

# A Study on Mothers' Hygiene, Sanitation, and Exclusive Breastfeeding With Diarrhea Prevention Among Toddlers

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## ABSTRACT

Diarrhea is still a public health threat in developing countries, including Indonesia, due to its high morbidity and mortality. Many factors, both direct and indirect contributions to diarrhea, including agent, host, environment, and behavior. This research determined to identify the correlation between the incidence of diarrhea in children aged 1-3 years old with the mothers' attitudes on hygiene sanitation behavior and Exclusive breastfeeding in the working area of West Jakarta Community Health Centre. Methods: This Research used an analytical descriptive survey with a cross-sectional design to determine the correlation between the incidence of diarrhea among children aged 1-3 years old with the mothers' attitude on hygiene and sanitation behavior and the Exclusive breastfeeding. The total sample was 65. A questionnaire was used as the research instrument. The proportion for mothers who have a risk for poor sanitation and hygiene behavior were mothers whose children suffered diarrhea (55.25%), and the proportion for mothers who practiced exclusive breastfeeding were mothers whose children suffered diarrhea (62.5%). As a result of the bivariate analysis, it exposed that there was a significant correlation between diarrhea on toddlers with mother's attitude about hygiene and sanitation (p-value 0.047) but an infirm correlation between diarrhea with exclusive breastfeeding (p-value = 0.068). The Hygiene and sanitation of mothers are crucial to their children's well-being. It recommends that mothers, especially with younger children, to focus on their personal hygiene and sanitation when taking care of their children to prevent diarrhea transmission.

**Keywords:** Personal Hygiene, Breastfeeding, Diarrhea Incidence

## 1. INTRODUCTION

Diarrhea is one of the highest incidences of diseases in the world and is the leading cause of 1-3 years of child mortality. In developing countries, the incidence leads to 17.5-21% of deaths in children 1-3 years old. It equals to 1.5 million deaths per year. From the total of child diarrhea deaths, 78 % occurs mainly in Africa and South Asia [1].

Diarrhea is still a public health threat in developing countries, including Indonesia, due to its high morbidity and mortality. A morbidity survey conducted by the Diarrhea Sub-directorate of the Ministry of Health shows a tendency for an increasing trend in diarrhea

morbidity between 2000 and 2010. In 2000, DIARRHOEA Incident Rate (IR) was 301/1000 population. This number then rose to 374/1000 population in 2003. It continued to grow in 2006 and 2010 (423/1000 population and 411/1000 population). One of the provinces with a high prevalence is DKI Jakarta. It is estimated that 162 thousand people are suffered from diarrhea among 10.15 million residents in this province. The three areas with the highest estimated cases of diarrhea in this province are West Jakarta (32%), South Jakarta (29), and North Jakarta (4%) [2]. Among those three areas, the highest prevalence in West Jakarta and one of the highest prevalence areas is under the working area of West Jakarta Public Health Care (PHC). West Jakarta PHC oversees 9 PHC. The total number of diarrhea cases in under West Jakarta PHC region during

January and December 2016 is accounted for 1806 people. From these total cases, 147 are affected by children 1-3 years old in 2016 and 2017, 97 children 1-3 years old are suffered from diarrhea [3].

Diarrhea is characterized by the condition loose or liquid bowel movements, each with a frequency more than usual, and children 1-3 years old are categorized as in diarrhea where this condition occurs more than three times a day [4]. Many factors, both direct and indirect contributions to diarrhea, including agent, host, environment, and behavior. The most dominant factor in diarrhea transmission is clean water provision and fecal disposal. The interaction of these two factors with unhealthy human behavior reinforces the transmission [5]. The worse condition happens in children 1-3 years old, as Ngastiyah (2009) stated that diarrhea is more prevalent to these children as the immune system is prone to any environmental diseases [6]. Mother behavior that needs attention to concerning diarrhea transmission is healthy and clean-living behavior, including the habit of handwashing and dishwashing as well as exclusive breastfeeding [5]. Both children 1-3 years old and infants, in their daily living, depend on the adults, particularly their mother or parents. Parents have a role in taking care of their children are obligated to ensure their personal and environmental hygiene to guarantee their children's health [6].

