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Original Article

The Impact of Risk Factors in Food and Beverage Processing on the Incident of Stunting in Children

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Abstract
Stunting is an abnormal condition of the body caused by more than one factor (multifactorial). the combination of inadequate sanitation and unsafe drinking water quality and poor food sanitation hygiene behaviour is a risk factor for stunting. The purpose of this study was to determine the risk factors for drinking water treatment and food processing with the incidence of stunting in children under five in Kalora Village. This type of research is an analytical observational approach, case control research design. The sample size is 104 case and control respondents with total sampling technique. To assess the effect of the two variables, univariate analysis and bivariate analysis were used. The test used for bivariate analysis is the Odd Ratio (OR) test. The results of this study are drinking water treatment is a risk factor for stunting with an OR value of 5.296 (OR> 1), meaning that households that carry out drinking water treatment processes that are not good will have a 5.3 times higher risk of stunting compared to households that do not use drinking water properly. good drinking water treatment. Food processing is a risk factor for stunting with an OR value of 26.278 (OR> 1), meaning that households that process food processing that is not good will have a 26.3 times higher risk of stunting compared to households with good food processing. From the results of this study, it is hoped that the relevant Regional Apparatus Organizations will synergize and improve comprehensive promotive and preventive efforts in terms of stunting prevention in the Kinovaro Health Canter area.

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Introduction
Global Nutrition Targets 2025 stunting is an incident that occurs globally, it is estimated that around 171 million to 314 million children under the age of five experience stunting and 90% of them are in countries on the African and Asian continents. The Global Nutrition Report shows that Indonesia is included in 17 countries among 117 countries, which have three nutritional problems, namely stunting, wasting and overweight in children under five (1).

In 2021 the Ministry of Health will implement Nutritional Status Survey Indonesian Toddlers (SSGBI) who have toddler stunting in Indonesia 24.4%, p This experience declines prevalence Stunting in 2018 30.8%. For Prevalence Stunting in Central Sulawesi is 29.7%, inch in category tall Because is at the top standard national (2).

Prevalence Stunting in Central Sulawesi Province based on results Nutritional Status Survey Indonesian Toddlers (SSGBI) in 2021 which was implemented by the Ministry of Health, where the results of stunting prevalence showed a decrease from 32.3 % in 2019 to 29.7 %. However, the prevalence of underweight has increased from 16.3% to 17% (3).

Based on data from the Sigi District Health Service, it is known that the Puskesmas area has the prevalence high stunting, in 2021 namely Kinovaro Village 27%, West Marawola Village 26.9%, and Pipikoro Village 26.7% (4).

Sigi Regency is one of 4 (four) regencies in Central Sulawesi Province which is a priority locus stunting prevention. Access to basic sanitation facilities in Sigi Regency has not yet reached 100%, namely access to a proper latrine reached 79%, access to water drink well reached 82%, access to trash cans reached 43.71% and Channel Access expansion water waste reach 35.69 % (5).

Children who are stunted will experience growth disorders in height or body length, where height growth does not coincide with increasing age. Stunting in children is a long-term result of chronic consumption, namely body posture that is not optimal as an adult (shorter than in general), increased risk of obesity and other diseases, decreased reproductive health, less than optimal learning capacity and performance during school, productivity and suboptimal work capacity, low-quality diet combined with morbidity, infectious diseases and environmental problems (6).

Sigi Regency is one of 4 (four) regencies in Central Sulawesi Province which is a priority locus for stunting prevention. Access to basic sanitation facilities in Sigi Regency has not yet reached 100%, namely access to adequate toilets has reached 79%, access to adequate drinking water has reached 82%, access to trash has reached 43.71% and access to waste water drainage has reached 35.69% (7). Kalora Village, Kinovaro District, Sigi Regency is the first village with the highest stunting in the Kinovaro Community Health Center area with a total of 180 toddlers and 27% stunting under five. Based on data from the Kinovaro Community Health Center, the Kalora Village community has 90% access to decent drinking water with the type of facilities used being piped facilities and the majority of the community consumes uncoiled drinking water. The number of latrine access for the Kalora Village community is 70% with the dominant type of facility being semi-permanent latrines. From the results of initial observations in Kalora Village, it was found that there was still a lack of access to sanitation in households, namely ownership of family latrines, people still consuming raw water, household waste management and less hygienic food processing, this is one of the influencing factors. stunting incident in Kalora Village.

