

Analysis of Factors Affecting the Development Status of Toddlers in Simomulyo Health Center Surabaya

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Abstract

Background: Development is one of the important things for the future of a child. The most crucial development occurs during the first five years of a child's life, this time is often called the golden period. At this time all the development of children must be by their age so that in the future there are no developmental delays. A child's development can be influenced by several factors, both internal and external factors. Based on previous research as many as 5-10% of Indonesian children experience general developmental delays, so the development of Indonesian children still requires serious attention. Therefore, this study aims to analyze factors that affect the development status of toddlers. **Method:** This study is an observational analytical study using a cross-sectional approach. With a sample number of 100 toddlers in the working area of Simomulyo Health Center that meets the criteria of inclusion and uses consecutive sampling techniques. Independent variables in the study were birth weight, nutritional status of toddlers, parents' last education, economic status, history of disease in toddlers, and history of exclusive breast milk. While the dependent variable in this study is the status of development. The chi-square statistical test is used to determine the significant level of data obtained at the meaningful level of $\alpha = 0.05$. **Results:** The results of the study found 90% experienced appropriate developmental status, 86% had normal nutritional status based on BB / U, 45% had normal nutritional status based on TB / U, 64% had normal nutritional status based on BB / TB, 82% of toddler parents had the last high education, 67% of toddlers have economic status \geq UMR, 50% of toddlers have a history of pain ≥ 2 times sick and 56% of toddlers get exclusive breast milk ≥ 6 months. From the results of statistical tests chi-square obtained birth weight $p = 0.444$ ($p \geq 0.05$), nutritional status based on BB / U $p = 0.578$ ($p \geq 0.05$), nutritional status based on TB / U $p = 0.375$ ($p \geq 0.05$), nutritional status based on BB / TB $p = 0.706$ ($p \geq 0.05$), parental education $p = 0.488$ ($p \geq 0.05$), economic status $p = 0.103$ ($p \geq 0.05$), history of childhood disease $p = 0.046$ ($p < 0.05$), exclusive breast milk history $p = 0.002$ ($p < 0.05$). It means that there is no relationship between developmental status with birth weight, nutritional status, parents' last education, economic status. However, there is a relationship between developmental status and a history of toddler disease, and a history of exclusive breast milk. **Conclusion:** A toddler's history of disease and a history of exclusive breast milk have relationships that can affect a toddler's development.

Keywords: development; developmental status; birth weight; nutritional status; parents' last education; economic status; toddler disease history; exclusive breast milk history;

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Introduction

Child development is one of the most important things for a child's future. The most crucial development occurs during the first five years of a child's life because it is a *golden period*. At this time all the development of the child must be by his age so that there are no developmental delays. A child's development can be influenced by several things, both internal and external factors. About 33% or 83 million Indonesians are children and will increase every year (Kemenkes RI, 2014). However, 5-10% of Indonesian children experience general developmental delays (Tjandrajani et al., 2016). Therefore, the development of Indonesian children deserves attention and has the right to achieve optimal development of both cognition, social, and emotional behavior. So that it takes good and appropriate guidance so that the development of children can achieve good quality. Prevention efforts as early as possible need to be done to reduce developmental problems with early detection. This early prevention examination can be done in *Posyandu* and can be done every three months in children aged 0-12 months and every six months in children aged 12-72 months (Kemenkes RI, 2014).

Based on data from the Surabaya City Health Office in 2017-2020, shows that in *Simomulyo* Subdistrict showed the largest prevalence of BBLR in Surabaya city in 2017 and increased continuously every year until 2020. And based on the Health Profile of Surabaya City in 2018, *Simomulyo* Health Center ranks first in cases of malnourished toddlers. By considering the factors related to the number of cases of BBLR and malnutrition in the working area of *Simomulyo* Health Center, then this study can be known the relationship of several factors related to the development status of toddlers in *Simomulyo* Health Center.

Research methods

This study uses an observational analytical research design with a case-control approach. This research was conducted at the *Simomulyo* Public Health Center, Surabaya City in August-November 2021. The dependent variable was developmental status. Independent variables were birth weight, nutritional status of children under five, parents' last education, economic status, history of disease in toddlers, and history of exclusive breastfeeding. In the study, the population was all children under five in the working area of the *Simomulyo* Health Center. Calculation of the sample using the sample formula to obtain the results of 100 samples.

