

THE CORRELATION BETWEEN HEALTHY LATRINES WITH THE OCCURRENCE OF DIARRHEA TOWARDS COMMUNITY IN CICALENGKA KULON VILLAGE, SUB DISTRICT OF CICALENGKA, BANDUNG REGENCY

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Abstract

Healthy latrines is an excreta disposal facilities to break the chain of transmission of diseases, one of them is diarrhea. Most patients with diarrhea in Bandung Regency were from the region of Puskesmas Cicalengka that was approximately about 3975 people in 2014 with the biggest incidents in Cicalengka Kulon village as many as 615 people. The purposes of the research were to determine the distribution of healthy latrines community in Cicalengka Kulon Village area, to determine the incidence of diarrhea in the community in Cicalengka Kulon Village area, and to determine whether there is a correlation between healthy latrines with the occurrence of diarrhea in Cicalengka kulon village, sub district of Cicalengka, Bandung Regency, which belong to the working area of Puskesmas Cicalengka. This study was an analytic survey with cross sectional approach. The populations in this study were the residents of Cicalengka village of Cicalengka Kulon District of Bandung Regency, comprising of 2298 households. The researchers took samples from 96 respondents from Cicalengka Kulon villages. The sampling was done by using stratified random sampling. The results showed some conclusions about the correlation between healthy latrines with the incidence of diarrhea towards the community in Cicalengka Kulon Village, Sub District of Cicalengka Kulon, Bandung Regency in 2015. There were a small percentage of respondents who had latrines that were qualified as healthy latrines, almost all of the respondents had experienced diarrhea, and there was a correlation between healthy latrines with diarrhea towards the community in Cicalengka Kulon Village, Sub District of Cicalengka Kulon, Bandung Regency 2015. Furthermore, the odds ratio value was 8, which meant that community with no healthy latrines would have 8 times greater risk of experiencing the incidence of diarrhea. Based on the result, the community needed to have the training about basic sanitation, promotion of clean and healthy lifestyle, and environmental sanitation to the community to increase the coverage of basic sanitation latrines, particularly to promote health qualifications and to prevent diarrhea in the community.

Keywords: Basic Sanitation, Healthy Latrine, Diarrhea

***Presenting Author's biography**



Ratna Dian Kurniawati, was born in Semarang, December 4, 1980, The child of H Edi Sucipto and Hj Rini Widhi Purwandari, as the first child of three sisters. She was married to AKBP Sudi Handayani SH., MM. She was blessed with two children, named Marsekal Fatwa Yustisia and Meutia Zahra Yustisia. Since 2009 until now recorded as a permanent lecturer at the foundation of Adhi Guna Kencana Bandung in Public Health at STIKes Bhakti Kencana Bandung As a lecturer of Environmental Health. Since 2014 – now, she was designated as Vice Chairman of Student Affairs.

INTRODUCTION

The efforts of environmental health aim at establishing the quality of a healthy environment, such as physical, chemical, biological, or social that allows each person to reach the highest health standard (Law number 36 of 2009 regarding Health). One of the government's efforts to reduce deaths due to diarrhea that needs rapid and appropriate program is by promoting basic sanitation [10]. Basic sanitation includes clean water supply, disposal of human waste (latrines), waste disposal (trash), and the disposal of waste water [1].

According to the Department of Health [9], a latrine is considered healthy if it meets the requirements, among others; does not contaminate drinking water sources, odorless, cannot be touched by insects or rodents, does not contaminate the surrounding soil, is easy to clean and safe to use, has fitted wall and a protective roof, has lighting and adequate ventilation, had waterproof flooring and spacious rooms, has water supply, soap, and cleaning tools.

The result of Riskesdas 2013 showed that the households in Indonesia used private latrines (76.2%), or common property or communal latrines (6.7%), or public facilities (4.2%). Based on the characteristics, the proportion of households that used their own defecating facility was higher in urban areas (84.9%) than in rural areas (67.3%).

According to the results of monitoring stbm-indonesia.org in 2014, the access of healthy latrines in West Java was only about 66%; furthermore, Bandung regency was in rank 21 (68.4%) out of 27 regencies or cities in West Java; while, in Cicalengka sub district was about 74.66%, and for the Cicalengka Kulon village was 57.35%. According to data of basic sanitation of PKM DTP of Cicalengka in 2014, the healthy latrines only met 56.62% from the target of 75% of the 20,789 families, while the rest of the numbers meet the target. For example, the trash was 88.25% from 20789 households, and waste water disposal of 93.52% from 20789 families qualified health requirements.

