

Impact of Basic Sanitation and Healthy Behavior to Healthy Homes Condition in Cilegon City and Kutai Kartanegara District, Indonesia

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Abstract

Healthy homes is a residential building that meets the health requirements as well as having healthy latrines, clean water facilities, solid waste disposal management, etc. The aim of this study was to determine the factors that most influence to healthy homes condition in Cilegon city and Kutai Kartanegara district in Indonesia. This study was done by using analytic survey methodology with cross sectional design. The Population in this study was householders in Cilegon city and Kutai Kartanegara district with total 800 and 1,200 respondents respectively. The result showed in Cilegon city and Kutai Kartanegara district respectively that healthy homes was 46.4% and 61.3%, 55.9 % and 57.3% having a good clean water resources, 82.3% and 71.9% having good excreta disposal facilities, 42.3% and 41.7 % doing good rubbish management, 56.1% and 36.6% having good drainage. The percentage of healthy behavior was 84.4% and 52.7%. Logistic regression analysis showed that waste management, drainage and personal hygiene were the most variables that influenced the healthy homes condition. As the conclusion, improving of the program and practices in basic sanitation facilities and personal hygiene is important to achieve national level of healthy community for Cilegon city and Kutai Kartanegara district.

Keywords: sanitation, Cilegon, Kutai Kerrtanegara, healthy behavior

1. Introduction

It has been known that various aspects of the built environment can dominantly affect health status in community. Global burden of diseases attributed to environmental risk factors. From various factors of environment, sanitation and personal hygiene are two dominant factors that affect healthy home and healthy life in the community. Sanitation is generally refers to the provision of facilities and services for the safe disposal of human urine, faeces, and wastes. The importance of sanitation to safeguard human health is well known and undisputed (WHO, 2010). Adequate sanitation, together with good hygiene and safe water, are fundamental to good health and to social and economic development (Mara *et al.*, 2010). Poor sanitation is responsible for one of the heaviest existing disease burdens worldwide. The diseases associated with poor sanitation and unsafe water account for about 10% of the global burden of disease (Prüss *et al.*, 2008). Diseases associated with poor sanitation are diarrhoea diseases, acute respiratory infections, undernutrition and other tropical diseases such as helminth and schistosomiasis infections (Prüss *et al.*, 2008, Fewtrell *et al.*, 2005). Diarrhoea diseases are the most common sanitation related diseases. Improvements in sanitation and hygiene can substantially reduce the rates of morbidity and the severity of various diseases and improve the quality of life of huge numbers of people, particularly children, in developing countries (Merchant *et al.*, 2003). However, poor sanitation is still happens in many countries especially in developing countries including Indonesia. Approximately 2.6 billion people do not use improved sanitation facilities, two-thirds of whom live in Asia and sub-Saharan Africa (WHO, 2010), while 99% of people living in industrialized countries have access to improved sanitation, only 53% of populations in developing countries have such access. Within developing countries, urban sanitation coverage is 71%, while rural coverage is 39% (Mara *et al.*, 2010). In Indonesia, the proportions of household having access to improved sanitation is 61.06% (Ministry of Health Republic of Indonesia, 2014). Indonesia is an archipelago country with many islands and different sanitation situation. In some areas, they have a good access in sanitation facility but

in other areas, many people are still struggling with poor sanitation access even the areas are under provinces with high local income per capita. On the other hand, personal hygiene is a factor which is influenced by sanitation facility and healthy behavior. Although the community has a good sanitation facility but they live in unhealthy behavior, they also have high risk of diseases in related with poor sanitation utility and personal hygiene. The National percentage of house hold hygiene behavior (PHBS) in Indonesia is 56.58% (Ministry of Health Republic of Indonesia, 2014). Involvement of health professionals, social scientists, and behavior change experts is important to educate people how to live in a healthy life paradigm.