Result

Univariate Analysis Results

Table 1. Frequency Distribution of Research Subjects Based on Characteristics in Simomulyo Health Center Area.

| No | Variable | Total | % |
|------------|--|------------|------------|
| 1 | Gender | | |
| | Man | 60 | 60 |
| | Woman | 40 | 40 |
| | Total | 100 | 100 |
| 2 | Age | | |
| | 0-24 months | 33 | 33 |
| | 24-36 months | 24 | 24 |
| | 36-60 months | 43 | 43 |
| | Total | 100 | 100 |
| 3 | Development Status | | |
| | Not Based On Their Age | 10 | 10 |
| | By Their Age | 90 | 90 |
| | Total | 100 | 100 |
| 4 | Birth Weight | | |
| | Low Birth Weight | 5 | 5 |
| | High Birth Weight | 95 | 95 |
| | Total | 100 | 100 |
| 5 | Nutritional Status by Weight/Age : | | |
| | Severe Malnutrition | 1 | 1 |
| | Moderate Malnutrition | 3 | 3 |
| | Normal | 86 | 86 |
| | Over Nourished | 10 | 10 |
| | Nutritional Status by Height/Age : | | |
| | Wasted and Stunted | 13 | 13 |
| | Stunted | 7 | 7 |
| | Normal | 45 | 45 |
| | Tall | 35 | 35 |
| | Nutritional Status by Weight/Height : | | |
| | Marked Thinness | 13 | 13 |
| | Thinnes | 5 | 5 |
| Normal | 64 | 64 | |
| Overweight | 18 | 18 | |
| | Total | 100 | 100 |
| 6 | Parent's Last Education : | | |
| | Low | 18 | 18 |
| | High | 82 | 82 |
| | Total | 100 | 100 |
| 7 | Economic Status | | |
| | <UMR | 33 | 33 |
| | ≥UMR | 67 | 67 |
| | Total | 100 | 100 |
| 8 | Child Disease History | | |
| | <2 times | 50 | 50 |
| | ≥2 times | 50 | 50 |
| | Total | 100 | 100 |
| 9 | Exclusive Breastfeeding History | | |
| | Breastfeeding <6 months | 44 | 44 |
| | Breastfeeding ≥6 months | 56 | 56 |
| | Total | 100 | 100 |

Bivariate Analysis Results

Table 2. Data Analysis of the Relationship between Birth Weight and Developmental Status in Toddlers at Simomulyo Health Center

| Birth Weight | Development Status | | | | p value | OR |
|------------------------|--------------------|----|------------------------|----|---------|-----|
| | By Their Age | | Not Based On Their Age | | | |
| | N | % | N | % | | |
| BirthWeight ≥2500 g | 86 | 86 | 9 | 9 | 0,444 | 2,3 |
| BirthWeight <2500 g | 4 | 4 | 1 | 1 | | |
| Total | 90 | 90 | 10 | 10 | | |

Table 3. Data analysis of the Relationship between Nutritional Status Based on Weight/Age and status Developments in Toddlers at Simomulyo Health Center

| Nutritional Status | Development Status | | | | p value |
|-----------------------|--------------------|----|------------------------|----|---------|
| | By Their Age | | Not Based On Their Age | | |
| | N | % | N | % | |
| Over Nourished | 9 | 9 | 1 | 1 | 0,578 |
| Normal | 78 | 78 | 8 | 8 | |
| Moderate Malnutrition | 2 | 2 | 1 | 1 | |
| Severe Malnutrition | 1 | 1 | 0 | 0 | |
| Total | 90 | 90 | 10 | 10 | |

Table 4. Data Analysis of the Relationship between Nutritional Status Based on Height/Age and status Developments in Toddlers at Simomulyo Health Center

| Nutritional Status | Development Status | | | | p value |
|--------------------|--------------------|----|------------------------|----|---------|
| | By Their Age | | Not Based On Their Age | | |
| | N | % | N | % | |
| Tall | 33 | 33 | 2 | 2 | 0,375 |
| Normal | 38 | 38 | 7 | 7 | |
| Stunted | 7 | 7 | 0 | 0 | |
| Wasted and Stunted | 12 | 12 | 1 | 1 | |
| Total | 90 | 90 | 10 | 10 | |

