

Factors of Knowledge and Toilet Availability in Affecting Behavior of Open Defecation

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Abstract- Behavior of open defecation is defecation in open areas (fields, gardens, rivers). The most important problem in the behavior of open defecation is actually a stool, as if the human who produced it suffered from the digestive tract, then the sludge may be contaminated with *Escherichia coli* (*E. coli*) and fecal streptococci which are often found in the human digestive tract. When *E. coli* is entered on disease transmission media such as food and drinking water, and enter in the digestive tract that are declining immunity would make a person is suffering from diarrhea. The research objective was to determine the relationship between knowledge and availability of toilet with behavior of open defecation. This research methods is correlational analytic with cross sectional approach. The population is community in Oesao Village East Kupang Sub-District, Camplong II Village Fatuleu Sub-District and Noelbaki Village Central Kupang Sub-District, by simple random sampling technique samples obtained 105 respondents. This study was conducted in January-February 2016. The results based on chi-square test showed p value 0,004 dan 0,019. The conclusion there is relationship between knowledge and availability of toilet with behavior of open defecation.

Index Terms- knowledge, availability of toilet, behavior of open defecation.

I. INTRODUCTION

Sanitation is an effort to improve environmental quality, which is done when there are changes in the environment due to the shift of environmental quality. Sanitation issues become important study throughout the world for at least 5 million children died as a result of the difficulty of getting basic sanitation facilities, such as bathing, washing, toilet that adequate and hygienic. Water Sanitation Program (WSP) reports that 1.8 million children die each year before their fifth birthday as a result of diarrheal diseases due to unhygienic. And one of such behavior is the behavior of open defecation (Juniar, 2013).

Behavior of open defecation is defecation in open areas (fields, gardens, rivers). The most important problem in the behavior of open defecation is actually a stool, as if the human who produced it suffered from the digestive tract, the stool could potentially contain bacteria *Escherichia coli* (*E. coli*) and fecal streptococci which are often found in the human digestive tract.

When *E. coli* is entered on disease transmission media such as food and drinking water, and into the digestive tract of people who temporarily decreased immunity, will make the people who consume them are suffering from diarrhea (Murwati, 2012).

Based on data from the World Health Organization (WHO) in 2010 and the results of joint research between the United Nations International Children's Emergency Fund (UNICEF) and the World Health Organization estimates that 1.1 billion people or 17% of the world population still defecate in the open area. From the 82% of the population who behavior of open defecation in 10 countries, Indonesia is the second country after India (58%), Indonesia (55%), China (4.5%), Ethiopia (4.4%), Pakistan (4, 3%), Nigeria (3%), Sudan (1.5%), Nepal (1.3%), Brazil (1.2%) and Nigeria (1.1%). There are still many people who do the behavior of open defecation, because it is still having trouble accessing clean water and sanitation system limitations. WHO in 2014, recording 88% of child mortality due to diarrhea caused indirectly by the bad environment (Antara News, 2014).

Dean (2013) also confirmed that the behavior of open defecation becomes important variables that affect the quality of life in the future (Dean, 2013). Chandra in 2007 explains that the behavior of open defecation mostly found in poor and developing countries, especially in rural communities and urban slums. It is as a result of the socioeconomic conditions of low and knowledge in the field of environmental health is lacking (Chandra, 2007).

Sholikhah (2012) stated in his research that people who practice open defecation is the behavior of people who do not have their own toilet. Low socio-economic conditions led to prioritize the needs of society rather than making food consumption and provide toilet at home. (Solikhah, 2012).

Research in the province of East Nusa Tenggara by Faku (2008), suggest that among people who suffer from diarrhea, some of which have a habit of open defecation. The use rate of family toilet relatively low at 54% and is likely to diarrheal disease 38% more likely than those who use toilet (Faku, 2008).

East Nusa Tenggara Province³⁾ is one of the provinces in Indonesia which has a specific regional characteristics. Comprising over 1,192 islands and temperate 8 month dry / wet dry and 4 months / rain made East Nusa Tenggara region called semiringkai / semi sickle. Residents lived in three large islands of Sumba, Flores, Timor and three small islands that Rote, Sabu, Alor, called Flobamora. With a height of 0-1000 masl area

covering 86.35% and > 1.000 Mdpl area of 3.65%, and topografie villages / wards are in the region of 5.46% peak, 41.23% are in the slope region, 10.68% of the region 42.62% valleys and flat areas, making East Nusa Tenggara topografie rich diversity, socio-economic and cultural (BKPM Prov.NTT, 2013).

Based on interviews with the sanitarian and some members of the community, through the efforts of the program has produced a change, but not optimally. Availability of toilet at home does not mean free of open defecation, because toilet only as a form / manifestation of the health program. Barriers to achieving open defecation-free number is because this behavior is usually more common in rural communities or suburbs which is a slum area with limited economic and knowledge so low that they can not fully understand the importance of sanitation to the quality of life. Based on the above explanation needed research on the relationship of knowledge and availability of toilet with the behavior of open defecation.

