



Effectiveness Education of Cadres Stunting to Behavior Toddler Mothers Overcome Stunting in Deli Serdang North Sumatera and Aceh Besar, Banda Aceh, Indonesia

Samsider Sitorus^{1*}, Zuraidah Nasution², Ngena Ria³, Rachmawati⁴

¹ Department of Midwifery of Ministry Health of Polytechnic, Medan, Indonesia.

² Department of Nutrition of Ministry Health of Polytechnic, Medan, Indonesia.

³ Department of Dental Care of Ministry Health of Polytechnic, Medan, Indonesia.

⁴ Department of Nutrition of Ministry Health of Polytechnic, Banda Aceh, Indonesia.

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Corresponding Author:

Samsider Sitorus

sitorus@yahoo.co.id

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Abstract: Introduction stunting was a failure to achieve optimal growth caused by condition of malnutrition in a long time. Toddlers grow short and low child intelligence levels result in a burden on the dating time. Due to the limited working capacity, reduction of body activity and complication of content in women because it has a small pelvic size and the risk of giving birth to infants with low birth weight. Know effectiveness of education by stunting cadres on the behavior of toddler mothers prevents stunting, and analyzing factors of stunting event in infants under the five years Methods experimental quasi design. Research respondents are toddler mothers with toddlers of 80. bivariate, with different tests (t-test). multivariate, with multiple logistics regression. Result the average difference in the behavior of the toddler mothers before and after education was 0.55. This increase in the average behavior of $p \leq 0.001 < \alpha (0.05)$. The most influential factor in the nutritional status of toddlers (stunting) with the value $B = 3.562$ and $p \leq 0.001$. Conclusion Education able to improve behavior mothers toddlers to prevent stunting. The most influential factor in the stunting event mothers toddlers was the education

Keywords: Growth; Malnutrition; Toddler nutrition

Introduction

Nutritional problems in toddlers are a problem in some countries. Recorded one in three children in the world dies every year due to poor nutritional quality. One of the research showed three of 500 000 children died annually due to malnutrition and poor food quality and nutritional deficiencies in the womb (Crookston et al., 2010). Serious public health problems when the prevalence of poor nutrition was less 20 % to 29 %, a very high prevalence of ≥ 30 % (Asfaw et al., 2015). Stunting status was calculated using the raw anthropometry World Health Organization (WHO) (Ghosh et al., 2020). Children aged 5 yr to 19 yr by calculating the value of Z-score TB/U children (Siahaan et al., 2023). Various

intervention programs have been researched about the early prevention efforts of stunting events in various countries among others in Brazil, onducted food and nutritional surveillance systems (Mandal et al., 2008).

The activity was ongoing monitoring of the nutritional status of the population determinant (Amare et al., 2019). Growth disorders due to poor nutrition do not only occur in less food areas and families with low socioeconomic conditions (Vilar-Compte et al., 2021). Even in the food-producing area is still a case of poor nutrition even in the urban and middle of a family that is socio-economic medium. The cause of malnutrition and poor nutrition can be divided into three things, namely: Knowledge and behavior and eating habits; infectious diseases; food availability (Permatasari & Chadirin, 2022).

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Basic health research results show the prevalence of less nutritional in infants (BB/U <- 2 SD) giving a fluctuating picture of 18.40 % of the yr 2007 decreased to 17.90 % in 2010 then increased to 19.6 % in 2013. Changes especially in the prevalence of poor nutrition, namely from 5.40 % in 2007, 4.90 % in 2010, and 5.70 % in 2013. This suggests that every year during the 2010 to 2013 period there is an increase in the number of toddlers who are less nutritional and malnourished (Zhai et al., 2017). In the district of Deli Serdang and Baitussalam Aceh Besar, Banda Aceh, Indonesia to accelerate stunting, it is necessary to undertake the contractor and training stunting cadres who live together in the community. Stunting cadres will educate mothers of toddlers to overcome stunting.

Research issues: The prevalence of high stunting and low behaviors maternal of the toddler on nutritional status in Deli Serdang and Aceh Besar districts have indirectly affected the growth of stunting. The development, formation, and improvement of the role of cadres stunting in the first stage of the researcher by educating cadres stunting about stunting prevention in Puskesmas (Public Health Center). This research was the influence of education by stunting cadres to mothers of toddlers to overcome stunting problems. Stunting cadres are expected to provide education and observation to the mother of the toddler where each day lives together in the community in Deli Serdang Regency and Aceh Besar?

