JOURNAL MIDWIFERY (JM)
Jurnal Jurusan Kebidanan, Poltekkes Kemenkes Gorontalo
P-ISSN (2407-8506), E-ISSN (2808-523X)
http://jurnal.poltekkesgorontalo.ac.id/index.php/JM/index
DOI: http://dx.doi.org/10.52365/jm.v8i2.435

Effect of Nutritional Status on Infants (0-1 Years) on Growth

Sarni Anggoro[1], Vidyana Megantari[2], Tantiana Isnaningsih[3], Ahmad Khamid [4]
[1,2,3,4]*Sekolah Tinggi Ilmu Kesehatan Surya Global Yogyakarta*
sarnianggoro73@gmail.com[1], vidyanamegantari14@gmail.com[2], tianingsih01@gmail.com[3], ahmadkhamidkhusnan@gmail.com[4]

ABSTRACT

The stage of growth and development is in dire need of good nutrition. Even though the stunting rate in Indonesia is decreasing. This research is a quantitative research with a cross sectional approach. The population in this study were infants (0-1 years) totaling 74 people in January 2022 in the Work Area of the Sewon I Health Center Bantul. Sampling using total sampling. Data collection techniques through observation. Data collection instruments in the form of KIA books, weight scales and body length measurements. Bivariate analysis in this study used the Kendall Tau test. The results of the analysis can be concluded that obtained from this study there are 4 children (5.4%) with poor nutritional status, 61 children (82.4%) with good nutritional status and 9 children (12.2%) with more nutritional status. There are data as many as 65 children (87.8%) in the category of normal growth and development. From the correlation results, there is a relationship between nutritional status in infants (0-1 years) on growth and development, which is indicated by a significance value of 0.000. This shows that there is a significant relationship between nutritional status and child development.

Keywords: *Infants, Growth, Nutritional Status*

Tahap tumbuh kembang sangat membutuhkan asupan nutrisi yang baik. Padahal angka stunting di Indonesia semakin menurun. Penelitian ini merupakan penelitian kuantitatif dengan pendekatan cross sectional. Populasi dalam penelitian ini adalah bayi (0-1 tahun) yang berjumlah 74 orang pada bulan Januari 2022 di Wilayah Kerja Puskesmas Sewon I Bantul. Pengambilan sampel menggunakan total sampling. Teknik pengumpulan data melalui observasi. Instrumen pengumpulan data berupa buku KIA, timbangan berat badan dan pengukuran panjang badan. Analisis bivariat dalam penelitian ini menggunakan uji Kendall Tau. Hasil analisis dapat disimpulkan bahwa diperoleh dari penelitian ini terdapat 4 anak (5,4%) dengan kategori gizi buruk, 61 anak (82,4%) dengan status gizi baik dan 9 anak (12,2%) dengan status gizi lebih. Terdapat data sebanyak 65 anak (87,8%) dalam kategori tumbuh kembang normal. Dari hasil korelasi terdapat hubungan status gizi pada bayi (0-1 tahun) terhadap pertumbuhan dan perkembangan yang ditunjukkan dengan nilai signifikansi sebesar 0,000. Hal ini menunjukkan bahwa terdapat hubungan yang signifikan, antara status gizi dan tumbuhan kembang anak.

Kata Kunci : bayi, pertumbuhan, status gizi

* Sarni Anggoro, Sekolah Tinggi Ilmu Kesehatan Surya Global Yogyakarta Jalan Ringroad Selatan Blado, Jl. Monumen Perjuangan, Balong Lor, Potorono, Kec. Banguntapan, Kabupaten Bantul, Daerah Istimewa Yogyakarta 55194, sarnianggoro73@gmail.com

INTRODUCTION

Growth and development is the increase and development of human physical size, such as weight and height, the ability of the structure and function of the body to become more complex (Wahyuni, 2018). The developmental age of babies is divided into 2, namely neonates up to 28 days of age and babies from 29 days to 12 months of age (Misniarti & Haryani, 2022). Every baby goes through a stage of growth and development in his lifetime.

Growth and development is a continuous process. Growth is related to changes in the size, number, size or dimensions of the cellular level which can be measured by weight, length, bone age and metabolic balance (Gallagher et al., 2020). Development is a condition of increasing ability in more complex body structures and functions in predictable patterns, as a result of the maturation process (Rahma et al., 2022).

