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Effects of Environment Sanitation on Early Neonatal Death (0-7 days) in Situbondo District

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ABSTRACT

Environment sanitation was closely related to clean and health living behavior of society to keep cleanliness and health of surrounding environment. The failure of environment sanitation affected to incident of disaster and disease epidemic which was an indirect factor of neonatal death. This research aimed to analyze the effects of environment sanitation to the incident of early neonatal death (0-7 days) in Situbondo District. This research was categorized into descriptive analytic research which exerted case control approach. The population size was 206 respondents, while the sample size was 170 respondents, selected using simple random sampling. The sample was comprised of case group of 85 mothers whose babies died in the age (0-7 days) and the control group of 85 mothers whose babies alive in the age 0-28 days. Data were analyzed using logistic regression test. This research findings showed that it was found relationship between the waste water disposal and early neonatal death, with p-value of 0.091.
Keywords: environment sanitation; early neonatal death

INTRODUCTION

Environment sanitation is referred as an unresolved problem in Indonesia because of a lack of society awareness to the surrounding environment, as the consequence, it impacts to the high rate of illness and deathwhich was caused by poor environment sanitation. The poor environment sanitation can affect to disaster or disease epidemic that damages individual health, since the poor environment was a place of vector proliferation where unconsciously we are directly exposed to this sphere[(1)].

Some regions in this world have undergone the increase of case and potential of environmental-based disease transmission which can attack all age groups. According to WHO, the unhealthy condition of environment sanitation was mostly found in developing countries including to Indonesia. The development of this disease pattern of environmental-base was caused by poor sanitation and direct contact to polluter water source, uninhabitable house, habit of open defecation, unavailability of waste water disposal that would be fulfill the standards, and other kinds of disease that are transmitted from animal[(2)].

The poor quality of environment sanitation can emerge to the increase of disease and death that might attack all age groups, especially baby and toddler who tend to have susceptible body condition. The main factor of death are caused by environmental-based disease as URI (Upper Respiratory Tract Infection) and diarrhea[(3)]. The death on baby and toddler is caused by this kind of disease infection which was ranked on the highest rate, based on the survey report, it has stated that besides to the death on baby which was caused and happened during antenatal, perinatal, and post natal period, the poor social economic condition and not optimal environment sanitation also affected to this death[(4)].

METHODS

This research was categorized into quantitative research which exerted research method of descriptive analytic, while the data analysis exerted logistic regression which aimed to identify the effects of environment sanitation to the neonatal death. This research employed data collection in case control which referred to the research method by comparing between two groups, case group and control group [(5)].

The case group in this research were taken from mothers whose the babies died in age (0-7 days) in Situbondo District and the control group in this research were mother whose the babiesalive in age (0-28 days) who stayed around the house of mothers whose babies died in age (0-7 days) in Situbondo District.

The total of research population was 206 people which consisted of mothers whose babies died in age 0-7 days in case group and mothers whose babies alive in age 0-28 days in control case, all of them lived in Situbondo District, East Java. Finally, this research involved the sample in about 170 respondents who were divided into two groups, 85 respondents of case group which was consisted of mothers whose babies died in 0-7

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days and the rest 85 respondents of control case which consisted of mothers whose babies alive in age 0-28 days in Situbondo.

This research employed descriptive analysis as the research method, while logistic regression as the data analysis method. The descriptive analysis in this research was used to illustrate the characteristics of respondents whose babies died in age 0-7 days and respondents whose babies alive in age 0-28 days in general. Whilst, the logistic regression analysis method was used to test the effects of dependent variable to the incident of neonatal death.

This research has been through an ethics test in commission of health research ethics of Dentistry Faculty of Jember University with permission number 640/UN25.8/KEPK/DL/2019.

RESULTS

Characteristics of Respondent

Table 1. The characteristic of respondents

Variable	Case		Control		Total	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Education:						
Low	47	55.3	59	69.4	106	100
High	38	44.7	26	30.6	64	100
Occupation:						
Unemployed	69	81.2	47	55.3	116	100
Employed	16	18.8	38	44.7	54	100
Age:						
No risk (20-35 years)	51	60	70	82.4	121	100
At risk (<20 yearsand>35 years)	34	40	15	17.6	49	100

The table 1 has defined the characteristics of respondent which based on educational background, 69.4% respondents of low educational background (Elementary School/Junior High School) in the case group, while 44.7% respondents of high educational background (Senior High School/University) in the control group. Moreover, based on the occupation variable, 81,2% respondents were unemployed in case group, while 38% were working in control group. Next, based on the age, the respondents with no risk category (20-35 years old) 82,4% in control group, while the respondents at risk category (<20 years old and >35 years old) 40,0% in case group.

