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Environmental determinants of the incidence of stunting in the working area of the Tempino Health Centre, Mestong District, Muaro Jambi Regency, 2024

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Abstract. *Stunting is a condition where a child's body size is not appropriate for their age. The consequences of malnutrition, infection, and poor social life can have long-term impacts, such as depression, loss of cognitive and mental functions. The prevalence of stunting in the Tempino Health Center Working Area in 2023 was 2.63%. This study aims to determine the relationship between environmental sanitation and the incidence of stunting in the Tempino Community Health Center Working Area, Mestong District, Muaro Jambi Regency This type of quantitative research with a case control design. The population was 100 and the sample size was 66 respondents with a ratio of 1: 1 taken with the Total Sampling technique. There is a significant relationship between the physical quality of clean water (P-Value = 0.000; (OR) = 12.880), household wastewater disposal system (P-Value = 0.003; (OR) = 5.714), latrine building (P-Value = 0.003; (OR) = 5.333) with the incidence of stunting. There was no association between household waste bins (P-Value = 0.573 (OR) = 0.619 (0.203-1.892), hand washing with soap (P-Value = 0.240; OR) = 0.411) with the incidence of stunting among children under five.*

Keywords *stunting, enviromental sanitasi, factor.*

1. INTRODUCTION

The environment is an integral component of human existence that needs to be preserved to support all current and future life activities. Environmental health is basically interrelated in environmental health. Humans interact with their environment on a daily basis and a person's health can be affected by their environment. Environmental health studies mainly concentrate on how the environment affects human health and how humans also impact the environment (Palillingan RA, 2020). According to the World Health Organization (WHO, 2021) estimates that 13.7 million deaths per year amounting to 2% of all deaths worldwide, are caused by environmental hazards, meaning that nearly one in four deaths across the world disease could be avoided by creating a healthier environment (World Health Organization, 2021).

Environments that have poor sanitary conditions are the source of the development of related diseases, the accumulation of waste management is not managed properly, air, water and soil pollution can also be the cause.(Purnama GS, 2017).

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2. LITERATURE REVIEW

Stunting is the result of malnutrition in the womb in early childhood children who are stunted will not reach the maximum height for age less than -2 Standard Deviation (SD) on the World Health Organization (WHO) growth curve.(UNICEF, 2019). Stunting can occur before birth and is caused by insufficient nutritional intake during pregnancy, very poor dietary care, low food quality along with the frequency of infections that can inhibit growth which can be caused by an unhealthy environment. (Rahayu A, 2018). The characteristics of stunting children; (1) growth slows down; (2) the face looks younger than children of the same age; (3) late tooth growth; (4) poor performance in children's learning focus and memory abilities; (5) children are susceptible to various infectious diseases. (Ministry of Health of the Republic of Indonesia, 2022). The short-term impact of stunting causes obstacles to cognitive and motor development, and suboptimal physical body size and metabolic disorders, long-term impact of decreased intellectual abilities, growth disorders.(Kementerisn PPN / Bappenas, 2018) Environmental components can affect the onset or absence of a disease so that the environment acts as a medium for disease transmission. If the environment is clean, it has a small risk of disease and vice versa. The environmental component consists of several scopes, namely; (1) air environment; (2) water environment; (3) soil environment; (4) other environments. Behavior between humans and environmental components is also a potential disease hazard (Basic Environmental Health, 2017).

3. METHODS

The location of this research was carried out in the Tempino Health Center Working Area, Mestong District, Muaro Jambi Regency, Jambi which consists of nine (9) villages and one (1) village, namely; Baru village, Ibru, KM.39 Tanjung Pauh, Nyogan, Palembang, Suka Damai, Sungai Landai, Tanjung Pauh 32, Tanjung Pauh Talang Pelita and Tempino Village. The research was conducted from May to June 2024. Children aged 0-59 months who reside in the Tempino Health Center Working Area, Mestong District, Muaro Jambi Regency based on pediatric poly records from February-April 2024 amounted to 100 people. The minimum sample using the P1 and P2 values in previous studies obtained the minimum sample needed was 30 respondents. To avoid the possibility of dropping out, the sample was increased by 10% to 33 respondents. In this study using the total sampling technique, the number of samples was the same as the population because the population was less than

100.50 The number of case groups obtained during the study was 33 respondents with a ratio of 1: 1 so that the total was 66 respondents. This is because 17 (seventeen) respondents were no longer under the age of 5 years or 59 months at the time of the study.

