ENVIRONMENTAL HEALTH PROFILE AND ITS INFLUENCE ON THE PREVALENCE OF ENVIRONMENTALLY BASED DISEASES IN CIPANAS DISTRICT, CIANJUR, WEST JAVA, INDONESIA, IN 2022

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ABSTRACT
A quantitative descriptive study by using secondary cross-sectional data from environmental health activity reports carried out by the Cipanas Community Health Center during 2022 describe the environmental health situation and conditions in Cipanas sub-district, Cianjur regency, West Java, Indonesia, are in good condition. There are 91% drinking water facilities that meet health requirements, 89.07 residents can access them sustainably, all residents in Cipanas District use healthy latrines, and all villages have community-based total sanitation. Around 78.87% of public places meet health requirements, and of 120 food processing places, only around 72.58% meet sanitation hygiene requirements. There are 86.43% classified as healthy houses, around 90.43% of houses in Cipanas sub-district have waste water drainage channels, 84.19% of all rubbish dumps are closed rubbish bins. Even though of the 5.07% of drinking water facilities inspected, around 88.58% had low-medium risk, and of the 0.28% of water samples taken, still around 29.58% met health requirements. Meanwhile, there are 3 environmental-based diseases that are mostly suffered by residents in Cipanas, namely ISPA/Pneumonia, Diarrhea and Skin Diseases. By using The Fisher Exact Test, it turns out that only the conditions of food processing places have a significant relationship with the incidence of environmental-based diseases (p = 0.0036). Meanwhile, there were other factors that are likely to influence the incidence of environmental-based diseases in Cipanas, including behavior that was not examined in this study. further studies need to be carried out regarding environmental health, especially clean and healthy living behavior so that it can become useful input for planning and implementing health programs in Cipanas sub-district

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1. INTRODUCTION
Environmental-based diseases contribute to the largest number of deaths in the world, especially in developing countries. One of them is upper respiratory tract infections (ARI), in fact, ARI mortality has reached 4.25 million per year in the world, in addition to reducing life expectancy by 2.09 years for sufferers. In 2015, the United Nations Children's Fund (UNICEF) recorded that around 3 million deaths of children under five in the world were caused by poor environmental conditions such as acute respiratory infections (ARI), diarrhea, malaria, meningitis, tetanus, HIV and measles. Furthermore, UNICEF stated that the main causes of death for children under five in the world are ARI and diarrhea (Naghavi et al., 2015; Qazi et al., 2015; Smeets & Keita, 2020).
Meanwhile, the publication of Basic Health Research (Riskesdas) in 2013 revealed that the most infectious disease transmitted through the air was ARI (33.1 percent) and the most infectious disease transmitted through food and water was diarrhea (14.7 percent). In 2018 the prevalence was 4.4%, the highest in Indonesia, especially in the 1–4-year age group. Likewise, the incidence of diarrhea was recorded at 2.5% for all age groups, pneumonia for toddlers at 8.2%, and pulmonary TB for adults at 0.5% (Erni et al., 2020). Environmental factors are closely related to the number of incidents, including the sanitation of the residential environment and the use of water that does not meet health requirements, as well as the habit of washing hands with soap before eating and after defecating which has not yet become a culture (Bidkhori et al., 2019; Musadad, 2008).

Puskesmas, as the spearhead of sub-district health services and supervisors, carries out various steps to monitor and foster a healthy environment, in addition to carrying out health promotion related to hygiene and environmental sanitation in the community. Activities carried out include environmental health inspections and examinations, especially clean water facilities, latrines, waste water drainage channels, rubbish dumps, building healthy homes, as well as providing sanitation clinics at health centers (Alamsyah et al., 2021). Mapping as a result of environmental health monitoring will show the relationship between environmental situations and conditions and the incidence of environmental-based diseases in the work area of the health center (Zaman, 2021).

Cipanas as one of the sub-districts in Cianjur Regency is not free from environmental problems. As a health supervisor, of course the Cipanas Community Health Center carries out various environmental health monitoring and development activities in the Cipanas sub-district. However, there has been no evaluation of the results of these activities, especially when linked to environmental-based disease morbidity rates. Therefore, it is very necessary to study the results of environmental health monitoring and guidance carried out by the Cipanas Community Health Center in 2023.