According to a research conducted by [15], sanitation, personal hygiene and bad environment were associated with the transmission of some infectious diseases such as diarrhea. Disease Transmission explained through the theory of the "4 F" namely Fluids, Fields, Flies and Fingers. The cycle starts from contamination by human feces through water and soil pollution. The spread of insects and dirty hands are transferred to the food that is consumed by humans. According to [15], basic sanitation was one of the major risk factors for the onset of disease, especially for infectious diseases such as diarrhea.

Based on data from patients with diarrhea in Regency or City of West Java (2014), total patients with diarrhea in Bandung regency were as many as 15,035 people and 7,262 patients

or 48.30% of them were older than 5 years old. According to the monthly report data Regency Bandung in 2014, the largest numbers of cases of diarrhea were in the area PKM DTP Cicalengka with 3,975 people, PKM DTP Ciparay with 3,355 people, PKM Pamengpeuk with 2,863 people, Majalaya PKM with 2,201 people, and PKM Wangisagara with 2,067 people.

From the monthly report data with diarrhea patients in 2014 in PKM DTP Cicalengka, the biggest occurrence in this place occurred in Cicalengka Kulon village with about 615 people, 606 people in Cicalengka Wetan, 552 in Cikuya, 541 in Tenjolaya, 512 in Panenjoan, and 467 in Waluya. While the rest was about 682 people, who came from the neighboring areas such as the sub districts of Rancaekek, Cikancung, Nagreg, and also from employees of companies located around the Sub District of Cicalengka.

Based on the background above, it was found that the availability of access to basic sanitation, especially healthy latrines influenced the prevention of environment-linked diseases such as diarrheal disease in the community. Therefore, the researchers put special interest in studying the correlation between healthy latrines with the incidence of diarrhea in Cicalengka Kulon village, which was in the working area of *Puskesmas* DTP Cicalengka Sub District, Bandung Regency in 2015.

METHOD

This study was an analytic survey with cross sectional approach. The populations in this study were the residents of Cicalengka village of Cicalengka Kulon District of Bandung Regency, comprising the total of 2298 households. The researchers took samples from 96 respondents from Cicalengka Kulon villages. The sampling was done by using stratified random sampling. The data collections method used a questionnaire that had already been drafted by researchers. The questionnaire was in the form of check list of the requirements of healthy latrines (Kemenkes, 2007) based on the risk assessment study of environmental health (EHRA, 2014).

The data was analyzed by using univariate method to analyze each variable in the form of a frequency distribution, and bivariate method on each variable to see if there was a correlation between the dependent variable and the dependent variable using the Chi Square test.

RESULT

Table. 1 The Correlation between Healthy Latrines with Diarrhea towards the Community in Cicalengka Kulon Village, Sub District of Cicalengka, Bandung Regency in 2015

Category	Diarrhea		Total	P value	OR
	Did not experience	Experience			
Unsanitary Latrine	1	87	88	0.000	8
	(1.1%)	(91.6%)	(100%)		
Sanitary latrine	7	1	8	0.000	8
	(91.6%)	(8.3%)	(100%)		

Based on Table 1, the statistical test results showed that P Value $0.000 < \alpha (0.05)$ indicated the rejected null hypothesis (H_0), which meant that there was a relationship between the incidence of diarrhea with the use of healthy latrines in the communities of Cicalengka Kulon village, Sub District of Cicalengka, Bandung Regency.

DISCUSSION

Sanitary Latrine

Based on the research that had been done in Cicalengka village, Sub district of Cicalengka Kulon, Bandung Regency in 2015, it was found that only small number of healthy latrines found in Cicalengka Kulon village that met the requirements of healthy latrines. The lack of healthy latrine coverage can also be explained by a theory based on a research conducted by Nova (2010). She suggested that there was still lack of awareness and consciousness on the importance of healthy environment, especially the rural areas. Latrine can be defined as healthy if it does not contaminate drinking water sources, is odorless, cannot be touched by insects or rodents, does not pollute the surrounding soil, is easy to clean and safe to use, has fitted wall and a protective roof, has lighting and adequate ventilation, waterproof flooring and adequate spacious room, available water, soap, and cleaning tool [9].