4. RESULTS

The patient with the initials Ms. F aged 15 years came to the emergency room of Dumai City Hospital on May 23, 2024 at 20.00 WIB with complaints of severe abdominal pain since 4 days SMRS. The pain was felt continuously like stabbing. Initially the pain was in the solar plexus then radiated to the right lower abdomen. Complaints accompanied by nausea, and vomiting. Previously the patient had taken Chinese medicine given by the patient's mother but it did not decrease. The patient was categorized as an ASA II patient, due to the absence of a history of systemic disease. On preoperative preparation, the patient was in a state of composmentis, could breathe spontaneously, had fasted and did not use dentures or jewelry, and intravenous access was already installed on the patient's left hand. The patient claimed no allergies to medications and denied any other illnesses. The operation was performed on the same day the patient came to the emergency room. Before anesthesia, oxygenation was given using a facemask with 100% oxygen, then fentanyl 100 mcg and propofol 80 mg (gradually) were given. After deep sleep characterized by the absence of eyelash reflex, the patient was given atracurium 10mg, sevoflurans 2%, and re-ventilated. Anesthesia was performed with intubation using a recessed laryngoscope and endotracheal tube (ETT) number 7.0. During the operation the patient was given 2 lpm oxygen, and maintenance O2 : N2O which is 2:3. After surgery, the patient was transferred to the surgical intensive care unit (IRNA).

5. DISCUSSION

Based on the results of the study, 28 (84.8%) more respondents did not meet the physical quality requirements of clean water in the case group respondents did not meet the physical quality requirements of clean water in the case group, compared to the control group, namely 10 (30.3%). compared to the control group, namely 10 (30.3%). Statistical results (P-Value = 0.000) mean that respondents with unqualified physical quality of clean water have an association with stunting has an association with stunting. Based on the results of the research that has been carried out, the physical quality of turbid water, smelling, tasting and colored water has a lower value than the control, so it is very necessary to pay

attention to allowing it to be a medium for transmitting factors. so it is very necessary to pay attention to the possibility of being a medium for transmitting stunting factors.

Stunting In line with research conducted by Eka Mayangsari et al. that it is known that of the 31 respondents in the case group who experienced stunting as many as 83.9% with unqualified water quality with test results (P-value = 0.005), it was concluded that there was a relationship between water quality and the the incidence of stunting in the Working Area of the Candipuro Health Center UPT South Lampung in 2021, in the opinion of the researcher, is caused by multi-dimensional factors and is not only caused by malnutrition factors. not only caused by malnutrition experienced by pregnant women and children under five. children under five. The most decisive intervention to be able to reduce the prevalence of stunting therefore needs to be carried out in the First 1,000 Days of Life (HPK) of children under five, where one of them is the fulfillment of proper sanitation facilities and access to water facilities, proper sanitation and access to clean water facilities, the availability of unqualified drinking water from unimproved sources. The availability of drinking water that does not meet the requirements comes from sources that have not been improved, the distance of water sources too close to latrines, improper water treatment before consumption can cause nutritional disorders in children. can cause nutritional disorders in children.

The results of the study obtained a value (P-Value = 0.003) obtained Odds Ratio(OR) 5.714 (95% CI; 1.925-16.965) which indicates that there is a relationship between stunting and the incidence of stunting. between SPAL (Waste Water Storage System) and the incidence of stunting, the estimated risk of risk means that the SPAL (Waste Water Collection System) does not meet the requirements. 5.714 times the child is stunted

compared to the latrine building that is meet the requirements. Based on the results of research observations, it shows that respondents who did not fulfill the Waste Water Containment System consisting of the 26 (78.8%) and 13 (39.4%) of the control group, while those who met the Wastewater Containment System requirements amounted to 7 (21.2%) of the case group and control group 20 (60.6%). These results are supported by Yuniastuti A at al., 2024 showing Wastewater Disposal System (SPAL) has a relationship with the incidence of 55 stunting with a p-value of 0.000 does not have an adequate wastewater disposal system has a risk of 5,096 times greater than households with an adequate wastewater disposal system. has a risk of 5,096 times greater than households with an adequate wastewater disposal system. households with an adequate wastewater disposal system in Pekalongan City.

Latrines have health standards and requirements in buildings namely; In the following Permenkes RI No. 3 of 2014; 1). Has a top building latrine (latrine roof), 2). Middle building (has a goose neck, latrine floor watertight, non-slip and has a Waste Water Disposal System), 3). Has lower building (Septic Tank). The results of statistical analysis obtained a value (P-Value = 0.003) which indicates that there is an association between latrine building and the incidence of latrine construction. indicating that there is an association between latrine building and the incidence of stunting. stunting, the risk estimate obtained an Odds Ratio (OR) of 5.333 (95% CI; 1.859-15.301). This means that the latrine building does not meet the requirements 5.333 times the child is affected by stunting compared to the latrine building. stunting compared to qualified latrine buildings.

Supported by Soraya's research in 2022 obtained a p value = 0.000 OR 15.534 times to experience stunting that there is a relationship between latrine facilities with the incidence of stunting in toddlers in the work area of the Simpang Tuan Health Center where as many as 43.8% of respondents still use squat latrines, goose necks 33.7%, 18%. WC sit 3.4% and defecate in the garden 1.1%. In line with research conducted by Oktanvia in 2021, it shows that there is a significant relationship between significant relationship between toddlers having poor environmental sanitation and the incidence of stunting in toddlers. with the incidence of stunting in toddlers.