1. Aim

Describe the environmental health profile and its relationship to the prevalence of environmental-based diseases in Cipanas District, Cianjur Regency, West Java, Indonesia.

2. Objectives

a. Describes the presentation of drinking water facilities that are monitored
b. Describes the number of families who have access to healthy toilets
c. Describes the number of villages that implement community-based total sanitation
d. Describes the percentage of public places that meet health requirements
e. Describes the percentage of food handled places that meet sanitation hygiene requirements
f. Describes the percentage of healthy homes
g. Describes the percentage of waste water disposal facilities (SPAL) and rubbish dump (TPS)
h. Describes the number of families who have sustainable access to drinking water according to health requirements
i. Describes the prevalence of environmental-based diseases in Cipanas sub-district
j. Describe the relationship between environmental health profiles and the prevalence of environmental-based diseases in Cipanas District

3. Benefit

The benefit of carrying out this study is as a consideration in improving the quality of environmental health supervision and guidance by the Cipanas Community Health Center in its working area. The results of this study can also be the basis for improving cross-program and cross-sector activities related to environmental health in Cipanas sub-district, such as health promotion, improving the provision of public facilities, etc. Another benefit is as a basis for further studies, either for in-depth analysis, or for other areas with different environmental conditions.

4. Problem Formulation

Based on the question of what the environmental health situation and conditions are, especially when related to the incidence of environmental-based diseases in Cipanas District, the problems posed in this study are formulated as follows:
"The relationship between environmental health profiles and the prevalence of environmental-based diseases in Cipanas District in 2022"

5. Theoretical Framework And Conceptual Framework

Based on the classical theory of H.L. Blum, a theoretical framework can be prepared as follows:
Based on the theoretical framework above, a conceptual framework has been prepared according to the study to be carried out as follows:

**Figure 1. Theoretical Framework**

**Figure 2. Conceptual Framework**

Based on the conceptual framework above, it can be determined that for the analysis, the dependent variable is the incidence of environmental-based diseases in Cipanas sub-district, Cianjur district in 2022, while the independent variable that traces behavior and environmental conditions facilitated through Puskesmas environmental health activities is STBM practices. Healthy Homes, access to drinking water/clean water, latrines, waste water disposal facilities (SPAL) and garbage dump (TPS), public places (TTU – TTM), and food handled places (TPM).

2. METHODS

This study was a quantitative descriptive study by using secondary cross sectional data from environmental health activity reports carried out by the Cipanas Community Health Center during 2022. Data was collected and summarized for each dependent variable, while for cases of environmentally based diseases, data was taken from sanitation clinics of the health center.

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The data was then presented in the form of tables and graphs for each variable, then a simple analysis was carried out to determine whether there was a meaningful relationship between each independent variable and the incidence of related environmental-based diseases. All types of data were then processed into binomial data for further analysis. The analysis used was the Fisher Exact Test, or according to the pattern of the data being analyzed. Based on hypothesis 0 (H0) which was that there is no meaningful relationship between the independent and dependent variables being analyzed, with a confidence level (α) of 0.05, the results are determined which have a meaningful relationship to be compared with several related literature.

3. RESULT AND DISCUSSION

A. Drinking Water Facilities

Drinking water facilities are one of the things that are inspected and inspected during environmental health activities at community health centers. The results can be seen in the table below.

Table 1. Percentage of Drinking Water Facilities in Cipanas in 2022

In the table above, it can be seen that the results of environmental health inspections found that of the 5.07% of drinking water facilities inspected, around 88.58% had low-medium risk. From the results of the inspection, it was found that the most drinking water facilities that met the requirements were in Sindangjaya Village and of the 0.28% of samples taken, around 29.58% still met the health requirements.

B. Drinking Water Source

Apart from drinking water facilities, the condition of drinking water sources also greatly influences health status of people in Cipanas. The results of monitoring drinking water sources by the Cipanas community health center can be seen as follows.

Table 2. Drinking Water Sources in Cipanas in 2022

From the table above, it shows that of the 91% of drinking water facilities that meet health requirements, 89.07 residents can access them sustainably. Most residents use PDAM water, others use other protected water sources, and no residents in Cipanas use rainwater and water terminals.

