

## Correlation between Pregnancy Anemia and Nutritional Status of Pregnant Women to the Case of Toddlers 2-5 Years Old with Stunting

Qurrotu Aini, Mufarika, Nurieta Aini

STIKES Ngudia Husada Madura

Correspondent Email: ainiqurrotu84@gmail.com

### ABSTRACT

Stunting is a nutritional issue that has persisted for a long enough time to affect children who are shorter or lower than the average for their age in terms of height. The case control method is being used in this retrospective research design. the dependent variable of stunting and the independent variables of gestational anemia and pregnant women's nutritional condition. Mothers of toddlers between the ages of 2 and 5 make up the demographic. A case group of 25 people and a control group of 50 people were created from the sample. MCH books and observation sheets are both used in this study. Chi-square test and Odd Ratio test analysis Using the findings of Chi-square statistical tests on the variable anemia of pregnancy, Given that it has a value of 0.000, 0.05, or 6.682 (95% CI: 2.239–19.939), it is possible to draw the conclusion that anemia during pregnancy and stunting in toddlers between the ages of 2 and 5 have a causal link. With a confidence interval of 2.239-19.939, mothers who have a history of anemia during pregnancy run a 6.682-times greater chance of having children who are stunted. It was determined that there was a relationship between the nutritional status of pregnant women and the incidence of stunting in toddlers 2–5 years old based on the statistical test results for the variable nutritional status of pregnant women using Chi-square, which showed a value of :0.016 :0.05 OR 3.58 (95% CI; 1.228–10.431). With a confidence interval of, moms who have a history of poor nutrition are at an increased risk of 3.58 times having toddlers who are stunted. 228-10.431 . ANC K4 . It is hoped that health professionals can collaborate with community members and cadres to empower people in order to stop stunting.

**Keywords:** *Anemia of Pregnancy, Nutritional Status of Mothers During Pregnancy, Stunting*

### INTRODUCTION

Stunting (dwarf) is a condition experienced by infants under five years of age (toddlers) who have a length or height that, when compared with age, is more than minus two standard deviations of the median standard of child growth from the World Health Organization (WHO). Short toddlers ( severe stunting and stunting) are one of the nutritional problems experienced by toddlers not only in Indonesia but also in the world (Sari, Ardillah, & Rahmiwati, 2020).

The 2025 Global Nutrition Goals explain that stunting is a global event,

with an estimated 171 million to 314 million children under five experiencing stunting, 90% of whom are in countries on the continents of Africa and Asia. The Global Nutrition Report shows that Indonesia is included in 17 out of 117 countries with three nutritional problems, namely stunting, wasting and overweight in toddlers (Marisai, 2018).

a report from a survey conducted at the Nutrition Polyclinic at the Bangkalan Public Health Center showed the incidence of stunting in 2021. It was found that the highest stunting rate in the working area of the Bangkalan Health Center was in the Pejagan sub-district, namely 39 stunting out of 534 toddlers. The purpose of this study was to analyze the relationship between Anemia of Pregnancy and the Nutritional Status of Pregnant Women with the Incidence of Stunting in Toddlers Aged 2-5 Years

Factors that can cause stunting include: maternal factors, including low family income levels, poor knowledge of mothers about stunting, low maternal education levels, maternal nutritional status during pregnancy, history of anemia in pregnancy, history of twin pregnancies in previous pregnancies, spacing of pregnancies close together, young pregnancy. irregular consumption of blood supplement tablets, history of low Hb before conception, physiological hypervolemia), child factors including low birth weight, not getting exclusive breastfeeding, getting early solids, and environmental factors (access to clean water and sanitation) (faradiba, 2021). Stunting will have an impact on children's physical development, stunting also causes a decrease in cognitive and motor skills and a decrease in children's performance. Stunted children usually also have an average *Intelligence Quotient* (IQ) score that is lower than the IQ of normal children (Setiawan, Machmud, & Masrul, 2018)

The solution that can be done to overcome stunting is to provide health education about stunting by health workers to pregnant women and prospective brides in preventing risk factors for stunting in children. Attention to nutritional adequacy during pregnancy and during the first 1000 days of mother and child's life can also prevent stunting in children. Pregnant women are required to carry out prenatal care or prenatal care as required by ANC K1, K2, K3 to ANC K4. Prenatal care activities are aimed at paying attention to developments in the recording and reporting of maternal and child health programs.

