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Exclusive Breastfeeding Behavior and Clean Water Facilities with the Incidence of Diarrhea in Toddlers

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ABSTRACT

Diarrhea is still the second cause of morbidity and mortality in children under five in Indonesia. Data from Basic Health Research (Riskesdas) in 2013 showed that the incidence of diarrhea in toddlers in Indonesia was 6.7%, a similar figure was also found in West Nusa Tenggara Province at 6.6%. Several factors are related to the incidence of diarrhea, namely exclusive breastfeeding and clean water facilities. This study aims to determine the relationship between exclusive breastfeeding and clean water facilities with the incidence of diarrhea in toddlers in Selagalas Village, the working area of the Cakranegara Community Health Center. The research design was cross sectional on 104 toddlers conducted in 3 selected environments in Selagalas Village. Data was collected by structured interviews using questionnaires and observation sheets. Data were analyzed bivariately with Stata SE 12.1.The results of this research were that 67 (64.42%) toddlers had experienced diarrhea. The variable related to the incidence of diarrhea is clean water facilities. There is no significant relationship between exclusive breastfeeding and the incidence of diarrhea. The importance of providing good and adequate clean water facilities, especially for mothers in caring for children.

Keywords : Diarrhea, Clean Water Facilities, Exclusive Breastfeeding, Toodler

INTRODUCTION

Until now, diarrhea is still a health problem in the world, especially in developing countries. The World Health Organization (WHO) explains that the cause of death in infants and toddlers is diarrhea, which ranks second (WHO & Unicef, 2000). Data on the prevalence of diarrhea in infants (<1 year) ranks second after those aged 1-4 years with a percentage of 16.5%. Riskesdas also states that the most common cause of infant death is diarrhea (31.4%). The largest proportion of sufferers in toddlers according to the diarrhea morbidity survey is in the 6-11 month age group, namely 21.65% (Health, 2015).

Diarrhea is still the second cause of morbidity and mortality in children under five in Indonesia. The high incidence of diarrhea in toddlers is caused by many factors, namely poor sanitation, lack of hygiene facilities, poor personal hygiene such as not washing hands before, after eating and after going to the toilet (NTB Health Service, 2021a), in 2018, coverage of services for toddler diarrhea sufferers. Internationally, West Nusa Tenggara Province is the highest province, namely 75.88%. Provinces with low coverage are Maluku i(9.77%), North Sumatra i(16.70%) and Riau Islands i(18.68%). In the province of North Sulawesi, the coverage of services for infant diarrhea sufferers is 22.17% (Ministry of Health, 2019).

Several studies in Bangladesh regarding the risk factors for diarrhea according to maternal factors, namely maternal behavior, knowledge and hygiene, exclusive breastfeeding, based on the results of Riki's research, show that there is a relationship between the incidence of diarrhea in toddlers and the behavior of washing hands with soap before preparing food, (Riki Nur Pratama, 2013) and Efrida Yanthi's research results show that there is a significant relationship between the incidence of diarrhea and immunization status with a value of p=0.000, meaning that toddlers who are not given immunizations are more likely to suffer from diarrhea (Yanti, 2022). Data from WHO shows that 1.5 million children die from diseases that can be prevented by immunization and 17% of deaths occur in children less than five years old (World Health Organization, 2010). One of the government's efforts to tackle diarrheal disease in babies is to improve environmental conditions through village programs that have been implemented, but to date this has not provided the desired results. Controlling diarrheal diseases is not only the responsibility of the government, but it is hoped that the community can participate in helping to overcome recurrent diarrhea incidents (Ministry of Health, 2011).

Water is one of the natural resources needed by all living creatures, the availability of water can balance development in all sectors of life (Zarkasih, 2018). The water source itself is obtained from ground water and surface water. For groundwater itself, since 1970-2013 there has been a decline in groundwater levels reaching 80 percent. Meanwhile, clean surface water can be obtained from rivers, seas and lakes (Suryani, 2016). Based on this description, researchers want to examine exclusive breastfeeding and environmental sanitation with the incidence of diarrhea in toddlers in the Selagalas sub-district in the working area of the Cakranegara Community Health Center.