Method

Knowing the behavior mothers of toddlers before and after education by stunting cadres in Deli Serdang and Aceh Besar. Regency This research with the design of the quasi-experiment.

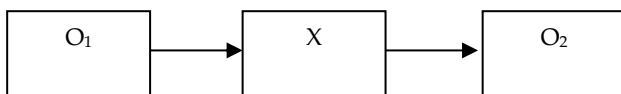


Figure 1. Desain one group pretest and posttest

Information:

O1 = Pre test score

O2 = Post test score

X = Experiment

Sampling techniques with purposive sampling the mother of toddlers in the district of Deli Serdang and Aceh Besar amounted to 40 people each. Total 80 mothers of toddlers and 80 people. Inclusion criteria mothers for toddlers: Mothers have toddlers aged 24 to 59 mo; willing to be the subject of research; have a good general health condition. Data analysis analyzed with

stages: Univariate analysis, bivariate analysis, with different tests (t-test). Multivariate analysis, with multiple logistics regression test

Result and Discussion

Research was conducted in two different provinces with the reason as a province that has an amount of stunting toddlers exceeding the national prevalence rate. Both provinces differ tribes and cultures towards the concept and value of children. In the district of Deli Serdang, the children are more valuable treasures than husbands while in Aceh Besar must meet the needs of the husband and the needs of children Maternal of toddlers behavior before and after education by stunting cadres.

Table 1. Distribution Maternal of Toddlers Behavior Before and After Education by Stunting Cadres

Behavior	Pre-test		Post-test	
	f	%	f	%
Good	22	27.50	66	82.50
Less	58	72.50	14	17.50
Total	80	100.00	80	100.00

Based on the results of research can be noted that the behavior of mothers before training (education) was not good (72.50 %) after training (education) increased to good (82.50 %).

Differences in Behaviors Toddler Mothers Before and After Education by Stunting Cadres

According to the table 2, it can be noted that the average difference in the behavior of toddler mothers before and after education was 0.55. This indicates that there was an increase in the average behavior of the toddler mothers before and after education and based on the behavior $p = (0.000) < \alpha (0.05)$, so that there was an educational influence on the enhancement of behavior toddle mothers.

Table 2. Differences Behavior Toddler Mothers Before and After Education By Stunting Cadres

Behavior Toddler Mothers	Mean	SD	Mean Df	p
Before	1.28	0.45		
After	1.82	0.39	0.55	0.00

Based on the table 3, the characteristics of the toddler mothers and toddlers family, the age of mothers toddlers was mostly 18 yr old to 35 yr old (70.00 %), most of which reside close facilities (72.50 %), most have a large category family (> two children) (91.25 %), the majority of family income ≤ IDR 1 000 000 (55.00 %), most educated (SMA) (56.25 %) and mostly worked as a housewife (92.25 %).

Table 3. The Characteristics of the Toddler Mothers and Toddlers Family

Family Characteristics	f	%
Age mother of toddlers		
18 yr to 35 yr	56	70.00
> 35 yr	24	30.00
Total	80	100.00
Place of residence		
Near	58	72.50
Long	22	27.50
Total	80	100.00
Family of toddlers		
two children	7	7.75
> two children	73	91.25
Total	80	100.00
Economic of Status		
≤ 1 000 000 (low)		
(Family income)	44	55.00
> 1 000 000 (good)	36	45.00
Total	80	100.00
Education		
Low	28	35.00
Middle	45	56.25
High (PT)	7	8.75
Total	80	100.00
JOB		
Housewives	74	92.25
Farmer	2	2.50
Teacher	4	5.00
Total	80	100.00

Nutritional Intake, Foster Pattern, Utilization of Health Services and Environmental Sanitation of Toddlers

Table 4. Distribution of Nutritional Intake, Foster Pattern, Utilization of Health Services and Environmental Sanitation of Toddlers

Variable	f	%
Nutrisional Intake		
Good	17	21.25
Less	63	78.75
Total	80	100.00
Foster pattern		
Good	77	96.25
Less	3	3.75
Total	80	100.00
Utilization of healthcare services		
Good	69	86.25
Less	11	13.75
Total	80	100.00
Environmental sanitation		
Good	69	86.25
Less	11	13.75
Total	80	100

Based on the table above, it can be noted that the nutritional intake of toddlers was not good (78.75 %),

good foster pattern (96.25 %), good health service utilization (86.25 %) and environmental sanitation (86.25 %).