Based on the background above, researchers are interested in raising the research title " Factors Risk "Processing Drinking Water and Food with Stunting Incidents in Children Under Five in Kalora Village, Kinovaro District, Sigi Regency."

Methods

This type of research is an analytical survey with an observational approach, with a case research design Control is used to determine the cause of disease by investigating the relationship between factors risk with disease incidence by comparing Where case groups are taken from the total In 2021, stunting toddlers recorded at the Kalora Community Health centre were 52 toddlers aged 0-59 months and The number of control groups was 52 toddlers with a ratio of 1:1, so the number of samples in this study amount 104 toddler with do matching type sex

The variables studied are rubbish bins, waste water disposal channels, Data analysis using count OR used table 2x2. OR show big role factor risk Which researched.

Results

Analysis Univariate

Characteristics Respondent based on Type Sex

Distribution frequency characteristics respondents based on Gender and Age with Incident Stunting can see on table following:

Table 1. Frequency Distribution of Characteristics of Research Subjects Based on Gender with Stunting Incidents in Village Kalora Region Work Public health center Kalora

Type Gender	Incident Stunting				Total	
	Case		Control			
	f	%	f	%	f	%
Man	27	26.0	27	51.92	54	51.9
Woman	25	24.0	25	24.0	50	48.1

Total	**52**	**50.0**	**52**	**50.0**	**104**	**100**

Source: Data Primary, 2022

Characteristics Respondent according to Age

Table 2. Frequency Distribution of Research Subject Characteristics Based on Age on Stunting Incidents in Villages Kalora Region Work Public health center Kalora

Age	Incident Stunting				Total	
	Case		Control			
	f	%	f	%	f	%
0-12 Months	3	2.9	4	3.8	7	6,7
13-24 Months	13	12.5	17	16.3	30	28.8
25-36 Months	10	9.6	13	12.5	23	22.1
37-48 Months	15	14.4	13	12.5	28	26.9
49-59 Months	11	10.6	5	4.8	16	15.4
Total	**52**	**50.0**	**52**	**50.0**	**104**	**100**

Source: Primary data, 2022

Characteristics Respondent based on Parental Education in the Village Kalora Subdistrict Kinovaro

Table 3. Characteristics Respondent based on Parental Education in the Village Calora Subdistrict Kinovaro

No.	Parental Education	Frequency (f)	Percentage (%)
1	No school	5	4.8
2	elementary school	76	73.1
3	JUNIOR HIGH SCHOOL	21	20.2
4	SENIOR HIGH SCHOOL	1	1
5	S-1	1	1
Total		**104**	**100**

Univariate Analysis
Drinking Water Treatment

Table 4. Frequency Distribution Drinking Water Treatment in Kalora Village Kinovaro Community Health Center Working Area

Drinking Water Treatment	Frequency (f)	Percentage (%)
Good	39	37.5
Not good	65	62.5
Total	**104**	**100**

sources, 2022

Processing Food

Table 5. Frequency Distribution Processing Food in Kalora Village, Kinovaro Health Center Working Area

Processing Food	Frequency (f)	Percentage (%)
Good	51	49
Not good	53	51
Total	**104**	**100**

Source: Primary Data, 2022

Bivariate Analysis

Drinking Water Treatment

Table 6. Risk Factors for Food Processing with Stunting Events In Kalora Village, Kinovaro Health Center Working Area

Food Processing	Stunting events				Total		P value	OR (95% CI)
	Case		Control		(95% CI)			
	f	%	f	%	f	%		
Good	8	7.7	43	41.3	51	49	0	26,278
No Good	44	42.3	9	8.7	53	51		(9,279 – 74,419)
Total	**52**	**50**	**52**	**50**	**104**	**100**		

Source Primary Data 202

Drinking Water Treatment

Table 7. Risk Factors for Drinking Water Treatment with Stunting Events In Kalora Village, Kinovaro Health Center Working Area

Drinking Water Treatment	Stunting events				Total		P value	OR (95 % CI)
	Case		Control		(95% CI			
	f	%	f	%	f	%		
Good	10	9.6	29	27.9	39	37.5	0	5,296
No Good	42	40.4	23	22.1	65	62.5		(2,196 – 12,772)
Total	**52**	**50**	**52**	**50**	**104**	**100**		

Source: Primary Data, 2022

ISCUSSION

Factors risk Drinking Water Treatment

According to Zairinayati et al (2019), Stunting is an abnormal condition of the body caused by more than one factor (multifactor) (8). Children who are stunted will experience growth disorders in height or body length,

where height growth does not coincide with increasing age. Stunting is influenced by many factors and these factors are interrelated with each other.