METHODS

This research used a cross sectional design and was conducted on 104 respondents selected through systematic random sampling in three neighborhoods of Selagalas Subdistrict which were chosen randomly from a total of seven neighborhoods. Data was collected by interview using a questionnaire and observation using an observation sheet. The inclusion criteria used were respondents who had toddlers.

Data collected by interviews were about the incidence of diarrhea, maternal characteristics, toddler characteristics, maternal knowledge, maternal perceptions, exclusive breastfeeding, measles immunization, and hand washing techniques with indicators of proper hand washing habits using soap and clean water before and after carry out activities and make observations on drinking water treatment, clean water facilities, waste management and the quality of family latrines which are measured in accordance with the indicators of healthy latrines, namely the type of latrine used by goose necks, latrines that do not cause disturbing odors, do not pollute clean water and the surface of the land (plastered tightly), the floor is not slippery and has drainage, the distance from the water source is at least 10 m. All data were analyzed univariately to see the frequency distribution and continued with logistic regression analysis to determine the relationship between maternal hand washing techniques and the quality of the family toilet with the incidence of diarrhea in toddlers.

RESULTS

Tabel 1.1 Univariate Analysis of Diarrhea Exclusive Breastfeeding and Clean Water Facilities

Variable	n (%)
Diarrhea	
Yes	67 (64,42)
No	37 (35,58)
Breastfeeding	
Eksklusif breastfeeding	64 (61,54%)
Not Eksklusif breastfeeding	40 (38,46)
Clean Water Facilities	
Qualify	37 (35,58)
Not Eligible	67 (64,42)
Jumlah	104 (100,00)

In Table 1.1, information is obtained that the majority of toddlers in 3 Neighborhoods in Selagalas Subdistrict have experienced incidents of diarrhea, 67 (64.42%), Most of the respondents, 64 (61.54%) gave exclusive breastfeeding and 79 (75.96%) toddlers were born with normal weight with an average age of 29.98 ± 14.3

Tabel 1.2 Bivariate Analysis of the Relationship between Exclusive Breastfeeding and Clean Water Facilities with the Incidence of Diarrhea in Toddlers

Variable	Diarrhea n (%)	Not Diarrhea n (%)	Nilai p
Breastfeeding			
Eksklusif breastfeeding	42 (65,63)	22 (43,38)	0,75
Not Eksklusif breastfeeding	25 (62,50)	15 (37,50)	
Clean Water Facilities			
Qualify	11 (52,38)	10 (47,62)	0,19
Not Eligible	56 (67,47)	27 (32,53)	

Respondents who gave exclusive breast milk to children according to health advice and suffered from diarrhea were 42 people (64.63%), while those who did not receive exclusive breast milk and suffered from it were 25 people (62.50%). The results of statistical tests carried out showed that there was no significant relationship between exclusive breastfeeding and the incidence of diarrhea in Selagalas Village. Respondents who have clean water facilities that meet the requirements have a clean water source and the distance is > 10 m and suffer from diarrhea, namely 11 (52.38%) while those who do not meet the requirements do not have a clean water source or there is a water source but the distance is < 10 m and suffer 56 people (67.47%) had diarrhea. The results of the statistical tests carried out showed that there was a relationship between clean water facilities and the incidence of diarrhea in Selagalas Village.

DISCUSSION

Diarrhea is a condition where the frequency of defecation is abnormal than usual, where the stool is liquid and lasts less than 14 days (Ministry of Health, 2019). This diarrhea is mostly caused by the entry of microorganisms or toxins through the mouth. These germs can be found through water, food or drink contaminated with human or animal waste, and this contamination can be through the sufferer's fingers/hands which have been contaminated (Sari, 2016).

