# Analysis Of The Relationship Between Environmental Health Factors And The Incidence Of Stunting In Toddlers In The Working Area Of Kersik Tuo Public Health Center, Kayu Aro District, Kerinci Regency

**Emiliya[1], Ermi Girsang[2], Marinawati Ginting[3]**

[1,2,] Master of Public Health (MKM) Study Program/Prima Indonesia University (Unpri) Medan [3]Master of Public Health, Adiwangsa Jambi University, Jambi, Indonesia

*E-mail: riastawatydewi@gmail.com

## ABSTRACT

Environmental health from the aspect of poor sanitation and hygiene will trigger digestive disorders which impact nutrition for growth and turn into the body's resistance to infection, thereby risking stunting in toddlers. This study aims to determine the relationship between environmental health factors and the incidence of stunting in toddlers. The research design uses observational analytics with a cross sectional approach. The total sample was 106 toddlers. The sampling technique for this research is purposive sampling using univariate analysis and bivariate analysis with the chi square test. There is a significant relationship between drinking water sources (p=0.012), physical quality of drinking water (p=0.000), latrine ownership (p=0.013), waste management (p=0.001), waste management (p= 0.017) and hand washing habits (p=0.000) on the incidence of stunting. Drinking water treatment (p=0.432) does not have a significant relationship with the incidence of stunting in the Kersik Tuo Health Center area, Kayu Aro District, Kerinci Regency. It is recommended that health educational workers provide outreach with practical and effective methods related to sanitation and hygiene so that the public can understand the importance of maintaining a healthy environment which has an impact on stunting.

***Keywords:*** *Stunting, environmental health, toddlers.*

## INTRODUCTION

The incidence of *stunting in toddlers* is still a nutritional problem in the world today. More than half of the cases of *stunting in toddlers in the world in 2017 were in the Asian region (55%) and the rest came from the African region (39%). In Asia, there were 83.6 million cases of stunting in toddlers* with the highest proportion from South Asia (58.7%) and the lowest proportion in Central Asia (0.9%). From the prevalence data of stunting in toddlers collected by *the World Health Organization* (WHO) in 2018, Indonesia was ranked third in the country with the highest prevalence in *the South-East Asian Region* (SEAR), which was 36.4%, after Timor Leste (50.5%) and India (38.4%) (Pusdatin Kemenkes RI, 2018). Compared to several neighboring countries, the prevalence of stunting in Indonesia is also the highest compared to Myanmar (35%), Vietnam (23%), Malaysia (17%), Thailand (16%), and Singapore (4%) (Apriluana & Fikawati, 2018).

The prevalence rate of stunting in Jambi Province based on the results of the Indonesian Nutritional Status Study (SSGI) in 2021 was 22.4%. The area in Jambi Province with the highest stunting rate is Muaro Jambi Regency at 27.2%, followed by Kerinci Regency at 26.7%, and Tebo Regency at 26.2% (Litbangkes, Ministry of Health, Republic of Indonesia, 2021).

*Stunting* conditions can have an impact on the lives of toddlers, both short-term and long term. Short-term impacts include health, developmental and economic problems. Short-term health problems due to *stunting* include increased morbidity and mortality. In addition, stunting can also cause decreased cognitive, motor, and language development. Economic

problems include increased spending due to health problems, for example the cost of caring

for sick children. Meanwhile, the long-term health impacts on *stunted toddlers* include increased cases of obesity, obesity-related diseases, and decreased reproductive health. As well as economic problems, namely decreased work capacity and productivity (Kiik & Nuwa, 2020).

Environmental factors can indirectly affect the incidence of *stunting* . Environmental health is an optimum environmental condition or state that has a positive effect on the realization of optimum health status. The scope of environmental health includes: disposal of human waste (feces), provision of clean water, garbage disposal, disposal of dirty water (wastewater), and hygiene behavior. Poor environmental conditions and hygiene can cause infectious diseases such as diarrhea and respiratory tract infections, which can lead to stunting rates (Apriluana & Fikawati, 2018). Access to sanitation is said to be adequate if it meets health requirements, including being equipped with goose-neck toilet facilities with a septic tank that is used alone (Pusdatin Kemenkes RI, 2018).

The most effective handling of *stunting cases is carried out in 1,000 HPK. The 1,000 HPK period includes 280 days during pregnancy and the first 720 days after the baby is born, it has been scientifically proven that this period is the determination of quality of life ( golden period* ). So that efforts that can be made during this period are to prevent and reduce direct disorders (specific nutritional interventions) and indirect disorders (sensitive nutritional interventions) (Kiik & Nuwa, 2020).