C. Adequate Latrines

Specifically for healthy latrines in Cipanas District, you can see the results of the puskesmas inspection below.
Table 3. Number of Healthy Latrines in Cipanas in 2022

From the table above, it can be determined that all residents in Cipanas District use adequate latrines, whether in the form of communal latrines (14.20%), semi-permanent (8.43%), or permanent (77.37%).

D. Community Based Total Sanitation (Stbm)

In all villages there is total community-based sanitation in Cipanas sub-district as can be seen in the following table.

Table 4. Community based Total Sanitation in Cipanas in 2022

Based on environmental health checks of public places in the Cipanas sub-district area, the following results were obtained.

E. Public Places (Ttu)

Based on environmental health checks of public places in the Cipanas sub-district area, the following results were obtained.

Table 5. Percentage of public places that meet health requirements in Cipanas in 2022

The table above shows that around 250 public places in Cipanas sub-district, only around 78.87% meet health requirements. The lowest, namely around 69.64%, was in Cimacan, while the highest, namely around 96.30%, was in Citolo village.

F. Food Handled Places (Tpm)

As a tourist area, Cipanas sub-district has many food processing places. The results of the environmental health inspection carried out at the food management site by the Cipanas health center can be seen as follows.
### Table 6. Sanitary hygiene status of food processing places in Cipanas in 2022

<table>
<thead>
<tr>
<th>NO Desa</th>
<th>Selulur RUMAH</th>
<th>JUMLAH</th>
<th>MEMENUHI SYARAT (RUMAH SEHAT)</th>
<th>MEMENUHI SYARAT (RUMAH SEHAT)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>RUMAH MEMENUHI SYARAT (RUMAH SEHAT)</td>
<td>JUMLAH</td>
</tr>
<tr>
<td>CIPANAS</td>
<td>4590</td>
<td>3868</td>
<td>84.27%</td>
<td>722</td>
</tr>
<tr>
<td>SINDANGJAYA</td>
<td>2702</td>
<td>2333</td>
<td>86.34%</td>
<td>369</td>
</tr>
<tr>
<td>CIMACAN</td>
<td>4594</td>
<td>4048</td>
<td>88.11%</td>
<td>546</td>
</tr>
<tr>
<td>SINDANGLAYA</td>
<td>4181</td>
<td>3516</td>
<td>84.09%</td>
<td>665</td>
</tr>
<tr>
<td>PALASARI</td>
<td>3556</td>
<td>2988</td>
<td>84.03%</td>
<td>568</td>
</tr>
<tr>
<td>CILOTO</td>
<td>2305</td>
<td>2291</td>
<td>99.39%</td>
<td>14</td>
</tr>
<tr>
<td>BATULAWANG</td>
<td>3023</td>
<td>2517</td>
<td>83.26%</td>
<td>506</td>
</tr>
<tr>
<td>JUMLAH (Kec/Pkm)</td>
<td>24951</td>
<td>21566</td>
<td>86.43%</td>
<td>3390</td>
</tr>
</tbody>
</table>

From the table above it can be seen that of the 120 food processing places, only around 72.58% meet the hygiene and sanitation requirements, where the highest is in Cipanas Village, namely around 80%, and the lowest is in Batulawang Village, namely around 66.67%.

### G. Healthy Homes

The results of environmental health inspections related to healthy homes in Cipanas sub-district can be seen in the table below.