Growth has an impact on physical aspects while development is related to the maturation of organ functions of each individual. The prevalence of underweight in Indonesia in 2021 based on stunting results nationally decreased by 1.6% per year from 27.7% in 2019 to 24.4% (Humas Litbangkes, 2021).

This shows that the implementation of government policies to accelerate the reduction of stunting in Indonesia has given good results. The 2021 SSGI conducted by the Health Research and Development Agency of the Ministry of Health not only provides an overview of the nutritional status becomes an instrument for monitoring and evaluating the achievement of specific intervention indicators and sensitive interventions at the national and district/city levels until 2024 (Humas Litbangkes, 2021). Infant weight is strongly influenced by heredity, nutrition, environment, gender, social status (Andini et al., 2020; Erika et al., 2017). Body weight is one of the anthropometric indicators to assess growth in infants or children (Andini et al., 2020). There are several ways that can be done to increase the baby's weight, namely providing adequate intake food and nutrition (Maftuchah et al., 2019).

Adequate intake nutrition is needed for infant growth and development. Regulation of the Minister of Health of the Republic of Indonesia Number 66 of 2014 concerning Monitoring of Developmental Growth and Developmental Disorders of Children is part of health service activities carried out for infants, toddlers, and preschool children (Damayanti et al., 2017).

Monitoring must be carried out in a comprehensive and quality manner through adequate stimulation activities, early detection and early intervention to

improve the quality of early childhood growth and development and the readiness of children to enter formal education as well as the health, nutritional, cognitive, mental, and psychosocial status of children. the need for monitoring the growth and development of toddlers (Wahyuni, 2018).

One of the problems with growth and development is stunting. Even though the stunting rate in Indonesia is decreasing, data from the Bantul Health Office says the stunting rate in Bantul is still quite high despite a downward trend. He noted that the stunting rate in 2018 was 4,733 toddlers or 9.75% of the total 48,553 toddlers measured at posyandu. Then in 2019 it decreased slightly, namely there were 3,725 children under five or 7.73% of the total 48,181 children under five. Then in 2020 there were 1,816 stunting toddlers. This number is small because the toddlers measured in that year were also only 18,638 toddlers. In 2020, there is little or even 2021, there is no data on stunting due to the Covid-19 pandemic so there are no measurements (Hasanudin, 2021).

The results of a preliminary study in the work area at the Sewon 1 Health Center Bantul in 2017 data on malnutrition status amounted to 340 children and in 2018 the last month of February the data on malnutrition status amounted to 279 children. The working area of the Sewon 1 Bantul Health Center is divided into 2 villages, namely Timbulharjo Village and Pendowo Village. Based on the amount of data in February 2018 data for infants 0-1 years old, namely Timbulharjo village posyandu Dahlia totaling 88 children and children experiencing malnutrition status totaling 19 children, Pendowo village posyandu Pendowo totaling 94 children and children experiencing malnutrition status totaling 18 children, and Timbulharjo Village Posyandu Menur totals 52 children and children who experience malnutrition are 17 children. From the data above, the number of infants aged 0-1 years was mostly found in Timbulharjo Posyandu Dahlia Village, which amounted to 88 children and 19 children with poor nutritional status.

Based on the results of interviews in January 2022 with health workers, especially nutrition, that the low nutritional status of toddlers in the working area of the Sewon 1 Health Center is a lack of validity in filling out nutritional status because many children are not weighed and also facilities such as tools to measure body length not all posyandu have the tools, However, the puskesmas has tried to provide additional food for children with poor nutritional status. (Sewon 1 Health Center).

Based on the background of the problem, the researcher is interested in conducting a

study entitled the effect of nutritional status on infants (0-1 years) growth and development at the Dahlia Posyandu, Timbulharjo Village.

