

Impact of healthy living behavior, food handling sanitation on gastroenteritis incidence among female students at madrasah tsanawiyah in bogor city

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ABSTRACT

Gastroenteritis is an inflammatory disease of the digestive tract with a high prevalence in Indonesia, which has detrimental effects on sufferers, especially children. Gastroenteritis is often associated with the consumption of unhygienic food and is not handled properly. Gastroenteritis cases occur quite often in students who live in boarding schools. This study aims to determine the relationship between sanitation, food management, and Clean and Healthy Living Behavior (PHBS) with the incidence of gastroenteritis among female students at a Tsanawiyah Madrasah in Bogor City. This research uses a cross-sectional research design with a qualitative analytical approach. Research respondents were taken from 95 female students selected through simple random sampling. Data were obtained through questionnaires regarding knowledge of gastroenteritis, PHBS, and observations of sanitation and food processing practices. The results showed that the majority of respondents (75.8%) had sufficient knowledge about gastroenteritis, while 60% of respondents indicated sufficient PHBS efforts. Based on the results of observations, food processing sanitation is included in the category of being quite good (60%). From this study it can be concluded that there is no significant relationship between knowledge, PHBS behavior, and sanitation in food processing on the incidence of gastroenteritis. In Islamic terms, knowledge not only shows faith and piety, but can also contribute to the prevention of gastroenteritis.

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INTRODUCTION

The disease transmitted through food or foodborne diseases is a condition caused by microbes or agents that enter the body through consumed food (Ministry of Health RI, 2017). Gastroenteritis is one of the foodborne diseases characterized by inflammation in the digestive tract walls, such as the intestines and stomach.

Cases of gastroenteritis occur in every country worldwide and pose a significant health problem. In the United States, with good healthcare levels and facilities, there are over 350 million cases of acute gastroenteritis each year, with approximately 48 million

cases attributed to foodborne bacteria, resulting in about 150 to 300 deaths in children under 5 years of age (Sattar, 2021). In Indonesia, the prevalence of gastroenteritis in 2018 was 96,278 cases (Rahmadani, 2021). The morbidity of diarrhea in 2018 for all ages was 350 per 1000 population, while in toddlers, it was 900 per 1000 population. In other words, 9 out of 10 toddlers in Indonesia suffer from diarrhea caused by acute gastroenteritis (Rahmadani, 2021).

According to data from the Health Department of Bogor City (2018), the number of handled diarrhea cases decreased from 24,362 cases in 2018 to 22,354 cases in 2019. This is good news indicating that the community is starting to care about digestive health, particularly in gastroenteritis with diarrhea symptoms (Health Department of Bogor City, 2018).

Gastroenteritis can occur due to a lack of knowledge and awareness about the disease, posing a risk for engaging in diarrhea-triggering habits and ultimately suffering from gastroenteritis, leading to dehydration and even death (Ministry of Health RI, 2017). Practicing a clean and healthy lifestyle is a form of consciousness-based behavior as a form of learning, allowing individuals to solve their health problems and participate in creating a healthy community around them (Ministry of Health RI, 2011). Healthy and Clean Living Behavior (PHBS) in educational institutions includes handwashing with soap, consuming healthy food and drinks, using clean toilets, and disposing of waste in designated bins (Ministry of Health RI, 2011).

PHBS aligns with Islamic teachings, where those who always maintain cleanliness will have increased faith and be protected from various diseases. Food sanitation is one prevention effort emphasizing activities and actions needed to free food and drinks from any danger that could affect health, from before food production, during processing, storage, transportation, until ready for consumption by the public or consumers (Nitami et al., 2022). Good PHBS and food sanitation cover all aspects of physical, spiritual, and environmental life, including efforts to prevent gastroenteritis (Putranto & Raharjo, 2020).

The risk of gastroenteritis is particularly high in pesantren environments (Sabaryanti, 2018). Generally, personal hygiene conditions of students in pesantren receive insufficient attention, resulting in unhealthy lifestyles such as neglecting sanitation before or after meals and personal cleanliness. This research aims to identify and analyze the relationship between knowledge, behavior, and sanitation practices regarding the risk of gastroenteritis in the pesantren environment (Islamic junior high school).