## **METHODS**

This research design is retrospective using a *case control approach* . The independent variable of gestational anemia and the nutritional status of pregnant women and the dependent variable stunting. The population of this research is mothers who have toddlers aged 2-5 years . The sample was divided into a case group of 25 people and a control group of 50 people . This study uses observation sheets and MCH books . Then do the analysis test using *Chi-square test* and *Odd Ratio*

## FINDING AND DISCUSSION

### General data

This general data discusses the characteristics of the respondents, this data is presented in the form of a frequency distribution table. The general characteristics of the respondents in this study are based on mother's age, education, occupation, age of toddler and gender. The descriptive results of the respondents can be shown in table 1.1 below

Table 1.1 Frequency Distribution of Responses Based on Mother's Age, Education, Occupation, Age of Toddlers and Gender of Toddlers Age 2-5 Years, July-August 2022 (n=75)

No	Characteristics	Case		Control	
		Frequency (n)	Percentage (%)	frequency (n)	Percentage (%)
1	Mother's Age				
	Late Teenagers (17-25)	7	28.0	13	26.0
	Early Mature (26-35)	10	40.0	34	68.0
	Late Adult (36-45)	8	32.0	3	6.0
2	Education				
	Elementary-Junior High School (basic)	10	40.0	4	8.0
	high school (middle)	13	62.0	28	66.0
	D3-S1 (high)	2	8.0	18	36.0
3	Work				
	IRT	17	40.0	20	40.0
	Private employees	0	0	11	22.0
	Self-employed	5	20.0	6	12.0
	Teacher	0	0	2	4.0
	Farmer	0	0	1	2.0
	Fisherman	3	12.0	6	12.0
	civil servant	0	0	3	6.0
	Trader	0	0	1	2.0
4	Toddler Age				
	Toddlers (24-36 months)	4	16.0	19	38.0
	Pre school (37- 48 months)	21	84.0	31	62.0
5	Gender				
	Male	6	24.0	19	38.0
	Woman	19	76.0	31	62.0
	Amount	25	100	50	100

*Primary data: August 2022*

Based on table 1.1, it shows that nearly half of the mother's age in the case group was early adulthood (26-35 years), namely as many as 10 people (40%), and in the control group most of them were early adults (26-35 years), namely 34 people (68%), the education of the case group was mostly high school (middle) as

many as 13 people (62%), and in the control group most were also high school (middle) namely 28 people (66%). This shows that both the case and control groups have high school (secondary) education. The occupational category in the case group was mostly housewives, 17 people ( 68%), and for the control group, almost half were housewives, namely 20 people (40%). The toddler age category in the case group was almost entirely pre-school (37-48 months) , namely 21 people ( 84 %) and for toddler age the control group was mostly pre-school (37-48 months) , namely 31 people ( 62 %) . This shows that both the case and control groups are pre-school toddlers (37-48 months) . The gender category of toddlers in the case group was almost entirely female, namely as many as 19 people (76%) and for the sex in the control group, most of them were also women, as many as 31 people (62%). This shows that both the case group and the control group were mostly women.

### Custom Data

Frequency distribution based on anemia of pregnancy in the case and control groups .

