
A Comparative Study Of Environmental Sanitation And Environment-Based Diseases Among Suku Anak Dalam Community And General Community In Bungo Regency

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Abstract

Based on data obtained from the Dwi Karya Bakti Village Midwife, the incidence of diarrhea was 6.27% and the incidence of skin diseases was 7.35% and 10.0% were affected by ISPA. These figures indicate that there are several Community residents who are still affected by diarrhea, skin diseases, and ISPA caused by a lack of environmental sanitation and unhealthy behavior in the SAD Community and the General Community. The study aims to determine the differences in environmental sanitation on the incidence of environmental-based diseases in the SAD Community and the General Community of Dwi Karya Bakti Village. Quantitative research with a comparative study design. The data sources or respondents in this study were the SAD Community and the General Community of Dwi Karya Bakti Village, with a sample size of 80 families. Data were collected through interviews using a questionnaire. The variables studied were toilet use, handwashing with soap, drinking water and food management, waste management, household wastewater management, and knowledge. Data analysis was descriptive and analytical using chi-square. The proportion of environmental-based diseases in SAD reached 57.5 while the General Community was 65.0%. Factors related to environmental-based diseases in the SAD Community in Dwi Karya Bakti Village were toilet use (p -value = 0.013), CTPS behavior (p -value = 0.011), drinking water and food management (p -value = 0.043), household waste management (p -value = 0.034), household wastewater management (p -value = 0.010), knowledge of environmental-based diseases (p -value = 0.016) the lower the knowledge of environmental-based diseases the higher the incidence of diarrhea, skin, and ARI, while in the General Community, namely household waste management (p -value = 0.011). Factors not related to ENVIRONMENTAL-based diseases in the General Community included toilet use, CTPS behavior, drinking water and food management, household wastewater management, knowledge of environmental-based diseases. There is a relationship between the 5 pillars of STBM variables, namely toilet use, hand washing with soap, drinking water and food management, household waste management, and household liquid waste management with the incidence of environmental-based diseases in the SAD Community, and in the General Community only the household waste management variable is related to the incidence of environmental-based diseases.

Keywords: Suku Anak Dalam (SAD), Environmental-Based Diseases and Community-Based Total Sanitation (STBM)

INTRODUCTION

Poor environmental sanitation remains a significant public health issue in various regions, including indigenous communities. According to 2022 BPS data, access to proper sanitation in Bungo Regency was only 79.59%, falling short of national development targets. The Suku Anak Dalam (SAD) community, residing in remote areas, faces greater sanitation challenges due to limited knowledge, economic constraints, and lack of access to basic facilities (Pangestu, Raja and Sitorus, 2019). This study aims to compare sanitation conditions and their relationship to the incidence of environment-based diseases between the SAD and the general community.

Based on data obtained from the midwife of Dwi Karya Bakti Village, the incidence of diarrhea was 6.27% and the incidence of skin diseases was 7.35% and 10.0% were affected by ISPA from the entire population of Pasir Putih Hamlet, Dwi Karya Bakti, these figures indicate that there are several Community residents who are still affected by diarrhea, skin diseases, and ISPA caused by lack of environmental sanitation and unhealthy behavior in both the SAD Community and the General Community.

According to observations, environmental sanitation in the SAD Community settlements is not yet optimal. This is evidenced by the continued presence of environmental-related diseases caused by

basic sanitation that does not meet established criteria, such as the shared use of latrines by the entire community, failure to wash hands with soap, improper food and beverage management, improper waste management, and a lack of knowledge regarding household wastewater management.

Based on the data obtained regarding environmental-based diseases, diarrhea and skin diseases in the SAD Community are very high. This is caused by a lack of knowledge about basic sanitation and unhealthy behavior.

RESEARCH METHODS

This study uses a quantitative analytical research type. This study applies a cross-sectional approach using the chi-square test. Cross-sectional is an observational research method that collects data from a number of individuals or groups at a single point in time to describe the characteristics of the population (Abduh *et al.*, 2022).