METHOD

This study utilizes a cross-sectional design with an analytical qualitative approach. The population in this study consists of 95 female students (santriwati) from Madrasah Tsanawiyah in the city of Bogor for the academic year 2022/2023. Samples were selected through simple random sampling technique, with inclusion criteria being active female students willing to participate as respondents, and exclusion criteria for those absent during data collection or unwilling to be respondents. Primary data was collected using a questionnaire covering respondent identities, knowledge about gastroenteritis, personal hygiene, and observations on sanitation and food processing. Data analysis was performed

using SPSS version 29, employing univariate analysis for independent variables and bivariate analysis to examine the relationship between independent and dependent variables.

RESULTS AND DISCUSSION

The characteristics of respondents in Madrasah Tsanawiyah using the questionnaire are presented in Table 1. The risk of gastroenteritis among respondents is divided into two categories: at risk (>60%) and not at risk (<60%), with almost equal results between the two. Knowledge about gastroenteritis and the application of PHBS are divided into three categories: good (>76%), sufficient (56-75%), and poor (<56%). The analysis results for knowledge about gastroenteritis show a sufficient level (75.8%) and a poor level (24.2%), while the application of PHBS results in a sufficient level (60%) and a poor level (40%).

Table 1. Characteristics of Respondents

Charakteristik	N	%
Gastroenteritis		
Risky	47	49,5%
No Risk	48	50,5%
Gastroenteritis Knowledge		
Good	-	-
Enough	72	75,8%
Not enough	23	24,2%
Implementation of PHBS		
Lack of PHBS	38	40%
PHBS is enough	57	60%
PHBS Good	-	-

Observations took place over two days in three key areas of food management: raw material selection, processing, and presentation. In the first area, raw material selection showed a compliance rate of 53.8%, indicating that despite efforts in selection, the output during the process did not align with the achieved sanitation standards, indicating the need for improvement. Subsequently, in the context of food processing, the compliance rate was recorded at 68.7%. This figure indicates that the majority of sanitation standards are met, but there is still room for improvement. This is crucial to limit contamination and maintain food quality. For food presentation, the compliance rate reached 66.6%. Although generally in line with sanitation standards, some areas still require attention and improvement to reach a higher standard. Overall, observations indicate an average compliance rate of 63% (Table 2). These results affirm that efforts in food processing sanitation are quite good, but there are still areas that need improvement.

Table 2. Results of Food Hygiene Sanitation Implementation

Food Sanitation Observation	Sorting raw materials	Processing	Presentation	Total
Lunch day 1	53,8%	68,7%	66,6%	63%
Dinner day 1	53,8%	68,7%	66,6%	63%
Lunch day 2	53,8%	68,7%	66,6%	63%
Dinner day 2	53,8%	68,7%	66,6%	63%

Description: poor sanitation (<56%), sufficient (56-75%), good (76-100%)

Bivariate analysis was conducted to determine the relationship between knowledge of gastroenteritis and clean and healthy living behavior (PHBS) with the occurrence of gastroenteritis among female students.

Table 3. Relationship between Knowledge of Gastroenteritis and Gastroenteritis Risk

Gastroenteritis Knowledge	No Risk	Risk	Total
Not enough	12	11	23
Enough	36	36	72
Total	48	47	95
Statistic			Value
Chi-Square			.033a
Significance (2-sided)			.856
<i>N of Valid Cases</i>			95

Statistical analysis results show significance (p-value) of .856, meaning there is no significant relationship between knowledge of gastroenteritis and gastroenteritis risk.

Table 4. Relationship between Clean and Healthy Living Behavior (PHBS) and Gastroenteritis Incidence

PHBS	No Risk	Risk	Total
Almost perfect	22	16	38
Just perfect	26	31	57
Total	47	48	95
Statistic			Value
Chi-Square			1.376a
Signifaction (2-sided)			.241
<i>N of Valid Cases</i>			95

Bivariate statistical analysis shows a significance (p-value) of .241, indicating no significant relationship between PHBS and gastroenteritis risk. This means that observed clean and healthy living behavior (PHBS) does not affect the occurrence of gastroenteritis in female students.

Discussion

The research conducted at Madrasah Tsanawiyah in Bogor Regency reveals that 75.8% of respondents have an adequate understanding of gastroenteritis, while only 24.2% possess good knowledge. Effectively, this reflects a knowledge gap among

students, contrary to the findings of Dewi & Sudaryanto (2020), who state that knowledge is not directly proportional to preventive actions. In this institutional context, despite a reasonably good understanding, the risk of gastroenteritis remains high, emphasizing the need for diverse health interventions beyond mere education (Dewi & Sudaryanto, 2020).