Based on results analysis univariate obtain a good drinking water treatment process as many as 10 stunted toddlers (9.6%) and groups toddler control 29 (27.9%), while the drinking water treatment process not enough Good as many as 42 stunted toddlers (40.4%) and groups toddler control 23 toddlers not stunted (22.1%).

Based on results analysis Bivariate using the odd ratio (OR) statistical test that that processing food at home ladder Mother toddler own p= 0.000 with OR value of 5.296 means House the stairs do drinking water treatment process which is lacking either will be at risk of 5.3 times stunting more high in comparison with House stairs that process drinking water Good, drinking water processing in Kalora Village carried out by housewives is still lacking Good Because for consumed drinking water No cooked or people in the village Kalora majority consuming raw water and processing drinking water not sourced from drinking water depots, use glass For drunk No separated with member family and even someone uses it bottle very use with poor conditions clean, so it is necessary to implement good and correct drinking water treatment.

According to researchers, good and correct drinking water processing is very important to determine the quality of drinking water. Water must be treated before use so that it meets the health requirements for drinking water, namely physical, microbiological and chemical requirements. If drinking water is not treated properly, it can cause infectious diseases such as diarrhea, disrupting nutritional intake which can lead to malnutrition.

The results of this study are in line with research Mahyudin Dedi et al (2020) Correlation between Hand Washing Habits, Managing Drinking Water and Food with Stunting in Central Sulawesi that there is a relationship between food processing and stunting in toddlers p= 0.001 ($p < 0.05$) so, $H0_{in}$ this study is rejected, meaning that there is the relationship between food processing and stunting in toddlers (9). Similar research from Rahmat Z et al (2021) stated that Factor risk related environment with stunting incidents in work areas Public health center Cangadi that exists connection access to clean water with the incidence of stunting in toddlers is p= 0.000 ($p< 0.05$) so, Ho in study This rejected, that is There is connection access to clean water with incidence of stunting in toddlers (10).

Factor risk Food Processing

Stunting is influenced by many factors and these factors are interrelated with each other. UNICEF (2018) describes factors related to nutritional status, including stunting (11). First, the direct causes of stunting are nutritional intake and infectious diseases. Unbalanced nutritional intake, not meeting the quantity and composition of nutrients that meet the requirements for balanced nutrition, such as food that is diverse, according to needs, clean and safe. Second, indirect causes are food availability at the household level, behavior or care of mothers and children, health services and the environment.

Based on results analysis univariate processing process is obtained good food as many as 8 stunted toddlers (7.7%) and groups toddler control 43 (41.3 %), while processing food not enough Good as many as 44 stunted toddlers (42.3%) and groups toddler control 9 toddlers not stunted (8.7%).

Based on results analysis study Bivariate using the odd ratio (OR) statistical test that processing food at home ladder Mother toddler own p= 0.000 with OR value of 26.27 means home ladder who do food processing processes that are not either will have a 26.3 times risk of stunting more high in comparison with House processing steps the food Good.

This matter This is because food processing by mothers of toddlers in Kalora Village is still lacking good, because the food storage container is not closed so it becomes a nesting place for insects such as flies and the condition of the place food processing does not look clean and hygienic mother's self (hygiene). toddler not enough clean so there is a need for education by health workers apply good and correct food processing.

According to researchers, food processing must implement Hygiene and sanitation principles food managed properly and correctly, food that has been cooked and served is always closed and the containers used are always clean when storing food, so you must pay attention to temperature and humidity according to the requirements for the type of food and how it is stored, so as not to cause health problems for the body.

Food processing has four aspects of food sanitation hygiene which greatly influence the food processing process, therefore it must meet the requirements, namely: 1) Food processing places or kitchens must meet technical sanitation hygiene requirements to prevent the risk of food contamination and prevent the entry of insects, rodents, vectors and other animals. 2) The equipment used must be food grade, that is, safe and not harmful to health (the surface layer of the equipment does not dissolve in acidic/alkaline conditions and does not emit dangerous and toxic substances) and the equipment must be intact, not deformed, not cracked. and easy to clean.