The results of the analysis of the relationship between a history of exclusive breastfeeding and the incidence of diarrhea in this study showed that there were more children who received exclusive breastfeeding compared to children who did not receive exclusive breastfeeding. The findings of this study are not in accordance with research by Yalcin, et al which stated that children with diarrhea who do not receive breast milk are at greater risk of being hospitalized (Yalcin, S.S, Hizli, S, Yurdakok, K, & Ozmer, 2005). Apart from that, Karmalia (2005) in her research stated that there is a significant relationship between exclusive breastfeeding and the incidence of diarrhea, where from the Kendal's tau_b test it is known that the longer a baby is exclusively breastfed, the less likely the baby is to experience diarrhea. Research conducted by Apriyanti explains that there is a significant relationship between exclusive breastfeeding and the incidence of diarrhea. The longer the person is exclusively breastfed, the smaller the baby's chance of developing diarrhea. This is because breast milk contains antibodies which can increase the child's body's defense system. Exclusive breastfeeding can protect babies from various infectious diseases (Apriyanti, 2011).

According to WHO (2006), the definition of exclusive breastfeeding is that a baby only receives breast milk from the mother or a caregiver who is asked to provide breast milk from the mother, without the addition of liquids or other solid foods, except for syrup containing vitamins, mineral supplements or medicine. Exclusive breastfeeding according to the Ministry of Health (2003) is giving only breast milk without being given any other food or drink from birth until 6 months of

age, except for giving medicines and vitamins. Exclusive breastfeeding for babies is as follows: after the baby is born, immediately give breast milk (within ½-1 hour), give colostrum, do not give food or drink (such as coconut water, starch water, tea, honey, banana) to the baby before giving it. Breast milk, breast milk is given according to the baby's wishes without limiting the time and frequency (morning, afternoon and evening) and only giving breast milk until the baby is 6 months old.

In accordance with government regulation no. 33 of 2012 that exclusive breastfeeding is breast milk given to babies from birth to 6 (six) months of age, without any additional drinks or food. Breast milk can provide protection to babies against diarrhea germs that are given fully for 6 months, whereas babies who are not given breast milk suffer from diarrhea, there is a greater risk and this can cause the possibility of severe dehydration in the baby. Newborn babies who are given full breast milk without supplementing with formula milk have a 4 times greater level of immunity against the transmission of diarrheal germs (Ministry of Health of the Republic of Indonesia, 2006). This is also supported by the results of research by Karki (2010), that toddlers who consumed formula milk for 6 months at the beginning of birth had 26.32% of diarrhea with a risk of experiencing diarrhea 1.95 times compared to toddlers who consumed exclusive breast milk, (Nepal Health Research Council & NHRC, 2016) Meanwhile, based on research conducted by Lestari, it is stated that there is no significant relationship between giving babies exclusive breast milk and the incidence of diarrhea in toddlers (Lestari, 2022).

The results of this study are not in line with research by Rusyda and Ronoatmojo (2021), which found that the incidence of diarrhea was greater in children who were not exclusively breastfed (13.5%) than those who were exclusively breastfed (6.6%). Breastfeeding is associated with the incidence of diarrhea, babies who are exclusively breastfed are 1.08 times more likely to experience diarrhea than those who are exclusively breastfed. (Rusyda, Fikriya; Ronoatmodjo, 2021). Breast milk is also a safe and clean food intake for babies, containing essential antibodies found in colostrum. This helps the body fight germs that enter the baby's body and prevent diarrhea. From birth until several months later, babies are not able to form their immunity properly therefore breast milk is a component that has good properties in the immune system for babies (Kaur, Singh, & Lubis, n.d.). Clean water sanitation facilities are buildings and equipment and supplies that provide and distribute water to the community. Clean water facilities must meet health requirements, so that they do not experience pollution so that good water quality can be obtained in accordance with health standards. Clean water sanitation facilities include the facilities used, construction requirements, and minimum distance to sources of pollution. The research results showed that the majority of respondents had clean water sanitation facilities that met the requirements, namely 21 respondents (20.19%) and respondents with clean water sanitation facilities that did not meet the requirements were 83 respondents (79.81%).