Healthy homes is a residential building that meets the health requirements that homes have latrines healthy, clean water facilities, landfills, wastewater disposal, good ventilation, appropriate density residential house and floor of the house that are not made from ground. The achievement of national number of healthy housing in Indonesia is 61.81% from national target 77% (Ministry of Health Republic of Indonesia, 2014). Cilegon city and Kutai Kertanegara district are two areas that have different characteristics in many aspects as well as local income per capita, culture, and demography. In this research, we observe the sanitation situation and personal hygiene and the impact to the healthy homes in both Cilegon city and Kutai Kertanegara district.

2. Method

The study has been done by cross-sectional design study with multi stage random sampling method in Cilegon city and Kutai Kertanegara district with total respondent in each area is 800 respondents. Respondents have been interviewed with a set of questionnaire which consist of information about sanitation facility and utility and healthy behavior. Interviewers also observe the situation of respondents's house. Data have been coded and categorized to be further analysis. Data analysis was used by Bivariate chi square test followed by logistic regression analysis.

3. Results and Discussion

Healthy behavior (in Bahasa: PHBS) is a key determinant in constructing healthy community. It is a composite of variables as well as: cleaning the body, teeth brushing, cutting nail, smoking behavior, hand washing, using sandal and diarrhoea incidences. As shown in table 1, unhealthy condition is still high in variables: cutting nail, smoking behavior, hand washing and diarrhea incidences. The percentage of hand washing behavior is higher in Kutai Kertanegara district. It is might be because many respondents in Kutai Kertanegara district live near river-side area and easy to get water although the water quality is unknown. On the other hand, diarrhoea incidences is also higher in Kutai Kertanegara district rather than in Cilegon city. This is because probably the knowledge of healthy live in Cilegon city's people as urban people is better than in Kutai Kertanegara district as rural people. Our result is different with Cairncross *et al.* (2010) and Curtis and Cairncross (2003) that proposed diarrhoea risk reductions is associated with hand washing with soap, improved water quality and excreta disposal. In our result, the way of hand washing may be improperly and was not the impact of hygiene program, so it was not associated with the diarrhea reduction. Barreto *et al.*, (2007), and Waddington and Snilstveit (2009) reported that structured-sanitation program intervention can reduce diarrhea prevalence. Other research showed that hygiene or program or practices including hand washing is a key to improve and alter a norm of hygiene behavior in community (Waterkeyn *et al.* 2005, Curtis *et al.*, 2001). This is consistent with the result of the percentage of composite Healthy Behavior (PBHS) variable which is showed statistically significant between Cilegon city and Kutai Kertanegara district ($p < 0.01$). In children, clean water and sanitation is important to reduce diarrhoea incidences tend to child's morbidity and mortality. Genser *et al.*, (2005) confirmed the importance of sanitation as a major determinant of child health in urban settings of developing countries. One of the program that can be developed is sewerage interventions that can reduce the incidence of diarrhoea and related outcomes (Norman *et al.*, 2010)

Tabel 1. The Percentage of Variables in Healthy Behavior (PHBS) in Cilegon city and Kutai Kertanegara district

Variables		Percentages		Sig
		Cilegon City	Kutai Kertanegara	
Cleaning the Body	Yes	98.9%	97.7%	0.064
	No	1.1%	2.3%	
Teeth Brushing	Yes	95.0%	93.3%	0.290
	No	5.0%	6.7%	
Cutting Nail	Yes	63.2%	60.2%	0.165
	No	36.8%	39.8%	
Smoking Behavior	Yes	63.0%	64.2%	0.595
	No	37.0%	35.8%	
Hand Washing	Yes	54.5%	77.8%	0.000
	No	45.5%	22.3%	
Using Sandal	Yes	96.4%	97.9%	0.037
	No	3.6%	2.1%	
Diarrhoea incidence	Yes	25.2%	83.8 %	0.000
	No	74.8%	16.2%	
Healthy Behavior (PHBS)	Healthy	84.4%	52.7%	0.000
	Unhealthy	15.6%	47.3%	

The condition of housing in Cilegon city and Kutai Kertanegara district were assessed through variables: Clean Water, Rubbish Management, Excreta disposal Facilities, Drainage, Physical Condition, Resident behavior, Existence Larva and Hand Washing. As shown in Table 2, unhealthy conditions that should be improved are in variables: clean water, drainage, rubbish management and physical condition. The percentage of composite Healthy homes variable showed statistically significant between Cilegon city and Kutai Kertanegara district ($p < 0.01$) and still under lower than national number of healthy housing in Indonesia is 61.81% (Ministry of Health Republic of Indonesia, 2014).