The implementation of clean and healthy living behaviors, or PHBS, is crucial for disease prevention. However, this study reveals that only 60% of students sufficiently adhere to PHBS standards, while 40% do not, primarily due to laxity in food handling, sanitation, and environmental hygiene, in line with the assertions of Karuniawati and Putrianti (2020). These findings reflect Wulandari's research (2022), emphasizing the importance of a holistic approach to gastroenteritis prevention despite the proper implementation of PHBS (Karuniawati & Putrianti, 2020; Wulandari et al., 2022).

Furthermore, sanitation practices observed over two days at Madrasah Tsanawiyah encompassed raw material selection, processing, and food presentation. The results found that the food processing at Madrasah Tsanawiyah in Bogor Regency is already quite good. The raw material selection process achieved a 53.8% compliance rate per observation session, with good food processing achieved at a rate of 68.7% per session. While these rates indicate some adherence to sanitation standards, improvements are needed, especially in the personal hygiene of kitchen staff and food handling, to ensure high-quality practices in separating and preparing raw materials (Noviastuti & Putranti, 2021; Rahmayani & Simatupang, 2019). For food presentation, the study reports a 66.6% level of hygienic food presentation. This includes specific food transportation routes, well-presented food conditions, and separate containers for soup to avoid cross-contamination. However, observations indicate that kitchen staff need to improve personal hygiene practices, following recommendations by Istiani (2021), emphasizing the importance of visually appealing and contamination-free food presentation.

Based on the set criteria, the observation classifies Madrasah Tsanawiyah into category (b), meaning fairly good in food processing sanitation. Therefore, in line with Kahlasi et al. (2019), these findings suggest that educational institutions like this should enhance food sanitation education and training for staff and students, thereby reducing the risk of gastroenteritis (Kahlasi et al., 2019).

Bivariate analysis results show no significant relationship between Gastroenteritis knowledge and Gastroenteritis risk, and similarly, no significant results between PHBS and the occurrence of gastroenteritis. The nonsignificant results may be influenced by the basic knowledge (prior knowledge) of the students. This can also be affected by differences in sample size, research methods, and study populations. Although both are important, other factors such as the environment, genetics, and access to healthcare facilities also play a role, suggesting the need for a comprehensive approach to prevent gastroenteritis among students.

Research on Gastroenteritis at Madrasah Tsanawiyah highlights the importance of understanding and practicing cleanliness in preventing this disease. Gastroenteritis, inflammation of the digestive tract, is usually caused by contaminated food or water and poor hygiene. In the context of Islam, the concept of cleanliness, or Thaharah, is crucial and

encompasses both physical and spiritual cleanliness. According to the teachings of the Quran, such as in Surah Al-Baqarah verse 222, Allah loves those who purify themselves, a sentiment reinforced in hadith stating that cleanliness is half of faith (HR. Muslim).

Cleanliness and health are considered expressions of gratitude to Allah SWT. Prophet Muhammad taught that Islam is built on cleanliness and stated that only the clean will enter paradise (HR Ath-Thabrani). In the context of food, good processing and attention to halal and healthy aspects are key. This is explained in the Quran in Surah Al-Baqarah 168-169, directing humanity to consume lawful and good food from the earth and avoid the steps of Satan.

Education and knowledge, including in the health context, are deemed crucial in Islam. Allah SWT teaches the importance of using hearing, sight, and conscience as means to acquire knowledge, as described in Surah An-Nahl verse 78. Prophet Muhammad emphasized the importance of seeking knowledge, including in the context of health and hygiene.

Overall, the relationship between clean and healthy living behaviors, food processing sanitation, and the occurrence of Gastroenteritis at Madrasah is closely tied ($p = 0.03$). The practice of cleanliness, both physically and spiritually, is an integral part of faith in Islam and plays a crucial role in preventing diseases like Gastroenteritis. Therefore, increasing awareness and education about cleanliness and health among female students are crucial to ensure their well-being.

CONCLUSION

Based on the research, the majority of female students (75.8%) have adequate knowledge about gastroenteritis, and 60% apply sufficiently healthy and clean living behaviors. Additionally, 60% show fair compliance with food processing sanitation. Bivariate tests show no significant relationship between healthy and clean living behaviors, food processing sanitation, and the occurrence of gastroenteritis in female students. This may be influenced by other risk factors contributing to gastroenteritis, indicating the need for more attention to avoid unwanted incidents. Gastroenteritis, according to Islamic principles, can be prevented through Thaharah, which is part of faith.

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