CORRELATION OF ENVIRONMENTAL FACTORS ASSOCIATED WITH THE INCIDENCE OF DIARRHEA IN UNDER-FIVE IN INDONESIA : A COMMUNITY BASED TOTAL SANITATION APPROACH TOWARD ACHIEVEMENT MILLENNIUM DEVELOPMENT GOALS

HUBUNGAN FAKTOR LINGKUNGAN DENGAN KEJADIAN DIARE PADA ANAK BALITA DI INDONESIA : SEBUAH PENDEKATAN SANITASI TOTAL BERBASIS MASYARAKAT MENUJU MDGs

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ABSTRACT

Background: Diarrhea is a worldwide health problem, especially in the developing countries. Based on WHO (2010) that 58% of under-five deaths were caused by infectious diseases, one on it was diarrhea. Based on Ministry of Health Indonesia (2011), 8.8 million child deaths in the world was 1,3 million caused by diarrhea in 2008, and more than 98% of it occur in 68 the developing countries. In Indonesia 5% of under-five deaths were caused by diarrhea (WHO, 2010). The purpose of this research is to analyze the association between environmental factors with the incidence of diarrhea in under-five.
Method: The method used in documentation was by collecting the data from the results of research studies as well as supporting the secondary data sources. The data analysis was descriptive analysis technique.
Result: The research results of Eralita (2001), showed that variables had significant correlation with diarrhea were clean water facilities OR=6.610, having latrine OR=2.896, waste water sewage facilities OR=5.967, and solid waste container facilities OR=3.746. The research by Sinthamurniwaty (2006), the risk factor that influence diarrhea in under-five was who do not use clean water source (OR = 2,208). Also, the research results of Rosyidi (2011) at District Lebong, Bengkulu Province showed the variable that associated was location of septic tank OR=4.934. It strengthened by the research of Santoso (2003) in the Sukarta City, that was discovered coliform content in water sources clean. This suggests the existence of contamination by feces as a source of diarrhea disease.
Conclusion: There is association between a family privy with incidence of diarrhea, this indicates that environment pollution caused by faces as the source of diarrhea.
Keyword: diarrhea in under-five, environmental factors, community based total sanitation

INTRODUCTION

Diarrheal disease remains a health concern worldwide, especially in developing countries like Indonesia. This is evident from the high morbidity and mortality in children under five are caused by diarrheal diseases. In the world, as many as 6 million children die each year from diarrhea, and most deaths occur in developing countries.[1] Based on data from WHO (2010) that 58% of deaths among children under five are caused by infectious diseases, including diseases caused by diarrhea.[2] At the global level, diarrhea caused 16% mortality, slightly lower compared with pneumonia, while at the regional level (developing countries), diarrhea accounts for approximately 18% of deaths from 3070 million children under five. In Indonesia, diarrhea a major cause of death in under five, ie 25.2%, higher than pneumonia, 15.5%.[3] In year 2006 it was recorded diarrhea cases of 423 per 1000 population, and in year 2010 to 411 per 1000 population (Sub diarrhea morbidity survey in 2010). Although it look like to decrease, but did not show significant changes. Diarrheal disease remains a leading cause of death in under five. When viewed by age group, diarrhea is spread across all age

groups with the highest prevalence was detected among children under five is 16.7%. Similarly, the largest cause of death among children under five are diarrhea (25.2%).[1] High incidence of morbidity and under five mortality caused by diarrhea diseases, would be a serious problem for Indonesia in order to achieve the millennium development goals of the fourth MDGs is to reduce under five mortality to be 2/3 within a period of 25 years (1990 -2015).
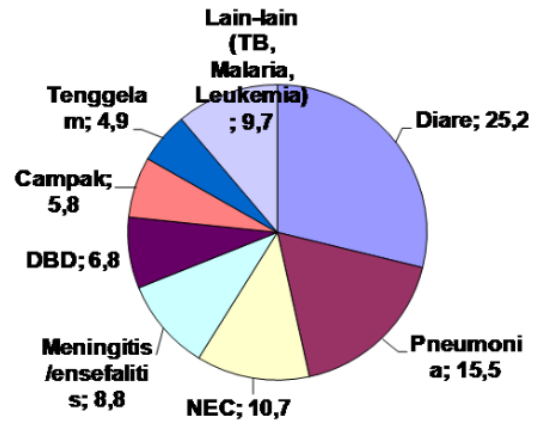
METHOD

Method non-experimental approach to qualitative research. Data collection methods derived from secondary data with the method of documentation is to look for data from some of the results of research that has been done as well as other supporting secondary data sources. Data analysis using descriptive analysis.