Table 1.2 Frequency Distribution of Respondents Based on Anemia in Pregnancy in Mothers of Toddlers Aged 2-5 Years , July-August 2022 (n=75)

pregnancy anemia	case		Control	
	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)
Anemia (HB < 11 gr/dl)	14	56.0	8	16.0
Not anemic (HB ≥ 11 gr/dl)	11	44.0	42	84.0
Amount	25	100	50	100

Source: Primary Data

Table 1.2 shows that the majority of the case group experienced anemia in pregnancy, namely 14 people (56%). whereas in the control group almost all were not anemic , namely as many as 42 people (84%) .

Frequency distribution of respondents based on the nutritional status of the mother during pregnancy in the case and control groups.

Table 1.3 Frequency Distribution of Responses Based on Nutritional Status in Mothers Under Fives Age 2-5 Years, July-August 2022 (n=75)

Maternal nutritional status	case		Control	
	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)
Well (LILA > 23.5 cm)	11	44.0	41	82.0
Bad (LILA < 23.5 cm)	14	56.0	9	18.0
Amount	25	100	50	100

Source: Primary Data

Table 1.3 shows that the majority of the case group had a history of poor nutritional status during pregnancy, namely 14 people (56%). whereas in the control group almost all of them had a good history of nutritional status during pregnancy, namely 41 people (82%).

Cross-tabulation and correlation test of the relationship between anemia of pregnancy and stunting in the case and control groups.

Table 1.4 \_ Cross-tabulation of Anemia in Pregnancy with Stunting in Toddlers Aged 2-5 Years, July-August 2022 (n=75)

	no						P	OR	ci
	stunt		stunting		Amount				
	(n)	(%)	(n)	(%)	(n)	(%)			
Anemia (HB < 11 gr/dl)	14	68.3	8	38,4	22	100			
Not anemic (HB ≥ 11 gr/dl)	11	20,8	42	79,2	53	100	0.00	6,68 2	2,239 – 19,939
Amount	5	3,3	0	6,7	5	00			

Source: Primary data

Based on Table 1.4 the results of the cross-tabulation test showed that mothers who had a history of anemia in pregnancy mostly had 14 stunted children ( 68.3 % ). and almost half not stunting as many as 8 people ( 38.4 % ) . Mothers who did not have a history of anemia in pregnancy almost all had children who were not stunted, 42 people ( 79.2 % ). and a small number of 11 stunted children ( 20.8% ) . This shows that mothers with a history of anemia in pregnancy tend to have children who are stunted.

From table 1.4 above, the results of the *Chi Square test* obtained a *p-value* of 0.00 <0.05, so Ho was rejected (hypothesis rejected). This shows that there is a significant relationship between anemia of pregnancy and the incidence of stunting in toddlers aged 2-5 years in the Pajangan sub-district, the working area of the Bangkalan Health Center. 2022.

Based on the results of the Odd Ratio (OR) test with CI 95, the results were 6.682 , ranging from 2.239 to 19.939, so it can be concluded that anemia in pregnancy has a chance 6,682 times more likely to have stunted children than mothers who do not have a history of anemia in pregnancy with a confidence interval

of 2.239-19.939.

### **Anemia of Pregnancy in Stunted Toddlers Age 2-5 Years in Kelurahan Bangkalan Public Health Center Working Area**

The results of the study in the Pejagan sub-district, the working area of the Bangkalan Public Health Center , showed that the majority of the case group experienced anemia in pregnancy, namely 56%. whereas in the control group almost all of them were not anemic, namely 84%.

Anemia in pregnancy is a common health problem in pregnant women, but it should not be underestimated . There are various causes of anemia in pregnant women, one of which is a deficiency of iron and vitamin B12. This is influenced by an unhealthy diet. In addition, other medical conditions such as bleeding, kidney disease, and immune system disorders also cause anemia

This is in accordance with the theory (Prakasiwi et al., 2019) which states that anemia in pregnancy is a national problem because it reflects the value of the socio-economic welfare of the community, and its influence is very large on the quality of human resources. Anemia in pregnancy is called " *potential danger to mother and child* ", because of that anemia is a serious concern for all parties involved in health services at the forefront. Where the cause of anemia in pregnant women is generally due to malnutrition, lack of iron in the food consumed and also other factors such as disease. Anemia can occur when our body does not make enough red blood cells. Anemia is also caused by loss or damage to these cells .