Table 5. Data Analysis of the Relationship between Nutritional Status Based on Weight/Height and status Developments in Toddlers at Simomulyo Health Center

| Nutritional Status | Development Status | | | | p value |
|--------------------|--------------------|----|------------------------|----|---------|
| | By Their Age | | Not Based On Their Age | | |
| | N | % | N | % | |
| Overweight | 17 | 17 | 1 | 1 | 0,706 |
| Normal | 58 | 58 | 6 | 6 | |
| Thinnes | 4 | 4 | 1 | 1 | |
| Marked Thinness | 11 | 11 | 2 | 2 | |
| Total | 90 | 90 | 10 | 10 | |

Table 6. Data Analysis of the Relationship between Parents' Last Education and Developmental Status in Toddlers at Simomulyo Health Center

| Parent's Last Education | Development Status | | | | p value | OR |
|-------------------------|--------------------|----|------------------------|----|---------|-------|
| | By Their Age | | Not Based On Their Age | | | |
| | N | % | N | % | | |
| High | 73 | 73 | 9 | 9 | 0,488 | 0,477 |
| Low | 17 | 17 | 1 | 1 | | |
| Total | 90 | 90 | 10 | 10 | | |

Table 7. Data Analysis of the Relationship between Economic Status and Developmental Status in Toddlers at Simomulyo Health Center

| Economic Status | Development Status | | | | p value | OR |
|-----------------|--------------------|----|------------------------|----|---------|-------|
| | By Their Age | | Not Based on Their Age | | | |
| | N | % | N | % | | |
| ≥UMR | 58 | 58 | 9 | 9 | 0,103 | 0,201 |
| <UMR | 32 | 32 | 1 | 1 | | |
| Total | 90 | 90 | 10 | 10 | | |

Table 8. Data Analysis of the Relationship between Child Disease History and Developmental Status in Toddlers at Simomulyo Health Center

| Child Disease History | Development Status | | | | p value | OR |
|-----------------------|--------------------|----|------------------------|----|---------|------|
| | By Their Age | | Not Based on Their Age | | | |
| | N | % | N | % | | |
| <2 times | 48 | 48 | 2 | 2 | 0,046 | 4,57 |
| ≥2 times | 42 | 42 | 8 | 8 | | |
| Total | 90 | 90 | 10 | 10 | | |

Table 9. Data Analysis of the Relationship between Exclusive Breastfeeding History and Developmental Status in Toddlers at Simomulyo Health Center

| Exclusive Breastfeeding History | Development Status | | | | p value | OR |
|---------------------------------|--------------------|----|------------------------|----|---------|------|
| | By Their Age | | Not Based On Their Age | | | |
| | N | % | N | % | | |
| Breastfeeding ≥6 months | 55 | 55 | 1 | 1 | 0,002 | 14,1 |
| Breastfeeding <6 months | 35 | 35 | 9 | 9 | | |
| Total | 90 | 90 | 10 | 10 | | |

Discussion

Characteristics of Respondents

Based on the results of the study, the results showed that 100 respondents were 60% male and 40% female. With the distribution of age 0-24 months as much as 33%, age 24-36 months as much as 24%, and age 36-60 months as much as 43%. Of the 100 respondents, most or around 90% of toddlers with appropriate development, while 10% of toddlers with inappropriate development. As for 95% of toddlers with normal birth weight, the nutritional status is classified into 3 indicators, nutritional status based on BB/U with 1% undernourished under five categories, 3% undernourished toddlers category, 86% well-nourished toddlers category and 10% over-nourished toddlers, nutritional status based on TB/U with the category of very short toddlers 13%, short toddlers 7%, normal toddlers 45% and tall toddlers 35%, nutritional status based on BB/TB with very thin toddler categories 13%, underweight toddlers 5%, toddlers normal 64% and obese toddlers 18%. The distribution of the economic status of 100 parents of children under five in the working area of the Simomulyo Health Center is 18% of families with low economic status with an income of UMR in Surabaya, while the remaining 82% of families with middle and upper economic status with an income of UMR in Surabaya. Of the 100 toddlers who became respondents, the frequency of sick toddlers in the working area of the Simomulyo Health Center was balanced, with a frequency of 50 toddlers (50%) having a history of getting sick 2 times sick and 50 toddlers (50%) having a history of getting sick 2 times getting sick. Parents of children under five in the working area of the Simomulyo Health Center still have the responsibility to breastfeed their children, as evidenced by the percentage of exclusive breastfeeding for 6 months of 56% of 100 respondents.

Relationship between Birth Weight and Developmental Status

Based on table 2, a bivariate analysis using the chi-square test showed that 90% of toddlers who experienced appropriate development were under five while 10% of toddlers experienced inappropriate developmental status. Furthermore, in the table, it is

known that the p-value is 0.444 and the OR (odds ratio) value is 2.3, where the p-value > 0.05, which means that there is no relationship between birth weight and the developmental status of children under five.