Based on the results of interviews with nutrition officers at the Kersik Tuo Health Center in February 2023, there were 106 babies, one of the factors causing stunting is environmental factors, and based on an initial survey conducted by interviewing the community about how people usually manage waste, most people still burn waste, It was also found that environmental conditions were poor, such as the physical condition of the house that did not have ventilation in the room, which made children susceptible to infectious diseases, which could cause stunting in toddlers.

Based on the description above, the researcher is interested in researching "Analysis of the Relationship between Environmental Health Factors and the Incidence *of Stunting* in Toddlers in the Kersik Tuo Health Center Work Area, Kayu Aro District, Kerinci Regency"

## LITERATURE REVIEW

### Understanding Environmental Health
Environmental health is part of the basics of public health that includes all aspects of humans in relation to the environment, with the aim of improving and maintaining human health values at the highest level (Heriani, et al., 2019).

### Understanding Environmental Sanitation
Home environmental sanitation is closely related to the source of disease transmission. The requirements for a healthy home environment must be met from various aspects in order to protect residents and the community living in an area from dangers or health problems (Lestari, Rahim, & Sakinah, 2021). The characteristics of a healthy environment are a clean and tidy environment, no puddles, no scattered garbage, fresh and comfortable air, availability of clean water, availability of healthy toilets, and no disease vectors (Ministry of Health of the Republic of Indonesia, 2018).

The Indonesian Ministry of Health has a guideline for assessing the adequacy of home environmental sanitation in order to create a healthy and prosperous family, which is written in the Decree of the Minister of Health of the Republic of Indonesia No.

852/MENKES/SK/IX/2008, which states that household environmental sanitation facilities include clean water facilities, waste disposal facilities, toilet sanitation and household

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wastewater drainage facilities (Indonesian Ministry of Health, 2015).

**Impact of Stunting**

Nutrition is a very important element in the body. Nutrition must be fulfilled since childhood, because nutrition is not only important for body growth, but also important for brain development (Saharuddin, 2017). The negative impacts that can be caused by stunting:

a. Short term is the disruption of brain development, intelligence, physical growth disorders, and metabolic disorders in the body.

b. The long-term negative effects that can arise are decreased cognitive abilities and learning achievement, decreased immunity so that it is easy to get sick, and a high risk of developing diseases in old age (Rahayu, et al., 2018).

**Handling Stunting**

Specific interventions are aimed at children in the First 1,000 Days of Life (HPK) and this can contribute to a 30% reduction in stunting. Interventions targeting pregnant women: 1) Providing additional food to pregnant women to overcome chronic energy and protein deficiencies. 2) Providing iron and folic acid, 3) Overcoming iodine deficiency, 4) Overcoming worms in pregnant women, 5) Protecting pregnant women from malaria. Then, interventions targeting breastfeeding mothers and children aged 0-6 months, namely: 1) Encouraging early initiation of breastfeeding (provision of colostrum), 2) Encouraging exclusive breastfeeding. Furthermore, interventions targeting breastfeeding mothers and children aged 7-23 months, namely: 1) Encouraging continuation of breastfeeding until the age of 23 months accompanied by the provision of complementary feeding. 2) Providing deworming medicine, 3) Providing zinc supplementation, 4) Fortifying iron into food, 5) Protection against malaria, 6). Providing complete immunization, 7) Preventing and treating diarrhea (Kiik & Nuwa, 2020).

**METHODS**

This study is an Analytical study with a cross-sectional design to determine the Analysis of the Relationship between Environmental Health Factors and the Incidence *of Stunting* in Toddlers in the Kersik Tuo Health Center Work Area, Kayu Aro District, Kerinci Regency. The sample in this study were mothers who had toddlers with a total of 106 toddlers. The sampling technique was *Total sampling* . Data collection used a questionnaire by filling out the questionnaire. The study was conducted at the Kersik Tuo Health Center. Data analysis was carried out using Multivariate analysis, which aims to explain or describe the characteristics of each research variable by producing a frequency distribution and percentage of each variable.

