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## PROCEEDING BOOK

### *THE 4<sup>th</sup> INTERNATIONAL CONFERENCE ON HEALTH SCIENCE 2017*

### **“The Optimalization of Adolescent Health in The Era of SDGs”**

INNA GARUDA HOTEL YOGYAKARTA,  
INDONESIA  
November 5<sup>th</sup>, 2017



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# THE RELATIONSHIP BETWEEN KNOWLEDGE, ATTITUDES, ACTIONS RELATED TO THE CLEAN AND HEALTHY BEHAVIOR AND NUTRITIONAL STATUS WITH DIARRHEA EVENTS IN ISLAMIC BOARDING SCHOOL

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## ABSTRACT

Diarrhea is often cause extraordinary events with many sufferers in a short time. In a boarding school environment, diarrhea is one of the most common infectious diseases. The Clean and Healthy Behavior and nutritional status are included in the concept of balanced nutrition, applied to address health problems related to nutrition in Indonesia, including diarrhea. This research aims to evaluate the relationship between knowledge, attitudes, actions related to The Clean and Healthy Behavior and nutritional status with diarrhea events in Islamic Boarding School. This research will provide methods for proper management and prevention of diarrhea with improvement of personal health quality. Respondents for this cross sectional study were taken using consecutive sampling system. The sample size consisted of 116 students aged <18 years old and had experienced diarrhea in the last 3 months. Respondents were then measured weight and height, filling out identity data and validated questionnaires. Data were then analyzed using Spearman test. The result shows that the category of knowledge, attitudes and actions are mostly included in good (58,6%), good (91,4%), and poor (94,8%), respectively. The relationship with diarrhea events is significant ( $p = 0,015$ ;  $p = 0,006$ ;  $p = 0,000$ ), respectively. Respondents are mostly included in normal nutritional status (51,7%) with significant relationship ( $p = 0,029$ ). It can be concluded that there is a significant relationship between knowledge, attitudes, actions related to The Clean and Healthy Behavior and nutritional status with diarrhea events in Islamic Boarding School.

**Keywords:** *Diarrhea, The Clean And Healthy Behavior, Nutritional Status, Boarding School*

## INTRODUCTION

Diarrhea is irritable bowel disorder characterized by defecation for more than 3 times a day with liquid stool consistency, can be accompanied by blood and/or mucus<sup>1</sup>. Diarrhea is the 13<sup>th</sup> leading cause of death with a proportion of 3,5%. While based on infectious diseases, diarrhea is the 3<sup>rd</sup> leading cause of death after TB and Pneumonia<sup>2</sup>.

The incidence and period prevalence of diarrhea for all age groups in Indonesia were 3,5% and 7,0%, respectively. East Java province is slightly higher than overall population in Indonesia, which is 3,8% and 7,4%, respectively<sup>1</sup>.

In a boarding school environment, diarrhea is one of the most common infectious diseases. Based on data from *Balai Kesehatan Santridan Mahasiswa* (BKSM), Islamic Boarding School's health center of Gontor for Girls 1 in East Java, diarrhea is one of the 5 most diseases, with the incidence of diarrhea from January to April 2016 is 237 students.

Many factors can affect the incidence of diarrhea in Indonesia. Factors from food and hygiene sanitation are among the many causes of diarrhea. The causes of diarrhea include infection (bacteria, viruses, parasites), malabsorption, allergies, poisoning, immunodeficiency, and other causes<sup>4</sup>.

The clean and healthy behavior plays an important role in the incidence and management of diarrhea. Lacking (inadequate) of water, sanitation, and hygiene (WASH) will cause some health problems<sup>5</sup>. Infectious germs of Face-Oral that cause diarrhea can be transmitted into the mouth through food, drink or objects contaminated with feces, such as fingers, food or drinking boxes that have been washed by contaminated water<sup>4</sup>.