Nutritional Status of Toddler

Based on the table 5, it can be noted that the nutritional status of toddlers was not stunting (61.25 %) and stunting (38.75%). Based on the table above the toddler mothers aged 18 yr to 35 yr (46.25 %) toddler have no stunting, and (23.75 %) toddler stunting. Chi-square age of toddler mothers with nutritional status of toddler value $p = 0.176 > \alpha (0.05)$, there is no relationship between the age of mothers toddlers with nutritional status of toddlers. Distance of family residence to remote health facilities (50.00 %) toddlers have no stunting and (22.50 %) toddler stunting. Chi-square Value $p = 0.021 < \alpha (0.05)$, there is a relationship between the residence to the nutritional status of infants. Large family member (> two people) (61.25 %). Toddlers have no stunting and (38.75 %) toddler stunting. Test fisher ex act test: Value $p = 0.027 < \alpha (0.05)$, there is a large family relationship to the nutritional status of toddlers.

Table 5. Distribution of toddlers nutrition status in Deli Serdang and Aceh Besar Districts.

Nutritional Status of Toddlers	F	%
Stunting	31	38.75
Not Stunting	49	61.25
Total	40	100.00

Bivariate Analysis

Family Characteristics Relation to Nutritional Status of Toddlers

Families have low economic status (26.25 %) have no stunting and (28.75 %) have stunting toddlers. Analysis of Chi-square value $p = 0.006 < \alpha (0.05)$, there was an economic status related to the nutritional status of toddlers. Low education of toddler mothers (Elementary Junior High School) as much (8.75 %) toddlers have no stunting and (35 %) toddler stunting. Toddler mothers are educated high (52.50 %) toddlers have no stunting and (37.50 %) toddler stunting. Chi-square analysis p -value = $0.000 < \alpha (0.05)$, there was a relationship between the toddler mothers education and the nutritional status of toddlers. Toddler mothers does not work (housewife) (55 %) have unstinted toddlers and (12.25 %) toddlers stunting. Fisher exact test value $p = 0.243 > \alpha (0.05)$, there was a relationship between the work of toddler mothers with nutritional and status of toddlers.

Table 6. Family Characteristics Relation to Toddlers Nutritional Status

Characteristics of Family	Nutritional Status of Toddlers						
	n	Not Stunting %	n	Stunting %	n	Total %	P (Value)
Age of mother							0.18
18 yr to 35 yr	37	46.25	19	23.75	56	70.00	
> 35 yr	12	15.00	12	15.00	23	30.00	
Place/residence							0.02
Near	40	50.0	18	22.50	58	72.50	
Long	9	11.25	13	16.25	22	27.5	
Family							0.03
two children	7	8.75	0	0.00	7	8.75	
> two children	42	61.25	31	38.75	73	91.25	
Family							0.01
Income)							
≤ 1 000 000	28	35.00	8	10.00	36	45.00	
≥ 1 000 000	21	26.25	23	28.75	44	55.00	
Education							0.00
Low	7	8.75	21	26.25	28	35.00	
High	42	52.50	10	12.5	52	65.00	
Job							0.24
Work	5	6.25	1	1.25	6	7.50	
Not Work	44	55.00	30	37.50	74	92.50	

Relationship of Nutritional Intake, Foster Pattern, Utilization of Health Services Environmental Sanitation with Nutritional Status of Toddlers

Based on the table 7, it was know that less nutrient intake (42.50 %) toddlers have no stunting and (36.25 %) toddler stunting. Exact analysis of fisher intake of nutrition to nutritional status of toddlers acquired value $p = 0.008 < \alpha (0.05)$, can be inferred there was a relationship between nutritional intake with nutritional

status of toddlers. Toddlers with good foster pattern (61.25 %) have not stunting and (35.00 %) of infants stunting. While the toddler has a foster pattern that lacks no toddler stunting and (3.75 %) have stunting toddlers. From the results of the analysis of the fisher exact test with the nutritional status of toddlers acquired value $p = 0.055 > \alpha (0.05)$, it can be concluded there was not relationship between the foster pattern with the nutritional status of toddlers.

Table 7. Relationship of nutritional intake, foster pattern, utilization of health services and environmental sanitation with nutritional status of toddlers.