**RESULTS**

**Bivariate Analysis**

**Table 1. Frequency Distribution of Analysis of the Relationship between Environmental Health Factors and the Incidence *of Stunting* in Toddlers in the Working Area of the Kersik Tuo Health Center, Kayu Aro District, Kerinci Regency**
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| No | Variables | *Stunting* Incident | | | | p value |
|---|---|---|---|---|---|---|
| | | *Stunting* | | No *Stunting* | N % | |
| | | N | % | N % | | |
| I | Source of drinking water | | | | | 0.012 |
| | 1. Protected | 87 | 88.8 | 11 11.2 | 98 100 | |
| | 2. Not protected | 4 | 50.0 | 4 50.0 | 8 100 | |
| II | Physical quality of | | | | | |

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**drinking water** 0,000 1. Qualify 87 90.6 9 9.4 96 100 2. Not eligible 4 40.0 6 60.0 10 100 **III Drinking**

**water**

**management** 0.432 1. Processed 87 87.0 13 13.0 100 100 2. Not processed 4 66.7 2 33.3 6 100 **IV Ownership of**

**Toilets**

0.013 1. Not having a

18 69.2 8 30.8 26 100

healthy toilet

2. Have a healthy  toilet          73 91.2 7 8.8 80 100

**V Waste**

**management** 0.001 1. Bad 62 95.4 3 4.6 65 100 2. Good 29 70.7 12 29.3 41 100 **VI**

**Waste**

**management** 0.017 1. Bad 63 92.6 5 7.4 68 100 2. Good 28 73.7 10 26.3 38 100

**VII Hand washing**

**habits** 0,000 1. Bad 71 98.6 1 1.4 72 100 2. Good 20 58.8 14 41.2 34 100

**Multivariate Analysis**

**Table 2. Bivariate Selection Results of Independent Variables with Dependent Variables**

| Independent Variable | Sig (P-value) | Information |
|---|---|---|
| Source of drinking water | 0.012 | Candidate |
| Physical quality of drinking water | 0,000 | Candidate |
| Drinking water management | 0.432 | Not a Candidate |
| Ownership of toilets | 0.013 | Candidate |
| Waste management | 0.001 | Candidate |
| Waste management | 0.017 | Candidate |
| Hand washing habits | 0,000 | Candidate |

a. Model 1

**Table 3. Analysis of the Relationship between Independent Variables and Dependent Variables Based on Test Regression Multivariate Logistics ( Method Enter)**

| Independent Variable | Sig (P-value) |
|---|---|
| Source of drinking water | 0.308 |
| Physical quality of drinking  water | 0.033 |

4

| Ownership of toilets | 0.153 |
|---|---|
| Waste management | 0.556 |
| Waste management | 0.401 |
| Hand washing habits | 0,000 |

b. Model 2

**Table 4. Analysis of the Relationship between Independent Variables and Dependent Variables Based on Test Regression Multivariate Logistics ( Method Enter)**

| Independent Variable | Sig (P-value) |
|---|---|
| Source of drinking water | 0.211 |
| Physical quality of drinking  water | |

0.012

Ownership of toilets 0.163
Waste management 0.509
Hand washing habits 0,000

c. Model 3

**Table 5. Analysis of the Relationship between Independent Variables and Dependent Variables Based on Test Regression Multivariate Logistics ( Method Enter)**

**Independent Variable Sig (P-value)**

Source of drinking water 0.210
Physical quality of        0.009
drinking  water

Ownership of toilets 0.124
Hand washing habits 0,000

d. Model 4

**Table 6. Analysis of the Relationship between Independent Variables and Dependent Variables Based on Test Regression Multivariate Logistics ( Method Enter)**

**Independent Variable Sig (P-value)**

Physical quality of        0.003
drinking  water

Ownership of toilets 0.117
Hand washing habits 0,000

e. Model 5

**Table 7. Analysis of the Relationship between Independent Variables and Dependent Variables Based on Test Regression Multivariate Logistics ( Method Enter)**

**Independent Variable Sig (P-value)**

Physical quality of        0,000
drinking  water

Hand washing habits 0,000

## DISCUSSION

**The relationship between drinking water sources and stunting incidence** The results of the statistical test showed a p-value = 0.012 (p <0.05), in other words there is  a significant relationship between drinking water sources and the incidence of stunting in  toddlers in the Kersik Tuo Health Center Work Area, Kayu Aro District, Kerinci Regency. This is in line with research conducted by Adriany, et al. (2021) showing a p-value of 0.000  (<0.05), which means that families who do not have clean drinking water have a risk of  suffering from stunting compared to families who have clean drinking water. Other studies  state that there is a significant relationship between the availability of drinking water  sources and the incidence of stunting (Adriany, Hayana, Nurhapipa, Septiani, & Sari,

2021).