The requirements for household trash bins according to the Minister of Health Regulation No. 3. Year 2024. From the results of the study, the value (P-Value = 0.573) was obtained. risk obtained Odds Ratio (OR) value = 0.619 (95% CI; 0.203-1.892) indicating that there is no relationship between household trash bins and the the incidence of stunting in the Tempino Health Center working area. In line with research conducted by Irjayanti A et al. 2024 there is no correlation between household waste safety practices with a pvalue = 0.649 (<0.05) Odds Ratio (OR) = 1.366 (0.558-3.346) observation results in the study there are still people using plastic bags as trash cans and there is no separation of organic and non-organic waste in the work area of Jayapura Utara Health Center.

Based on observation of household waste bins in the Working Area Tempino Health Center, Muaro Jambi Regency, it is known that household trash bins do not meet the requirements. household trash cans did not meet the requirements of the case group as much as (57.6%) higher than the control group (48.5%). higher than the control group (48.5%). The community has started community has begun to pay attention to household waste because in the observation, some observations, some people use trash cans with lids, use

plastic as a base for garbage so that garbage does not directly hit the trash can. where this action is quite good because Lindih water (water produced by garbage) does not contaminate the trash can and there are people who have separated organic and non organic and non-organic waste by using color on the trash can and transporting the waste to the landfill and transporting waste to temporary landfills.

According to the Minister of Health Regulation No. 3 Year 2024 on Community-Based Total Sanitation (CFR) whenever we should wash our hands. Hand, The results of the study obtained a value (P-Value = 0.240) Odds Ratio (OR) = 0.411 (95% CI; 0.411-1.373) indicates that there is no relationship between Handwashing with Soap (HWWS) habits and stunting incidence. critical time of Handwashing with Soap (HWWS) with the incidence of stunting in the Tempino Health Center Working Area. Tempino Health Center Working Area.In line with the results of research by Khoirun Nisa in 2022 showing p value = 1.000; OR = 1.000 for washing hygiene, meaning that the habit of washing hands does not have an association with stunting in the Tempino Health Center Working Area. hand washing habits have no relationship with stunting at Kalasan Health Center. The majority of respondents wash their hands with running water and soap in accordance with WHO (World Health Organization) . Based on observations of handwashing with soap time habits in the Tempino Health Center Work Area, Muaro Jambi Regency, it is known that the habit of handwashing time with soap does not meet the requirements of the case group as much as (57.6%) lower than the control group of (75.8%) some people have started to pay attention to hand washing with soap especially before and after feeding children, always always wash their hands after dipping the baby, after defecating, gardening, and handling food. handling food. Mothers who wash their hands can reduce by 15% the risk of stunting toddlers. Microorganisms that enter the toddler's body through the digestive tract can cause illness, disrupt the intake of nutrients. can cause illness, disrupting nutrient intake. If deficiencies can cause stunting in toddlers

6. CONCLUSION

In this study, there was a significant relationship between the physical quality of clean water (P-Value = 0.000) and Odds Ratio (OR = 12.880); (CI; 3.853- 43.060); Household sewage system with stunting incidence, (P-Value = 0.003) and Odds Ratio (OR = 5.714); (CI; 1.925-16.965); latrine building with stunting incidence, (P-Value = 0.003) and Odds Ratio (OR = 5.333); (CI: 1.859-15.301) to the incidence of stunting in the

Tempino Health Center area. There is no significant relationship between household waste bins (P-Value = 0.573) and Odds Ratio (OR = 0.619); (CI; 0.203-1.892), the habit of critical time washing hands with soap (P-Value = 0.240) and Odds Ratio (OR = 0.411); (CI; 0.123-1.373) with the incidence of stunting.

7. LIMITATION

This study has limitations that can affect the results, these limitations are as follows:

1. The questionnaire used, compiled by researchers based on theory and references from previous research, because there is no standardized questionnaireavailable. Therefore, theresearcher conducted validity and
   reliability checks to ensure accuracy.
2. Potential bias, there is a possibility of bias in the results, as the information from the questionnaires may not reflect actual views. This can be caused by the understanding and honesty of the respondents.
3. The limitation of the tool to measure the physical quality of turbinity meter water on the the turbidity parameter so that it requires researchers to do laboratory testing laboratory testing takes approximately 2 weeks so that hampering the progress of the research.
4. Data collection, which was planned door to door, was carried out when the data collection that was planned door to door, was carried out when the posyandu was held accompanied by Puskesmas officers so that they had to must equalize the time to go to the field with Puskesmas officers because of the lack of openness of the community so that it takes longer in data collection.

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