Provision of Nutrition and Environmental Sanitation in Marginalized Communities

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Abstract. Poor sanitation is a major problem that must be addressed before moving to a nutrition improvement program. An unhygienic environment will have an impact on chronic malnutrition. This study aims to determine the role of environmental sanitation in preventing malnutrition in marginalized communities. In addition, it will also be presented clearly about the effect of environmental sanitation on the prevention of malnutrition. This study used quantitative research type with descriptive analysis and bivariate analysis. The number of respondents in this study was 90 people. It consists of 3 sub-districts. The results showed that environmental sanitation in marginalized communities was classified as good, and child nutrition was in a good category. The results of the data analysis showed that environmental sanitation had no impact on child nutrition in marginalized communities.

Keywords: Marginalized Communities, Nutrition, Sanitation.

1 Introduction

The problem of malnutrition comes in many forms, complex and interrelated. Despite the apparent link to hunger, malnutrition does not necessarily mean hunger and manifests in many shapes, from chronically starving to micronutrient deficiencies, and from stunting to overweight. Malnutrition is a term that includes stunting, underweight, and deficiencies in vital vitamins and minerals (micronutrients). Therefore, it is a category of malnutrition that describes a nutritional deficit. Another form of malnutrition is related to redundant energy and nutrition intake, towards obesity and more malnutrition-related non-contagious illness.

Malnutrition invokes a lack or excess intake of nutritional, a disproportion of vital nutrients, or disorders exploiting nutritional [1]–[3]. The double brunt of malnutrition is composed of malnutrition, overweight, and obesity [4], [5]. Malnutrition manifests in four broad shapes: wasting, stunting, underweight, and micronutrient deficiency [6]–[8].

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Wasting is translated as low body weight compared to body tall. This often indicates a recent and severe weight loss, although it can also be long-lasting. This normally happens when a person does not get foodstuff of sufficient quality and quantity and/or they suffer from often or prolonged illnesses. Wasting in kids is related to a higher risk of mortality if not treated properly. Stunting is defined as low height according to age. It is caused by chronic or repeated malnutrition, normally related to poverty, poor maternal health, and nutrition, often illness and/or improper nourishment and care early in life. Stunting hinders children from achieving their physique and cognitive potential. Underweight is defined as low body weight according to age. An underweight child may be stunted, underweight, or both.

Eradicating malnutrition in all its shapes is one of the biggest global health challenges. Affected by economic and revenue development, urbanization, and globalization, significant changes in the quality and quantity of human malnutrition and nutrition-relevant epidemiology have happened in recent decades. Malnutrition threatens the lives of millions of children around the world because of poor sanitation [9]. Communities with low socioeconomic status are most vulnerable to being influenced due to their high exposure to risk factors such as inadequate latrine facilities and food insecurity. Low socioeconomic status decreases a mother's ability to buy nutrient-rich foods, leaving her vulnerable to malnutrition, overweight, and obesity. According to data from WHO [10], Malnutrition affects about one in three people globally.

Nutrition must be done before the wedding, namely with injections of the bride and groom, planning to have offspring, during pregnancy, postpartum, and when the child is born to grow into an adult. Providing nutrients in the womb and earlier in life has an important and often lifetime impact on health. The quality and quantity of nutrients during fetal development and childhood impacted immunity function, cognitive development, and regulation of energy storage and expenses including fat stores [11]–[13]. Poor maternal nutrition before and during gestation can also lead to an improved risk of maternal anemia, premature nativity, and light birth weight; conversely, babies with low birth weight have a higher risk of metabolic diseases and belly fat the in life. Expectant mothers who are fat or gain overload body weight during pregnancy have a greater risk of developing pregnancy diabetes and greater birth weight in their descent, so their babies are at higher risk of fatness later in life; quickened weight gain early in life was related with a taller body mass index and fatness later in life. The main determinants that trigger malnutrition are redundant intake, inadequate meals consumed, or not sufficient usage of nutrients from the food consumed. In addition, the determinant factor of malnutrition is the sanitary factor [14].

Poor sanitation is a major problem that must be addressed before moving to a nutrition improvement program. An unhygienic environment will have an impact on chronic malnutrition. Malnutrition can be affected by hygiene, sanitation, and access to clean water problems [15]–[17]. This can happen because access to sanitation and environmental cleanliness that is not maintained affects the health of pregnant women so the child's developing body becomes vulnerable to infection and disease. Inadequate sanitary conditions cause the deaths of 1.5 million children each year worldwide, and 88% of those deaths are caused by diarrhea [18], This occurs due to the absorption of nutrients and can reduce food intake, while malnutrition can interfere

with barrier protection and immune function [19]. About 829,000 people in low- and middle-income countries die from lack of water, sanitation, and hygiene each year, accounting for 60% of total deaths from diarrhea [20].