A study conducted by (Scharf et al., 2016) says that babies with low birth weight (BLR) will be more susceptible to infection so that it will indirectly inhibit the growth and development process. However, this study is in contrast to research (Linsell et al., 2015) which shows contradictory research results, which say that infants born with low birth weight (BLR) will be at risk of experiencing problems in their development. However, if given continuous stimulation can change these conditions. Toddlers with low birth weight still have the opportunity to develop optimally like toddlers in general.

Relationship between Nutritional Status and Developmental Status

Based on table 3, a bivariate analysis using the chi-square test showed that 90% of toddlers who experienced appropriate development were under five while 10% of toddlers experienced inappropriate developmental status. Furthermore, in the nutritional status table based on weight/age it is known that the p-value is 0.578, in the nutritional status table based on height/age it is known that the p-value is 0.375 and in the nutritional status table based on weight/height, it is known that the p-value is 0.706 where the value is 0.706. $p > 0.05$ which means that there is no relationship between nutritional status and developmental status of children under five.

Research conducted (Suharyanto et al., 2017) says that toddlers with abnormal nutritional status will experience inappropriate or hampered development due to inadequate nutrition, so cognitive development is far behind. In contrast to toddlers who get good nutrition. Likewise with research conducted by (Lindawati, 2012) where nutritional status is significantly related to the motor development of toddlers. Toddlers who are malnourished will potentially be 5 times at risk of developmental delays, resulting in development that is not by the age of the toddler.

Relationship of Parents' Last Education with Development Status

Based on table 4, a bivariate analysis using the chi-square test showed that 90% of toddlers who experienced appropriate development were under five while 10% of toddlers experienced inappropriate developmental status. Furthermore, in the table, it is known that the p-value is 0.488 and the OR (odds ratio) is 0.477, where the p-value is > 0.05, which means that there is no relationship between the parents' last education and the developmental status of children under five.

Research conducted by (Rica Dini Lestari, 2016) states that mothers with a low level of education may find it difficult to receive various information and do not understand the needs of their children along with the stages of their developmental age. Likewise, research conducted (Warsito et al., 2012) where the higher the knowledge and capacity of parents in educating and caring for children, the higher the possibility of

parents being able to provide stimulation or stimulation that can improve child development.

Relationship between Economic Status and Development Status

Based on table 5, a bivariate analysis using the chi-square test showed that 90% of toddlers who experienced appropriate development were under five while 10% of toddlers experienced inappropriate developmental status. Furthermore, in the table, it is known that the p-value is 0.103 and the OR (odds ratio) value is 0.201 where the p-value > 0.05 which means that there is no relationship between economic status and the developmental status of children under five.

Families with a low economy, lacking in providing moral and educational values and lacking in helping children adapt and interact with society. In addition, families with low economic status often have limitations in stimulating abilities and stimulating the development of toddlers. So that indirectly economic status often greatly impacts the education and development of toddlers (Engle & Black, 2018).

Relationship between Child's Disease History and Developmental Status

Based on table 6, a bivariate analysis using the chi-square test showed that 90% of toddlers who experienced appropriate development were under five, while 10% of toddlers experienced inappropriate developmental status. Furthermore, in the table, it is known that the p-value is 0.046 and the OR (odds ratio) value is 4.57, where the p-value < 0.05, which means that there is a relationship between the history of the child's illness and the developmental status of the toddler.

The results of this study are in line with research (Chung, 2014) where toddlers who have a history of illness, especially seizures in pain due to high fever will have a bad impact on their development because the effects of seizures can cause children to experience cognitive, motor and adaptive behavior disorders. In addition, if the child's disease history is not treated immediately, it will cause fatal complications in the future, because the child is likely to experience epilepsy, decreased level of consciousness, mental retardation, motor development disorders, and even death.

Relationship of Exclusive Breastfeeding History with Developmental Status

Based on table 7, a bivariate analysis using the chi-square test showed that 90% of toddlers who experienced appropriate development were under five while 10% of toddlers experienced inappropriate developmental status. Furthermore, in the table, it is known that the p-value is 0.002 and the OR (odds ratio) value is 14.1 where the p-value is < 0.05, which means that there is a relationship between a history of exclusive breastfeeding and the developmental status of children under five.