Characteristics of Family	Nutritional Status of Toddlers						
	n	Not Stunting %	n	Stunting %	n	Total %	P (Value)
Nutritional intake							0.008
Good	15	18.75	2	2.50	17	21.25	
Less	34	42.50	29	36.25	63	78.75	
Foster pattern							0.055
Good	49	61.25	28	35.00	77	96.25	
Less	0	0.00	3	3.75	3	3.75	
Health care services							0.000
Good	49	61.25	20	25.00	69	86.25	
Less	0	0.00	11	13.75	11	13.75	
Environmental sanitation							0.000
Good	49	61.25	20	25.00	69	86.25	
Less	0	0.00	11	13.75	11	13.75	

Family of toddlers with good health care utilization (61.25 %) have not stunting and (25.00 %) of toddler stunting. While the poor family uses the health service no toddlers are stunting and (13.75 %) have stunting toddlers. From the analysis results of fisher exact test of foster pattern of nutritional status of toddlers acquired

value $p = 0.000 < \alpha (0.05)$, it can be concluded there was a relationship between the utilization of health services to the nutritional status of toddlers. Families with good environmental sanitation (61.25 %) have no stunting and (25.00 %) of toddlers have stunting toddlers. While families with environmental sanitation lack of toddlers

do not stunt and (13.75 %) have stunting toddlers. From the analysis results of the fisher exact test of environmental sanitation of the nutritional status of toddlers acquired value $p = 0.000 < \alpha (0.05)$, it can be concluded there is a relationship between environmental sanitation and nutritional status of toddlers.

Multivariate Analysis

To find out the most influential factors on the nutritional status of toddlers with multiple logistics regression test backward wald method of issuing variables ineligible to be included in one-by-one multivariate analysis can be seen in the table below.

Multivariate Analysis Factors Affecting Toddler Nutritional Status

Based on the table 8 that mother education is the most influential factor in the nutritional status of toddlers (stunting) with the value exp B = 3.56 and p -value = 0.000 (0.001).

Table 8. Factors Affecting Toddler's Nutritional Status

Variable	Exp B	p
Shelter of Toddlers	1.84	0.01
Economic Status of Toddlers	1.77	0.02
Maternal education of Toddlers	3.56	0.00
Intake of nutrients Toddlers	2.62	0.02
Constanta	-15.53	

Discussion

Difference in behavior toddler mothers before and after education by stunting cadres was 0.55. This shows that there was an increase in the average value of the behavior of toddler mothers before and after education by stunting cadres with value of behavior $p (0.000) < \alpha (0.05)$ can be concluded there was an educational influence by stunting cadres to increase toddler mother behavior. The results of the study to improve maternal behavior about stunting are necessary efforts. Efforts made by providing education through the provision of information conducted by cadres in Integrated Service Activities (Posyandu-Pos Pelayanan Keluarga Berencana-Kesehatan Terpadu). Results that most mothers of toddlers have less behavior. Of course, this will affect the information that the cadre conveyed to the toddler mother. Therefore, one effort was to provide knowledge, attitude, and action by cadres to toddler mothers.

Research results education have a positive impact on improving the behavior of toddler mothers to prevent stunting. Based on the results of the test paired t-test was known that there was an educational influence on the behavior of toddler mothers. This education used if the learning objectives that want to be achieved regarding the realm of behavior (knowledge, attitudes, and

actions) this education was prepared and prepared and easily repeated if there was material that less behavior. (Amoah & Asamoah, 2022). According Gani et al. (2023), to the assumption there was an increase in the behavior of toddler mothers before and after the counseling was due to the information that has been received by the toddler mothers so that the wrong information can be clarified through this education. Cadre's increased knowledge of stunting can be done through health education programs or health promotion.

Health promotion was then done in the form of extension activities. Counseling was a method of health education that aims to improve the ability of people through learning from, by and with the community to help themselves and develop activities that are community-sourced health efforts, according to local social culture (Curtis et al., 2019). Discussion that stunting was proposed to overcome the risk factors of stunting through family empowerment aimed at the individual level (mother toddler), community level and health care level (Saleh et al., 2021). The social perspective understands the level of the community, which was an individual level to form behavior, level of interpersonal to provide support, community level to form the norm, and government level to change policy (Perrin et al., 2019).