RESULT AND DISCUSSION
Environmental Factors Associated with Genesis Diarrhea In Under five

Various studies have been done related to the incidence of diarrhea to get the environmental factors associated with the incidence of diarrhea, especially among children under five, for a toddler is one of these individuals are susceptible to diarrhea. It becomes important and still gives the still high incidence of morbidity and mortality caused by diarrheal disease in under five. Even when compared with the incidence of other diseases suffered by children under five.

Figure 1.
Proportion of Causes of Death Under five 0-59 Months [1]

From various studies, some studies have shown that the relationship between environmental factors with the incidence of diarrhea in under five is the study by Aryanto (2012)[4] in Makassar city with the highest prevalence in under five and mortality due to diarrhea in under five at 25.2%. The results showed that unhygienic disposal of feces, shaped ditches, ponds, rivers, and similar facilities at risk of causing diarrhea in under five at 3.289 compared to the disposal of excreta form latrines goose neck, as well as the risk of contamination of drinking water sources are categorized as 2.633 times the risk of causing diarrhea.

Supported research conducted by Eralita (2011)[5] in District 5 Pahandut, which is a district with the highest number of diarrhea cases than other districts in Palangkaraya city, with cases reaching 2199 children under five in 2009. The result of multivariate analysis showed seven variables had a significant association with acute diarrhea in young children, among which are associated with home environmental factors: 1) Clean water OR = 6.610; 2) Latrine Ownership OR = 2.896; 3) Availability of sewage disposal OR = 5.967, 4) availability of means of waste disposal OR = 3.746; 5) Knowledge of mother OR = 3.458; 6) The habit of throwing feces mother under five/

toddler in toilet OR = 5.279; 7) mother's ability to use clean water OR = 3.331. The study concluded that the water supply, latrine ownership, availability of waste water disposal facilities, the availability of waste disposal facilities, knowledge of the mother, mother's habit of throwing feces of under five in toilet, mother's habit of using clean water having a significant association with acute diarrhea in under five.

Other research supports the correlation of environmental conditions with the incidence of diarrhea in under five is a study conducted by Rosyidi (2011)[6] Lebong district, South Sumatra. In 2009 in the district there are as many as 224 Lebong cases of diarrhea in under five. The results showed that the variables related to the incidence of acute diarrhea in children under five is where the disposal of excreta OR = 4.934, and the habit of washing their hands before feeding a toddler OR = 4.832.

A study by Yusmidiarti (2010)[7], in the province of Bengkulu with the incidence of diarrhea is still high, which in 2009 found 18.181 (64.37%) cases among children under five. The results showed that the environmental health facilities are the type of water source with a value of OR = 4.026, and the availability of latrines that do not meet health requirements with a value of OR = 3.574, proved to act as risk factors for the incidence of diarrhea in under five.

Based on the above studies as well as several other studies related to the incidence of diarrheal diseases among children under five showed that one of factor that often affects the incidence of diarrheal disease in under five is the use of toilets that meet the health requirements, which is one of component from the requirements of a healthy home. Thus the high incidence of diarrhea among children under five in Indonesia can be a linear effect of the number of homes still in Indonesia which do not meet the requirements of a healthy home in a healthy aspect latrine requirements. It is based on data basic medical

research year 2010 (Ministry of Health Indonesia, 2011), that of all the major cities in Indonesia, people who have used septick tank for excreta disposal facilities is at 59.3%. These data suggest that there are nearly half of all households in Indonesia have not been using septick tank as one of the waste water drain (SPAL), but such as by dumping waste directly into water bodies such as ponds, rivers or lakes.

This conclusion is supported by a study by Santoso (2003)[8], which objective to determine the sanitary condition of the home ties and the content of coliform bacteria in the incidence of diarrhea in under five in Surakarta City Housing Police Manahan. The results show that homes are not eligible for water supply as much as 33.9%, household toilet does not qualify as much as 16%, garbage disposal does not qualify as much as 13% and waste water disposal facilities that do not qualify as much as 11%. Based on the chi square test found that the provision of clean water, family latrines and sewage disposal facilities with the incidence of diarrhea in under five there was a significant association. Between the household toilet with diarrhea there is a strong relationship, this suggests that the presence of environmental contamination by feces as a source of diarrheal disease.

Accordingly these studies showed that results can be concluded that there is a correlation between the incidence of diarrhea in under five with the availability of latrines as one of the requirements of a healthy home.

A Community Based Total Sanitation Approach

The Millennium Development Goals (MDGs) to reduce the number 4 is under five child mortality by two-thirds of the state in 1990. Meanwhile, according to Health Research Association in 2007, the biggest cause of under five and child mortality is diarrheal disease. Therefore, it is necessary

efforts to combat diarrheal disease primarily among children under five. It is known that the incidence of diarrhea correlated with the sanitary conditions, among others: the behavior and defecation facilities, waste management and household waste. Then the sanitary conditions of a better society will be achieved through a comprehensive sanitation efforts by changing people's behavior. Efforts are made throughout to achieve MDG targets to 4.