Another study conducted by Wahid (2020) showed the results of the availability of  protected water sources, as many as 18 toddlers (17.8%) experienced stunting, and 21  toddlers (31.3) did not experience stunting. Meanwhile, respondents who had unprotected  water sources, as many as 83 toddlers (82.2%) experinced stunting, and 46 toddlers   (68.7%) did not experience stunting. The results of the chi-square test obtained a p-value of  0.042 (<0.05) which means there is a relationship between drinking water sources and the  incidence of stunting (Wahid, 2020).

Another research finding in Sumatra stated that toddlers who come from families with access to unprotected drinking water sources have a 1.35 times greater risk of experiencing stunting. The relationship between drinking water sources and stunting is due to the number of respondents who use unprotected drinking water sources and experience stunting being more dominant than toddlers who do not experience stunting, as can be seen from the table of results of this study. Drinking water sources that are classified as unprotected are water from rivers, wells and rainwater reservoirs. While protected water sources are those from PDAM and bottled mineral water/refill water. Unprotected water can affect health, one of which is diarrhea, toddlers with a history of diarrhea in the last 2 months are at risk of stunting than toddlers without a history of diarrhea in the last 2 months because diarrhea in toddlers can prevent adequate nutritional intake needed for their growth (Sinatrya & Muniroh, 2019). The findings of this study are inversely proportional to the study by Sinatrya and Muniroh (2019), the results of the chi-square test showed no significant relationship between drinking water sources and stunting incidence with a p value of 0.415. (Sinatrya & Muniroh, 2019).

**The relationship between the physical quality of drinking water and the incidence of stunting**

The results of the statistical test showed a p-value = 0.000 (p <0.05), in other words there is a significant relationship between the physical quality of drinking water and the incidence of stunting in toddlers in the Kersik Tuo Health Center Work Area, Kayu Aro District, Kerinci Regency. This is in line with the research of Nisa, et al. (2021), water quality with poor physical parameters, in stunted respondents as many as 6 respondents (13.3%) and normal respondents as many as 3 respondents (6.7%), the p value in this study was 0.047 (<0.05). The biggest factor that caused the water quality of the physical parameters of respondents in both groups to not meet the requirements was cloudy water and water that tasted (Nisa, Lustiyati, & Fitriani, 2021).

Based on the researcher's observation, the quality of drinking water used has an odor like the smell of earth or iron. This is usually caused by the source of drinking water obtained. In addition, water turbidity is caused by suspended solids, both inorganic from soil, sand, weathering of rocks and metals and organic from the decay of parts of plants or animals that can be food for bacteria. In addition to causing water turbidity, organic materials that undergo decay and contact with water will cause the water to have a taste. The taste of water is also caused by the content of chemicals dissolved in water. Water that tastes can cause health problems, acidic water can affect tooth resistance and digestive disorders.

Basically, the physical quality of drinking water cannot be separated from the origin of the drinking water. From the results of this study, it shows a relationship between the physical quality of drinking water and the incidence of stunting, this can occur because based on the results of drinking water source data on several respondents who are included in the unprotected category experience problems in the physical quality of their drinking water, namely respondents who use water sources from wells when observations of the physical quality of the water were carried out, all of them experienced physical quality of drinking water that did not meet the requirements, namely drinking water that looked cloudy, smelled and tasted.

**The relationship between drinking water management and stunting incidence** The results of the statistical test showed a p-value = 0.432 (p > 0.05) in other words, there is no significant relationship between drinking water management and the incidence of

stunting in toddlers in the Kersik Tuo Health Center Work Area, Kayu Aro District, Kerinci Regency. Household drinking water treatment, one of which is by boiling until cooked, has been efficient in killing microorganisms. Household drinking water treatment can improve the microbiological quality of drinking water with a simple and affordable method, and reduce the incidence of diarrhea. Meanwhile, refilled water has basically been processed through filtration and disinfection. The filtration process is intended not only to separate suspended matter, but also to separate colloidal mixtures including microorganisms from the water. Meanwhile, the disinfection process is intended to kill microorganisms that are not filtered by the previous process. So that pathogenic bacteria in drinking water have died before being consumed (Lestari & Siwiendrayanti, 2021).