Descriptive Analysis

Table 2. The descriptive analysis results

Variables	Case		Control		Total	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
House condition:						
Unhealthy house	71	83.5	80	94.1	151	100
Healthy house	14	16.5	5	5.9	19	100
House location:						
No risk	53	65.9	49	57.6	102	100
At risk	32	34.1	36	42.4	68	100
Clean water source:						
No use of clean water	7	8.2	29	34.1	36	100
In use of clean water	78	91.8	56	65.9	134	100
Toilet ownership:						
No toilet	11	12.9	49	57.6	60	100
Have a toilet	74	87.1	36	42.4	110	100
Waste water disposal:						
No waste water disposal	60	70.6	49	57.6	109	100
Have waste water disposal	25	29.4	36	42.4	61	100
Waste processing:						
Bad waste processing	69	81.2	75	88.2	144	100
Good waste processing	16	18.8	10	11.8	26	100

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Table 2 has illustrated the distribution of environment sanitation which covered to house condition in the detail of unhealthy house category 94.1% in the control group and healthy house 16.5% in the case group. Second, the house location in the detail of no risk category 65.9% in the case group and at risk category 42.4% in the control group. Third, the clean water source in the detail of no use of clean water category 34.1% in the control group and use of clean water category 91.8% in the case group. Fourth, toilet ownership in the detail of no toilet ownership 57.6% in the control group and having toilet 87.1% in the case group. Fifth, the waste water disposal in the detail of no waste water disposal ownership 70.6% in the case group and having waste water disposal 42.4% in the control group. Sixth, the waste processing in the detail of bad waste processing 88.2% in the control case and good waste processing 18.8% in the case group.

Hypothesis Testing Results

Table 3. The result of logistic regression test

No	Environment Sanitation	B	Exp (B)	P Value	Explanation
1.	House condition	11.645	116.389	0.999	Not significant
2.	House location	1.670	5.310	0.317	Not significant
3.	Clean water source	47.200	315.166	0.996	Not significant
4.	Toilet ownership	-1.340	0.262	0.353	Not significant
5.	Waste water disposal	2.377	10.769	0.091*	Significant
6.	Waste processing	-3.090	0.046	0.207	Not significant

*it is regarded as significant if the p value < α (0.05)

Based on the table 3, it showed that the beta coefficient value on variable of house condition 11.645, variable of house location 1.670, variable of clean water source 47.200, variable of toilet ownership -1.340, variable waste water disposal 2.377, and variable of waste processing -3.090. Furthermore, the Exp (B) value on variable of house condition 116.389, variable of house location 5.310, variable of clean water source 315.166, variable of toilet ownership -0.262, variable of waste water disposal 10.769, and variable of waste processing 0.046. Next, the sig value of house condition 0.999, sig value of house location 0.317, sig value of clean water source 0.996, sig value of toilet ownership 0.353, sig value of waste water disposal 0.091, and sig value of waste processing 0.207.

DISCUSSION

Factor of house condition, based on this research finding, the researchers stated that there was no relationship between house condition and neonatal death. The house was definitely a primary requirement for human life[6]. The factor of house condition that was meant in this research where the house has adequate air ventilation, lighting, house temperature and humidity, which referred that the factor of house condition should be in fresh air, adequate sunlight, and no humidity for the entire house[7]. Commonly, the valuation of house humidity was through hygrometer. According to the indicator of house surveillance, the aspect of adequate humidity which complied with the standard of healthy house was 40-70%, while the humidity which did not complied with the standard of health was <40% or >70%[8].

Factor ofhouse location, based on this research finding, the researchers showed that there was no relation between house location and neonatal death. The location was referred as a space or place which concerned to a territory. The house location should not be located in areas of accident-prone, fire, disaster like landslide, tsunami wave, earthquake, lava flow, and riverbank. Moreover, it should not be in the area of former trash site where this kind of area would be a perfect place for the virus, bacteria, and fungus growth[9]. This research which was conducted in Situbondo District demonstrated that the most of house location were closely to the area of waste water disposal and animal husbandry, even some houses were located in one space with the cowshed. In addition, people in this place threw their animal waste in river, sea, and some were burned. Hence, it needed to a serious handling in order to change those bad society behavior and improve them to get used to good health behavior.