The data found that one requirements of healthy latrines, , which was ‘not contaminating drinking water sources,’ was not met in the community of Cicalengka village, where the distance of septic tank was much less than 10 meters from a water source and it can possibly contaminate the water sources. According to Notoatmojo [12], lack of attention to human excreta management can accelerate the spread of diseases such as diarrhea due to feces. Almost half of the community does not meet the healthy qualification for requirement of the infection of insects or rodents and adequate lighting and ventilation. According to Notoatmojo [12], places with poor lighting can be a good medium for the survival and growth of bacteria that cause certain diseases, and conversely, if the room is too light, it can also damage the eye. He also explained that lack of ventilation will cause moisture to be a medium of bacteria and insects that can transmit the disease.

A small portion of the community did not meet some requirements of healthy latrines such as waterproof floor, adequate spacious rooms , the availability of water, soap and cleaning tool in the pit, no smell or pollution of the surrounding soil, and easy to clean, safe to use, also protected walls and roof. If the requirements are not fulfilled, it will increase the risk of environment-based disease transmission such as diarrhea. According to Sanusi (2011) in Julianti (2014), the sanitation facilities that fulfill the health requirement and personal hygiene will reduce the risk of diarrheal disease.

The fulfillment of the requirements of less healthy latrines can be caused by lack of knowledge of healthy latrines, this was in line with the research conducted by Nova (2010), restricted knowledge and technology will hinder the citizens to be able to determine the infrastructure and facilities that will be built and used in their regions according to the needs, local culture, as well as the ability of people to manage the infrastructure. This can cause the construction of unsustainable infrastructure and facilities and they cannot function properly, and lack of attention from the local community to manage it.

Occurrence of diarrhea

Based on Table 4.2, there were some results obtained from the research that had been conducted in Cicalengka Kulon Village, Bandung Regency in 2015. The variable incidence of

diarrhea could be explained that most of the villagers in Cicalengka Kulon ever experienced diarrhea.

Diarrhea is affected by poor sanitation facilities, such as unhealthy latrines. This was supported with the research conducted by Nova (2010), which stated that diseases such as diarrhea and malaria could appear in areas with poor sanitation. This theory was proven by the findings where almost all people who experienced diarrhea did not have decent sanitation facilities. One of them was healthy latrines.

This was also reinforced by research conducted by Hamdani (2008) stated that high cases of diarrhea could be caused by environmental factors. This theory was proven by understanding that most of the public toilets did not meet the requirements of healthy latrines. Therefore, it could risk of contaminating drinking water because the water source was less than 10 meters from the shelter feces.

According to Achmadi [1], basic sanitations (e.g., latrines, trash, water supply, sewerage) are one of the major risk factors for the onset of disease, especially infectious diseases such as diarrhea.

The Correlation between Healthy Latrines with Diarrhea

The statistical test results showed that the value P value $0000 < \alpha (0:05)$ showed the rejected null hypothesis (H_0), which meant that there was a correlation between healthy latrines with the occurrence of diarrhea towards the community in Cicalengka Kulon village, Sub District of Cicalengka, Bandung Regency in 2015. The correlation between healthy latrines with the occurrence of diarrhea could also be explained by the theory of "4 F" proposed in a study conducted by Murwati [15], namely Fluids, Fields, Flies and Fingers. This cycle explained that the transmission of diarrheal disease was caused by the contamination of feces through the contamination of water, soil insects and the spread of dirty hands, which were then transmitted to the food consumed by humans.

However, it is also known that there are people who have healthy latrines but still can be affected with diarrhea. This can be explained by a theory conducted by Murwati [15] that stated that there were other factors that could also influence the process of transmission of the disease resulting in diarrhea; they are the characteristics of the host (immunity, nutritional status, health status, age and sex) and the behavior of its host (personal hygiene and food hygiene).

As for the community with unhealthy latrines, but no occurrence of diarrhea, it could be caused by good behavior of the individuals' sanitation. This finding was supported by research conducted by Sirait [23], the causes of diarrhea include bad environmental and personal hygiene. Therefore, it could be concluded that good hygiene and sanitation could significantly reduce the risk of diarrheal disease.

In terms of healthy latrines variable, it was found that only small fraction of community in Cicalengka Kulon village that met the requirements of healthy latrines. On the other hand, the variable of occurrence of diarrhea, it was found that most of the community of Cicalengka Kulon ever experienced diarrhea. That was influenced by the basic sanitation of the community, which could also influence the health status of the community.