Breast milk is proven to have many benefits, in addition to increasing the baby's immune system, breast milk can also improve children's eyesight, intelligence, and intelligence. Because it can increase the body's resistance, breast milk can reduce the risk of children getting a disease. It is proven that children who receive exclusive

breastfeeding for 6 months or more have better motor skills than children who do not receive exclusive breastfeeding (Riyanti & Hanifah, 2014).

Conclusion

Based on the results of the research described above, it can be concluded that birth weight, nutritional status, parents' last education, economic status is not related to the developmental status of children under five. Meanwhile, from this study, the results of the analysis showed that a history of children's disease and a history of exclusive breastfeeding were related to the developmental status of children under five. These results are in line with research conducted by (Riyanti & Hanifah, 2014) that breast milk has many benefits, including increasing the child's immune system. So that children who are exclusively breastfed for 6 months have a lower risk of disease and have better motor skills than children who do not receive exclusive breastfeeding. And in a study conducted by (Chung, 2014) where children who have a history of illness, especially seizures caused by fever, have poor developmental abilities, because of the effects of seizures that are not treated immediately.

References

- Chung, S. (2014). Febrile seizures. *Korean Journal of Pediatrics*, 57(9), 384–395.
<https://doi.org/10.3345/kjp.2014.57.9.384>
- Engle, P. L., & Black, M. M. (2008). The effect of poverty on child development and educational outcomes. *Annals of the New York Academy of Sciences*, 1136, 243–256. <https://doi.org/10.1196/annals.1425.023>
- Kemenkes RI. (2014). Pemantauan pertumbuhan, perkembangan, dan gangguan tumbuh kembang anak. *Berita Negara Republik Indonesia Tahun 2014 Nomor 1524*, 15.
- Lindawati. (2012). Faktor-Faktor yang Berhubungan Dengan Perkembangan Motorik Anak Usia Pra Sekolah. *Jurnal Health Quality*, 4(1), 1–76.
http://www.poltekkesjakarta1.ac.id/file/dokumen/46JURNAL_LINDAWATI.pdf
- Linsell, L., Malouf, R., Morris, J., Kurinczuk, J. J., & Marlow, N. (2015). Prognostic factors for poor cognitive development in children born very preterm or with very low birth weight a systematic review. In *JAMA Pediatrics* (Vol. 169, Issue 12, pp. 1162–1172). American Medical Association.
<https://doi.org/10.1001/jamapediatrics.2015.2175>
- Rica Dini Lestari. (2016). Faktor Postnatal Yang Berhubungan Dengan Perkembangan Anak Balita Di Wilayah Lampung Utara. *Keperawatan*, XII(april), 1–9.
- Riyanti, F., & Hanifah, L. (2014). Hubungan Pemberian Asi Eksklusif Dengan Perkembangan Bayi Usia 6 – 12 Bulan Di Desa Carikan Juwiring Klaten Tahun 2013. *Jurnal Kebidanan Indonesia*, 5(2), 117–134.
<https://doi.org/10.36419/jkebin.v5i2.182>
- Scharf, R. J., Scharf, G. J., & Stroustrup, A. (2016). Developmental Milestones.[Erratum appears in *Pediatr Rev*. 2016 Jun;37(6):266; PMID: 27252184]. *Pediatrics in Review*, 37(1), 47, 25–37; quiz 38.
<http://ovidsp.ovid.com/ovidweb.cgi?T=JS&CSC=Y&NEWS=N&PAGE=fulltext&D=medl&AN=26729779>
- Suharyanto, E. R., Hastuti, T. P., & Triredjeki, H. (2017). Hubungan status gizi dengan perkembangan anak usia 1 sampai 5 tahun di kelurahan tidar utara binaan puskesmas magelang selatan kota magelang. *Jurnal Keperawatan Soedirman*, 12(1), 27. <https://doi.org/10.20884/1.jks.2017.12.1.686>
- Tjandrajani, A., Dewanti, A., Burhany, A. A., & Widjaja, J. A. (2016). Keluhan Utama pada Keterlambatan Perkembangan Umum di Klinik Khusus Tumbuh Kembang RSAB Harapan Kita. *Sari Pediatri*, 13(6), 373.
<https://doi.org/10.14238/sp13.6.2012.373-7>
- Warsito, O., Khomsan, A., Hernawati, N., & Anwar, F. (2012). Relationship between nutritional status, psychosocial stimulation, and cognitive development in preschool children in Indonesia. *Nutrition Research and Practice*, 6(5), 451–457.

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