Factor of clean water source, based on this research finding, the researchers defined that there was no relationship between clean water source and neonatal death. According to the regulations of Health Ministry of Republic Indonesia 1405/menkes/sk/xi/2002 regarding to the standards of office work and industrial environment health, the definition of clean water was the water which can be utilized for the daily needs and its quality was complied with the standard of healthy clean water due to the established regulations and laws, and

was able to be drunk after being boiled[10]. Next, the diarrhea could happen if people consumed polluted drinking water, either the pollution was from the original source or during the way up to house [11]. The other researcher has said that the existence of coliform bacteria in well water was possibly emerged due to the physical condition of well water which did not fulfill to the construction standard that enabled to water contamination because of bacteriology contaminants[12]. The garbage dump was also closely related to the public health, because a variety of microorganism lived and stayed within those garbage which then caused to bacteria pathogen, also the animal as transmitter of disease (vector)[13]. Therefore, it was expected to the pregnant mothers to get clean water for the daily consumption and the drinking water has better be boiled firstly, so it would not affect badly to both mother and embryo.

Factor of toilet ownership, based on this research finding, the researchers explained that there was no relationship between toilet ownership and neonatal death. The disposal of human feces took a significant part of environment sanitation. Moreover, if this human feces disposal was not feasible and did not fulfill to the sanitation standard, it could rise to soil and water source pollution. Besides, it was also able to provide space for the flies spawn and nest. Therefore, it required to handle the feces disposal in sanitary [14]. The open defecation could be a source of disease, especially diarrhea where the bacteria within those feces would be brought by flies, cockroach, and rat, then alighted on food. If this food was eaten and gotten into our stomach in the unwell condition, it would attack to diarrhea and if this disease was not soon treated, it would appeared to dehydration and lasted to death [15]. Next, the condition of toilet in this research figured out to the poor level of public awareness and science. Regarding to this fact, it required to have enough education and public health counseling about the significance of toilet utilization for the children up to adult.

Factor of waste water disposal, based on this research finding, the researchers concluded that there was relationship between waste water disposal and neonatal death. The waste water referred to remaining water from household activities, industry, or other public places. Generally, this waste water was dangerous for human health and able to disturb environment [16]. In term of health aspect, the problem of waste water in the village area has become a special concern, since the disposal of waste water in this area was still bad and could harm public health as to generate contamination danger on the water source and rise to the surface, this water source would be poorly used by human for the daily need [17]. The problem of waste water disposal in this research showed that the majority of people disposed waste water around the house and then streamed to water reservoirs or infiltration without any covers which caused to unpleasant smell. The majority of society did not know ways to generate good and right waste water disposal channel. Therefore, it needed to a solution to overcome this problem through prevention by establishing cooperation with health institution and local government to involve the society in practice of program in order to improve good waste water disposal.

Factor of waste processing, based on this research finding, the researchers indicated that there was no relation between waste processing and neonatal death. The waste processing referred to accumulation of garbage or waste up to garbage burning which did not aim to pose any danger for the public health [18]. Further, the good waste processing should be collected in temporary waste dump and close state, each house should have dump which functioned to prevent environmental and water source pollution [19]. The majority of respondents in Situbondo District threw garbage or waste in several manners, as they threw garbage around the house, river, seashore, ditch, and burned the garbage around the house. Thus, it required to public awareness regarding to household waste handling, this serious handling should be performed by related institutions, particularly Public Health Office, Sanitary Office, and Puskesmas as well as support from the public figure, so the society could change and get used to behave clean and healthy life.

CONCLUSIONS

Based on the research findings, it was concluded that the condition of environment sanitation in Situbondo District was valued as poor, it was seen from the indicators of healthy house, house location, clean water source, toilet ownership, waste water disposal, and waste processing which did not fulfill the standard of health, since the majority of society have a lack of knowledge and awareness regarding to the importance to keep a good environment sanitation, for example they still behaved open defecation in the river, although they already owned their own toilet, they argued that they could not defecate if it was not drown into water, the house location near to animal husbandry and even some of them shared a space of kitchen with the location of animal husbandry.

REFERENCES

1. Slamet JS. Enviromental Health (Kesehatan lingkungan). Yogyakarta: UGM Press; 2004.
2. Valentines D. Introduction to Enviromental Science (Pengantar Ilmu Lingkungan). Yogyakarta: Andi Offset; 1995.