By 2020, 45% of homemaking wastewater resulting globally was dumped without safety handling. At least 10% of the world's population is estimated to consume food irrigated from wastewater. Poor sanitation alleviates human well-being, and social and economic development due to effects such as angst, risk of sexual hardness, and loss of chance for education and employment. Bad sanitation is related to a contagion of diarrheal illness suppose cholera and dysentery, as well as typhoid, intestinal worm infections, and polio. This leads to malnutrition and contributes to the spread of antimicrobial resistance. Hygiene, sanitation, and access to clean water must also be maintained to protect children from diseases that can interfere with their growth.

The majority of marginal communities in Makassar City are located in coastal areas. The three sub-districts with a high marginal percentage are Tallo, Tamalate, and Pannakukang. All three have the same topographic criteria as coastal areas. Initial studies in three families in Panakukkang sub-district found many nutritional problems. 34 children were reported to be malnourished, 93 malnourished, 103 stunted, and 102 wasting. It is feared that the fulfillment of child nutrition is increasingly inadequate considering the chaotic economic conditions have not recovered. The threat of recession in 2023 has the potential to make it more difficult to fulfill child nutrition.

2 Method

This research is a type of quantitative research that aims to determine the relationship between two variables. The population in this study is all marginalized communities that have toddlers located in Makassar City. The sampling technique used is the purposive sample technique. Respondents in this study were 90 people who had been selected based on predetermined criteria, namely marginal communities with toddlers. The data was processed using descriptive analysis to determine the picture of environmental sanitation and the state of child nutrition. The analysis used uses average and percentage analysis. Furthermore, inferential statistical analysis is also used. The inferential statistics carried out are correlation analysis, in this study linear regression analysis is not used because the data obtained does not support it.

3 Result and Discussion

In this section, research results consisting of descriptive statistical analysis and inferential statistical analysis are presented. Inferential statistical analysis is presented in the form of tables and charts, and inferential statistical analysis is presented in tabular form.

3.1 Environmental Sanitation in Marginalized Communities

The measurement of environmental sanitation was carried out by distributing questionnaires to 90 respondents, consisting of 16 questions with yes or no answer choices. Questions about sanitation are related to the availability of clean water, latrines, waterways, and hygienic household appliances. Furthermore, the determination of categories are determined based on the answer choices from the questionnaire, which is 2, so that the categories used are also two, namely bad or good. Further, the determination of the interval is carried out with the lowest to highest values, and then the corresponding length of the class is determined. The following table 1 presents an overview of environmental sanitation in marginalized communities.

Table 1. The overview of environmental sanitation.

Interval	Frequencies	Category
0-7	15	Bad
8-16	15	Good

Next, the average value of the questionnaire is determined. The average determination was processed using the Microsoft Excel application so that an average value of 11.42 was obtained. If interpreted in Table 1, environmental sanitation is in the good category based on the questions given to respondents. Despite being in the good category, there are still 15 heads of families who have poor sanitation. There are 4 heads of families who do not have clear water, there are 19 heads of families who have water sources close to septic tanks, there are 27 heads of families who use *cemplung* latrines (flowing into the river), there are 11 heads of families who do not have adequate bathrooms, there are 37 heads of families who use waterproof latrines, there are 7 heads of families who do not provide soap in latrines, There are 24 households that have dirty latrines and flies, there are 49 households that have kitchen compounding tables made of wood, there are 40 households that do not have dishwashing with running water, there are 5 households that cook not in hygienic kitchen/cooking utensils, there are 29 households that leave food serving places open, There are 23 heads of families who do not have refrigerators, there are 29 heads of families who have wastewater sewerage with a lot of garbage, there are 31 heads of families who have open bathroom wastewater disposal, there are 28 heads of families who have open garbage sinks, there are 49 heads of families who have houses with rats and flies roaming (see Fig. 1).

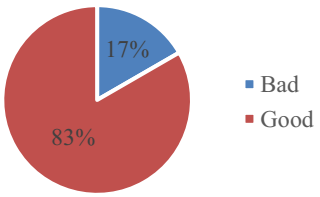

Fig. 1. Percentage of Environmental Sanitation Overview.

Bad sanitation places children at risk of infancy illness and malnutrition that can affect their thorough development, education, and, later in life, economic chance. Although several countries around the world have enhanced access to sanitation, millions of children in marginal and rustic areas are still lagging. Deficiency of sanitation can be a hindrance to each well-being and continuous development. When children, mainly girls, are unable to access personal and proper sanitation amenities in their schools and learning neighborhoods, the right to education is neighborhood. As adults, wage earners who lose their jobs due to illness may be in treasury jeopardy. And when wellness systems are overwhelmed and productivity levels decline, the whole economy suffers.

Without base sanitation services, communities have no options but to use insufficient communal latrines or practice open defecation, posing risks to health and viability. Even in a society that has a lavatory, sewage control may be inadequate. If the waste is tough to cleanse or is not designed or treated to secure load, transport, and take sewage, for example, it can come into contact with people and the environment. These factors make sustainable development almost improbable.