Children 1-3 years old is a golden period, which is very important to keep monitoring their growth. If They are suffered from any infection during this period, including diarrhea, it disrupts their growth. When this diarrhea continues, it can lead to malnutrition and inadequate nutrition for their growth and may affect their brain development. [7][8]. Based on these problems, the researchers are interested in raising this issue or titled "Association hygiene sanitation behavior and exclusive breastfeeding habit with diarrhea incidence among children 1-3 years old in working area of West Jakarta Public Health Care."

## 2. METHODS

This research uses cross-sectional as its design study to explore the association between independent factors (risk behaviors, hygiene sanitation behavior, and exclusive breastfeeding habit) with the dependent variable (diarrhea incidence among children 1-3 years old) in the working area of West Jakarta PHC. Those variables are observed at the same time to identify their association. The sampling method uses *incidental sampling where* samples are collected from visitors of the Mother and Child Section in Grogol PHC. The total sample of this study is 64 respondents. Data collected from the interview with the mother of 1-3 years old children. These collected data then analyzed statistically using *Chi-square* with a 95% confidence interval to identify the association between variables.

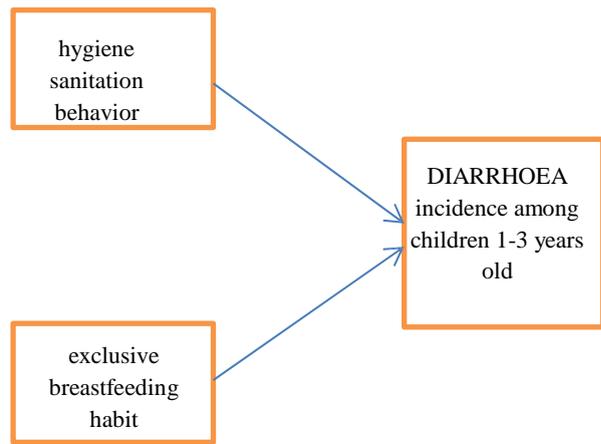


Figure 1. Conceptual Framework

## 3. RESULTS

### Association Between Mother Sanitation and Hygiene Behaviors with Diarrhea Incidence among Toddlers.

A result of bivariate analysis between mother sanitation and hygiene behaviors with diarrhea incidence in the working area of West Jakarta PHC Jakarta can be seen in table 1.

Table 1. Association Between Mother Sanitation and Hygiene Behaviors with Diarrhea Incidence among Children 1-3 years

Mothers' hygiene and sanitation	Diarrhea	Total	P-value	OR (95% CI)
Risk	16 (55.3%)	29	0.047	3.2 (1.139-8.992)
No Risk	10 (27.8%)	36		

Based on Table 1 above, the highest proportion for mothers who have risk sanitation and hygiene behavior are mothers whose children experience diarrhea. In contrast, the highest proportion for mothers who have no risk of sanitation and hygiene behavior are mothers whose children experience no diarrhea. From statistical analysis with *Chi-square*, it shows that the *p-value* 0.047, which concludes an association between sanitation and hygiene behavior and diarrhea incident in the working area of Grogol Petamburan. Alternatively, with 95% CI values 3.2 (1.139-8.992) which means mothers who have risk sanitation and hygiene behavior, their children are 3.2 times likely to experience diarrhea compared to mother who has no risk sanitation and hygiene behaviors.

**Association Between Exclusive Breastfeeding with Diarrhea Incidence among Toddlers**

A result of bivariate analysis between exclusive breastfeeding with diarrhea incidence in the working Area of West Jakarta PHC, West Jakarta, can be seen in table 2.