Drinking water and food management is carried out to obtain quality water. Water that has

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been processed into drinking water that is used and consumed routinely every day is stored in a closed container to avoid disease problems (Soerachmad, Ikhtiar, & Bintara, 2019). However, this study did not show any relationship between drinking water treatment and stunting because almost all respondents treated drinking water before consuming it, which was carried out on both stunted and non-stunted toddlers.

**The relationship between toilet ownership and stunting incidence**

The results of the statistical test showed a p-value = 0.013 (p <0.05) in other words there is a significant relationship between toilet ownership and the incidence of stunting in toddlers in the Kersik Tuo Health Center Work Area, Kayu Aro District, Kerinci Regency. This is in line with Nasrul's research (2018), stating that there is a significant relationship between the ownership of inadequate toilets and the incidence of stunting, as indicated by a p-value of 0.000. Toddlers with inadequate toilet ownership are at 7.398 times higher risk of stunting than toddlers with adequate toilet ownership (Nasrul, 2018).

Another study presented by Sukmawati, et al. (2021) stated that based on the chi-square test at a p value of 0.029 (<0.05), it showed that family toilet ownership had a significant relationship with the incidence of stunting in toddlers. Ownership of toilets that do not meet standards will trigger infectious diseases due to poor hygiene and sanitation so that it can inhibit the absorption of nutrients in the digestive tract which will affect the growth of toddlers (Sukmawati, Abidin, & Hasmia, 2021). This is also related to the Decree of the Minister of Health of the Republic of Indonesia No. 852 / MENKES / SK / IX / 2008, concerning healthy toilets, namely effective feces disposal facilities to break the chain of disease transmission. An unhealthy toilet is a toilet that does not meet the criteria for protecting toilet users, with a gooseneck construction or a hole without a gooseneck and closed, a non-slip toilet floor and there is a channel for drainage, and has a lower building consisting of a septic tank or cubluk for waste disposal (Mariana, Nuryani, & Angelina, 2021).

There is a relationship between toilet ownership and the incidence of stunting because all toddlers who do not have a healthy toilet experience stunting, which shows that toilet ownership can be a risk factor that causes stunting in toddlers in this study. **The relationship between waste management and stunting incidents** The results of the statistical test showed a p-value = 0.001 (p <0.05) in other words there is a significant relationship between waste management and the incidence of stunting in toddlers in the Kersik Tuo Health Center Work Area, Kayu Aro District, Kerinci Regency. This is in line with the research of Sukmawati, et al. (2021) which stated that based on the chi-square test at a p value of 0.023 (<0.05) it showed that wastewater drainage channels have a significant relationship with the incidence of stunting in toddlers (Sukmawati, Abidin, & Hasmia, 2021).

Similar research by Soerachmad, et al. (2019) showed statistical results with a p value of 0.000 (<0.05) so it was statistically significant so that this study showed a significant influence between securing household wastewater drainage channels on the incidence of stunting (Soerachmad, Ikhtiar, & Bintara, 2019).

Wastewater can be harmful to humans and the environment because it contains hazardous substances and materials. Wastewater that is not disposed of in watertight and qualified

channels will pollute clean water sources. Clean water pollution has the potential to cause infectious diseases. Open, blocked and muddy drains will be used for the breeding of vectors that cause infectious diseases which can have an impact on stunting (Fibrianti, et al. 2021). Household liquid waste management is the activity of processing liquid waste in households originating from washing, bathroom and kitchen activities that meet environmental health quality standards and health requirements that can break the chain of disease transmission (Mariana, Nuryani, & Angelina, 2021). In contrast to other research by Fibrianti, et al. (2021), based on the results of the Chi-Square test, it was shown that there was no significant relationship between healthy home wastewater management facilities lsnd the incidence of stunting, as evidenced by a p value of 0.161 (Fibrianti et al., 2021). The relationship between waste management and stunting incidents can be caused by the large number of stunted toddlers who dominate the use of poor waste disposal systems, namely open SPAL and there are puddles of water around it. Thus, waste management can be a risk factor for stunting incidents in this study.