RESULTS AND DISCUSSION

Table 1. Proportion of Environmentally Based Diseases and ISPA :

Environmentally based diseases		Community			
		SAD		General	
		(n)	(%)	(n)	(%)
Diarrhea and Skin Diseases	Ever	23	57,5	26	65.0
	Never	17	42,5	14	35.0
ISPA	Ever	24	60.0	9	65.0
	Never	16	40.0	31	35.0
Total		40	100.0	40	100.0

Based on the table above, the results of the proportion of environmental-based disease incidents in the SAD Community are as follows: 57.5% (23 people out of 40) respondents stated that they had experienced environmental-based diseases (diarrhea and skin diseases) related to sanitation and the environment. Meanwhile, 42.5% (17 people) stated that they had never experienced these diseases. Meanwhile, in the General Community, 65% (26 people out of 40) respondents had also experienced environmental-based diseases (diarrhea and skin diseases), slightly higher than the SAD Community, 35% (14 people) stated that they had never experienced these diseases.

Table 2. Relationship between sanitation variables and disease incidence in the SAD community:

Variables	SAD					
	Environmentally Based Diseases				PR (95% CI)	P-Value
	ever		Never			
N	%	N	%			
Latrine Use						
Not good	17	77,3	5	22,7	2.32 (1.16 – 4.63)	0,013
Good	6	33,3	12	66,7		
	<i>Ref</i>					
Perilaku CTPS						
Kurang Baik	16	80,0	4	20,0	2.28 (1.21 – 4.31)	0,011
Baik	7	35,0	13	65,0		
	<i>Ref</i>					
Household drinking water and food management						

Poor	14	77,8	4	22,2	1.90 (1.09 –	0,043
Good	9	40,9	13	59,1	3.33)	
<i>Ref</i>						
Household waste management						
Poor	17	73,9	6	26,1	2.09 (1.05–	0,034
Good	6	35,3	11	64,7	4.16)	
<i>Ref</i>						
Household wastewater management						
Poor	13	86,7	2	13,3	2.16 (1.28–	0,010
Good	10	40,0	15	60,0	3.64)	
<i>Ref</i>						
Knowledge of environmental-based diseases						
Poor	18	75,0	6	25,0	2,40 (1,12 –	0,016
Good	5	31,3	11	68,8	5,14)	
<i>Ref</i>						

Tabel 3. Relationship between sanitation variables and disease incidence in the general community :

Variables	General					
	Environmentally Based Diseases				PR (95% CI)	P- Value
	Ever		Never			
n	%	N	%			
Latrine Use						
Not good	8	72,7	3	27,3	1,17 (0,73–	0,795
Good	18	62,1	11	37,9	1.86)	
<i>Ref</i>						
CTPS Behavior						
Poor	12	70,6	5	29,4	1.16 (0.74–	0,763
Good	14	60,9	9	39,1	1.82)	
<i>Ref</i>						
Household drinking water and food management						
Poor	11	68,8	5	31,3	1,10 (0,69 –	0,946
Good	15	62,5	9	37,5	1,73)	
<i>Ref</i>						
Household waste management						
Poor	18	85,7	3	14,3	2,04 (1,17 –	0,011
Good	8	42,1	11	57,9	3,55)	
<i>Ref</i>						
Household wastewater management						
Poor	12	75,0	4	25,0	1,29 (0,83 –	0,457
Good	14	58,3	10	41,7	1,99)	
<i>Ref</i>						
Knowledge of environmental-based diseases						
Poor	11	78,6	3	21,4	1,36 (0,89 –	0,331
Good	15	57,7	11	42,3	2,09)	
<i>Ref</i>						

One of the main findings is that poor toilet use shows a prevalence ratio (PR) of 2.32 (CI: 1.16 – 4.63) with a p-value of 0.013. This indicates that individuals living in environments with poor toilet use have a 2.64 times greater risk of experiencing environmental-based diseases than those living in environments with good toilet use. In the general community, if seen through the table, poor toilet use has a disease prevalence 1.17 times higher than those that manage it well. p-value = 0.795, which means it is not statistically significant ($p > 0.05$).