This finding was supported by research from Diani [5] stating that diarrhea is one of the environment-linked diseases that have the dominant factors of water supply and disposal of excreta. In his research, Sirait [23] stated that the state of toilets were not clean, close distance

between home and landfills, open sewage system, and filthy housing conditions, which were at high risk of diarrheal disease.

It was concluded that unhealthy latrines influenced the occurrence of diarrhea. This finding was supported by a research conducted by [28], which stated that unhealthy latrines could be a source of the spread of bacteria in human feces, carried by animals as intermediaries such as insects or through direct contact; therefore, the infected bacteria could get into the body that could cause diarrhea.

According to a research conducted by Andriyani [2], household toilets are basic things that should be present in every home because well-maintained latrines can prevent the transmission of infectious disease such as diarrhea. Along with Adriyani, Ode [17] also explained that the increase of the sanitation facilities could reduce diarrhea occurrence because good sanitation can reduce the transmission of microbes that cause diarrhea by preventing human fecal contamination in the environment. This theory was consistent with the research findings. People who do not have healthy latrines have 8 times greater risk of suffering from diarrhea.

CONCLUSION

Based on the findings, the researchers could draw some conclusions about the relation between healthy latrines with the incidence of diarrhea towards the community in Cicalengka Kulon Village, Sub District of Cicalengka Kulon, Bandung Regency in 2015. The conclusions there were only a small percentage of respondents who had latrines that were qualified as healthy latrines. Almost all of the respondents had experienced diarrhea. There was a correlation between healthy latrines with diarrhea towards the community in Cicalengka Kulon Village, Sub District of Cicalengka Kulon, Bandung Regency in 2015.

RECOMMENDATION

According to the research, it was important to conduct consultation and training regarding basic sanitation, promotion of clean and healthy lifestyle, and environmental sanitation to the community to increase the coverage of basic sanitation latrines, particularly to promote health qualification and to prevent diarrhea occurrence in the community.

REFERENCES

- [1] Achmadi, U.F. (2008). *Manajemen Penyakit Berbasis Wilayah*. Jakarta : UI Press
- [2] Andriyani. (2014). *Studi Sanitasi Dasar pada Penderita Diare di Pulau Kodingareng Kecamatan Ujung Tanah Kota Makassar*. Skripsi, Fakultas Kesehatan Masyarakat Universitas Hasanuddin, Makassar. <http://repository.unhas.ac.id>. Di akses tanggal 16 Juni 2015
- [3] Arikunto, S. (2013). *Prosedur Penelitian Suatu Pendekatan Praktik*. Jakarta : Rineka Cipta
- [4] Choiriyah, N. (2010). *Identifikasi Pelaksanaan Kegiatan Program Sanitasi Berbasis Masyarakat. Tugas Akhir*, Fakultas Teknik Universitas Indonusa Esa Unggul. <http://digilib.esaunggul.ac.id>public>UEU-undergraduate-489>. Di akses Tanggal 5 Maret 2015
- [5] Diani. (2008) . *Penerapan Metode CLTS (Community Lead Total Sanitation) Sebagai Salah Satu Upaya Untuk Meningkatkan Akses Terhadap Jamban di Desa Ciberung Kecamatan Selajambe Kabupaten Kuningan*. Skripsi, Sekolah Tinggi Ilmu Kesehatan