#### Table 7. Percentage of Healthy Homes in Cipanas in 2022

<table>
<thead>
<tr>
<th>NO Desa</th>
<th>JUMLAH</th>
<th>RUMAH MEMENUHI SYARAT (RUMAH SEHAT)</th>
<th>MEMENUHI SYARAT (RUMAH SEHAT)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>JUMLAH</td>
<td>%</td>
</tr>
<tr>
<td>CIPANAS</td>
<td>4590</td>
<td>3868</td>
<td>84.27%</td>
</tr>
<tr>
<td>SINDANGJAYA</td>
<td>2702</td>
<td>2333</td>
<td>86.34%</td>
</tr>
<tr>
<td>CIMACAN</td>
<td>4594</td>
<td>4048</td>
<td>88.11%</td>
</tr>
<tr>
<td>SINDANGLAYA</td>
<td>4181</td>
<td>3516</td>
<td>84.09%</td>
</tr>
<tr>
<td>PALASARI</td>
<td>3556</td>
<td>2988</td>
<td>84.03%</td>
</tr>
<tr>
<td>CILOTO</td>
<td>2305</td>
<td>2291</td>
<td>99.39%</td>
</tr>
<tr>
<td>BATULAWANG</td>
<td>3023</td>
<td>2517</td>
<td>83.26%</td>
</tr>
<tr>
<td>JUMLAH (Kec/Pkm)</td>
<td>24951</td>
<td>21566</td>
<td>86.43%</td>
</tr>
</tbody>
</table>

The table above shows that of the 24,951 houses recorded, around 84.43% were classified as healthy houses, and most of them were in Ciloto village, namely around 99.39%. Around 1265 houses still do not meet health requirements, only around 1265 houses have been built by the Cipanas health center.

### H. Waste Water Disposal Facilities (Spal) And Rubbish Dump (TPS)

The situation and condition of waste water drainage facilities and rubbish dumps in Cipanas sub-district can be seen in the following table.

#### Table 8. Percentage of Closed SPALs in Cipanas in 2022

<table>
<thead>
<tr>
<th>NO Desa</th>
<th>JUMLAH</th>
<th>MEMPUYAI SPAL</th>
<th>MEMPUYAI TPS TERTUTUP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>JUMLAH</td>
<td>%</td>
</tr>
<tr>
<td>CIPANAS</td>
<td>4,590</td>
<td>3,752</td>
<td>81.76%</td>
</tr>
<tr>
<td>SINDANGJAYA</td>
<td>2,702</td>
<td>2,098</td>
<td>76.58%</td>
</tr>
<tr>
<td>CIMACAN</td>
<td>4,094</td>
<td>3,272</td>
<td>80.48%</td>
</tr>
<tr>
<td>SINDANGLAYA</td>
<td>3,181</td>
<td>2,906</td>
<td>91.90%</td>
</tr>
<tr>
<td>PALASARI</td>
<td>3,146</td>
<td>2,795</td>
<td>88.50%</td>
</tr>
<tr>
<td>CILOTO</td>
<td>2,700</td>
<td>2,505</td>
<td>93.05%</td>
</tr>
<tr>
<td>BATULAWANG</td>
<td>372</td>
<td>35</td>
<td>94.59%</td>
</tr>
<tr>
<td>Total Puskesmas</td>
<td>23,951</td>
<td>22,561</td>
<td>94.31%</td>
</tr>
</tbody>
</table>

From the table above, it can be seen that around 90.43% of houses in Cipanas sub-district have waste water drainage channels, where Sindangjaya village has the lowest coverage, namely around 73.58%, while Ciloto village has reached 100%. Specifically for closed rubbish dumps, Cipanas sub-district has only reached 84.19% of all rubbish dumps, while Ciloto village has the highest closed rubbish bins at around 95.44%.
I. Sanitation Clinic

Sanitation clinic activities carried out by the Cipanas Community Health Center identified the incidence of environmental-based diseases suffered in the Cipanas sub-district area during 2022 as follows.

![Figure 3. Prevalence of environment-based diseases in Cipanas in 2022](image)

From the table above, it can be seen that there were 3 environmental-based diseases that are mostly suffered by residents in Cipanas, namely ARI/Pneumonia, Diarrhea, and Skin Diseases. These diseases could be suspected to be related to environmental conditions such as the provision of clean water, latrines, SPAL/TPS, food management, healthy homes, etc. This is in accordance with the results of research conducted by B. Williams et al. which shows ARI as the most common environmental-based disease suffered in the world (Williams et al., 2002).

J. Relationship Of Environmental Health Conditions With Environmental-Based Diseases

By using the Fisher Exact Test on environmental health conditions, in the form of the results of environmental health examinations by the Cipanas community health center, on the number of recorded cases of environmental-based diseases, the following results were obtained.