Community Based Total Sanitation (CBTS) Approach is a strategy program that focuses on the achievement of total sanitation conditions in the community through changes in hygiene behavior, with the involvement (empowerment) of all components within the community. The purpose of this approach is to achieve total sanitation conditions through empowering people to change behavior in public hygiene and sanitation. There are three components that form the basis CBTS reached 5 pillars CBTS strategy. This component is an integral and mutually influence each other:[9]

a. Creation of a conducive environment (enabling environment)

This component aims to improve the support of government and stakeholders in improving the hygiene and sanitary behavior through :

1) Advocacy and socialization in stages to the government and other stakeholders at central level to local governments to commit to provide resources for the implementation of the CBTS, make regulations, and establish coordination and implementing agencies in the region.

2) Improve human resource capacity (eg. trainers and facilitators CBTS) in the area.

3) Enhance partnerships between governments, civil society organizations, NGOs, private sector etc.

b. Increased demand for sanitation needs (demand creation)

This component purpose to increase the need for sanitation in the community through systematic efforts to change hygienic behaviors and sanitary community through :

1) Trigger changes in behavior

2) Promotions, campaigns and dissemination of hygiene and sanitation behavior change through mass media and other communication media.

3) Develop commitment to the community in hygiene behavior change and sanitair.

4) Facilitate the formation of kommite / team work in the community

5) Develop an appreciation of the mechanisms and institutions that play a role in the CBTS.

c. Improved sanitation provision (supply improvement)

The purpose of this component to improve and develop prioritized accelerating the provision of sanitation, and access to adequate sanitation services through the development of sanitation in the market, among others :

1) Develop sanitation technology options that fit your needs and affordable communities in the area.

2) Create and strengthen networks in rural sanitation markets.

3) Develop mechanisms for increasing the capacity of market participants sanitation.

The promotor/organizers of Community Based Total Sanitation accordance with Law No. 32 On Local Government, that the organizers of sanitation for the community is an obligatory under the authority of local governments (provincial, district/city).

CONCLUSIONS

Diarrhea is a worldwide health problem, especially in developing countries, including Indonesia. In Indonesia, although cases of morbidity and mortality caused by

diarrhea are decreased, but the incidence rate remained at a high rate, especially among children under five. Even diarrhea became the major diseases that cause death in children under five. Various studies have shown that there is a correlation of the incidence of diarrhea among children under five with a factor of hygiene and sanitary home environment. So in an effort to reduce the incidence of morbidity and mortality in children under five, need for intervention, especially the factor of hygiene and environmental sanitation of the house. So, to achieve the goals, one strategy that can be done is through the Community Based Total Sanitation (CBTS) approach. The three main components of the CBTS are : the creation of a conducive environment (enabling environment); improved sanitation needs of the request (demand creation); improved sanitation provision (supply improvement).

REFERENCES

1. Ministry of Health Indonesia. *Health Profile of Indonesia*. Jakarta : Ministry of Health of the Republic Indonesia. 2011.
2. WHO. *Global Health Observatory Data Repository*. 2010.
3. Ministry of Health Indonesia. *Guidelines Management of Diarrhea in Under Five Socialization. Directorate General of Disease Control and Environmental Health*. 2010.
4. Aryanto, Samsu. Study of Sociodemographic and Environmental Hygiene Sanitation Diarrhea In Under Five Patients in Makassar City. *Thesis.* Master Program. Gadjah Mada University. 2012.
5. Eralita. Environmental Sanitation relations, Knowledge and Behavior Mother of Acute Diarrhea In Under Five in the District of the Pahandut Palangkaraya City. *Thesis.* Master Program. Gadjah Mada University. 2011.
6. Rosyidi, Ali. Risk Factors in the Genesis of Acute Diarrhea in Under Five in Lebong District, Bengkulu Province. *Thesis*. Master Program. Gadjah Mada University. 2011.
7. Yusmidiarti. Health Facility Environment and Behavior Mother With Diarrhea In Under Five At Genesis Health Center Fish Market Regional District of the Segara Gulf of Bengkulu City in Year 2010. *Thesis*. Master Program. Gadjah Mada University. 2010.
8. Santoso, Wahyudi Amrih. The Relations Sanitary Conditions of Water Content of Coliform with The Incidences of Diarrhea in Under Five at Genesis Housing Mahanan in Surakarta City. *Thesis.* Master Program. Gadjah Mada University. 2003.
9. Wijaya, Ali Muliadi. *The Community Based Total Sanitation Programme*. 2011.