Respondents with poor CTPS behavior had a disease prevalence 2.28 times higher than those with good CTPS behavior. With a p-value of 0.011. In the General Community, as seen from the table, in this group, respondents with poor CTPS practices had a 1.16-fold higher risk, but this was not statistically significant. With a p-value of 0.946, well above 0.05, indicating no significant difference between the groups with and without good CTPS practices.

Respondents with poor drinking water and food management had a 1.90 times higher risk of developing disease compared to those with good management. p-value = 0.043, In the general community, poor household water and food management was associated with a 1.10-fold higher risk, but this result was not statistically significant. The p-value was 0.946, well above 0.05, indicating no association.

Respondents with poor household waste management had a 2.09 times higher risk of developing environmentally-related diseases compared to those with good waste management. p-value = 0.034, In the General Community, the prevalence of diseases with poor waste management is 2.04 times higher, with a p-value = 0.011, indicating that there is a relationship between household waste management and the incidence of environmentally based diseases in both Communities.

Respondents in the SAD Community who managed household wastewater improperly had a 2.16 times higher risk of developing environmental-based diseases compared to those who managed it well. With a p-value of 0.010, this result is statistically significant ($p < 0.05$). Meanwhile, in the General Community, in this analysis, respondents with poor wastewater management had a 1.29 times higher risk, with a p-value of 0.457, significantly greater than 0.05, indicating no relationship.

Respondents with poor knowledge had a 2.4 times higher risk of developing environmentally-related diseases compared to those with good knowledge. The p-value = 0.016, indicating that this relationship was statistically significant ($p < 0.05$). Meanwhile, in the general community, poor knowledge was associated with a 1.36-fold increased risk of disease, but this was not statistically significant. With a p-value = 0.331, which is much greater than 0.05, indicating no significant relationship.

Discussion

1. Environmentally Based Disease Opportunities

The high proportion of environmentally related diseases reflects problems with basic sanitation, such as toilet use, clean water, waste management, and handwashing with soap (HWWS). Statistical analysis also shows that these factors are significantly related to disease incidence. For example, respondents with poor HWWS practices had a disease prevalence up to two times higher than those with good practices. These findings emphasize the need for community-based interventions to improve clean and healthy living behaviors, particularly in socioeconomically and educationally vulnerable communities. Health education, development of adequate sanitation infrastructure, and strengthening access to health information are crucial steps in sustainably reducing the incidence of environmentally related diseases.

2. Differences in Disposal Facilities or Toilets for Environmentally Based Diseases in SAD Communities and General Communities

In terms of toilet availability, the General Community tends to be better off, as most households have their own toilets for individual or family use. Conversely, in the SAD Community, one community has several toilets built by the local government for shared use, and children still practice open defecation in the backyard. This indicates that access to basic sanitation facilities

remains a significant challenge in the SAD Community. The differences indicate that the SAD Community still faces many limitations in managing its waste disposal facilities, both in terms of behavior and sanitation awareness. Meanwhile, the General Community has shown considerable progress in building healthy latrines, although ongoing education regarding sanitation maintenance and standards is still needed. Therefore, community empowerment approaches, provision of facility assistance, and environmental health education need to be optimized, especially for vulnerable communities like the SAD, to support the achievement of the target of open defecation elimination and improving environmental health quality.

3. Differences in Handwashing with Soap (CTPS) Behavior Regarding Environmentally Based Diseases in the SAD Community and the General Community

Hands that are free from bacteria can prevent the transmission of various diseases such as diarrhea, cholera, dysentery and typhus (Livana PH, 2020). This difference shows that access to CTPS facilities, the availability of water and soap, and knowledge of important handwashing times are crucial determinants of clean living behavior in each community. The SAD community, with all its limitations, still requires educational interventions and the provision of basic facilities to increase awareness and practice of correct and regular CTPS. In contrast, the General Community has shown progress in CTPS behavior, but still needs guidance so that this behavior becomes a consistent culture in everyday life.