3) Food ingredients meet the requirements and are processed according to priority order. Treat processed food according to food hygiene and sanitation requirements, free from physical, chemical and bacteriological contamination. 4) Food handlers/food processors are healthy, do not suffer from infectious diseases and live a clean and healthy lifestyle.

The results of this research are in line with Mahyudin research Dedi et al (2020) Correlation between Hand Washing Habits, Managing Drinking Water and Food with Stunting in Central Sulawesi that there is a relationship between food processing and stunting in toddlers p= 0.001 (p < 0.05) so, $H0_{in}$ this study is rejected, meaning that there is the relationship between food processing and stunting in toddlers (12). Similar research from Feni Adriany et al (2021) stated that Connection sanitation environment and knowledge with incidence of stunting in toddlers in the Community Health Center area Rambah with results exists connection processing food with incidence of stunting in toddlers p= 0.00 (p< 0.05) OR 0.008 means mother does the processing food with not enough Good her toddler own risk For suffer from stunting of 0.008 compared with mother does the processing food with OK, Ho in study This rejected , that is There is connection processing food with incidence of stunting in toddlers (13).

Public Health Implications

Malnutrition: Processing of food and drinks that does not pay attention to nutritional value can cause deficiencies in important nutrients such as protein, iron, calcium and vitamins. This nutritional deficiency can contribute to stunted growth and the risk of stunting in children.

Contamination: Unhygienic processing of food and drinks can cause contamination by pathogens or other dangerous substances. Food contamination can result in diseases that affect nutrient absorption, such as chronic diarrhea, which in turn can cause stunting in children.

Use of Hazardous Chemicals: Some practices in food and beverage processing involve the use of dangerous chemicals such as synthetic preservatives, colourings, and other additives. Long-term exposure to these chemicals may contribute to impaired growth and development in children.

Availability of Healthy Food: The processing of food and drinks also influences the availability of healthy food. If processed products that are easily accessible tend to be low in nutrition, then children may not have their nutritional needs met, which in turn can increase the risk of stunting.

Promotion of Low-Nutrient Foods: Aggressive marketing practices for foods and drinks that are low in nutrients, such as fast food, snacks, and fizzy drinks, can lead to unhealthy eating patterns in children. This unbalanced diet can cause growth disorders and contribute to stunting.

Accessibility and Price: The processing of food and beverages also affects the accessibility and price of food. If healthy food is more expensive or less available than less nutritious processed food, then children from families with economic limitations may be more vulnerable to stunting.

Nutrition Education: Lack of understanding about the importance of balanced nutrition and the negative impact of consuming unhealthy foods and drinks can lead to inadequate eating patterns in children. Insufficient nutrition education can worsen the stunting problem in the long term.

Overcoming the problem of stunting in children requires a holistic approach involving government, the food and beverage industry, civil society and individuals. This includes regulating food and beverage processing practices, increasing accessibility and promotion of healthy foods, and increasing understanding of proper nutrition through education and advocacy.

Cautions and Limitations

Other Contributing Factors: Although food and beverage processing can be a potential risk factor for stunting in children, it is important to remember that there are many other factors that also play a role, such as nutritional intake, accessibility of health services, sanitation, and socio-economic environment.

Complex Cause-and-Effect Relationship: Establishing a cause-and-effect relationship between risk factors in food and beverage processing and the incidence of stunting requires careful analysis and is sometimes difficult. Many variables can potentially influence the outcome, and isolating the direct effects of specific risk factors can be difficult.

Geographic and Contextual Variation: The impact of risk factors in food and beverage processing can vary significantly between geographic regions and cultural contexts. Food processing practices that are considered risky in one place may not be the same in another.

Presence of Mitigating Factors: While there are risks associated with food and beverage processing, there are also mitigation practices that can reduce their negative impacts. For example, hygienic food processing practices and selecting quality raw materials can reduce the risk of contamination and loss of nutrients.

Stunting as a Result of a Combination of Factors: Stunting in children is often the result of a combination of several interrelated risk factors, not just one single factor. Therefore, handling stunting requires a holistic approach that considers various aspects, including nutrition, sanitation, accessibility of health services, and socio-economic factors.

The Importance of Further Research: Although there has been a lot of research on the relationship between risk factors in food and beverage processing and the incidence of stunting, further research is still needed to better understand the underlying mechanisms and identify the most effective interventions.