METHOD

This type of research is a quantitative research with a cross sectional approach. The population of this research is infants (0-1 years) totaling 74 people in January 2022 at the Dahlia Posyandu, Timbulharjo Village, Sewon I Health Center Work Area, Bantul. The sampling technique used was total sampling. This research was conducted at the Dahlia Posyandu, Timbulharjo Village, Sewon 1 Health Center, Bantul, Yogyakarta 2022. In this study, the independent variable (independent) was the nutritional status of infants and the dependent variable was growth and development. The data collection technique is through observation. The data collection instrument is the KIA book and weight scales and body length measurements. After the data is collected, the next step is data processing. There are 2 methods of data analysis in this study using two methods of analysis, namely univariate analysis and bivariate analysis with the Kendall Tau test.

RESULTS AND DISCUSSIONS

RESULTS

In this study, there were 74 respondents who had infants 0-1 years old at Posyandu Dahlia, Timbulharjo Village, Sewon, Bantul Yogyakarta in January 2022. The descriptions of research respondents were:

Characteristics Based on Child's Age

Table 1 Frequency Distribution of Respondents Based on Children's Age Groups

Age	N	%
1-5.9 month	47	63,50
6-12.0 month	27	36,50
Jumlah	74	100,00

Source: Primary Data

From table 1 it can be seen that of the 74 respondents studied, 47 children (63.5%), aged 1-5.9 months were found, and 27 children (36.5%).

Characteristics Based on Child's Gender

Table 2 Distribution of Respondents Frequency by Gender Groups of Children

Gender	N	%
Male	41	55,40
Female	33	44,60
Total	74	100,00

Source: Primary Data

Based on table 2, it can be seen that of the 74 respondents who are male with a percentage (55.4%), and female sex as many as 33 children with a percentage (44.6%).

Characteristics Based on Child's Weight (BB)

Table 3 Distribution of Respondents Frequency Based on Children's Weight (BB) Group

Weight	N	%
1 - 11.5 Kg	43	58,10
11.6 - 21.5 Kg	31	41,90
Total	74	100,00

Source: Primary Data

From table 3 it can be seen that of the 74 respondents studied, 43 children (58.1%) were found who weighed 1 - 11.5 kg, and 31 children (41.9%). (TB) Child.

Table 4 Frequency Distribution of Respondents Based on Children's Height (TB) Group

Children's Height	N	%
1 - 79 cm	33	44,60
80 - 159 cm	41	55,40
Total	74	100,00

Source: Primary Data

Based on table 4, it can be seen that from 74 respondents with a height of 1 -79 cm, 33 children with a percentage (44.6%), and 41 children with a height of 80-159 cm in a percentage (55.4%).

Univariate analysis is a method of analysis by describing or describing the data that has been collected as it is without making conclusions that apply to or generalizations. In general, this analysis produces the distribution and percentage of each variable.

Nutritional Status Variables

Table 5 Results for Children's Nutritional Status Category

Nutritional Status	N	%
Malnutrition	4	5,40
Good Nutrition	61	82,40
More Nutrition	9	12,20
Total	74	100,00

Source: Primary Data

Based on table 5 statistical results, it can be seen that the standard value of poor nutritional status and malnutrition is 4 children with a percentage (5.4%), good nutritional status with a total of 61 children with a percentage (82.4%), while overweight status with a total of 9 children with a percentage (12.2%).

Variable Growth

Table 6 Results of Child Development Category

Development Category	N	%
Not Up/Normal	65	87,80
Beyond the Green Line	9	12,20
Total	74	100,00

Source: Primary Data

Based on table 6 statistical results, it can be seen that the standard value of growth and development increased/exceeded the green line with a total of 9 children with a percentage (12.2%), while growth and development did not increase/normal with a total of 65 children with a percentage (87.8%). The test was carried out using the Kendall Tau test using the SPSS 21 for windows program.

The purpose of bivariate analysis is to prove whether or not there is a relationship between the independent variable and the dependent variable. The following are the results of bivariate analysis on each variable:

Tabel 7 Kendall Tau Test Results Effect of Nutritional Status on Child Growth

Variable Nutritional Status Development Growth		p-value
	CorrelationCoefficient	0,838**
	Sig. (2-tailed)	0,000

Based on the results of the statistical analysis above, it can be seen that the significance value (Asymp.Sig.) is 0.000. This shows that the p value <0.05 means that there is a significant influence between the effect of nutritional status on growth and development.