<table>
<thead>
<tr>
<th>Environmnet-Based Diseases</th>
<th>Drinking Water Facilities</th>
<th>SPAL</th>
<th>TPS</th>
<th>Healthy Homes</th>
<th>TPM</th>
<th>TTU</th>
<th>IKL</th>
<th>Drinking Water Inspection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>12230</td>
<td>10694</td>
<td>24951</td>
<td>24951</td>
<td>24951</td>
<td>124</td>
<td>313</td>
<td>1265</td>
</tr>
<tr>
<td>in condition</td>
<td>275</td>
<td>9732</td>
<td>22563</td>
<td>21007</td>
<td>21566</td>
<td>90</td>
<td>250</td>
<td>1121</td>
</tr>
<tr>
<td>Fisher T</td>
<td>0.102235</td>
<td>0.251025</td>
<td>0.405732</td>
<td>0.351316</td>
<td>0.003621</td>
<td>0.00671</td>
<td>0.015336</td>
<td>0.005325</td>
</tr>
</tbody>
</table>

Based on p < 0.05 to reject H0, there are environmental health conditions that have a significant relationship with the incidence of environmental-based diseases in Cipanas sub-district, namely food processing places (p = 0.0036). Meanwhile, other variables did not show a significant relationship to the incidence of environmental-based diseases in Cipanas. These results are different from similar studies which show a significant relationship between the environmental health profile in an area and the incidence of environmental-based diseases in the community (Ahyanti, 2020; Mustari, 2021; Sufiliana, 2020). Several other studies show that community behavior greatly determines the high and low incidence of environmental-based diseases in an area, in addition to the environmental health situation and conditions (Butarbutar, 2018; Gunawan et al., 2022; Rakasanagara & Rakasanagara, 2016; Rofifah et al., 2019).
Another factor that needs to be studied further is malnutrition as the main factor in the prevalence of several environmental-based diseases such as diarrhea and ARI (Caulfield et al., 2004).

K. Limitation Of The Study

This study was carried out descriptively on environmental health activity report data by the Cipanas Community Health Center, without being supplemented by other health activity reports that may be related to environmental-based diseases. The existence of other important factors that influence the occurrence of environmental-based diseases in society, namely clean and healthy living behavior, was not studied carefully, because it was not included in the environmental health activity report, as a data source in this study.

4. CONCLUSION

Basically, the environmental health situation and conditions in Cipanas sub-district are in good condition. There are 91% drinking water facilities that meet health requirements, 89.07 residents can access them sustainably, all residents in Cipanas District use adequate latrines, whether in the form of communal latrines (14.20%), semi-permanent (8.43%), or permanent (77.37%), all villages have community-based total sanitation, around 78.87% of public places meet health requirements, of 120 food processing places, only around 72.58% meet sanitation hygiene requirements, There are 86.43% classified as healthy houses, around 90.43% of houses in Cipanas sub-district have waste water drainage channels, 84.19% of all rubbish dumps are closed rubbish bins. Even though of the 5.07% of drinking water facilities inspected, around 88.58% had low-medium risk, and of the 0.28% of water samples taken, still around 29.58% met health requirements. Meanwhile, there are 3 environmental-based diseases that are mostly suffered by residents in Cipanas, namely ARI/Pneumonia, Diarrhea and Skin Diseases. From the analysis results, it turns out that only the conditions of food processing places have a significant relationship with the incidence of environmental-based diseases (p = 0.0036). However, there are other factors that are likely to influence the incidence of environmental-based diseases in Cipanas, including behavior that was not examined in this study.

4. RECOMMENDATION

There is a need to increase environmental health activities and programs that are integrated with behavior improvement programs in the Cipanas health center working area in order to reduce the prevalence of environmental-based diseases in the community. Apart from that, further studies need to be carried out regarding environmental health, especially clean and healthy living behavior so that it can become useful input for planning and implementing health programs in Cipanas sub-district.

5. ACKNOWLEDGMENTS

We would like to express our thanks to the head of BBPK Ciloto who has allowed us to carry out scientific studies related to environmental health in order to improve environmental health training programs in the future. Likewise, we would like to express our thanks to the head of the Cipanas Community Health Center, Cianjur district and the environmental health program coordinator who was willing to provide us with their annual report data for analysis. We also thank all parties who we cannot mention one by one for their support and assistance so that this study can be completed well.

REFERENCES


