Pelaksanaan Stimulasi, Deteksi Dan Intervensi Dini Tumbuh Kembang Anak.Pdf.*; 2016.
- Khayati YN, Sundari S. Hubungan Berat Badan Lahir Dengan Pertumbuhan Dan Perkembangan. *Indones J Midwifery.* 2019;2(2):58-63. doi:10.35473/ijm.v2i2.266
- Medise BE. Mengenal Keterlambatan Perkembangan Umum pada Anak. Ikatan Dokter Anak Indonesia (IDAI). Published 2013. <https://www.idai.or.id/artikel/seputar-kesehatan-anak/mengenal-keterlambatan-perkembangan-umum-pada-anak>
- Mufida L, Widyaningsih TD, Maligan JM. Prinsip Dasar Makanan Pendamping Air Susu Ibu ( MP-ASI ) untuk Bayi 6 – 24 Bulan : Kajian Pustaka. Basic Principles of Complementary Feeding for Infant 6 - 24 Months : A Review. *J Pangan dan Agroindustri.* 2015;3(4):1646-1651.
- Nardina EA, Astuti ED, Suryana, et al. *Tumbuh Kembang Anak.* (Karim A, ed.). Yayasan Kita Menulis; 2021. [https://www.google.co.id/books/edition/Tumbuh\\_Kembang\\_Anak/4phFEAAAQBAJ?hl=id&gbpv=1](https://www.google.co.id/books/edition/Tumbuh_Kembang_Anak/4phFEAAAQBAJ?hl=id&gbpv=1)
- Noviani NW, Fitria. Dampak baby spa terhadap tumbuh kembang bayi usia 3-6 bulan di Puskesmas I Denpasar Selatan. 2018;6(8):2601-2605.
- Purwanti S. Efektifitas Pelaksanaan Senam Bayi Terhadap Peningkatan Perkembangan Bayi. *J Ilmu Kebidanan.* 2016;3(6):1-10.
- Roesli U. *Pedoman Pijat Bayi Prematur & Bayi Usia 0-3 Bulan.* Trubus Agriwidya; 2001. [https://www.google.co.id/books/edition/Pedoman\\_pijat\\_bayi\\_prematur\\_bayi\\_usia\\_0/kQnhLfiyu8wC?hl=id&gbpv=0](https://www.google.co.id/books/edition/Pedoman_pijat_bayi_prematur_bayi_usia_0/kQnhLfiyu8wC?hl=id&gbpv=0)
- Saadah N, Suparji, Sulikah. *Stimulasi Perkembangan Oleh Ibu Melalui Bermain Dan Rekreasi Pada Anak Usia Dini.* (Yulianto B, ed.). Scopindo Media Pustaka; 2020. [https://www.google.co.id/books/edition/STIMULASI\\_PERKEMBANGAN\\_OLEH\\_IBU\\_MELALUI/4WABEAAAQBAJ?hl=id&gbpv=1&dq=dampak+keterlambatan+perkembangan&pg=PA7&printsec=frontcover](https://www.google.co.id/books/edition/STIMULASI_PERKEMBANGAN_OLEH_IBU_MELALUI/4WABEAAAQBAJ?hl=id&gbpv=1&dq=dampak+keterlambatan+perkembangan&pg=PA7&printsec=frontcover)
- Saputra AR, Angraini DI. Hubungan Faktor Keluarga Terhadap Perkembangan Anak Usia 4-6 Tahun Di Desa Padang Manis Kecamatan Wonosobo Kabupaten Tanggamus. *Math Educ J.* 2019;9(1):3-7. <https://juke.kedokteran.unila.ac.id/index.php/medula/article/view/2513>
- Setyaningsih R, Eka Prasetyo Wat K, Utami A. Hubungan Pijat Bayi Dengan Perkembangan Motorik Bayi Usia 1 – 12 Bulan Di Desa Pundungsari Bulu Sukoharjo. *KOSALA J Ilmu Kesehatan.* 2015;3(1). doi:10.37831/jik.v3i1.41
- Sugeng HM, Tarigan R, Sari NM. Gambaran Tumbuh Kembang Anak pada Periode Emas Usia 0-24 Bulan di Posyandu Wilayah Kecamatan Jatinangor. *J Sist Kesehatan.* 2019;4(3):96-101.
- Sudirjo E, Alif MN. *Pertumbuhan Dan Perkembangan Motorik: Konsep Perkembangan Dan Pertumbuhan Fisik Dan Gerak Manusia.*; 2018. [https://www.google.co.id/books/edition/Pertumbuhan\\_dan\\_Perkembangan\\_Motorik\\_Kon/9I1jDwAAQBAJ?hl=id&gbpv=1&printsec=frontcover](https://www.google.co.id/books/edition/Pertumbuhan_dan_Perkembangan_Motorik_Kon/9I1jDwAAQBAJ?hl=id&gbpv=1&printsec=frontcover)

- Widyastuti D, Widyani R. *Panduan Perkembangan Anak 0-1 Tahun*. Niaga Swadaya; 2007.  
[https://www.google.co.id/books/edition/Panduan\\_Perkembangan\\_Bayi\\_0\\_1/E67c-No\\_IdQC?hl=id&gbpv=0](https://www.google.co.id/books/edition/Panduan_Perkembangan_Bayi_0_1/E67c-No_IdQC?hl=id&gbpv=0)
- Widodo ADH. Efektifitas Massage Eflurge Terhadap Perkembangan Gross Motoric Pada Usia 3-4 Bulan. Published online 2015:67-72.