Discussion

The results showed that the most respondents in the age category in this study were aged 26-35 years, and the fewest were respondents aged 46-55 years. Age in this study was divided into four age categories according to the Ministry of Health, namely the late adolescence category (17-25 years), the early adult category (26-35 years), the late adult category (36-45 years), and the early elderly category (46-55 years) (Hakim, 2020). This age states the productive age where the productive age tends to have high motivation and has the potential to increase one's performance (Muslikhah, 2021).

Early adulthood is a period of adjustment to new life patterns and new social expectations. Early adulthood is faced with being able to play new roles, such as being husband/wife, parents, developing new

attitudes and new values in accordance with their new duties. This is in accordance with Hurlock's statement that at this time is a reproductive age where being a parent is one of the most important roles and a woman begins to accept responsibilities as a mother and housekeeper (Putri, 2018).

In the education category, the majority of respondents with junior high school education are 43 people (58.1%), and the least are respondents with elementary education, namely 4 people (5.4%). The results of this study support the research conducted by Wahyuni (2022) who examined the Nutritional Status and Development of Infants Age 6-12 Months, the results in this study said that education is a reflection of a person's knowledge, attitudes, and behavior of parents in raising their children. Parents who are active will be seen in the development of their children, because the attitudes, behavior of parents, are mostly passed down to their children. At the time of the study, most of the parents with high school education did not work so they could train their children's development with more time. On the other hand, parents with higher education are mostly employed, so they have less time to train their children's development.

A person's level of education can determine the way of thinking of that person. This is because someone with higher education usually has a broader perspective than someone with low education. However, someone with low education does not necessarily have narrow insight because if someone is active in seeking and getting the desired information, the insight from someone with low education will be as good as someone with high education.

However, parental education is one of the most important factors in child development. Because with good education, parents can receive all information from outside, especially about good parenting, how to maintain children's health, education and so on (Adawiah, 2017).

On the characteristics of job respondents, parents who do not work/IRT in this study dominate more than private employees/PNS. Working mothers and housewives currently have the same awareness in meeting the nutritional needs of their toddlers. The results of this study are also in line with the opinion of Wahyuni (2022) Parents who work will spend less time with their children than parents who do not work. When the research was conducted, the respondent's parents said that most of the parents who did not work had longer time with their children and could train their children's development such as crawling, standing

and walking by holding on, and others. Therefore, the role of parents as caregivers is important.

The income category in this study is the most respondents with income below the Yogyakarta UMR, and the fewest are respondents with income above the Yogyakarta UMR. Family income greatly affects daily food consumption. If the income is low, the food consumed does not consider the nutritional value, but the material value is more a consideration (Astuti, 2019).

Respondents and the next measured variable are children. Most respondents in the age category of children in this study were aged 1-5.9 months, and the least were respondents aged 6-12.0 months. This age is the golden period of an individual's life or called the golden period (Center on the Developing Child Harvard University, 2009). The golden period is a period where the ability of a child's brain to absorb all forms of information is very high, because about 80% of a child's brain develops in that golden period (Adawiah, 2017). This period is also a window of opportunity for children, which allows children to hone all aspects of motor development, vision, thinking skills, language skills, social development, and emotional intelligence.

In the results of this study, it was concluded that, the most respondents in this child weight category were respondents who weighed 1-11.5 kg, namely 43 children (58.1%), and the least were respondents with a weight of 11.6 – 21.5 kg, namely 31 children (41.9%). Parents are the closest people who influence growth and development by meeting basic needs such as food, warmth, comfort, and affection. The role of parents in nurturing and caring for children under five can be done through the implementation of family functions, namely affective functions (love), socialization functions, reproductive functions, economic functions, and health care functions (Adawiah, 2017).

Children's height in the range of 80-159 cm in this study was more dominant than 1-79 cm in height. Growth is a sensitive indicator of a child's health, nutritional status and genetic background. Deviations from the average height and weight can indicate a health problem in the child. For example, malnutrition in children can increase the risk of death, inhibit cognitive development, and affect health status in adolescents and adults. Nutrients in breast milk affect the growth of the baby's brain, and cognitive function (Leerkes et al., 2020).

If the nutritional status of children is below normal, it is called malnutrition. Malnutrition is an abnormal condition in the body associated with low intake of

food and protein in the body (Budiman et al., 2021).

