

SANITATION AND HEALTHY LIVING BEHAVIOR IN CAMPUS BOARDING HOUSES: A CASE OF UINSU MEDAN

Aulia Purnama Rangkuti^{1*}, Nurhayati Telaumbanua¹, Linda Jernih Hati Daeli¹, Nabila Widya Ningsih¹, Atika Arizky¹, Yenni Depita Sari¹

¹Faculty of Public Health, State Islamic University of North Sumatra, Medan, Indonesia

*Correspondence: rangkutiauliapurnama@gmail.com

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Abstract

Background: Poor environmental sanitation can affect students' learning motivation, concentration, and daily activities in boarding houses. This study aimed to assess environmental sanitation facilities and healthy behaviors among students living in boarding houses around the State Islamic University of North Sumatra, Medan Tuntungan. **Method:** This study used a case study approach involving 96 student boarding houses located around the Universitas Islam Negeri Sumatra Utara, Medan Tuntungan campus. Data were collected through direct interviews with boarding house residents and field observations using an observation form. The variables observed included housing conditions, clean water supply, wastewater drainage, garbage disposal facilities, and toilet availability. **Results:** The majority (85.4%) of boarding houses had tiled or ceramic floors. More than half of the boarding rooms lacked adequate ventilation. Refill drinking water was the main source of drinking water for most respondents (71.9%). All boarding houses had toilet facilities. However, disease vectors such as flies, mosquitoes, rats, and cockroaches were found in 69.8% of boarding houses. Most residents did not have a smoking habit (92.7%). **Conclusion:** Overall, most student boarding houses around the State Islamic University of North Sumatra, Medan Tuntungan, met the requirements for a healthy home. Nevertheless, improvements are still needed, particularly regarding ventilation and the control of disease-transmitting vectors to support a healthier living environment for students.

1. Introduction

Students at the State Islamic University of North Sumatra, Medan Tuntungan, who come from outside the area generally live in boarding houses while studying. Condition sanitation environment house boarding house become wrong one factor which can affect the health and comfort of residents. Scattered trash, inadequate ventilation, and

sanitation facilities that do not meet health standards can cause various health problems.

According to the decree of the minister of health of the Republic of Indonesia number 829/Menkes/SK/VII/1999 about condition health housing area, house a healthy home must meet the requirements for home components, sanitation facilities, and occupant behavior. In addition, the regulation of the minister of health of the Republic of Indonesia number 1077/MENKES/PER/V/2011 concerning guidelines for indoor air health in homes states that homes must be equipped with adequate ventilation to maintain indoor air quality.

Poor environmental sanitation can affect students' learning motivation, lower concentration study and activity daily in house student boarding houses. This study aims to assess environmental sanitation facilities and healthy behavior of students in boarding houses around the campus of the State Islamic University of North Sumatra, Medan Tuntungan.

2. Materials and Methods

This mini research used an observational method with a case study approach, focusing on student boarding houses within the State Islamic University of North Sumatra, Medan Tuntungan. Observations were conducted to assess environmental sanitation conditions and the healthy behaviors of boarding house residents.

The instruments used in this study were a healthy behavior questionnaire and an observation form containing the variables studied, namely the condition of the house, provision of clean water, wastewater drainage, garbage disposal, and toilets used by the residents of the student boarding house. Data were obtained through field observations and direct interviews with boarding house residents. The data were then processed using a computer system and presented in the form of a frequency distribution table with explanations. Data analysis was performed univariately on each research variable in accordance with the research objectives.

The population in this research is all student boarding houses located in the area of the State Islamic University of North Sumatra, Medan Tuntungan, Pancur Batu District, Medan City, which totals around ± 875 boarding houses. From this population, 96 boarding houses were selected as research samples. The sample was used to obtain an overview of the environmental sanitation conditions and healthy behaviors of students living in boarding houses at the State Islamic University of North Sumatra, Medan Tuntungan.

3. Results

Respondent Characteristics

The characteristics of respondents in this study were based on the type of boarding house occupied by students in the environment of the State Islamic University of North Sumatra, Medan Tuntungan.

Table 1. Respondent Characteristics

House Type and Gender	Amount
Boarding house	
- Man	24%
- Woman	76%

More than half of the boarding houses surveyed were women's boarding houses, namely (76%), and men's boarding houses (24%).

Home Components

Table 2. Components of Student Boarding Houses in the State Islamic University of North Sumatra, Medan Tuntungan.