Kuningan

- [6] Dinas Kesehatan Kabupaten Bandung. (2013). *Profil Dinas Kesehatan Kabupaten Bandung 2013*
- [7] Hidayat, A. and Aziz A. (2009). *Metode Penelitian Kebidanan dan Tehnik Analisis Data*. Jakarta : Salemba Medika
- [8] Juliati. (2014). *Hubungan Pengetahuan dan Sikap Ibu yang Mempunyai Balita dengan Kejadian Diare pada Balita di Wilayah Kerja Puskesmas Pasir Lugu Kabupaten Bandung Barat*. Skripsi, Sekolah Tinggi Ilmu Kesehatan Bhakti Kencana Bandung
- [9] Kementrian Kesehatan RI, (2007). *Buku Saku Rumah Tangga Sehat dengan PHBS*. Jakarta : Pusat Promosi Kesehatan
- [10] Kementrian Kesehatan RI. (2013). *Kurikulum dan Modul Pelatihan STBM bagi Dosen Jurusan Kesehatan Lingkungan Politeknik Kesehatan di Indonesia*. Jakarta : Kementerian Kesehatan RI 2013
- [11] Keputusan Menteri Kesehatan Nomor 852 Tahun 2008 Tentang Strategi Nasional Sanitasi Total Berbasis Masyarakat
- [12] Notoatmodjo, S. (2005). *Promosi Kesehatan Teori dan Aplikasi*. Jakarta : Rineka Cipta
- [13] Notoatmodjo, S. (2010). *Metodologi Penelitian Kesehatan*. Jakarta : Rineka Cipta
- [14] Nursalam. (2009). *Konsep dan Penerapan Metode Penelitian Ilmu Keperawatan*. Jakarta : Salemba Medika
- [15] Murwati, M. (2012). *Faktor host dan lingkungan yang mempengaruhi perilaku buang air besar sembarangan / (open defecation)*. Tesis, Program Pasca Sarjana Universitas Diponegoro. <http://eprints.undip.ac.id/42524/1>. Di akses tanggal 5 maret 2015
- [16] Ngastiyah. (2005). *Perawatan Anak Sakit*. Jakarta : EGC
- [17] Ode, AM. (2011). *Hubungan Jenis Air Bersih, Kepemilikan Sarana Sanitasi terhadap Penyakit Berbasis Lingkungan pada Wilayah Kerja Puskesmas Bira Kecamatan Tamalanrea Kota Makassar*. Skripsi, Fakultas Kesehatan Masyarakat. Universitas Hasanuddin, Makassar. <http://repository.unhas.ac.id>. Di akses tanggal 16 Juni 2015
- [18] Peraturan Menteri Kesehatan No.3 Tahun 2014 Tentang Sanitasi Total Berbasis Masyarakat
- [19] Proverawati, A. (2012). *Perilaku Hidup Bersih dan Sehat (PHBS)*. Yogyakarta : Nuha Medika
- [20] Ratnawati. (2009). *Faktor-Faktor yang Berhubungan dengan Kejadian Diare*. Skripsi, Universitas Muhammadiyah Surakarta. <http://www.distrodoc.com/219847> . Di akses tanggal 16 Juni 2015
- [21] Rohayati, E. (2014). *Hubungan Pengetahuan dan Sikap Keluarga dengan Penggunaan Jamban Keluarga di Wilayah Kerja Puskesmas Maniis Kecamatan Manis Kabupaten Purwakarta*. Skripsi, Sekolah Tinggi Ilmu Kesehatan Bhakti Kencana Bandung
- [22] Saksono, L. (2007). *Pengantar Sanitasi Makanan*. Bandung : PT. ALUMNI
- [23] Sirait, Asima, & Saragih M.F. 2010. *Faktor -Faktor yang Berhubungan dengan Kejadian Diare pada Balita di Desa Simanabun Kecamatan Silou Kahean Kabupaten Simalungun*. Universitas Sari Mutiara Indonesia Medan. <http://sari-mutiara.ac.id> . Di akses tanggal 16 Juni 2015
- [24] Sugiyono. (2011). *Metode Penelitian Kuantitatif Kualitatif dan R&D*. Bandung : Alfabeta
- [25] Sugiyono. (2009). *Statistika untuk Penelitian*. Bandung : Alfabeta
- [26] Undang – Undang Republik Indonesia No.36 Tahun 2009. Tentang Kesehatan.
- [27] Urban Sanitation Development Program, (2014). *Panduan Praktis Pelaksanaan EHRA (Environmental Health Risk Assessment / Penilaian Risiko Kesehatan Karena Lingkungan*. Jakarta
- [28] Wandansari, A. P. (2013). *Kualitas Sumber Air Minum Dan Pemanfaatan Jamban*

- Keluarga Dengan Kejadian Diare*. Jurnal Kesehatan Masyarakat, 9(1), 24-29.
<http://journal.unnes.ac.id/nju/index.php/kemas>. Di akses tanggal 16 Juni 2015
- [29] WSP-EAP. (2008). *Economic Impacts of Sanitation in Indonesia*. Research Report.
<http://www.wsp.org/sites/wsp.org/files/publications>. Di akses Tanggal 10
Maret 2015
- [30] WSP-EAP. (2009). *Informasi Pilihan Jamban Sehat*. Jakarta : POKJA AMPL.