**Table 2. Association Between Exclusive Breastfeeding with Diarrhea Incidence among Toddler in Working Area of West Jakarta PHC 2018**

Exclusive Breast Feeding	Diarrhea	Total	<i>P-value</i>	OR (95% CI)
No	10 (62.5%)	16	0.068	3,438 (1.061-11.132)
Yes	16 (32.7%)	49		

Based on Table 2 above, the highest proportion for mothers who give exclusive breastfeeding is a mother whose children experience diarrhea, while the highest proportion for mothers who give no exclusive breastfeeding are mothers whose children experience diarrhea. From statistical analysis with *Chi-square*, it shows that the *p-value* 0.068 which conclude there is no association between exclusive breastfeeding and diarrhea incidence in the working area of Grogol Petamburan. OR with 95% CI values 3.438 (1.061-11.132), which means mothers who give exclusive breastfeeding, their children are 3,4times likely to experience diarrhea compared to mothers who give no exclusive breastfeeding.

**4. DISCUSSIONS**

Based on the analysis from table 1 it was found that an association between sanitation and hygiene behavior and diarrhea incident in the working area of Grogol Petamburan. This result is in line with research conducted by Mokodompit et al, which states that there is a significant association between the mother's hygiene behavior with the incidence of diarrhea among children 1-3 years old Bilalang Kotamobagu PHC [9]. This study is also coherent with a survey by Kamilla et al. in 2012, which also shows an association between mother personal hygiene behaviors with the incidence of diarrhea among children 1-3 years old Kampung Dalam PHC in Pontianak Timur Subdistrict [10]. Personal hygiene is defined as actions and efforts to maintain cleanliness, both physical and psychological, to prevent any diseases. At the same time, sanitation is an effort to keep the environment clean to prevent various diseases, especially infectious diseases [11]. The purpose of personal hygiene and sanitation will not only for maintaining individual personal health but also for others. Mothers' sanitation and hygiene behavior are essential to maintain the health of their children. Their mother's behavior most influences the health of children

under five years old to taking care of their children's hygiene and sanitation [12].

The mother of children 1-3 years old should take care of the cleanliness by always washing hands with soap before holding their children, before breastfeeding, after touching the animals, and after defecating. This is very important as each activity can bring germs, especially *E-coli*, which source of Diarrhea [5]. According to Ciesla and Guerrant (2003), diarrhea or dysentery is caused by *Vibrio cholera*, *E-coli*, *C perfringens*, and *S. aureu* [13]. Washing hand using soap as a cleanser, then scrubbed and flushed with flowing water, is significant to clean particles of dirt that contain lots of microorganisms [14]. People who take care of children are often having direct contact with feces, urine, rectum; thus, it is required to wash their hands using soap to prevent any germs.

There are still many mothers in the working area of West Jakarta who do not wash their hands before handling their children, which has a high potential to lead diarrhea to their children. Therefore, it is advisable to hash their hand before handling or taking care of their children. Furthermore, for PHC, it is suggested to have a routine education for the mothers to practice appropriate sanitation and personal hygiene behaviors.

Based on the analysis from table 2 it was found that there is no association between exclusive breastfeeding and diarrhea incidence in the working area of Grogol Petamburan. This result is not coherent with some research conducted by Putri et al. 2013 which states that there is a relationship between exclusive breastfeeding with the incidence of diarrhea as well as a study conducted by Apriyanti et al. on 2009 that also reported an association between exclusive breastfeeding with diarrhea cases in children aged 6-24 months in the working area of Swakelola 11 ILIR PHC in Palembang 2009 [15][16]. Breast milk contains materials to prevent various diseases immunologically due to the antibodies and substances contained in the milk. It also protects against diarrhea in newborns babies [17]. Based on the result of this study, breastfeeding has no association with diarrhea cases. Other factors might cause diarrhea cases, for example, maternal behavior in handling their children. However, the Odds ratio in this study shows that exclusive breastfeeding brings risk to diarrhea incidence.

**5. CONCLUSION**

In summary, there is a significant association between mothers' sanitation and hygiene behaviors with diarrhea incidence among children 1-3 years old in the working area of West Jakarta PHC and is no association between exclusive breastfeeding practice and diarrhea incidence in the working area of West Jakarta PHC, West Jakarta. It is recommended to mothers of children 1-3 years old to pay attention to their personal hygiene and sanitation when taking care of their children to prevent diarrhea transmission. For Grogol PHC, it is suggested to provide education about appropriate washing hand behaviors to prevent disease transmission.

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