Variabel	Percentage (%)
Floor	
- Board / land cracked and dusty plaster	(1.1%)
- Slippery cement without tiles / ceramics	(13.5%)
- Tiles/ ceramics	(85.4%)
Window	
- Dn't any	(5.2%)
- There is, but no can opened / closed	(8.3%)
- Yes, you can opened / closed	(86.5%)
Ceiling	
- Dn't any	(2.1%)
- There is, dirty and difficult cleaned	(9.4%)
- There is, clean and easy cleaned	(88.5%)
Ventilation	
- Dn't any	(8.3%)
- There is, it's spacious ventilation permanent <10% area floor	(52.1%)
- There is, it's spacious ventilation permanent >10% area floor	(39.6%)
- Not sturdy and not equipped key	(1%)
- Not sturdy, but there is equipped key	(11.5%)
- Sturdy	(87.5%)

Table 2 shows that the majority of student boarding houses at the State Islamic University of North Sumatra, Medan Tuntungan, have tiled/ceramic floors (85.4%). Most have windows that can be easily opened (86.5%), although 5.2% still have windows that cannot be closed or opened. Another 9.4% of boarding houses have dirty ceilings that are difficult to clean.

More than half of boarding rooms lack ventilation (8.3%). While 39.6% of boarding houses have ventilation, its area is still less than 10% of the floor area. Most boarding houses have sturdy doors (87.5%). Furthermore, 11.5% of boarding houses have doors that are not sturdy but are equipped with locks. Meanwhile, only 1% of boarding houses have doors that are not sturdy and do not have locks.

Sanitation Facilities

Table 3. Sanitation Facilities of Student Boarding Houses in the Surrounding Area of the State Islamic University of North Sumatra, Medan Tuntungan.

Facility Sanitation	Percentage %
Source main drinking water	
- Well No protected	0
- Well protected	(9.4%)
- PDAM	(18.8%)
- Bottled water content repeat	(71.9%)
Channel wastewater disposal	(6.3%)
- There is nothing, directly thrown away to river / gutter	
- Yes, channel closed however no flow with fluent	(4.1%)
- Byes, channel closed and flowing with fluent	(89.6%)
Ownership toilet	
- There is dn't any	(5.2%)
- There is one room One toilet	(69.8%)
- Yes, shared with other boarding house residents	(25%)
Type toilet	
- Plunge without septic tank	(5.2%)
- Plunge with septic tank	(64.6%)
- Swan neck with septic tank	(30.2%)
- Is there any or not waterproof / closed, easy rusty	(38.5%)
Place rubbish	
- There is dn't any	(5.2%)
- Yes, waterproof / closed, no easy rusty	(56.3%)
- Is there any or not waterproof / closed, easy rusty	(38.5%)
- Yes, waterproof / closed, no easy rusty	(56.3%)

In table 3 it can be seen that drinking water content repeat become choice from almost all boarding houses in the State Islamic University of North Sumatra Medan environment,

namely by 71.9%. Meanwhile the rest consume PDAM water (18.8%) and water from protected wells (9.4 %). Channels wastewater disposal in boarding houses in the State Islamic University of North Sumatra, Medan Tuntungan part large, namely 89.6% in the form of channel closed and flowing with smooth. However, it is still there are 6.3% others who do not own channel wastewater disposal so that thrown away direct to river or drain.

Beside That Still there are 4.1% of boarding houses that have channel closed but the water No flow with smooth. All boarding house in the environment of the State Islamic University of North Sumatra, Medan Tuntungan own toilet. Almost all (69.8%) of surveyed boarding houses that have toilets in each boarding rooms. Only (25%) in the form of toilet used shared by residents boarding house. Besides that still there are (5.2%) boarding houses that do not own toilet.

Type toilet boarding house students at the State Islamic University of North Sumatra, Medan Tuntungan in the form of toilets used by residents boarding house almost everything toilet plunge however already using a septic tank (64.6%) and those who use neck swan with septic tank (30.2%). However still there is boarding houses (5.2%) which are still use toilet plunge without a septic tank.

More from half (74%) of student boarding houses in the State Islamic University of North Sumatra, Medan Tuntungan there is vector distributor disease good in the form of flies, mosquitoes, rats, and cockroaches, namely amounting to (74%). Facilities place waste that is watertight / closed and not easy rusty found in (56.3%) student boarding houses in the State Islamic University of North Sumatra, Medan Tuntungan.