Policy and Regulation: It is important to remember that changes in food and beverage processing practices often require strong policy and regulatory support. Government involvement in promoting safe and nutritional food processing practices and controlling the sale of unhealthy products can have a positive impact in reducing the risk of stunting in children.

Understanding these caveats and limitations is important to guide further research and interventions in efforts to reduce the incidence of stunting in children.

Future Research Recommendation

The results of this research are expected from the Regency Regional Government Sigi specifically Organization Relevant Regional Apparatus more synergize and increase efforts comprehensive prevention and promotion in matter stunting prevention in the community health center area Kinovaro.

The results of this research can be used as input and reference material for students who wish to continue research on the relationship between drinking water and food management and stunting in toddlers.

For researchers who wish to continue research like this, it is hoped that this scientific paper can provide additional knowledge and insight, and can become a reference in developing broader variables.

Conclusion

Drinking water treatment is factor risk incident stunting among toddlers in the village Calora Subdistrict Kinovaro Regency Sigi according to the results of the Odds Ratio test, it shows an OR value of 5.296 (OR>1), meaning that the house the stairs do drinking water treatment process that is not either will have a 5.3 times risk of stunting more high in comparison with House stairs that process drinking water Good.

Food processing is factor risk incident stunting among toddlers in the village Calora Subdistrict Kinovaro Regency Sigi according to the results of the Odds Ratio test, it shows an OR value of 26.278 (OR>1), means home the stairs do food processing processes that are not either will have a 26.3 times risk of stunting more high in comparison with House processing steps the food Good.

Author Contribution

Main Author:

Designing research studies, including formulation of research questions, objectives, and research design.

Collect and analyse primary or secondary data, including data on food and beverage processing practices and the incidence of stunting in children.

Responsible for writing the initial research manuscript, including writing the background, methods, results and discussion.

Play a role in obtaining research funding and facilitating collaboration between authors and research partners.

Supporting Authors:

Make specific contributions in specific stages of the research, such as field data collection, statistical analysis, or interpretation of results.

Participate in discussions regarding research design and hypothesis development.

Responsible for data monitoring and management, including database management and information filtering.

Contribute to writing specific sections of the manuscript, such as results or methods sections, according to their specialization.

Conflict of Interest Statement

The authors declare that there are no conflicts of interest regarding the publication of this research manuscript titled "The Impact of Risk Factors in Food and Beverage Processing on the Incident of Stunting in Children." All authors have no financial or personal relationships with organizations or individuals that could inappropriately influence the work presented in the manuscript. This research was conducted with scientific integrity and without bias, aiming solely to contribute to the understanding of the relationship between food and beverage processing practices and the occurrence of stunting in children.

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References

1, Betan, Y, et al , 2018 , The Relationship Between Infectious Diseases and Malnutrition in Children Aged 2-5 Years. LENTERA Nurses Journal, 06, 1-9.

2. District Health Department Sigi 2021, District Health Profile Sigi .

3. Provincial Health Service , 2018, Central Sulawesi Provincial Health Profile 2018. pp, 1-99, doi : 10.1007/s13398-014-0173-7.2

4. Community Health Center data Kinovaro , 2021, Profile Public health center Kinovaro .

5. Dewi, NT, & Widari, D , 2018 , The Relationship between Low Birth Weight and Infectious Diseases with the Incident of Stunting in Infants in Maron Kidul Village, Maron District, Probolinggo Regency. Amerta Nutr, 2, 373-381.

6. Dedi Mahyudin Syam & Herlina S. Sunuh , 2020, Relations Habit Wash Hands , Managing Drinking Water and Food with Stunting in Central Sulawesi. "Journal of Public Health Volume 3 No.1 April 2020, P-ISSN: 2614-5057 E-ISSN: 2614-5065

7. Desyanti, C., & Nindya, T. S , 2017 , Relationship between Diarrhea Disease History and Hygiene Practices with the Incidence of Stunting in Toddlers Aged 24-59 Months in the Simolawang Community Health Center Working Area, Surabaya. Amerta Nutr, 1, 243-251.