4. Differences in Household Drinking Water and Food Management Regarding Environmentally Based Diseases in SAD Communities and the General Community

In terms of water sufficiency, the majority of households in the General Community stated that the available water is sufficient for daily needs, including drinking, cooking, bathing, and washing. Similarly, the SAD Community stated that water for daily needs (bathing, washing, and cooking) is very sufficient, thanks to the drilling of wells in several locations. Overall, the differences in drinking water and food management between the SAD Community and the general population reflect gaps in access to basic infrastructure, sanitation knowledge, and clean and healthy living practices. This is a key factor in explaining the higher risk of environmentally-related diseases in the SAD Community. Therefore, interventions that include health education, increased access to clean water, and strengthening hygienic behavior are urgently needed to improve public health, especially among marginalized groups such as the SAD Community.

5. Differences in Household Waste Management Regarding Environmentally Based Diseases in SAD Communities and General Communities

The impact of improper waste disposal can cause environmental-based diseases. (Putra, Masra and Prianto, 2022). The main differences between the Indigenous Peoples Association (SAD) and the general population lie in access to sanitation services, knowledge about the impacts of waste on health, and habits regarding household waste management. The SAD community has not been integrated into formal environmental management systems, while the general population is more accustomed to modern sanitation practices. This gap indicates the urgent need for culturally based and participatory interventions to enable indigenous communities to manage their environments healthily. The SAD community still faces challenges in managing household waste healthily, placing it at higher risk of disease. Empowerment efforts through education, the provision of simple facilities, and cultural approaches are crucial for fostering clean and healthy living habits within the community. Without dedicated attention, the environmental impact of waste will continue to pose a serious health threat.

6. Differences in Household Wastewater Management for Environmentally Based Diseases in SAD Communities and General Communities

Improperly managed liquid waste can pollute water sources, create puddles, and become a breeding ground for disease vectors such as mosquitoes and flies. This can lead to an increase in cases of environmentally-related diseases such as diarrhea, cholera, leptospirosis, and dengue fever (Kemenkes RI, 2023). In the SAD community, most households still lack proper waste disposal facilities. Household wastewater, such as from washing, bathing, and cooking, is generally discharged

directly into yards, open ditches, or nearby rivers without undergoing simple treatment systems like infiltration or closed channels. In general community More households have waste disposal facilities in the form of closed drains or integrated septic tank disposal systems, although not all are ideal. Household wastewater management plays a crucial role in preventing environmentally-related diseases. The SAD community remains vulnerable due to its lack of a proper wastewater disposal system, necessitating intervention through education programs and the construction of simple, culturally appropriate sanitation facilities. Meanwhile, the success of ordinary communities in reducing the risk of environmental diseases demonstrates the importance of collaboration between infrastructure, education, and community participation in sustainable waste management.

7. Differences in Knowledge of Environmentally Based Diseases in the SAD Community and the General Community

Based on research data, it was found that the SAD Community who have lower knowledge will tend not to maintain environmental cleanliness, and not implement environmental-based total sanitation (STBM) behavior such as ignoring the use of clean water, not washing hands, and not maintaining toilet cleanliness, managing household waste and unsafe liquid waste.

Education is a key factor in increasing public knowledge, which significantly influences lifestyle patterns and disease incidence within a community. Indigenous communities with limited access to education, information, and health education require a specialized, culturally based approach to help them understand and adopt healthy lifestyles. Increasing knowledge through ongoing outreach will be key to reducing the burden of environmentally-based diseases in indigenous communities like Indigenous Communities.

CONCLUSION

According to observations that have been made, the use of healthy toilets in the General Community tends to be better at 72.5% compared to the SAD Community at 45.0%. Handwashing behavior with soap in the General Community tends to be better at 65.0% compared to the SAD Community at 50%. Then, in the variable of drinking water and food management, it is the same as in the General Community, it tends to be better at 60% compared to the SAD Community at 55.0%, in the variable of household waste management it is better at 62.5% compared to the SAD Community at 42.5%, but inversely in the SAD Community, the figure for household liquid waste management is better at 62.5% compared to the General Community at 60.0%.

There is a relationship between toilet use, handwashing with soap, household food and beverage management, household waste management, household liquid waste management, and knowledge related to environmental-based diseases and environmental-based diseases in the SAD community. However, there is no relationship between toilet use and environmental-based diseases in the general community of Dwi Karya Bakti Village. But There is a relationship between household waste management and the incidence of environmentally based diseases in the general community.

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