While the most is boarding house with facility place rubbish No waterproof / not waterproof closed / easy rusty, namely by (38.5%). This is a worrying matter is Still there are (5.2%) boarding houses that do not own place garbage. Facilities sanitation student boarding house in the State Islamic University of North Sumatra, Medan Tuntungan summarized in table 3.

Occupant Behavior

The habit of opening windows every day as seen in table 4 is carried out by less than half of boarding house residents (57.3%), those who open windows sometimes (35.4%) and those who never open their bedroom windows (7.3%).

More than half of boarding house residents clean their rooms daily (86.5%), and only 13.5% clean their rooms occasionally. Half of respondents change their sheets and pillowcases once a month (24%), once every two weeks (33.3%), and only 42.7% change their sheets and pillowcases weekly.

The majority of respondents (54.2%) empty their bathtubs weekly. Most (80.2%) dispose of their waste in containers / TPSs / collected by garbage collectors, while the remainder manage their waste by burning. A total of 17.7% of respondents (99%) always wash their hands with soap after defecating and before / after eating, while the remainder occasionally wash their hands with soap.

A total of 92.7% of student boarding house residents at the State Islamic University of North Sumatra, Medan Tuntungan, do not smoke. Only 7.3% of students smoke. The healthy behavior of students living in boarding houses in the University Environment of the State Islamic University of North Sumatra, Medan Tuntungan can be seen in table 4.

Table 4. Behavior of Student Boarding House Residents in the State Islamic University of North Sumatra, Medan Tuntungan.

Behavior Residents	Percentage %
Open Window Room	
- Never	(7.3%)
- Sometimes	(35.4%)
- each day	(57.3%)
Clean room	
- Never	0
- Sometimes	(13.5%)
- each day	(86.5%)
Replace bed sheets and pillowcases pillow	
- One month very	(24%)
- Two weeks very	(33.3%)
- One week very	(42.7%)
Drain bathtub	
- Never	(7.3%)
- One month very	(12.5%)
- Two weeks very	(26%)
- One week very	(54.2%)
Throw away rubbish	
- Thrown away to the river / gutter / land empty	0
- Burned	(17.7%)
- Buried	(2.1%)
- Thrown away to container / TPS / transported craftsman rubbish	(80.2%)
- Wash hand use soap after defecating or before / before eat never	0
- Seldom	(1%)
- Always	(99%)
Habit smoke	
- Yes	(7.3%)
- Sometimes	0
- No	(92.7%)

Physical Environment

Table 5 displays the results of observations of the physical environment of boarding houses, assessed based on lighting and room occupancy density. Table 5 shows that

85.4% of boarding houses at the State Islamic University of North Sumatra, Medan Tuntungan, have bright, non-glare lighting, making them suitable for normal reading. Dim lighting, making it difficult for normal reading, was found in 13.5% of boarding houses.

No boarding houses were found with dim lighting, making them unsuitable for reading. Only 25% of boarding houses had bedrooms measuring less than 8m². This means that 75% of student boarding houses within the State Islamic University of North Sumatra, Medan Tuntungan, meet the room density requirements, which is a minimum bedroom size of 8m² for a maximum of two people.

Table 5. Physical Environment of Student Boarding Houses in the State Islamic University of North Sumatra.

Physical Environment	Percentage (%)
Lighting room	
- Not bright, no can used for read	0
- Not bright enough, not enough clear used for read normally	(13.5%)
- Bright and not dazzled so that can used for read normally	(85.4%)
Density room	
- Area of space sleeping area <8m ²	(25%)
- Area of space minimum sleeping area of 8m ² inhabited maximum 2 people	(75%)

4. Discussion

The majority (92.7%) of student boarding houses within the State Islamic University of North Sumatra, Medan, and Tuntungan, meet the requirements for healthy housing. Nearly all boarding houses have windows that can be easily opened. This meets the requirement that walls be able to withstand natural disturbances such as strong winds, rain, and heat, so as not to disrupt the activities of the occupants within the room.