The results showed that nearly half of the mother's age in the case group was early adulthood (26-35 years), namely 10 people (40%), and in the control group most of them were early adults (26-35 years), namely 34 people. (68%) . This shows that both the case and control groups of early adult mothers (26-35 years) have no history of anemia in pregnancy.

In the incidence of anemia in pregnant women, one of the influencing factors is the age of the mother during pregnancy. Pregnant women in early adulthood (26-35 years) where at that age it is known that the organs in their body have gone through a process of maturation and development, one of which is the reproductive system.

This is in accordance with the theory ( Ningrum et al., 2017) which states that the age that is likely not to be at high risk during pregnancy and childbirth is the age of 20-35 years, because at that age the uterus is ready to accept pregnancy, is mentally mature and is able to care for the baby and herself Pregnant women at too young age (< 20 years) are not or are not ready to pay attention to the environment needed for fetal growth. Besides that, there will be competition for food between the fetus and the mother herself who is still growing and there is hormonal growth that occurs during pregnancy. As you get older, the need for nutrients will increase, while the systems in the body will decrease. Meanwhile, pregnant women over 30 years are more likely to experience anemia, this is due to

the effect of decreased iron reserves in the body due to the fertilization period.

The results showed that the education of the case group was mostly high school (middle) as many as 13 people (62%), and in the control group most were also high school (middle) namely as many as 28 people (66%). This shows that both the case and control groups have high school (secondary) education .

The level of education can affect a person's level of knowledge because a person's ability to receive and understand something is determined by the level of education one has . Reception and understanding of information received by someone with a higher education is better than someone with a low education .

This is in accordance with the theory (Edison, 2019 ) which states that education will affect all aspects of human life both thoughts, feelings, and attitudes. The higher the education level of a person, the more reality the way thinking and expanding the scope of his way of thinking including knowledge about anemia. The level of education can underlie the mother's attitude in absorbing and changing information systems about health .

The results showed that the occupational categories in the case group were mostly housewives with as many as 17 people (68%), and for the control group almost half were housewives with as many as 20 people (40%) .

Mother's occupation is a factor that is indirectly related to the incidence of anemia in pregnancy. Better access to various information, including health information, can be obtained by pregnant women who work in the formal sector. The environment can influence a person to gain experience and knowledge, either directly or indirectly. Work can increase the income of pregnant women and reproductive health status because it increases awareness and provides new knowledge, behavior and opportunities through interaction with other people and the community.

This is in accordance with Okatavia's theory (2018) which states that anemia is significantly related to the work of pregnant women with a  $p\text{-value} = 0.03$ . This study also shows that being a housewife is one of the risks for pregnant women to experience anemia. This is because most housewives depend only on the income earned by their husbands to meet their daily needs .

### **Description of the nutritional status of mothers during pregnancy in toddlers aged 2-5 years Pejagan Village, Working Area of Bangkalan Health Center**

The results showed that most of the case group had a history of poor nutritional status during pregnancy, namely 14 people (56%). whereas in the control group almost all had a good history of nutritional status during pregnancy, namely 41 people (82 %)

Maternal nutritional status during pregnancy can affect the growth of the fetus being conceived. The nutritional needs of the mother during pregnancy must be met properly because fetal nutrition depends on the mother's nutrition.

This is in accordance with the theory of Lestari ( 2019) who mentioned that

The health condition of the newborn is strongly influenced by the nutritional state of the mother during pregnancy. KEK in pregnant women needs to be aware of the possibility that the mother will give birth to a low birth weight baby, the growth and development of the fetal brain is hampered so that it affects the child's intelligence in the future and the possibility that birth length is also not normal. Pregnant women who are at risk of chronic energy deficiency (CED) are pregnant women who have a LiLA size of less than 23.5 cm.