Toddler mothers in the family, have a big role in improving the nutritional status of family members. Cadres are voluntary personnel chosen from, by and for the community, cadres in charge of assisting health services is a routine service in Posyandu. Cadres must want to work voluntarily and willingly, and able to carry out Posyandu to move the community to implement and follow Posyandu. Cadres at both locations obtained information that in the activities of Posyandu, cadres are tasked to enroll toddlers and pregnant mothers, weigh toddlers and record the results of weighing on paper that will be transferred on the KMS (Card to Healthy), filling, explaining the KMS, data or child's state based on weight gain data depicted in the KMS, graph to the mother (Rachmi et al., 2017). In addition to the task of the cadre, cadre in education can provide counseling to each mother by referring to the KMS, data or observation results on the issue of toddler nutrition status, especially education to overcome stunting (Rahayu et al., 2023).

Currently stunting and nutritional deficiencies in children get special attention from the government by continuing to encourage the acceleration of stunting and malnourished treatment programs in children by doing cooperation between government agencies synergistically (Torlesse et al., 2016). The target of the National Medium Term Development Plan (RPJMN) until 2019 is sought that the stunting percentage can

approach the minimum stipulated by the WHO by 20 % of the number of infants in a country (Atamou et al., 2023). Stunting was not only a nutritional deficiency, but there are also environmental sanitation factors, the availability of clean water, including problems of health services in a region so that the need for cooperation and intervention of all ministries of institutions to be coordinated (Anismuslim et al., 2023).

Dimensions are examined that the factors of family residence, large family, economic status, maternal education, nutritional intake, the utilization of health services and environmental sanitation are associated with stunting events with the value of $< \alpha$ (0.05) and the most influential mother-learning factor in the stunting event. Maternal age, maternal work, and foster patterns are unrelated to the stunting event. Based on the results the previous study found that family characteristics became one of the factors that determine the stunting event in infants. In the study, the characteristics family consists of maternal age, shelter, large family, economic status and maternal education. Among those characteristics of maternal mothers, age was a factor that was not related to stunting events. In this study, the majority of mothers age 18 yr to 35 yr and are not seen as a difference in the stunting of toddlers between mothers aged 18 yr to 35 yr with mothers over the age.

Family residence was a factor related to stunting events. In this study families who have toddlers and stay away from health facilities are more at risk of stunting (Abri, 2022). This was because the geographical condition of the family residence is very influential in the family's ease to reach health facilities, Posyandu, children's family development and also influence the cadres to visit the toddler. A large family is one of the factors related to stunting events. The bigger the family (the number of children you have) the more you need to grow. In this study, most families with children of more than two people and families with small families (the number of children less than two people) tend to be stunted. The economic status seen from family income is seen from family income. In this research the majority of low income with a total income of less than IDR 1.000.000. This economic status was associated with stunting events. Families with low income and more than two children will be able to influence family spending. It was following the opinions of (Hosany & Hamilton, 2023), that large families will affect family spending. The larger number of family members, the bigger the family spending.

The toddlers mother education factor was the most influential in nutrition status. In this study, mothers who have higher education (High School and College) tend to have toddlers who are not stunting. This was because mothers who have high knowledge tend to pay attention

to nutrition so that nutritional status can be monitored. The results of the study by the opinion of (Raghupathi & Raghupathi, 2020), namely the level of education greatly affect the person to act and to find the cause and solution in his life. Educated people are more readily accepting new ideas. Education in a formal sense is a process of delivering educational material to the educator goals to achieve a change of behavior and objectives. Based the results of the study that there are still mothers who have basic education level (Elementary and Junior High School). To improve the knowledge of this mother, education was necessary (Paul et al., 2022).

The results of the study of most mothers do not work (only working as housewives) and based on sufficient tests are known to have no relationship with stunting events. Mothers who work on research are few and only help husbands to increase the amount of income. Mothers who work so do not have a significant difference with mothers who do not work against stunting events. The nutritional intake received by the toddler is a factor related to stunting events (Yuniarti et al., 2022). Mothers who provide good nutritional intake to children tend to have children who are not stunting. This is by the opinion of (Dipasquale et al., 2020), which states that nutritional deficiencies that occur in childhood can result in disruption of growth and development of physical, mental and spiritual. If the disturbance in the baby, it will be permanent and very difficult to repair. Nutrition deficiencies in infants and toddlers, resulting in low quality of human resources.