II. RESEARCH METHODS

This study was an observational analytic study with cross sectional approach. The population in this study are community in Oesao Village East Kupang Sub-District, Camplong II Village Fatuleu Sub-District and Noelbaki Village Central Kupang Sub-District Kupang District. Samples in this study are people in the three villages, with inclusive and exclusive criteria. The inclusion

criteria are, respondent is head of the family (KK), spouse or family member to be at least 12 years, so it can give the perception and able to communicate well.

While exclusion criteria were selected as respondents but difficult to find, was ill and could not be interviewed on research time, so we get a sample of 105 respondents menggunakan simple random sampling.

Instrument in this study is a spreadsheet (identity data and questionnaire), accompanied by the approval of the subject of research which contains the demographic characteristics of the owner of the work and workers who become respondents, including age, gender and periode of working. Questionnaires were distributed to respondents to measure the respondents' knowledge, availability of toilet and behavior of defecation. Data were analyzed using chi square test with an alpha of 95%. This study was conducted in Oesao Village East Kupang Sub-District, Camplong II Village Fatuleu Sub-District and Noelbaki Village Central Kupang Sub-District Kupang District in January-February 2016.

III. RESULT

Univariate Analisis

Based on table 1 can be seen most respondents had low knowledge (63.8%), 57.1% of respondents do not have toilet and 61% had a habit of open defecation.

Table 1. Overview of knowledge, availability of toilet and behavior of open defecation

Knowledge	Total	Percentage (%)
High	38	36,2
Low	67	63,8
Availability of Toilet	Total	Percentage (%)
Available	34	32,4
No Available	71	67,6
Behavior of Open Defecation	Total	Percentage (%)
Open Defecation	72	68,6
No Open Defecation	33	31,4
Total	105	100

Bivariate Analisis

The results using chi-square test showed there is relationship between knowledge and availability of toilet with

behavior of open defecation because the p-value <0.05, as shown in Table 2.

Table 2. Relationship of knowledge and availability of toilet with behavior of open defecation

Knowledge	Behavior of Open Defecation				Total		P Value
	Open Defecation	%	No Defecation	%	Total	%	
High	8	21,1	30	78,9	38	100	0,004
Low	64	95,5	3	4,5	67	100	
Availability of Toilet	Perilaku BAB				Total		P Value
	Open Defecation	%	No Defecation	%	Total	%	

Available	3	9,7	31	90,3	34	100	0,019
No Available	69	97,2	2	2,8	71	100	

IV. DISCUSSION

The results using chi-square test showed there is relationship between knowledge with behavior of open defecation, because the p-value <0.05. Behavior of defecation is the practice of a person associated with the activities includes excreta disposal, disposal of feces and fecal management of a qualified health and how healthy bowel movements so as not to cause adverse health effects (Widowati et al, 2015).

In the results, the majority of respondents (63.8%) had low knowledge and 95.5% of them had defecation behavior. While people who have the knowledge of the high category behave defecation in the toilet, but there are also people who are knowledgeable are still high behavior of open defecation which have latrines but flowed into the pond. This shows the knowledge factors as variables related to the behavior of open defecation.

Based on Table 2, it appears that knowledge has a high percentage of open defecation behavior dijambar larger than knowledgeable respondents were low and statistically significant relationship between knowledge and behavior of open defecation. On the results of research knowledge variable, the average low knowledge of public knowledge that this is attributable to the lack of knowledge and information society in a healthy family latrine utilization while also people still behave open defecation in the pond / pool, river, and passengers

The results are consistent with research Tarin 2008 about the factors that affect the family's participation in the use of latrines in Kabanjahe City in 2007 which showed that factors related to family participation in latrine use that knowledge (p = 0.000). This is also supported by Triyono, the higher the knowledge of the behavior of open defecation would be lower

According to Irawan in 2013 were minimal knowledge about health also reinforces the behavior. The pattern of behavior of citizens is indented on the pattern of public behavior which is pathogenic, or people who are socially deviant. This behavior resulted directly / indirectly to the contamination of drinking water sources and pollution of the (recontamination) on the source of water and food eaten at home. The practice of open defecation translated into any place and let the stool in the open. Though sanitation and health behavior will reduce the incidence of diseases transmitted through water, as well as providing social benefits, environmental, and economic significance (Health Ministry of RI, 2008).

According to Notoatmodjo 2007, which are cognitive knowledge domain is very important for the formation of an action. The action is based on the knowledge will be more lasting than the behaviors that are not based on respondents' awareness of the importance of having a family latrine at home. The knowledge discussed in this study is about the use of toilet a family at home. Knowledge is closely related to a person's actions in this case, knowledge about the use of toilet family home will greatly influence the behavior in choosing

The results using chi-square test showed there is relationship between availability of toilet with behavior of open defecation, because the p-value > 0.05. According to the theory of Lawrence Green in 1980 one of the determining factors of a person's behavior is an enabling factor (enabling factor). The supporting factors are manifested in the physical environment, including the wide range of facilities and infrastructure. In this study is the availability of latrines. Triyono 2014 according to the higher availability of latrines, the behavior of open defecation will be even lower (Triyono, 2014).