Based on the results of the bivariate analysis, it is known that the respondents who experienced more diarrhea incidents in their toddlers were toddlers with a percentage of clean water facilities that did not meet the requirements, namely 56 respondents (67.47%), while toddlers with clean water sanitation conditions that met the requirements suffered. diarrhea was only 11 respondents (52.38%). The results of this research are not in line with Riki's research on toddlers in Sumurejo Village, Gunungpati District, Semarang City, which showed that there was no significant relationship between clean water sanitation and the incidence of diarrhea in toddlers (Riki Nur Pratama, 2013).

Based on the research results, there are several implications that can be used to improve health, especially health services. The ongoing program of this research is to provide health education carried out by health workers, for example health education by the nearest community health center, especially health education regarding prevention and appropriate treatment when experiencing diarrhea as well as healthy living behavior, so that the incidence of diarrhea in toddlers can decrease.

Clean water is water that is used for daily purposes and becomes drinking water after being boiled first. As a limitation, clean water is water that meets the requirements for a drinking water supply system. The requirements in question are requirements in terms of water quality which includes physical, chemical, biological and radiological quality, so that if consumed it does not cause side effects (Kep.Men.Kes RI No. 416/Menkes/Per/IX/1990). Clean water facilities are buildings and their equipment and supplies that provide and distribute water to the community. Clean water facilities must meet health requirements so that they do not experience pollution so that good water quality can be obtained in accordance with health standards. Research conducted by Utama, Inayati

and Sugiarto in the work area of the Arosbaya Health Center. iconcluded. iThe condition of clean water facilities that have met the guidelines can reduce the incidence of idiarrhea in toddlers but on the contrary, if the clean water facilities do not meet the guidelines then the frequency of toddlers experiencing idiarrhea will increase (Main, idkk. i2019). Meanwhile, the results of research analysis by iLimoy and iIit concluded that clean water facilities were not significantly related to the incidence of diarrhea. The risk factors that cause diarrheal disease according to this research are environmental factors that are related to sanitation, facilities, clean water (Katarina Iit, 2020).

Research in Kulon Progo Regency, Yogyakarta with a case control research design, showed that the use of clean water facilities that do not meet sanitation requirements will increase the risk of children under five getting acute diarrhea 1,310 times. compared to the use of clean water facilities that meet the requirements but is not statistically significant (Vitriawati & Arradini, 2019). Septian Bumulo's research results showed that respondents whose clean water supply facilities did not meet the requirements and did not have diarrhea were 52.7%, in addition there were 29.4% whose clean water supply facilities met the requirements but caused diarrhea. This is because some respondents still store water for drinking and cooking purposes in open containers (Bumulo, 2012). Research by (Winenti, 2017) states that clean water facilities are public facilities whose task is to provide and distribute water to the community. Clean water facilities must meet health requirements so that they do not experience pollution, so that water with good health standards is obtained.

Based on the results of the data analysis carried out, it is necessary to educate the public regarding environmental hygiene and sanitation, processing and storing water before it is used to reduce the incidence of diarrhea, this is because even though the source of drinking water used comes from a suitable drinking water source, it can have the potential to cause diarrhea. This has been explained by (Iqbal et al., 2015) that it is necessary to carry out health promotion related to environmental cleanliness behavior, and sanitation, water processing and storage as well as proper handling of water sources to improve water quality and reduce the incidence of diarrhea.

The limitation of this research is that it is limited to the history of diarrhea in toddlers in the last three months. The implication of the results of this research is to provide education about the importance of providing good clean water that meets the requirements, especially for mothers in caring for children.

CONCLUSION

The following is a relationship between clean water facilities and the incidence of diarrhea in toddlers. Health workers are advised to continue to monitor the sanitary condition of clean water facilities by inspecting clean water sanitation facilities, as well as taking clean water samples because many cases of diarrhea are caused by the condition of clean water facilities that do not meet sanitation requirements.

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