The foster pattern was a factor related to stunting events. Families with a good foster pattern will have children not stunting. This is because the foster patterns tend to be the same because most mothers do not work (housewives) so having time to give attention to her is included in arranging food and health. Although the foster pattern is given well but stunting events still occur due to the presence of other influential factors.

The utilization of healthcare services was a factor related to stunting events (Ummah & Mediani, 2023). Healthcare is the access or affordability of children and families on the prevention of diseases and health care such as immunizations, pregnancy screening, child birth relief, child weighing, health and nutrition counseling, and health facilities such as Posyandu he practices of midwives or doctors, hospitals. The more often the family utilizes health care, so stunting can be prevented. In addition to the above factors, environmental sanitation is a factor that also affects the stunting event. Families with good sanitation will affect infectious diseases that are associated with stunting events. The occurrence of infectious diseases in a child can be caused by various factors such as environmental sanitation, access, and utilization of maternal hygiene and hygienic

behavior, namely the habit of mothers in hand washing (Ogututu et al., 2022).

This was in line with the (Lin et al., 2022), which gains that a healthy and clean environment will reduce the incidence of infection, further reducing the incidence of disease that ultimately affects the increase in child nutrition status. According to Darling-Hammond et al. (2020), the objective of education is to make health as something of value in the community, help individuals to be able to independently or group conduct activities to achieve healthy living objectives, encouraging development and proper use of existing health services. Every individual in the community will certainly behave to support a program that was judged to have a positive influence on his life (Dwivedi et al., 2023). The readiness of the toddler's mother to take action prevents stunting to be done to get information and to know the consequences (physical and social) of the stunting.

Conclusion

Education can improve the behavior of mothers. Before the education of a good toddler's maternal behavior was 27.50 % and after education increased to 82.50 %. Education by stunting cadres able to improve toddlers mother behavior to prevent stunting. Characteristics of a toddler who includes a residence, a large family, economic status and maternal education are associated with stunting events. While the age of mothers and mothers work is not related. Nutritional intake is associated with stunting events. The foster pattern is unrelated to the stunting event. The utilization of health services is associated with stunting events. Environmental sanitation is associated with stunting events. The most influential factor in the stunting event is the mother of toddler education. The education of the toddler mother makes a caring stunting cadres that provide nutritional information to be able to overcome stunting because the toddler's mother lived one environment with cadres.

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Author Contributions

Conceptualization; S. S., Z. N., N. R., R methodology, S. S.; validation, Z. N. and N. R.; formal analysis, R.; investigation, S. S., and Z. N.; resources, N. R. and R.; data curation, S.; writing – original draft preparation, Z. N and N. R.; writing – review and editing, R.; visualization, S. S and Z. N. All authors have read and agreed to the published version of the manuscript.

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Conflict of Interest

No conflict of Interest.

References

- Abri, N. (2022). Identification of Socio-Demographic Factors with the Incidence of Stunting in Elementary School Children in Rural Enrekang. *Journal of Health and Nutrition Research*, 1(2), 88–94. <https://doi.org/10.56303/jhnresearch.v1i1.20>
- Amare, Z. Y., Ahmed, M. E., & Mehari, A. B. (2019). Determinants of nutritional status among children under age 5 in Ethiopia: Further analysis of the 2016 Ethiopia demographic and health survey. *Globalization and Health*, 15(1), 62. <https://doi.org/10.1186/s12992-019-0505-7>
- Amoah, A., & Asamoah, M. K. (2022). Child survival: The role of a mother's education. *Heliyon*, 8(11), e11403. <https://doi.org/10.1016/j.heliyon.2022.e11403>
- Anismuslim, M., Pramodyo, H., Andarini, S., & Sudarto, . (2023). Modeling of Risk Factors of Childhood Stunting Cases in Malang Regency using Geographically Weighted Regression (GWR). *The Open Public Health Journal*, 16(1), e187494452304120. <https://doi.org/10.2174/18749445-v16-e230420-2022-165>
- Asfaw, M., Wondaferash, M., Taha, M., & Dube, L. (2015). Prevalence of undernutrition and associated factors among children aged between six to fifty nine months in Bule Hora district, South Ethiopia. *BMC Public Health*, 15(1), 41. <https://doi.org/10.1186/s12889-015-1370-9>
- Atamou, L., Rahmadiyah, D. C., Hassan, H., & Setiawan, A. (2023). Analysis of the Determinants of Stunting among Children Aged below Five Years in Stunting Locus Villages in Indonesia. *Healthcare*, 11(6), 810. <https://doi.org/10.3390/healthcare11060810>
- Crookston, B. T., Penny, M. E., Alder, S. C., Dickerson, T. T., Merrill, R. M., Stanford, J. B., Porucznik, C. A., & Dearden, K. A. (2010). Children Who Recover from Early Stunting and Children Who Are Not Stunted Demonstrate Similar Levels of Cognition. *The Journal of Nutrition*, 140(11), 1996–2001. <https://doi.org/10.3945/jn.109.118927>
- Curtis, E., Jones, R., Tipene-Leach, D., Walker, C., Loring, B., Paine, S.-J., & Reid, P. (2019). Why cultural safety rather than cultural competency is required to achieve health equity: A literature review and recommended definition. *International Journal for Equity in Health*, 18(1), 174. <https://doi.org/10.1186/s12939-019-1082-3>