**The relationship between waste management and stunting incidents** The results of the

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statistical test showed a p-value = 0.017 (p <0.05) in other words there is a significant relationship between waste management and the incidence of stunting in toddlers in the Kersik Tuo Health Center Work Area, Kayu Aro District, Kerinci Regency. This is in line with the results of research conducted by Fibrianti, et al. (2021), that there is a relationship between healthy home waste management facilities and the incidence of stunting with a p value of 0.028 (<0.05). Household waste security is carrying out waste processing activities in households by prioritizing the principles of reducing, reusing and recycling. The purpose of securing household waste is to prevent the waste from becoming a breeding ground for bacteria/parasites and disease vectors. Safe waste storage is the collection, transportation, processing, recycling or disposal of waste materials in a manner that endangers public health and the environment.

Waste management is said to be related to the incidence of stunting in this study because the majority of respondents, both those who experienced stunting and those who did not, managed household waste well so that there was no negative impact caused by waste management on stunting in toddlers.

**The relationship between hand washing habits and stunting incidents** The results of the statistical test showed a p-value = 0.000 (p <0.05), in other words there is a significant relationship between hand washing habits and the incidence of stunting in toddlers in the Kersik Tuo Health Center Work Area, Kayu Aro District, Kerinci Regency. This is in line with research conducted by Nasrul (2018), toddlers who do not have the habit of washing their hands are at risk of stunting, as proven by the results of the chi square test showing a p value of 0.000 (<0.05), which means there is a significant relationship between the habit of washing hands and the incidence of stunting (Nasrul, 2018). Similar research by Sinatrya and Muniroh (2019) showed that there were 87.9% of respondents whose handwashing habits were poor in the case group, while there were 45.5% of respondents in the control group whose handwashing habits were poor. The results of the chi-square test showed that the p-value of handwashing habits on stunting incidence was 0.000, which means that there is a relationship between handwashing habits and stunting incidence (Sinatrya & Muniroh, 2019).

This shows that hygiene factors, namely hand washing habits, are also risk factors that play an important role in stunting at the household level. Washing hands with soap is a hygiene activity, namely the activity of cleaning hands with running water and soap so that they are clean and can break the chain of germs.

The Indonesian Ministry of Health has determined important times for washing hands with soap so that it becomes a habit, namely before eating, before processing and serving food, before breastfeeding, before feeding babies/toddlers, after defecating/urining, after contact with animals (Sinatrya & Muniroh, 2019).

The practice of toddler hand washing habits in this study was less noticed. Several respondents were known to not apply cleanliness to toddlers, especially after playing, not

washing their hands using soap and running water, this shows that parents pay less attention to protecting the cleanliness of toddlers because after playing it is not recommended or accustomed to toddlers to wash their hands. If this habit continues, toddlers will easily be infected with diseases.

Based on the results of interviews and observations, toddlers also often play with animals around the home environment but do not wash their hands after contact with the animals. Animals can easily and quickly spread diseases to humans through feces, fur, and skin, as well as the environment where the animal lives. Although animals look healthy and clean, germs that cannot be seen can be transmitted to humans and other animals. One of the bacteria from animals that can infect animals and spread to humans is E. coli, where this bacteria is in the animal's digestive system. After being excreted through feces, this bacteria can spread to the animal's limbs. E. coli can cause watery and even bloody diarrhea, fever, nausea, and vomiting that occurs 3 or 4 days after a person comes into contact with this bacteria. The spread of this bacteria can be prevented by washing hands with soap and running water after contact with animals (Sinatrya & Muniroh, 2019).

**CONCLUSION**

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1. There is a significant relationship between the source of drinking water and the incidence of stunting among toddlers in the Kersik Tuo Community Health Center Working Area, Kayu Aro District, Kerinci Regency.
2. There is a significant relationship between the physical quality of drinking water and the incidence of stunting in toddlers in the Kersik Tuo Health Center Working Area, Kayu Aro District, Kerinci Regency.
3. T here is no significant relationship between drinking water treatment and the incidence of stunting in toddlers in the Kersik Tuo Health Center Working Area, Kayu Aro District, Kerinci Regency.
4. There is a significant relationship between toilet ownership and the incidence of stunting in toddlers in the Kersik Tuo Health Center Work Area, Kayu Aro District, Kerinci Regency.
5. There is a significant relationship between waste management and the incidence of stunting in toddlers in the Kersik Tuo Health Center Working Area, Kayu Aro District, Kerinci Regency.
6. There is a significant relationship between waste management and the incidence of stunting in toddlers in the Kersik Tuo Health Center Working Area, Kayu Aro District, Kerinci Regency.
7. There is a significant relationship between hand washing habits and the incidence of stunting in toddlers in the Kersik Tuo Health Center Work Area, Kayu Aro District, Kerinci Regency.
8. The most dominant variables are the physical quality of drinking water and hand washing habits on the incidence of stunting in toddlers in the Kersik Tuo Health Center Work Area, Kayu Aro District, Kerinci Regency.