According to WHO (2019), breastfed babies perform better in intelligence tests, are less likely to be overweight or obese and less susceptible to diabetes.

Based on the results of the bivariate analysis of the Kendall Tau analysis, the coefficient for the effect of nutritional status on growth and development has a significant value of 0.000. This shows that the value of p <0.05 means that there is a significant effect, between the influence of nutritional status on growth and development. From the correlation results, it can be concluded that the growth in children is strongly influenced by food consumption. Toddler growth and development requires optimal nutrition, nutrition plays an important role in making toddlers healthy and smart (Mardiaturrahmah & Anjarwati, 2020). Infancy is a period in which both physical and mental growth occurs very rapidly, this will fail if parents in providing daily food experience errors and can affect nutritional status (Budiman et al., 2021).

The results of this study support the research conducted by Budiman (Budiman et al., 2021), where that baby's growth and development, besides being influenced by heredity factors, is also influenced by environmental factors. Nutrition is one of the environmental and supporting factors so that the growth and development process can run satisfactorily.

WHO (Rekomendasi & Who, 2019), breast milk contains antibody that helps protect against many common diseases in children because breast milk is an ideal, safe and clean food

Research conducted by Ellsworth (2020), says that the nutrients in breast milk meet the needs during the period of growth and development that provide the main source of iodine. As well as the results of research by Leerkes (Leerkes et al., 2020), said that breast milk affects the baby's brain growth and cognitive function because of the presence of nutrients that play a role in the content of breast milk. Fatty Acids consumed by breastfed Babies are important for growth and development Fatty Acids consumed by breastfed Babies are important for growth and development (George et al., 2021)

As research by Kasim (2021), the nutritional status of pregnant women can affect the growth of the fetal abdominal circumference.

CONCLUSION

Based on the analysis and discussion, the p-value is 0.000. This shows that there is a significant relationship between nutritional status and growth and development of toddlers (0-1 years) at the Dahlia

Posyandu, Timbulharjo Village, Sewon I Health Center, Bantul Yogyakarta 2022.

ACKNOWLEDGMENT

The author would like to thank the Director of the Surya Global College of Health Sciences Yogyakarta who has given permission to conduct research and the Head of Puskesmas Sewon I Bantul Yogyakarta who is willing to become a research partner.

REFERENCES

Adawiah, R. (2017). Pola Asuh Orang Tua Dan Implikasinya Terhadap Pendidikan Anak. *Jurnal Pendidikan Kewarganegaraan*, *7*(1), 33–48.

Andini, E. N., Udiyono, A., Sutiningsih, D., & Wuryanto, M. A. (2020). Faktor – Faktor yang Berhubungan dengan Status Gizi pada Anak Usia 0-23 Bulan Berdasarkan Composite Index of Anthropometric Failure (CIAF) di Wilayah Kerja Puskesmas Karangayu Kota Semarang. *Jurnal Epidemiologi Kesehatan Komunitas*, *2*(5), 104–112. https://doi.org/https://doi.org/10.14710/jekk.v5i2.5898

Astuti, Y., Widayati, C. C., Mercu, U., & Jakarta, B. (2019). The Analysis of Housewife Behavior in Dealing with Family Needs Because of Price Increase. *Journal of Marketing and Consumer Research*, *2006*(July 2006), 23–32. https://doi.org/10.7176/jmcr/56-04

Budiman, L. A., Rosiyana, Sari, A. S., Safitri, S. J., Prasetyo, R. D., Alyarizqina, H., Kasim, I. S. N. I., & Viona Mona Indriany Korwa. (2021). Analisis Status Gizi Menggunakan Pengukuran Indeks Massa Tubuh Dan Beban Kerja Pada Tenaga Kesehatan. *NUTRIZONE (Nutrition Research and Development Journal)*, *1*(1), 6–15.

Damayanti, D., Pritasari, & L, N. T. (2017). Bahan Ajar Gizi : Gizi dalam Daur Kehidupan. In *Kemenkes RI* (I, Vol. 59). Tim P2M2.