Tabel 2. The Percentage of Variables in Healthy Homes in Cilegon city and Kutai Kertanegara district

Variables		Percentages		Sig
		Cilegon City	Kutai Kertanegara	
Clean Water	Healthy	55.9%	57.3%	0.519
	Unhealthy	44.1%	42.7%	
Drainage	Good	56.1%	36.6%	0.000
	Not Good	43.9%	63.4%	
Excretal Disposal Facilities	Good	82.3%	71.9%	0.000
	Not Good	17.7%	28.1%	
Rubbish Management	Good	42.3%	41.7%	0.796
	Not Good	57.7%	58.3%	
Physical Condition	Good	67.1%	65.9%	0.575
	Not Good	32.9%	34.1%	
Existence of Larva	Yes	81.1%	13.8%	0.000
	No	18.9%	86.2%	
Presence of Vector	Yes	10.8%	25.3%	0.000
	No	89.2%	74.7%	
Healthy Homes	Healthy	46.4%	61.3%	0.000
	Unhealthy	53.6%	38.7%	

Statistical analysis of healthy homes and healthy behavior have been done and the result showed in Tabel 3A and 3B. Healthy behavior is positively influence the Healthy homes. However, there is higher percentage of respondents with Unhealthy behavior have good Healthy homes in Kutai Kertanegara District compare with Cilegon City.

Tabel 3A. The Percentage of Healthy Behavior and Health Homes

Variables		Healthy homes		Sig
		Healthy	Unhealthy	
Healthy Behavior	Healthy	63.7 %	36.3%	0.000
	Unhealthy	39.7%	60.3%	

Tabel 3B. The Percentage of Healthy Behavior and Health Homes in Cilegon city and Kutai Kertanegara district

Variables		Healthy homes				Sig
		Cilegon City		Kutai Kertanegara		
		Healthy	Unhealthy	Healthy	Unhealthy	
Healthy Behavior	Healthy	51.3%	48.7%	76.9%	23.1%	0.000
	Unhealthy	20%	80%	44%	56%	

Logistic regression analysis showed the result that Waste Management, Clean Water, Drainage, Excreta disposal Facilities, and Physical Condition are the most influence variables to the Healthy homes condition. This is relevance with Herr *et al.*, (2009). that personal waste management should also be considered in studies on health and indoor environments. Healthy Behavior variable has influence factor of healthy homes in Cilegon City but not in Kutai Kertanegara District, however, the Presence of Vector variable has influence factor in Kutai Kertanegara District and not in Cilegon City. It is important for the local and national government to allocate proportional budget and from a variety of financing mechanisms for meeting the costs of water and sanitation improvements for people's health investment. Hutton and Haller (2004) found, in the cost-benefit analysis, benefits were converted into monetary amounts using assumptions about the value of identified benefits such as productive days gained. The value of productive days gained (15-49 age group) due to less diarrhoea illness.

Logistic Regression equations:

Cilegon City:

Healthy homes = $-8.499 + 0.731(\text{healthy behaviour}) + 4.372(\text{clean water}) + 6.663(\text{rubbish management}) + 1.134(\text{excreta disposal}) + 1.827(\text{drainage}) + 1.481(\text{physical condition}) + 2.27(\text{house ownership})$

Kutai Kertanegara District:

Healthy homes = $-10.28 + 3.55(\text{clean water}) + 2.81(\text{rubbish management}) + 3.12(\text{excreta disposal}) + 3.13(\text{drainage}) + 3.68(\text{physical condition}) + 3.4(\text{presence of vector})$

In conclusions, healthy behavior and healthy homes as well as basic sanitation facilities and personal hygiene should be continuously improved and developed to achieve the national level.

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