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RESEARCH

Factors Influencing the Incidence of Diarrhea Among Under-Five Children in the Working Area of Candi Health Center, Sidoarjo

Retno Wigati, Kusmini Suprihatin, Siti Maemona, M Afif Hilmi M
Department of Nursing, Poltekkes Kemenkes Surabaya, Surabaya, Indonesia
*Correspondence : tanjungretno62@gmail.com

ABSTRACT

Diarrhea is still one of the main causes of morbidity and mortality in almost all geographic regions in the world, where all age groups can be attacked by diarrhea. Toddlers are an age group that is vulnerable to disease because their immune systems are still weak so they are easily attacked by bacterial, viral and parasitic infections. The purpose of this study was to determine the factors that influence the incidence of diarrhea in toddlers in the Candi Sidoarjo Health Center work area. This research method uses descriptive research involving 44 respondents. Data collection using observation sheets. The results of the examination showed that most respondents had a clean water source (68%), healthy toilets (66%), but there were still SPAL and trash bins that did not meet the requirements (48% and 52% respectively). In addition, although most mothers had good hand washing behavior (86%), diarrhea was still found. The conclusion of this study is that environmental and behavioral factors, especially those related to SPAL, waste management, and hand hygiene, play an important role in the incidence of diarrhea in toddlers. Education efforts and improvement of sanitation facilities are needed to reduce the prevalence of diarrhea in toddlers in the Candi Sidoarjo Health Center area.

Keywords: Factors, Toddlers, Diarrhea

INTRODUCTION

Diarrhea remains a major cause of morbidity and mortality worldwide, with children under five being the most vulnerable group due to their immature immune systems. It is recorded as the second leading cause of death among children under five, particularly in developing countries, including Indonesia (Izafirah, 2024; Mega, 2024). According to UNICEF (2021), diarrhea accounts for approximately 9% of under-five deaths globally, equivalent to 444,000 deaths each year, underscoring the urgency of this public health problem.

The situation in Indonesia reflects a similar trend. The 2022 SSGI survey reported a diarrhea prevalence of 10.2% among children under five, an increase from 9.8% in 2021. The Indonesian Health Survey (2023) further documented a prevalence of 6.4% among infants under one year and 7.4% among children aged 1–4 years, with the highest incidence found in East Java, West Java, and Central Java (Ministry of Health, 2024). Specifically, East Java recorded an increase in diarrhea cases among children under five, from 49.33% in 2021 to 62.73% in 2023, with Surabaya, Sidoarjo, and Malang identified as the most affected areas (East Java Health Office, 2023).

In Sidoarjo Regency, the number of diarrhea cases among children under five rose sharply, from 22,506 cases in 2021 to 31,256 cases in 2023. Candi District was identified as the area with the highest contribution, with Candi Public Health Center reporting a

significant surge to 1,514 cases in 2023. This condition highlights the urgent need to address the factors contributing to the high incidence of diarrhea in this region.

Various studies have shown that the causes of diarrhea are linked to a combination of environmental, behavioral, sanitation, socioeconomic, and individual factors, such as handwashing practices and food handling (Izafirah, 2024; Fitrah, 2024). Waste disposal facilities and latrine hygiene also play a crucial role in preventing disease transmission. However, there remains a gap in understanding the dominant factors influencing the rising incidence of diarrhea among children under five at the local level, particularly in the working area of Candi Public Health Center, Sidoarjo.

RESEARCH METHOD

This study employed a descriptive design with data collection conducted using a total sampling technique, in which the sample size was determined by the total population of respondents, namely 44 mothers whose children under five years old experienced diarrhea in Candi.

The data were collected using an observation sheet consisting of 12 closed-ended statements, with two response options: "meets the requirements" and "does not meet the requirements." Respondents were asked to provide answers by ticking the appropriate option. The assessment criteria included the eligibility of clean water, latrine facilities, wastewater disposal (SPAL), solid waste disposal, and handwashing practices.

Informed consent and respondent data were obtained through approval from the mothers of the under-five children. After the data were collected, they were processed in tabular form, and conclusions were drawn based on the findings.

RESULT

Based on observational data collected in the working area of Candi Public Health Center, Sidoarjo, in February 2025, the following findings were obtained:

1. Source of Clean Water

Table 1. Distribution of Clean Water Sources and the Incidence of Diarrhea Among Children Under Five in the Working Area of Candi Public Health Center, Sidoarjo (February 2025)

Source of Clean Water	Frequency (n)	Percentage (%)
Meets the requirements	30	68
Does not meet the requirements	14	32
Total	44	100

According to Table 1, out of 44 respondents, 30 (68%) reported having access to clean water sources that met the requirements, while 14 (32%) did not meet the requirements.

2. Latrine Facilities

Table 2. Distribution of Latrine Facilities and the Incidence of Diarrhea Among Children Under Five in the Working Area of Candi Public Health Center, Sidoarjo (February 2025)

Source of Clean Water	Frequency (n)	Percentage (%)
Meets the requirements	29	66
Does not meet the requirements	15	34
Total	44	100

According to Table 2, out of 44 respondents, 29 (66%) reported latrine facilities that met the requirements, while 15 (34%) reported facilities that did not meet the requirements.

3. Wastewater Disposal (SPAL)

Table 3. Distribution of Wastewater Disposal Systems (SPAL) and the Incidence of Diarrhea Among Children Under Five in the Working Area of Candi Public Health Center, Sidoarjo (February 2025)

Wastewater Disposal (SPAL)	Frequency (n)	Percentage (%)
Meets the requirements	23	52
Does not meet the requirements	21	48
Total	44	100

According to Table 3, out of 44 respondents, 23 (52%) reported wastewater disposal systems that met the requirements, while 21 (48%) did not meet the requirements.