The results showed that nearly half of the mother's age in the case group was early adulthood (26-35 years), namely 10 people (40%), and in the control group most of them were early adults (26-35 years), namely 34 people (68 %), this shows that both the case and control groups of early adult maternal age (26-35 years) the majority have a history of good nutritional status

Pregnant women aged 26-35 years are in the productive age category, so if given information by health workers regarding nutritional status, especially when pregnant women will measure weight gain, it can be well received and can comply with recommendations from health workers.

This is in accordance with Riska's theory (2017) which states that pregnant women between the ages of 20-35 years are of productive age and are quite mature physically, mentally and socially. It should be easier for a person to receive various information that can be obtained through magazines or health workers. especially in handling their own nutritional status.

The results showed that the education of the case group was mostly high school (middle) as many as 13 people (62%), and in the control group most were also high school (middle) namely as many as 28 people (66%). This shows that both the case and control groups have high school (secondary) education.

Education also has an exponential relationship with the level of health. The higher the level of education, the easier it is to accept the concept of healthy living independently, creatively and sustainably. A person's educational background is related to the level of knowledge, if the level of knowledge of maternal nutrition is good, it is hoped that the nutritional status of the mother and her child will also be good.

This is in accordance with the theory (Sagitarini et al., 2021) which states that education is a basic human need that is very important for self-development, generally the higher a person's education the better the level of knowledge. A mother with high education will behave differently with a mother with low education. This is because mothers who are highly educated will gain more knowledge about the importance of maintaining health, especially during pregnancy which is a risky condition

The results showed that the occupational categories in the case group were mostly housewives with as many as 17 people (68%), and for the control group almost half were housewives with as many as 20 people (40%).

Working women have the ability to recognize family health problems. Working women's knowledge about health problems is obtained from books,



magazines, newspapers, radio and television. Working women have the ability to make decisions to deal with health problems they face. Therefore, women who act as workers as well as wives and housewives generally have better health.

This is in accordance with Ernawati's theory (2018) which states that the knowledge of working women about health issues is obtained from books, magazines, newspapers, radio and television. Working women have the ability to make decisions to deal with health problems they face. Therefore, women who act as workers as well as wives and housewives generally have better health.

### **Relationship Between Pregnancy Anemia and Stunting Incidence in Toddlers Aged 2-5 Years in Pejagan Village, Bangkalan Health Center Working Area**

the results of the cross-tabulation test showed that mothers who had a history of anemia in pregnancy mostly had 14 stunted children ( 68.3 %). and almost half not stunting as many as 8 people ( 38.4 %). Mothers who did not have a history of anemia in pregnancy almost all had children who were not stunted, 42 people ( 79.2 %). and a small number of 11 stunted children ( 20.8%). This shows that mothers with a history of anemia in pregnancy tend to have children who are stunted. In this study, the results of the Odd Ratio (OR) test with CI 95 of 6.682 ranged from 2.239 to 19.939, so it can be concluded that anemia in pregnancy has a 6.682 times greater chance of having a stunted child than mothers who do not have a history of anemia in pregnancy with a vulnerability of belief between 2,239-19,939.

Anemia causes low physical ability because the body's cells do not get enough oxygen. In pregnant women, anemia increases the frequency of complications in pregnancy and childbirth. The risk of maternal death, prematurity, low birth weight, and perinatal mortality increases.

This is in accordance with Salakory's theory (2021) which states that low hemoglobin levels have an impact on children's linear growth because hemoglobin is a type 2 nutrient that is useful in the process of tissue formation and bone growth. Because hemoglobin requires iron in its biosynthetic process, iron intake is an important requirement for pregnant women. The need for iron in pregnant women increases with increasing gestational age.