## ACKNOWLEDGEMENT

## REFERENCES

Abidin, SW, Haniarti, & Sari, RW (2021). The Relationship between Environmental Sanitation and Infection History with Stunting Incidence in Pare-pare City. Journal of Public Health Archives (Arkesmas), 7

Adriany, F., Hayana, Nurhapipa, Septiani, W., & Sari, NP (2021). The Relationship between Environmental Sanitation and Knowledge with the Incidence of Stunting in Toddlers in Region Health Center Explore. *Journal Health Global, Vol. 4, No. 1* , 17.

Apriluana, G., & Fikawati, S. (2018). Analysis of Risk Factors for the Incident Stunting on Toddler (0-59 month) in Country Develop And Southeast Asia. *Journal of Media Litbangkes, Vol. 28 No. 4* , 253.

Fibrianti, EA, Thhohari, I., & Marlik. (2021). The Relationship between Basic Sanitation Facilities and Stunting Incidents at the Loceret Nganjuk Health Center. Journal of Health, Vol. 14 No. 2, 127-130.

Hendraswari, CA (2019). Determinants of Stunting Children Aged 24-59 Months in the Work Area of Temon II Health Center, Kulon Progo Regency in 2019. Department of Midwifery, Health Polytechnic, Ministry of Health, Yogyakarta, 156.

Ministry of Health of the Republic of Indonesia. (2018). *Indonesian Health Profile.* Jakarta: Ministry of Health of the Republic of Indonesia. Jakarta: Center Data and Information Ministry Health of the Republic of Indonesia.

Kiik, S. M., & Nuwa, M. S. (2020). *Stunting with Approach Framework WHO.* Yogyakarta: CV. Gate Script Media .

Lestari, ME, & Siwiendrayanti, A. (2021). Contribution of Physical Conditions of the Home Environment to the Incidence of Diarrhea and Its Relationship to the Incidence of Stunting. Indonesian Journal of Public Health and Nutrition, Vol.1 No.3, 355-361.

Linda, HR (2019). The Relationship between the Availability of Basic Sanitation Facilities that Meet Requirements in Households and Toddler Stunting in the Cibeureum Health Center Area, Tasikmalaya City. Muhammadiyah University of Tasikmalaya., 90-95.

Litbangkes. (2021). Pocket Book of Results of the Indonesian Nutritional Status Study (SSGI) 2021. Research and Development Agency of the Ministry of Health of the Republic of Indonesia.

Mariana, R., Nuryani, DD, & Angelina, C. (2021). The relationship between basic sanitation and stunting incidence in the Yosomulyo Health Center working area, Metro sub district, Metro city center in 2021. Journal of Community Health Issues, Vol.1, No.1, 1-8.

Nasrul. (2018). Controlling Risk Factors for Stunting in Toddlers in Central Sulawesi. Journal of Public Health, Vol 8 No. 2, 131-146.

Nisa, SK, Lustiyati, ED, & Fitriani, A. (2021). Sanitation of Clean Water Provision with Stunting Incidence in Toddlers. Indonesian Journal of Public Health Research and Development, 17-25.

Data Center Ministry of Health RI. (2018). *Situation Toddler Short (Stunting) in Indonesia.*

Saharuddin. (2017). Comparison of Degrees Child Nutritional Status Based on Exclusive Breastfeeding History. *Alami Journal, Vol. 1 No. 1* , 90.

Sinatrya, AK, & Muniroh, L. (2019). The Relationship between Water, Sanitation, and Hygiene (WASH) Factors and Stunting in the Kotakulon Health Center Work Area. Amerta Nutrition, 166-167.

Soerachmad, Y., Ikhtiar, M., & Bintara, A. (2019). The Relationship Between Household Environmental Sanitation and Stunting Incidence in Toddlers at Wonomulyo Health Center, Polewali Mandar Regency in 2019. Journal of Public Health, Vol. 5, No. 2, 143-147.

WHO. (2018). *Nutrition Landscape Information System (NLIS): Country Profile Indicators Interpretation Guide.* World Health Organization. http://www.who.int/nutrition/nlis_interpretationguide_isbn9789241599955/en/