4. Solid Waste Disposal

Table 4. Distribution of Solid Waste Disposal and the Incidence of Diarrhea Among Children Under Five in the Working Area of Candi Public Health Center, Sidoarjo (February 2025)

Solid Waste Disposal	Frequency (n)	Percentage (%)
Meets the requirements	21	48
Does not meet the requirements	23	52
Total	44	100

According to Table 4, out of 44 respondents, 21 (48%) reported solid waste disposal facilities that met the requirements, while 23 (52%) reported facilities that did not meet the requirements.

5. Mothers' Handwashing Practices

Table 5. Distribution of Mothers' Handwashing Practices and the Incidence of Diarrhea Among Children Under Five in the Working Area of Candi Public Health Center, Sidoarjo (February 2025)

Handwashing Practices	Frequency (n)	Percentage (%)
Good practice	38	86
Poor practice	13	30
Total	44	100

According to Table 5, out of 44 respondents, 38 (86%) demonstrated good handwashing practices, while 6 (14%) demonstrated poor handwashing practices.

DISCUSSION

The findings of this study indicate that several environmental and behavioral factors are associated with the incidence of diarrhea among children under five in the working area of Candi Public Health Center, Sidoarjo.

Clean water sources. The majority of respondents (68%) reported using clean water sources that met health requirements, while 32% did not. However, since most households utilized piped water and bottled mineral water for consumption, no significant association between clean water sources and diarrhea incidence was identified. This observation is consistent with studies by Nurfachanti (2022) and Sri et al. (2021), which emphasized that the availability of clean water alone does not directly influence diarrhea incidence when alternative safe water sources are accessible.

Sanitary latrines. The proportion of diarrhea cases was higher among families whose latrines did not meet health standards. Unsanitary latrines—characterized by poor maintenance, damp conditions, and unclean environments—potentially increase the presence of vectors that transmit diarrheal pathogens. These results align with findings from Kasman (2021) and Rahmawati (2022), which underscore the importance of proper latrine facilities in reducing diarrhea prevalence.

Wastewater disposal (SPAL). More than half of the respondents reported inadequate wastewater disposal facilities, often in the form of open and poorly maintained drainage systems. Such conditions heighten the risk of environmental contamination and create breeding sites for disease vectors. Similar conclusions were drawn by Maywati (2023) and Falita (2023), who reported a significant correlation between unhealthy wastewater systems and higher diarrhea risk among young children.

Solid waste management. Over half of the respondents (52%) lacked adequate solid waste disposal facilities, with practices such as using open containers or direct burning of waste being common. These practices increase exposure to vectors such as flies and rodents, which can contaminate food and water. This finding is consistent with Riyanti (2023) and Falita (2023), who demonstrated that effective solid waste management plays a key role in reducing diarrhea risk.

Mothers' handwashing practices. While most respondents reported practicing handwashing, proper techniques were often lacking, with handwashing being performed without soap or running water. Given that hands are a primary medium for transmitting diarrheal microorganisms, improper handwashing practices remain a major concern. This result is in line with Zulfamidah (2022) and Fitrah (2024), who found a significant relationship between maternal handwashing practices and diarrhea incidence in children under five.

Overall, the findings highlight that basic sanitation factors (latrine facilities, wastewater disposal, and solid waste management), along with proper handwashing practices, play a crucial role in influencing diarrhea incidence among children under five in the Candi area. Preventive efforts should therefore focus on improving sanitation facilities, enhancing public awareness of clean and healthy living behaviors (PHBS), and strengthening ongoing monitoring by healthcare providers and local authorities.

CONCLUSION

Based on the findings and discussion, the following conclusions can be drawn:

1. The proportion of clean water sources that met health requirements was higher than those that did not.
2. The availability of sanitary latrines that met health standards was greater compared to those that did not.
3. Wastewater disposal (SPAL) facilities that met health requirements were more prevalent than those that did not.
4. In contrast, the proportion of solid waste disposal facilities that did not meet health requirements was higher than those that did.
5. Mothers' handwashing practices were generally favorable, with a higher proportion of good practices compared to poor practices.

RECOMMENDATIONS

1. For Community Health Centers (Puskesmas):
   a. Strengthen community health education by conducting regular counseling sessions for mothers of under-five children regarding the importance of hand hygiene, exclusive breastfeeding, and hygienic food processing to prevent diarrhea.
   b. Improve access to clean water and sanitation by coordinating with relevant agencies to ensure the availability of safe water and proper household sanitation facilities.
   c. Enhance home visits by health workers, particularly for families with high-risk children, to provide direct education and monitor environmental conditions.
   d. Build the capacity of community health cadres (posyandu) by training them to recognize early signs of diarrhea and deliver simple health education so families can initiate early management at home.
2. For Mothers of Under-Five Children:
   a. Pay greater attention to personal and household hygiene by practicing proper handwashing with soap, maintaining a clean environment and sanitary latrines, and ensuring that food and beverages are safe for consumption.
   b. Seek medical care promptly at health facilities when a child develops diarrhea.
3. For Future Researchers:
   Future studies should consider additional factors associated with the incidence of diarrhea among under-five children, involve a larger sample size, and apply more diverse research methods to obtain more comprehensive findings.

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