The results of this study are in line with research conducted by Vitaloka (2018) at the Gedangsari II Gunung Kidul Health Center with results ( p-value = 0.0003; OR 3.215; 95% CL = 1.55-6.65). which means there is a significant relationship between anemia of pregnancy and the incidence of stunting. Where, pregnant women with anemia are 3.2 times more likely to have stunted children

This research is in line with research conducted by Filla (2020) that there is a significant relationship between stunting status and a history of anemia during pregnancy seen from p-value = 0.0003 and OR 3.215 (95% CI; 1.55 – 6.65) which means pregnant women with anemia are 3.2 times more likely to have stunted children. The hemoglobin level of pregnant women is related to the length of the baby to be born, the higher the Hb level, the longer the size of the baby to be born.

Iron is a substance that plays a role in bone formation. Iron plays a role as an oxygen carrier for all body tissues. If oxygenation to the bones is reduced, the bones will not grow optimally. Iron deficiency will have a severe impact on bones that affect bone mineral density, mineral content in bones and also femur strength.

### **Correlation Between Nutritional Status of Pregnant Women and Stunting Incidence in Toddlers Aged 2-5 Years in Pejagan Village, Working Area of Bangkalan Health Center**

The results of the cross-tabulation test showed that mothers who had a history of poor nutritional status had mostly stunted children of 14 people ( 55 %). and a small part not stunting as many as 9 people (18%) . Mothers who have a history of good nutritional status almost all have children who are not stunted, 41 people ( 74.5 %). and almost half of them had 11 stunted children ( 25%) . This shows that mothers with a history of poor nutritional status tend to have stunted children. Where in this study the results of the Odd Ratio (OR) test with 95% CI obtained results of 3.58 ranging from 1.228 to 10.431. so that it can be concluded that the nutritional status of poor pregnant women is 3.58 times more likely to have stunted children than mothers who have a history of good nutritional status. with a confidence interval between 1.228- 10.431 .

One of the factors causing stunting in toddlers is the nutritional status of the mother during pregnancy, which is caused by not being able to meet the needs of good and adequate nutritional food as needed, resulting in growth and development that is not optimal and susceptible to infectious diseases which in the future will result in risks stunting in toddlers.

This research is in line with Nabilla's theory (2019) which states that the frequency distribution of the nutritional status of pregnant women who have normal Upper Arm Circumference (LILA) is 64.1%. The nutritional and health status of the mother before pregnancy, during pregnancy to breastfeeding is a very critical period. Starting in the womb, the fetus will grow and develop, which includes increasing body weight, length and development of the brain and other vital organs.

This research is in line with research conducted by Lestari (2019), the majority of the frequency distribution of toddlers with normal height is 141 (59.5%) toddlers. the majority of the frequency distribution of maternal nutritional status during pregnancy was based on the normal LiLA of 152 (64.1%) mothers. There was a significant relationship between maternal nutritional status during pregnancy and the incidence of stunting with a *p-value* of 0.005 (0.005<0.05). The results of this study are in line with the results of research from Sukmawati (2018) entitled nutritional status of mothers during pregnancy, birth weight of babies with stunting in toddlers where maternal nutritional status (LILA) with stunting incidents with a value of  $p = 0.01$  (0.05), which means there is a relationship between the nutritional status of mothers based on LILA and the incidence of stunting. Mothers who have

KEK nutrition occur due to the failure of the mother's weight gain during pregnancy so that LILA also decreases. The increase in maternal weight during pregnancy with an increase in LILA has a very important role for the baby it contains. The nutrition of pregnant women who are deficient or experiencing CED affects the content because food is also consumed by the baby they are carrying, if there is an increase in LILA for pregnant women, the development of the baby in the womb will also experience growth and development.