Malnourished children is at risk of infected bacteria associated with diarrheal diseases. The relationship between diarrhea and malnutrition is two directions: diarrheacauses malnutrition while malnutrition worsens the course of diarrheal disease<sup>6</sup>. Prolonged diarrhea causes malnutrition in patients; on the other hand, malnourished children will be at higher risk of diarrheal complications<sup>7</sup>.

The aims of this research is to evaluate the relationship between knowledge, attitudes, actions related to The Clean and Healthy Behavior and Nutritional status with diarrhea events in islamic boarding school environment. This research will provide methods for proper management and prevention of diarrhea with improvement of personal health quality.

## METHODS

Respondents for this cross sectional study were taken using consecutive sampling system. The sample size consisted of 116 students aged <18 years old and had experienced diarrhea in the last 3 months. Respondents were then measured weight and height to obtain BMI data (nutritional status). The tools used are digital scales that have been calibrated and microtoise. Category of nutritional status used BMI (for Asia) category<sup>8</sup>.

Furthermore, respondents were asked to fill out the identity data and questionnaire about The Clean and Healthy Behavior, which is divided into 3 categories (knowledge, attitudes, and actions). Questions in each of these categories have been tested for validation, so that from 55 initial questions to 36 questions only.

Categorization is said to be poor if the score is <60% of the total questions in each category. Based on this, the knowledge category is stated poor if the score <18 (total score is 30), the attitude category is stated poor if the score <7 (total score is 11), and the category of action is stated poor if the score <9 (total score is 15). All data were then analyzed using Spearman test.

## RESULTS

**Table 1. Distribution of Respondents with Diarrhea**

Category	n	%
Diarrhea		
Yes	74	63,8
No	42	36,2
Total	116	100

Table 1 shows the distribution of respondents who are included in the category of diarrhea or non diarrhea in accordance with the questionnaire. From 116 respondents, 63,8% included in the diarrhea category, ie defecating more than 3 times a day with liquid consistency stool, may be accompanied by blood and/or mucus.

The respondents of this study were whole girls. This is because the study was conducted in the boarding school for girls. The results showed that most respondents aged 13-15 years old, with pocket money at most less than 500.000 IDRper month. The relationship between age and diarrhea is not significant. There is also no significant relationship between pocket money and diarrhea. Characteristics of respondents can be seen in Table 2.

**Table2. Distribution of Characteristics Respondents**

Variable	n	%	p-value
<b>Age(years old)</b>			
10 – 12	1	0,9	0,808
13 – 15	76	65,5	
16 – 18	39	33,6	
<b>Pocket money (IDR)</b>			
<500000	70	60,3	0,508
>500000	46	39,7	

(\*) = significant ( $p < 0,05$ )

In Table 3, most of respondents have good scores on knowledge category (58,6%), although the numbers do not vary much with those with poor scores. 91,4% of respondents got good scores for attitudes category. However, most respondents have poor scores for actions category (94,8%). We can see that there are significant relationship between The Clean and Healthy Behavior categories with diarrhea events. Knowledge category is significantly related to diarrhea, as well as the attitudes category and the actions category.

Most of the respondents were include in poor and normal BMI category for nutritional status. The result on the nutritional status of respondents concluded that there is a significant relationship between the value of BMI with diarrhea.

**Table3.Distribution of Variables and The Relationship with Diarrhea Events**

Variable	n	%	p-value
<b><i>The Clean and Healthy Behavior</i></b>			
<b>Knowledge</b>			
Good	68	58.6	0,015*
Poor	48	41.4	
<b>Attitudes</b>			
Good	106	91.4	0,006*
Poor	10	8.6	
<b>Actions</b>			
Good	6	5.2	0,000*
Poor	110	94.8	
<b><i>Nutritional status</i></b>			
Underweight	25	21,6	0,029*
Normal	60	51,7	
Overweight	14	12,1	
Obesity	17	14,7	

(\*) = significant ( $p < 0,05$ )

## DISCUSSION

Implementation of clean living behavior can create healthy households, significantly<sup>9</sup>. This is because the individual factors have an important role in maintaining personal health and the surrounding environment.