3. Resty AU. The Impact of Enviromental Sanitation on Community Health in The Coastal District of Kota Agung (Dampak Sanitasi Lingkungan Terhadap Kesehatan Masyarakat di Wilayah Pesisir Kecamatan Kota Agung). Syiah Kuala. 2011;11(1):48-53.
4. Sugiyono. Administrative Research Methods (Metode Penelitian Administrasi). Bandung: Alfabeta; 2011.
5. Andani H. Relationship Between House Condition and Pulmonary Tuberculosis in Karangmojo II Public Health Center Gunung Kidul District 2003-2006 Year (Hubungan Kondisi Rumah Dengan Penyakit TBC Paru di Wilayah Kerja Puskesmas Karangmojo II Kabupaten Gunung Kidul Tahun 2003-2006). Jurnal Kesehatan Lingkungan. 2006;11(2):81-88.
6. Dainur. Public Health Sciences (Ilmu Kesehatan Masyarakat). Jakarta: Widya Medika; 1995.
7. MoH-RI. Regulation of the Minister of Health RI No.492 / Menkes / PER / IV / 2010 about Healthy Homes (Peraturan Menteri Kesehatan RI No.492/Menkes/PER/IV/2010 tentang Rumah Sehat). Jakarta; MoH-RI; 2010.
8. Saleh M. Rachim LH. The Relationship Between Enviromental Sanitation Conditions and The Incidence of Diarrhea in Children Under Five in The Work Area of Baranti health Center Sidrap Regency (Hubungan Kondisi Sanitasi Lingkungan Dengan Kejadian Diare Pada Anak Balita di Wilayah Kerja Puskesmas Baranti Kabupaten Sidrap). Jurnal Kesehatan. 2014;7(1);1-8.
9. MoH-RI. Information Catalog of sanitation Facility Options (Katalog Informasi Pilihan Sarana Sanitasi). Jakarta: MoH-RI; 2005.
10. Mubarak WI. Public Health Sciences Concepts and Aplications in Midwifery (Ilmu Kesehatan Masyarakat Konsep dan Aplikasi Dalam Kebidanan). Jakarta: Salemba Medika; 2012.
11. Rukaesih A. Chemical Environment (Kimia Lingkungan). Andi: Yogyakarta; 2004.
12. Malemta T, Seri AM. Effect of Dug Well Water Quality and Waste Disposal Againts Incidence of Diarrhea in Tanjung Anum Village Pancur Batu Deli serdang District (Pengaruh Kualitas Air Sumur Gali dan Pembuangan Sampah Terhadap Kejadian Diare di Desa Tanjung Anum Kecamatan Pancur Batu Kabupaten Deli Serdang). Santika. 2018;18(1):1-7.
13. Arif S. Enviromental Health and Islam Perspective (Kesehatan Lingkungan dan Perspektif Islam). Jakarta: Prenada Media Grup; 2010.
14. Rahmawati D, Handayani RD, Fauzzia W. Hygiene and Enviromental Sanitation in Kampung Tulip Tourism Site (Hygiene dan Sanitasi Lingkungan di Obyek Wisata Kampung Tulip). Abdimas BSI. 2018;1(1):87-94.
15. Ginting P. Industrial waste and Enviromental Treatment System (Sistem Pengolahan Lingkungan dan Limbah Industri). Jakarta: Yrama Widya; 2007.
16. Mulia RM. Enviromental Healthy (Kesehatan Lingkungan). Yogyakarta: Graha Ilmu; 2005.
17. Marylin J et al. The Relationship Between Waste Disposal and Incidence of Diarrhea in the Population Oesapa Kelapa Lima Distict Kupang City (Hubungan Antara Pembuangan Sampah dengan Kejadian Diare pada Penduduk di Kelurahan Oesapa Kecamatan Kelapa Lima kota Kupang). MKM. 2008;3(2):34-39.
18. Green, L.W, Kreuter, M.W. Health Promotion Planning An Educational and Environmental Approach. London: Mayfield Publishing Company; 2000.
19. Makotsi N, Kaseje D, Mumma J, Opiyo J, Lukorito L. Association of Community Led Total Sanitation to Reduced Household Morbidity in Nyando District,International Journal of Sciences: Basic and Applied Research (IJSBAR). 2016.