## CONCLUSION

The purpose of this study was to analyze the relationship between anemia of pregnancy and the nutritional status of pregnant women with the incidence of stunting in toddlers aged 2-5 years in the Pejagan Village, the Working Area of the Bangkalan Health Center, so that the following conclusions can be formulated:

1. Mothers of toddlers aged 2-5 years in the case group mostly experienced anemia in pregnancy, while in the control group almost all of them were not anemic in the Pejagan sub-district, the working area of the Bangkalan Public Health Center
2. Most of the mothers of toddlers aged 2-5 years in the case group had a history of poor nutritional status during pregnancy, while in the control group almost all of them had a history of good nutritional status during pregnancy in the Pejagan sub-district, the working area of the Bangkalan Public Health Center.
3. There is a significant relationship between anemia of pregnancy and the incidence of stunting in toddlers aged 2-5 years in the Pajangan sub-district, the working area of the Bangkalan Health Center.
4. There is a significant relationship between the nutritional status of pregnant women and the incidence of stunting in toddlers aged 2-5 years in the Pajagan Village, Working Area of the Bangkalan Public Health Center. good nutritional status.
5. Mothers who experience anemia in pregnancy are at risk of 6.682 times higher risk of stunting, while mothers who experience poor nutritional status have a risk of 3.58 times to be at risk of stunting

## REFERENCES

- A. Mann Jim & Truswell, Stewart. (2014). *Textbook of nutrition science* edition 4. Jakarta: EGC
- Anjarwati & Septi Ana. (2016). *Relationship between Husband's Support and Compliance of Pregnant Women in Consuming FE Tablets at the Jetis Yogyakarta Health Center. Midwife Scientific Journal. Yogyakarta Aisyiyah University*
- Anisa, P. (2012). *Factors Associated with the Incidence of Stunting in Toddlers Aged 25-60 Months in Kalibaru Village, Depok, 2012. Thesis* . Depok: FKM UI. Retrieved April 21, 2019.

- Asian Development Bank (2021) *Key Indicators for Asia and the Pacific 2021* , *Economic & Labor Market Review* . doi: 10.1057/palgrave.elmr.1410135.
- Arikunto, S. (2016). *Research Procedures A Practice Approach*. Jakarta: Rineka Cipta.
- (Atikah, Rahayu, 2018) Atikah, Rahayu, et al. (2018). Stunting and Its Prevention Efforts. In *Stunting book and its prevention efforts* .
- Bulkis, A.ST. 2013. *The Relationship between Consumption Patterns and Hemoglobin Status in Pregnant Women in Gowa Regency in 2013*. Thesis. Faculty of Public Health, Hasanuddin University. Macassar.
- Edison, E. (2019). The Relationship of Education Level with the Incidence of Anemia in Pregnant Women. *JKFT Journal* , 4 (2), 65–71.
- rnowati, A. (2018). Relationship between Age and Employment Status of the Mother with the Incidence of Chronic Energy Deficiency in Pregnant Women. *Journal of Research and Development: Media Information Research, Development and Science and Technology* , 14 (1), 27–37. <https://doi.org/10.33658/jl.v14i1.106>
- Fatkhiyah, Natiqotul. 2018. *Risk Factors for Anemia in Pregnant Women (Study in the Work Area of the Slawi Health Center, Tegal Regency)*. *Indonesian Midwifery Journal Vol.2 No.2 Hal:86-91*.
- Filla Sofia Wiwadja Vitaloka, and Dyah Noviawati Setya, and YW (2020). *Correlation between Anemia Status of Pregnant Women and the Incidence of Stunting in Toddlers Aged 24-59 Months in the Work Area of the Gedangsari II Health Center, Gunung Kidul* . 2–9. <http://poltekkesjogja.ac.id/>
- Hulayya, AFA (2021). *Relationship Between History of Anemia in Pregnancy* . 1–102
- Irianto, Koes. 2014. *Balanced Nutrition in Reproductive Health (Balanced Nutrition in Reproductive Health)* . Bandung: ALFABETA
- isnaeni, ana pertiwi, and iriantom, aritonang and agus. (2012). *Iron intake in pregnant women in Karangasari Village, Pengasih District, Kulon Progo Regency* . 6 (6), 9–33. <http://eprints.poltekkesjogja.ac.id/1134/4/4>. Chapter 2. pdf
- isnaeni, ana pertiwi, and iriantom, aritonang and agus. (2012). *Iron intake in pregnant women in Karangasari Village, Pengasih District, Kulon Progo Regency* . 6 (6), 9–33. <http://eprints.poltekkesjogja.ac.id/1134/4/4>. Chapter 2. pdf
- RI Ministry of Health (2018) “Stunting Bulletin,” *RI Ministry of Health* , 301(5), p. 1163–1178.
- Lestari, PD, Rohmah, N., & Utami, R. (2019). The Relationship between Maternal Nutritional Status During Pregnancy and Stunting in Toddlers. *Faculty of Health Sciences Muhammadiyah University Jember* , 26 , 1–9.