Sanitation and hygiene are vital for health, viability, and development. Many countries confront challenges in offering sufficient sanitation for their entire population, putting their people at risk of water, sanitation, and hygiene-related diseases. Therefore, adequate sanitation can be an indicator of development.

Wastewater treatment requires good drainage to prevent water from pooling around distribution points. Stagnant wastewater can be a breeding ground for vectors such as mosquitoes. Channeling water from the house to the kitchen garden is the most ideal way. Adequate equipment is provided for families to maintain drainage systems when necessary. Good drainage should be available at water points and sanitation facilities such as bathrooms, toilets, and washing areas [21]

3.2 Overview of Nutrition in Marginalized Communities

The measurement of nutritional features was carried out by distributing questionnaires to 90 respondents, consisting of 11 questions with 3 answer choices with values of 0-2, or 1-3. Questions about nutrition are related to the preparation of the mother before feeding the child, the type of food given to the child, supplementary feeding, how to feed the child and formula feeding. Furthermore, the determination of categories is determined based on the answer choices from the questionnaire, which is 3, so there are also three categories used, namely bad, fair, or good. Further, the determination of the interval is carried out with the lowest to highest values, and then the corresponding length of the class is determined. The following Table 2 presents an overview of nutrition in marginalized communities.

Table 2. The overview of providing nutrition to children.

Interval	Frequencies	Category
5-9	0	Bad
10-14	20	Fair
15-20	70	Good

Next, the average value of the questionnaire is determined. The average determination was processed using the Microsoft Excel application so that an average value of 15.85 was obtained. If interpreted in Table 2, nutrition in children is in the good category based on the questions given to respondents. Even though they are in the good category, there are still 4 mothers who do not wash their children's hands when they want to eat, even though children often touch food when fed, there are 2 mothers who give additional food to children from birth, 4 mothers who give additional food to children since the age of 2 months, there are 53 mothers who only provide complementary foods 1-2 times a day, There were 9 mothers who forced their children if they did not want to eat, there were 12 mothers who did not accustom their children to consume fruit, there were 11 mothers who did not accustom their children to consume vegetables, and there were 29 mothers who gave formula milk since the age of under 1 year. An overview of child nutrition in the marginal community is presented in Figure 2

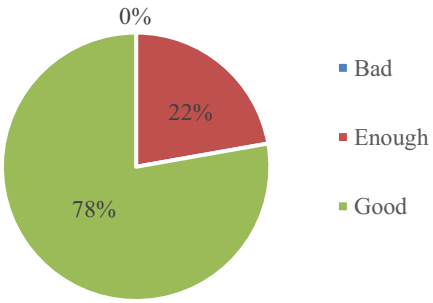

Fig. 2. Percentage of Environmental Sanitation Overview.

Child nutrition depends largely on the health status of the mother. Nutrition in the womb and infancy affects the overall growth and development of a child. A mother's educational and occupational status plays an important role in determining the right nutritional diet for herself and her child [22]. The status of women in society has become one of the socioeconomic variables recognized as a good predictor of children's nutritional status [23].

3.3 The Relationship Between Environmental Sanitation and Providing Nutrition to Children in Marginal Communities

The results of the data analysis show that there is no relationship between environmental sanitation and nutrition in children. Correlation analysis shows that significance is far from 1%, 5%, or 10%, so it can be concluded that there is no relationship between the two. More details are presented in Table 3.

Table 3. Correlation Analysis Results.

Variable		Frequencies	Category
Environment Sanitation	Pearson Correlation	1	-.026
	Sig. (2-tailed)		.805
	N	90	90
Child Nutrition	Pearson Correlation	-.026	1
	Sig. (2-tailed)	.805	
	N	90	90

Because there is no relationship between variables, it cannot be continued to find out the regression equation. According to Claire, et al. [24] Malnutrition is caused by impaired assimilation of nutrients, but it is also characterized by repeated infections and chronic inflammation, which indicates impaired immunity. Although broadly defined as impaired assimilation of nutrients, malnutrition does not simply appear due to inadequate food intake. Obesity can develop independently of a poor diet and persist despite having switched to a healthy diet [25], [26]. Young children need a supportive, nurturing, and stable family environment to support their physical, mental, and emotional health [25]. Unstable family environments have been linked to a number of poor health and development outcomes in children. So children's health is not always directly related to existing environmental sanitation.

4 Conclusion

The results showed that environmental sanitation in marginalized communities was classified as good in terms of the availability of clean water, latrines, waterways, and hygienic household appliances. Child nutrition is in a good category, this is in terms of maternal preparation before feeding children, the type of food given to children, supplementary feeding, how to feed children, and formula feeding, The results of data analysis show that environmental sanitation has no impact on child nutrition in marginalized communities.

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