8. Feni Adriany, et al , 2021, Relationships Sanitation Environment and Knowledge with incident Stunting in toddlers in the Community Health Center Area Rambah . Global Health Journal , Vol 4 No.1 January 2021:17-25

9 Hasan.A and Haris Kadarusman , 2019, " Access To Basic Sanitation Facilities As Factor Risk Incidence of Stunting in Toddlers Age 6-59 Months ." Department of Environmental Health , Tanjung Karang Indonesia Health Polytechnic 10(November):11–32.

10 Hasmia Mia, Sukmawati and Urwatil Wusqa AB. 2021. " The Relationship between Hygiene and Sanitation Environment to incidence of stunting among toddlers in the village Dates ." College Journal .

11. Ministry of Health, 2018, " Stunting Bulletin ." Ministry of Health of the Republic of Indonesia 301(5):1163–78.

12. Ministry of Villages, Development of Disadvantaged Regions and Transmigration . 2017. " Books Pocket Village In Handling Stunting." Book Pocket Village In Handling Stunting 42.

13. Indonesian Ministry of Health, 2017, "Results of 2016 Nutritional Status Monitoring (PSG) .

14 Indonesian Ministry of Health, 2018, " Books Pocket Monitoring Nutritional Status ." Book Pocket Monitoring

Nutritional Status 2017 7–11.
15. Indonesian Ministry of Health, 2021, " Nutritional Status Survey Results Indonesian Toddlers (SSGBI) in 2021.
16. Kullu , et al , 2018, " Related Factors With Incidence of Stunting in Toddlers Age 24-59 Months in Village Wawatu Subdistrict North Moramo Regency South Konawe 2017. " Journal Scientific Public Health Student 3(2):1–11.
17. Lahudin , et al , 2017, " Community Based Total Sanitation (STBM) with Incident Diarrhea ." College of Human Health Sciences Scholar Medicine 16(1):46–53.
18. Masriadi , 2017 , Epidemiology of Infectious Diseases. Depok: PT Rajagrafindo Persada.
19. RI Minister of Health Regulation Number 3 of 2014, " Regulation of the Minister of Health of the Republic of Indonesia Number 3 of 2014." Implementation Science 39(1):1–15
20. Minister of Health Regulation No. 32 of 2017, " Environmental Health Quality Standards and Water Health Requirements for Hygiene Sanitation needs , Swimming Pools , Aqua Solutions and Baths General . 2017. "Minister of Health Decree No. 32 of 2017.Pdf."
21. Puti Ana Lestari, Ratna Sari Dewi , Saifuddin Suroso , 2020, " Factors risk Incidence of Stunting in Toddlers In the region Work Public health center Semurup.
22. Grace Zarkasyi R, et al , 2021, Factors Risk Connected environment with stunting incidents in work areas Public health center Cangadi . MPPKI September 2021 Vol 4 (3)
23. Rini Archda Saputri , Jeki Tumangger , 2019, "Upstream- Downstream Stunting Reduction in Indonesia." Bangka Belitung University 1:1–9.
24. Sandra, Fikawati , Syafiq Ahmad, and Veratamala Arinda , 2018, " Prevent Stunting Important ." Kermas News 1–27.
25. Sinatrya , et al 2019, " Relationships Water, Sanitation, and Hygiene (WASH) Factors with Stunting in Work Areas Public health center Kotakulon , Regency Bondowoso The Association Of Water, Sanitation, And Hygiene (WASH) Factor With Stunting In Working Area Of Puskesmas Kotakulon ..." Amrita Nutr 164–70.
26. Sienviolincia, D., Suhanantyo, & Suyatmi , 2017 , Frequency of Recurrent Acute Respiratory Infections (ARI) Affects the Nutritional Status of Toddlers in Jebres Village, Surakarta. Community Medicine Nexus, 06, 11-17.
27. Solin, AR, & et al , 2019 , Relationship between the incidence of infectious diseases and the incidence of stunting in toddlers 1-4 years old. JOM FKp, 6, 65-71.
28. Soerachmad Yuliani , et al , 2019, " Relationships Sanitation Environment House Ladder with Incidents of Stunting in Children Under Five at Community Health Centers Wonomulyo Regency Polewali Mandar 2019. " 3(1): 138-150.
29. Wulandari et al , 2018, Relationships Sanitation Environment with Stunting Incidents in Work Areas Public health center Kerkep North Bengkulu Regency
30. Zairinayati and Rio Purnama 2019, "The Relationship between Hygiene, Sanitation and the Environment With Incident Stunting in Toddlers ." Muhammadiyah STIKES Palembang 10:79.