- <http://repository.unmuhjember.ac.id/5047/11/k> . JOURNAL ARTICLE.pdf
- Ningrum, NW, Nurhamidi, & Yusti. (2017). Correlation between Age, Parity and Incidence of Anemia with Premature Childbirth at RSUD Dr. H. Moch. Ansari Saleh Banjarmasin 2016. *Health Dynamics* , 8 (1), 149–157.
- Nurhidayati, DR 2013. *Analysis of the Factors Causing Anemia in Pregnant Women in the Work Area of the Tawanghari Health Center, Sukoharjo Regency.*
- Nurma Yuneta, AE, Hardiningsih, H., & Yunita, FA (2019). Correlation Between Mother's Knowledge Level and Toddler Nutritional Status in Wonorejo Village, Karanganyar Regency. *PLACENTUM: Scientific Journal of Health and Its Applications* , 7 (1), 8. <https://doi.org/10.13057/placentum.v7i1.26390>
- Nursalam. (2017) . *Nursing Science Research Methodology: A Practical Approach. (PP Lestari, Ed.) (4th ed.)*. New York: Salemba Medika.
- Prakasiwi, S., Semarang, UM, Kunci, K., & Medium, A. (2019). *midwifery care for pathology pregnancy for her r gip0a0 aged 28 years 24 weeks pregnant with moderate anemia midwifery care on pregnancy with pathology of mrs. r , gip0a0 , 28 years old , 24 weeks pregnant moderately . 8–9.*
- a literature review describing the diet of stunted children aged 2-5 years Helen Herlina Bakti Tunas Husada . (2021).* 5–7.
- Sagitarini, PN, Wisnawa, D., Rantini, NN, Parwati, KA, Bintang, M., Iswari, S., Putu, S., Devi, S., Ayu, D., Pujiani, A., Ricky, P ., & Putri, P. (2021). Correlation between Maternal Characteristics and Nutritional Status of Pregnant Women in Working Areas. *Midwinerslion Journal of Health* , 6 (2), 118–122.
- Sandjojo, E. putro (2017) "Village pocket book in handling stunting," *Village Pocket Book in Handling Stunting* , p. 42.
- Salakory, GTJ, & Wija, IBEU (2021). The Relationship of Anemia in Pregnant Women to Stunting Incidents at Marthen Indey Jayapura Hospital in 2018-2019. *UKI Medical Magazine* , 37 (1), 9–12. <https://doi.org/10.33541/mk.v37i1.3365>
- Supariasa, IDN, Bachyar, B., and Ibnu, Fajar 2012. Assessment of Nutritional Status. Jakarta: EG*
- Trihono et al . *Short (Stunting) in Indonesia Short (Stunting) in Indonesia, Problems and Solutions . (Health Research and Development Agency, 2015).*
- Quina, GS, Irianton, A., & Noor. (2019). Study of the Quality of Energy Intake from the Proportion of Carbohydrates, Protein and Fat in At-Risk Pregnant Women in Kulon Progo Regency. *Journal of Midwifery Poltekkes Kemenkes Yogyakarta* , 10–25.