However, more than half of boarding rooms lack ventilation. Some boarding houses do have ventilation, but its area is still less than 10% of the floor area.⁴ The function of ventilation is to allow the entry of natural light and air needed for the health and comfort of the house's occupants, by replacing the air containing carbon (CO₂) exhaled by humans, with new fresh air containing oxygen (O₂) for humans to inhale continuously.³

Insufficient ventilation will cause indoor humidity to rise.⁵ High humidity is a good medium for bacteria and pathogens.⁵ Ventilation in student boarding houses in the State Islamic University of North Sumatra, Medan Tuntungan, for the most part (88.5%) meets the requirements for a healthy home. Refillable drinking water is the choice of almost all

boarding houses in the State Islamic University of North Sumatra, Medan Tuntungan. Similarly, at the Bogor Agricultural Institute, 90.4% of students who live in boarding houses or rented accommodation consume bottled drinking water.⁶

The wastewater drainage system in boarding houses within the State Islamic University of North Sumatra, Medan Tuntungan, is mostly closed and flows smoothly. This meets the requirements for ensuring that liquid waste from the houses does not contaminate water sources, produces odors, or contaminates the ground surface.^{5,8}

All boarding houses within the State Islamic University of North Sumatra, Medan, Tuntungan, have toilets. Similarly, only 70% of student boarding houses in Karangmalang Hamlet, Yogyakarta, have sanitary toilets.⁷ More than half of all boarding houses within the State Islamic University of North Sumatra have toilets. 69.8% of the boarding houses surveyed have toilets in each room.

More than half of the student boarding houses at the State Islamic University of North Sumatra, Medan Tuntungan, are home to disease-carrying vectors, including flies, mosquitoes, rats, and cockroaches. A healthy boarding house must be free of disease-carrying animals.⁴ Residents and owners must control the presence of these disease-carrying vectors.

Vector control can be achieved by modifying the environment to prevent vectors from breeding, resting, or biting. For example, by removing mosquito nests (PSN) and clearing stagnant water channels that can become breeding grounds for disease-transmitting mosquitoes.

Watertight / closed, rust-resistant trash bins were found in 38.5% of student boarding houses in the State Islamic University of North Sumatra, Medan Tuntungan. It is concerning that there are still 5.2% of boarding houses that do not have trash bins. If this is allowed to continue, it will be detrimental to the surrounding community, because from a health perspective, it can cause disease if disposed of carelessly. Trash that spills into waterways will clog water flow, which can cause flooding during the rainy season.⁸ Improper waste management can have a negative impact on human health and the spread of infectious diseases.^{11,12}

Nearly all (57.3%) residents of student boarding houses in the State Islamic University of North Sumatra, Medan, Tuntungan, practice healthy behaviors. Less than half of the boarding house residents open their windows daily. This is quite concerning because opening windows allows sunlight to enter the house, and opening windows daily from morning to evening is crucial for air exchange.

Daytime light exposure can affect sleep duration and quality, which can then have a broader impact on other health factors. Previous research has shown that sleep deprivation and reduced sleep quality have a myriad of health and safety consequences.^{12,13}

Most respondents practice weekly bathtub draining. Draining the bathtub at least once a week is expected to break the cycle of dengue fever vector transmission.¹⁶ Muda and Haqi, based on their research in Surabaya, found a significant correlation between weekly bathtub draining and the presence of mosquito larvae.¹⁰

Most boarding house residents in the State Islamic University of North Sumatra, Medan Tuntungan, consistently wash their hands with soap after defecating and before or after eating, while others occasionally wash their hands with soap. This good habit needs to be maintained and continuously promoted to all boarding house residents and the surrounding community. There is no doubt that personal hygiene, including handwashing, reduces the incidence of infectious diseases.^{15,16}

Almost all (85.4%) of the student boarding houses at the State Islamic University of North Sumatra, Medan Tuntungan, meet the requirements for a healthy home. Most of the student boarding houses at the State Islamic University of North Sumatra, Medan Tuntungan, have bright, non-glare lighting, making them suitable for normal reading. Adequate lighting prevents eye fatigue. Good lighting is associated with comfortable learning.¹¹ There is a significant influence of lighting on student concentration and academic achievement.^{18,19}

Most student boarding houses within the State Islamic University of North Sumatra, Medan Tuntungan, meet the room density requirements, which are a minimum bedroom area of 8m² and a maximum of two occupants. Low-density housing can maintain a normal indoor temperature.^{9,22} The more densely populated a home is, the easier and faster the transmission of disease, particularly airborne diseases, becomes.^{24,25}

5. Conclusion

Student boarding houses within the State Islamic University of North Sumatra, Medan Tuntungan, in the Pancur Batu District of Medan City, almost all meet the requirements for healthy homes, including components such as sanitation facilities, resident behavior, and the physical environment. However, some healthy home requirements are still low, including room ventilation, the habit of opening windows, and the presence of disease-transmitting vectors. It is important to educate boarding house owners and residents about the importance of adequate room ventilation, opening windows during the day, and controlling disease-transmitting vectors.

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