- Darling-Hammond, L., Flook, L., Cook-Harvey, C., Barron, B., & Osher, D. (2020). Implications for educational practice of the science of learning and development. *Applied Developmental Science, 24*(2), 97–140.
<https://doi.org/10.1080/10888691.2018.1537791>
- Dipasquale, V., Cucinotta, U., & Romano, C. (2020). Acute Malnutrition in Children: Pathophysiology, Clinical Effects and Treatment. *Nutrients, 12*(8), 2413. <https://doi.org/10.3390/nu12082413>
- Dwivedi, Y. K., Kshetri, N., Hughes, L., Slade, E. L., Jeyaraj, A., Kar, A. K., Baabdullah, A. M., Koochang, A., Raghavan, V., Ahuja, M., Albanna, H., Albashrawi, M. A., Al-Busaidi, A. S., Balakrishnan, J., Barlette, Y., Basu, S., Bose, I., Brooks, L., Buhalis, D., ... & Wright, R. (2023). Opinion Paper: "So what if ChatGPT wrote it?" Multidisciplinary perspectives on opportunities, challenges and implications of generative conversational AI for research, practice and policy. *International Journal of Information Management, 71*, 102642. <https://doi.org/10.1016/j.ijinfomgt.2023.102642>
- Gani, H. A., Elviani, Y., Detiana, & Kamestworu. (2023). Stunting Training For Women With Toddlers. *Journal of Applied Nursing and Health, 5*(1), 25–30. <https://doi.org/10.55018/janh.v5i1.125>
- Ghosh, S., Shivakumar, N., Bandyopadhyay, S., Sachdev, H. S., Kurpad, A. V., & Thomas, T. (2020). An uncertainty estimate of the prevalence of stunting in national surveys: The need for better precision. *BMC Public Health, 20*(1), 1634. <https://doi.org/10.1186/s12889-020-09753-8>
- Hosany, A. R. S., & Hamilton, R. W. (2023). Family responses to resource scarcity. *Journal of the Academy of Marketing Science, 51*(6), 1351–1381. <https://doi.org/10.1007/s11747-022-00882-7>
- Lin, L., Yang, H., & Xu, X. (2022). Effects of Water Pollution on Human Health and Disease Heterogeneity: A Review. *Frontiers in Environmental Science, 10*, 880246. <https://doi.org/10.3389/fenvs.2022.880246>
- Mandal, G. C., Bose, K., Bisai, S., & Ganguli, S. (2008). Undernutrition among Integrated Child Development Services (ICDS) Scheme Children aged 2-6 years of Arambag, Hooghly District, West Bengal, India: A serious public health problem. *Italian Journal of Public Health, 5*(1), 28–33. <https://doi.org/10.2427/5852>
- Ogotu, E. A., Ellis, A., Rodriguez, K. C., Caruso, B. A., McClintic, E. E., Ventura, S. G., Arriola, K. R. J., Kowalski, A. J., Linabarger, M., Wodnik, B. K., Webb-Girard, A., Muga, R., & Freeman, M. C. (2022). Determinants of food preparation and hygiene practices among caregivers of children under two in Western Kenya: A formative research study. *BMC Public Health, 22*(1), 1865. <https://doi.org/10.1186/s12889-022-14259-6>
- Paul, S., Paul, S., Gupta, A. K., & James, K. S. (2022). Maternal education, health care system and child health: Evidence from India. *Social Science & Medicine, 296*, 114740. <https://doi.org/10.1016/j.socscimed.2022.114740>
- Permatasari, T. A. E., & Chadirin, Y. (2022). Assessment of undernutrition using the composite index of anthropometric failure (CIAF) and its determinants: A cross-sectional study in the rural area of the Bogor District in Indonesia. *BMC Nutrition, 8*(1), 133. <https://doi.org/10.1186/s40795-022-00627-3>
- Perrin, N., Marsh, M., Clough, A., Desgropes, A., Yope Phaniel, C., Abdi, A., Kaburu, F., Heitmann, S., Yamashina, M., Ross, B., Read-Hamilton, S., Turner, R., Heise, L., & Glass, N. (2019). Social norms and beliefs about gender based violence scale: A measure for use with gender based violence prevention programs in low-resource and humanitarian settings. *Conflict and Health, 13*(1), 6. <https://doi.org/10.1186/s13031-019-0189-x>
- Rachmi, C. N., Hunter, C. L., Li, M., & Baur, L. A. (2017). Perceptions of overweight by primary carers (mothers/grandmothers) of under five and elementary school-aged children in Bandung, Indonesia: A qualitative study. *International Journal of Behavioral Nutrition and Physical Activity, 14*(1), 101. <https://doi.org/10.1186/s12966-017-0556-1>
- Raghupathi, V., & Raghupathi, W. (2020). The influence of education on health: An empirical assessment of OECD countries for the period 1995–2015. *Archives of Public Health, 78*(1), 20. <https://doi.org/10.1186/s13690-020-00402-5>
- Rahayu, I., Musthofa, S. B., & Kartini, A. (2023). Evaluation of the Stunting Program at the Margototo Health Center, Lampung East District. *Jurnal Penelitian Pendidikan IPA, 9*(7), 5788–5797. <https://doi.org/10.29303/jppipa.v9i7.4084>
- Saleh, A., Syahrul, S., Hadju, V., Andriani, I., & Restika, I. (2021). Role of Maternal in Preventing Stunting: A Systematic Review. *Gaceta Sanitaria, 35*, S576–S582. <https://doi.org/10.1016/j.gaceta.2021.10.087>
- Siahaan, M. F., Rahmatika, A., & Nadhiroh, S. R. (2023). Tinjauan Literatur: Intervensi Suplemen Makanan untuk Meningkatkan Z-Skor PB/U pada Balita Stunting: Literature Review: Food Supplement Intervention to Increase Z-Score Height for Age in Stunting Children. *Amerta Nutrition, 7*(1), 154–160. <https://doi.org/10.20473/amnt.v7i1.2023.154-160>