According to Astuti research in 2013 there was significant relationship availability of latrines with open defecation behavior. People who have latrines tend to avoid indiscriminate defecation behavior for their enabling factor that made it not to waste water carelessly. Most respondents claimed defecation because they do not have a toilet at home.

Toilet is a building that is used to dispose of human waste. Human waste is accommodated in a septic tank which is subsequently absorbed into the soil or managed in a certain way, so it does not cause odor and contaminate the surrounding water sources. To reduce the influence of toilet in water pollution control one of them is to make the distance between the holes with water reservoirs minimum of 11 meter (Lud Waluyo, 2005:60).

According to Wardoyo research in 2010 the availability of latrines that meet the requirements are things that must be considered by a family, due to the availability of latrines memenuhipersyaratan, the incidence of diarrhea can be minimized. Where the terms latrines that meet the health requirements are: 1). Septick tanks do not pollute surface and ground water, the distance to the source of water approximately 10 meters. 2). When the goose neck shaped, insulating water always cover the hole where the squat. And 3). If no goose neck, must be equipped with a squat hole cover to prevent flies or insects / other animals.

V. CONCLUSION

The results showed there is a relationship between knowledge and availability of toilet with behavior of open defecation.

REFERENCES

- [1] Antara News (2014) Indonesia in the second position of the worlds about behavior of open defecation. Wednesday 19 November 2014. <http://m.antarabali.com/berita>. (Accessed March 14 2016 21.34 WIB).
- [2] Astuti DF. Factors associated with the practice of open defecation in the Sukamaju Village Rancakalong Sub-District of Sumedang District. Thesis. Semarang: School of Public Health Diponegoro University, 2013.
- [3] Capital Investment Coordinating Board. East Nusa Tenggara Province. (2013). Profile of East Nusa Tenggara in 2013. [http://ProfilProvinsiNusaTenggaraTimur - BKPM Provinsi NTT.html](http://ProfilProvinsiNusaTenggaraTimur-BKPMProvinsiNTT.html) (Accessed 21 Agustus 2015; 18.37 WIB).
- [4] Chandra. Budiman. 2007. Introduction to Environmental Health. Jakarta. EGC Press

- [5] Dean, Spears., Ghosh, Arabinda., Cumming, Oliver (2013) Open Defecation and Childhood Stunting in India: An Ecological Analysis of New Data from 112 Districts. PLOS ONE. September 2013 | Volume 8 | Issue 9 | e73784 ; 10 page.
- [6] Ministry of Health RI, "Guidelines for Community Based Total Sanitation (Guidlines STBM)", Ministry of Health, Jakarta, 2008.
- [7] Erwan S. Subjective norm defecation in Daytona Beach Tuban, East Java. Thesis. Semarang: Department of Psychology, Faculty of Education, University of Semarang, 2013.
- [8] Faku, Absalom. 2008. Relationships of Using the Genesis Family toilet with Diarrhea In the Teunbaun village Amarasi Barat Sub-District of Kupang district. Thesis. Kupang. School of Public Health UNDANA.
- [9] Juniar, Midia. 2013. Study on Total Sanitation Program Implementation and Marketing Sanitation (stops) in Perspective deliberative in Ngampungan Village Bareng Sub-District Jombang District. Journal of Public Policy and Management Volume 1, No 1, January 2013. ISSN 2303 - 341X . page : 120-130.
- [10] Lud Waluyo, 2005, Environment of Microbiology, Malang: UMM Press.
- [11] Murwati, M. 2012. Factors of Host And Environmental that Affecting Behavior of Open Defecation. Thesis. Semarang. Master Program of Epidemiology School of Public Health Diponegoro University.
- [12] Notoatmodjo, S. 2007. Behavioral Health and Behavioural Sciences. Jakarta: Rineka Cipta.
- [13] Sholikhah, S. 2012. Relations Program Implementation ODF (Open Defecation Free) with The Public Behavior Change In defecate in Outside Toilet In Kemiri Village Malo Sub-District Bojonegoro District in the Year 2012. Research Journal Promkes Vol 1 No 2 December 2013. page: 138-144.
- [14] Tarigan, H.G. 2008. Factors that Affecting the Family Participation in the use of toilet in Kalijamben City year 2007. Makassar: Environmental Health, College of Health Sciences Makassar.
- [15] Triyono A. Factors associated with defecation fishing community in Garapan Tanjung Pasir Village Tangerang District, Province of Banten. Faculty of Health Science Esa Unggul University, 2014
- [16] Wardoyo FS. Relations mothers' knowledge of diarrhea and the condition of toilet with the incidence of diarrhea in children under five in the Blimbing Village Sambirejo District of Sragen in 2011. Thesis. Jurusan Ilmu Kesehatan Masyarakat Universitas Negeri Semarang, 2010.
- [17] Widowati NN, Purwoatmojo G, Darnoto S. Relationship characteristics of homeowners with indiscriminate defecation in Puskesmas Sambungmacan II Sragen District. School of Public Health Muhammadiyah Surakarta University, 2015.

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