Ellsworth, L., McCaffery, H., Harman, E., Abbott, J., & Gregg, B. (2020). Breast milk iodine concentration is associated with infant growth, independent of maternal weight. *Nutrients*, *12*(2), 1–13. https://doi.org/10.3390/nu12020358

Erika, K. A., Amir, N. A., & Mulhaeriah. (2016). The Relations Between Birth Weight and Child Development Under Five Years in Puskesmas Goarie Sub-District Marioriwawo, Soppeng. *Indonesian Contemporary Nursing Journal*, *3*(2), 15–23.

Gallagher, D., Andres, A., Fields, D. A., Evans, W. J., Kuczmarski, R., Jr, W. L. L., Lumeng, J. C., Oken, E.,

Shepherd, J. A., Sun, S., & Heymsfield, S. B. (2020). Body Composition Measurements from Birth through 5 Years: Challenges, Gaps, and Existing & Emerging Technologies—A National Institutes of Health workshop. *HHS Public Access*, *21*(8). https://doi.org/10.1111/obr.13033.Body

George, A. D., Gay, M. C. L., Wlodek, M. E., Murray, K., & Geddes, D. T. (2021). The fatty acid species and quantity consumed by the breastfed infant are important for growth and development. *Nutrients*, *13*(11), 1–11. https://doi.org/10.3390/nu13114183

Hasanudin, U. (2021). *Angka Stunting Tinggi, Bantul Gencar Sosialisasikan Kesehatan Reproduksi*. Jogjapolitan.Harianjogja.Com.

Humas Litbangkes. (2021). *Angka Stunting Turun di Tahun 2021*. Https://Www.Litbang.Kemkes.Go.Id/.

Kasim, E., & Murni, N. N. A. (2021). Status Gizi pada Ibu Hamil Anemia terhadap Lingkar Perut Janin. *Journal Midwifery Jurusan Kebidanan Politeknik Kesehatan Gorontalo*, *7*(2), 64. https://doi.org/10.52365/jm.v7i2.310

Leerkes, E. M., Buehler, C., Calkins, S. D., Shriver, L. H., & Wideman, L. (2020). Protocol for iGrow (Infant Growth and Development Study): biopsychosocial predictors of childhood obesity risk at 2 years. *BMC Public Health*, *20*(1), 1–14. https://doi.org/10.1186/s12889-020-10003-0

Maftuchah, Royhanaty, I., & Handayani, A. F. (2019). Stimulasi Pertumbuhan Bayi usia 3-6 Bulan dengan Mommy ' s Loving Massage. *Seminar Nasional Hasil Penelitian Dan Pengabdian Pada Masyarakat IV Tahun 2019 "Pengembangan Sumberdaya Menuju Masyarakat Madani Berkearifan Lokal,"* 80–88.

Mardiaturrahmah, M., & Anjarwati, A. (2020). Relationship between the nutritional status of pregnant women and the incident of Low Birth Weight infant. *International Journal of Health Science and Technology*, *1*(3), 58–62. https://doi.org/10.31101/ijhst.v1i3.1212

Misniarti, & Haryani, S. (2022). Faktor-Faktor Yang Mempengaruhi Ibu Dalam Melakukan Stimulasi Tumbuh Kembang Pada Anak Toddler Di Wilayah Kerja Puskesmas Kabupaten Rejang Lebong. *JNPH*, *10*(April), 103–111.

Muslikhah, E. (2021). *Upaya Peningkatan Kinerja Karyawan Melalui Motivasi*

Kerja Pada Pt . Sampurna Kuningan Juwana-Kabupaten Pati.

Putri, A. F. (2018). Pentingnya Orang Dewasa Awal Menyelesaikan Tugas Perkembangannya. *SCHOULID: Indonesian Journal of School Counseling*, *3*(2), 35. https://doi.org/10.23916/08430011

Rahma, E., Dewi, V., & Ali, M. (2022). *Loose Part : Finding Innovation in Learning Early Childhood Education*. *June*(7), 53–66.

Rekomendasi, R., & Who, T. (2019). *Menyusui*. 1–12.

Wahyuni, C. (2018). *Panduan Lengkap Tumbuh Kembang Anak Usia 0-5 Tahun*.

Wahyuni, S., Nuryati, S., Nurfurqoni, F. A., & Astuti, M. (2022). *Edukasi Perawatan Kehamilan Melalui Media Online (WHATSAPP GROUP) Di Masa Pandemic Covid -19*. *6*, 637–643.