- Torlesse, H., Cronin, A. A., Sebayang, S. K., & Nandy, R. (2016). Determinants of stunting in Indonesian children: Evidence from a cross-sectional survey indicate a prominent role for the water, sanitation and hygiene sector in stunting reduction. *BMC Public Health*, 16(1), 669. <https://doi.org/10.1186/s12889-016-3339-8>
- Ummah, A. K., & Mediani, H. S. (2023). Proximal Factors on Stunting Incidence in Toddlers in Indonesia and Developing Countries: Scoping Review. *Jurnal Penelitian Pendidikan IPA*, 9(7), 219-225. <https://doi.org/10.29303/jppipa.v9i7.3984>
- Vilar-Compte, M., Burrola-Méndez, S., Lozano-Marrufo, A., Ferré-Eguiluz, I., Flores, D., Gaitán-Rossi, P., Teruel, G., & Pérez-Escamilla, R. (2021). Urban poverty and nutrition challenges associated with accessibility to a healthy diet: A global systematic literature review. *International Journal for Equity in Health*, 20(1), 40. <https://doi.org/10.1186/s12939-020-01330-0>
- Yuniarti, S., Mulyati, R., Novilla, A., & Nurjanah, M. (2022). Factors Related to Stunting in Toddlers in Central Cigugur. *KnE Medicine*. <https://doi.org/10.18502/kme.v2i2.11093>
- Zhai, L., Dong, Y., Bai, Y., Wei, W., & Jia, L. (2017). Trends in obesity, overweight, and malnutrition among children and adolescents in Shenyang, China in 2010 and 2014: A multiple cross-sectional study. *BMC Public Health*, 17(1), 151. <https://doi.org/10.1186/s12889-017-4072-7>