Some studies have revealed that knowledge related to The Clean and Healthy Behavior is closely related to the incidence of infection, including diarrhea. As a study in Pakistan, which stated that children <15 years of age with good knowledge of clean and healthy life have a smaller incidence of diarrhea than children with poor knowledge<sup>10</sup>.

Attitudes and actions of person can also determine the high or low risk of someone affected by infectious diseases, including diarrhea. A study conducted on elementary school stated that children who are used to wash hands do not experience diarrhea<sup>11</sup>.

In this study, the clean living action observed included washing hands with soap and running water, using clean water, using healthy latrines, and doing daily physical activity. And the results are surprising. Many respondents have good scores for knowledge and attitude related to The Clean and Healthy Behavior, but their actionscores are not so good.

The better the action on healthy living, the lower the risk of diarrhea in students of Islamic boarding school. This statement is supported by Lawrence Green's behavioral theory which stated that behavior can be influenced by predisposing, enabling, and reinforcing factors. Predisposing factors that influence the incidence of diarrhea include knowledge and attitudes related to a clean and healthy life, beliefs, tradition, and social norms. Some of the enabling factors that affect the incidence of diarrhea are hand washing faucet facilities and its affordability<sup>12</sup>. Facilities of hand washing faucets are already located in the Islamic boarding school area, but there are no hand-washing soaps at all, which cause low scores of attitude category (hand washing with soap).

The reinforcing factors that affect diarrhea are the role of *ustadz* or *ustadzah*(teachers) who support the creation of good behavior. Health education has an important role related to all three factors above in improving the behavior of clean and healthy life<sup>12</sup>. Health education that needs to be given to students in preventing diarrhea is washing hands with running water and soap, improving water quality, and enforcing the application of waste disposal in place<sup>13</sup>.

Table 3 also shows that nutritional status is significantly related to diarrhea events. Some studies stated that malnutrition is significantly related to diarrhea events<sup>14,15</sup>. Children with poor nutritional status are at risk of exposure to bacteria associated with diarrheal diseases. The relationship between diarrhea and malnutrition is two directions: diarrhea causes malnutrition while malnutrition worsens the course of diarrheal disease<sup>6</sup>. Prolonged diarrhea causes malnutrition in patients; on the other hand, malnourished children will be at increased risk of diarrheal complications<sup>7</sup>.

Malnutrition will decrease immune function and will increase the risk of infectious diseases such as diarrhea<sup>16</sup>. Malnutrition predisposes to infection because of its negative effects on mucosal defenses by triggering changes in host immune function. Decreased immune function may include delayed hypersensitivity, decreased lymphocyte response, decreased T-lymphocyte, decreased phagocytic function due to decreased complement and cytokines, and decreased immunoglobulin A (IgA)<sup>17</sup>.

People with poor nutritional status are more likely to experience diarrhea, malaria, respiratory infections, and also have a greater likelihood of suffering with longer duration of illness. People who are poorly nourished are more likely to experience symptoms due to a common infection that will weaken the body. It is unclear whether due to certain macronutrient or micronutrient deficiency conditions that cause increased in morbidity<sup>18</sup>.

## CONCLUSION

There is a significant relationship between knowledge, attitudes, actions related to The Clean and Healthy Behavior with diarrhea events. The relationship between nutritional status and diarrhea is also significant.

## RECOMENDATION

Recommendation for Islamic boarding schools, especially, improvements in The Clean and Healthy Behavior are urgently needed. Supported by the provision of necessary infrastructure. Good knowledge creates a good attitude, and with the support of all parties (teachers, fouders, friends, parents, etc), it can create good daily actions. However, further research is needed regarding other risk factors that may affect the incidence of diarrhea in the boarding school environment.

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