

# Sanitation and Physical Conditions in Boarding House and Health Complaints of Boarders, In Akehuda Urban Village, Sub-District of North Ternate, Ternate City

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**Abstract:** Sanitation should be a priority for public service improvement where most of the Indonesian population cannot benefit adequate sanitation facilities. House is one of the basic human needs that function as a dwelling. Ineligible House Construction and premises are the main factors causing various health problems. This study aims to know the description of sanitation and the physical conditions in boarding houses and health complaints of boarders in Akehuda Urban Village. The research type was descriptive observational. Sampling was non-random sampling with the purposive sampling technique and the numbers of samples were 54 boarding houses. Based on the data analysis shows that overall, temperature and humidity in boarding houses were ineligible. 16, 7% boarding houses had no ventilation. 40, 7% light intensity were ineligible. 11, 1% noise intensity were ineligible. 61, 1%, facilities for landfills were ineligible. 59, 3% Sewerage conditions were ineligible and there were health complaints founded such as 46, 3% cough, 37% diarrhea and 27, 8% skin diseases. In conclusion, there were some ineligible sanitations and ineligible physical conditions such as temperature, humidity, ventilation, lighting, noise intensity, sewerage and there were health complaints i.e. a cough, diarrhea and skin diseases.

**Keywords:** Sanitation, Physical Conditions, Boarding House, Health Complaints

## 1. Introduction

Sanitation should be a priority for public service improvement where most of the Indonesian population cannot benefit adequate sanitation facilities, especially people who are in a dense, slum and poor area. The direct consequences of these conditions are the increasing number of morbidity and mortality caused by environment-related diseases (health office of Sukoharjo, 2011). To avoid environment-related diseases, a healthy home is needed as part of disease prevention. A healthy house must have the following criteria: drinking water accessibility, healthy latrine accessibility, eligible floors, eligible ventilation, and eligible lighting (Department of health of Republic Indonesia, 2012).

The number of healthy houses in Ternate City was 19.9%. The highest number of healthy houses was in Gambesi urban village, 98.8% and Sulamadaha urban village, 80.4%. The lowest number of healthy houses was in Kalumata Urban Village, 51.3%, Siko urban village was 51.2%, and Jambula urban village was 15.2% (Health Office of Ternate City, 2017).

Healthy house requirements based on RI Minister of Health Decree No.829 / Menkes / SK / VII / 1999 are as follows: having strong floors and walls, waterproof, easy to clean, adequate lighting both natural and artificial light. A house must have eligible lighting minimal 60 lux, window area is 10-20 %. water quality in the house is 18 – 30°C with humidity 40 % - 70%, the bedroom spacious is minimal 3 m<sup>2</sup> and there are no vectors of disease

nesting at home, there is an availability of eligible clean water, liquid waste does not pollute the soil source and odorless.

Poor housing will cause health problems i.e. the occurrence of disease transmission both between inter-family members and others. Diseases that often arise in boarding house such as skin disease, eyes disease, respiratory infections, tuberculosis and these diseases are transmitted directly (Suyono & Budiman, 2010).

A boarding house is a construction that has a function as a temporary residence for students and employees whose place of residence is far from the location of the campus or office (Mulianto, P, et al. 2011). Boarding rooms must be eligible in terms of room size, the number of occupants, the area of ventilation, temperature, and humidity, so that boarding houses are not being risked place for transmitting various types of environment-related diseases.

Based on Nurhidayah research results conducted in Sumedang, 2017 concluded that there were correlations between the density of boards, the area of house ventilation and home lighting with the incidence of pulmonary tuberculosis in children. In addition, The other study states that the influencing factors of the increasing number of pulmonary tuberculosis cases were the residential building conditions, environmental sanitation, the level of knowledge about pulmonary tuberculosis, the level of the population's economy and the nutritional status of the community (Achmadi, 2008).

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Akehuda urban village, north Ternate sub-district is a village that has 60 boarding houses. Based on a preliminary survey conducted, it was known that there were ineligible boarding houses. Therefore, the researcher was interested to conduct research entitled "Sanitation and physical conditions in boarding house and health complaints of boarders in Akehuda urban village, Ternate City".

## 2. Research Method

Research type is descriptive observational, which was looking at the description of Sanitation and physical conditions in boarding house and health complaints of boarders, in Akehuda Urban Village, Sub- district of North Ternate, Ternate City. The populations in this research were all boarders of boarding houses in Akehuda urban village and the samples were 54 residents of boarding houses taken based on the Slovin formula. Data collection technique was conducted by observation, interviews, and questionnaires. Afterward, the collected data were processed using statistical programs.

## 3. Result

### 1) Water Supply

**Table 1: Clean Water Supply**

Quantity	N	%	Inf
Being available in sufficient quantities isat least 60 l/org/day	0	0	ineligible
Being available all day is in sufficient quantities	54	100%	eligible
Total	54	100%	54

Based on Table 1 shows that of 54 samples observed, all of boarding houses 54 (100 %) can provide clean water all day in sufficient quantities.

### 2) Waste Management

**Table 2: Sewerage Condition**

Sewerage	N	%	Inf
Sewerage is made of waterproof material and close	22	40, 7%	eligible
Sewerageis made of non-waterproof material and open	32	59, 3%	ineligible
Total	54	100%	54

Based on table 2 shows that of 54 samples observed, the sewerages made of waterproof material were 22 boarding houses (40.7%) and sewerages made of non-waterproof material and open were 32 boarding houses (59.3%).

### 3) Rubbish

**Table 3: Ownership of the Rubbish Bin**

Ownership of the rubbish bin	n	%	Inf
Available	38	70, 4	eligible
Unavailable	16	29, 6	ineligible
Total	54	100	

Based on table 3, it shows that of 54 samples observed, there were 38 boarding houses (70.4%) had rubbish bin and 16 boarding houses (29.6%) had no rubbish bin.

### 4) Disposal of Feces

**Table 4: Ownership of Latrines**

Ownership of latrines	n	%	Inf
Unavailable	0	0	Ineligible
Available, every room	0	0	Eligible
Available, used by all residents of boarding house	54	100%	Eligible
Total	54	100%	54

Based on Table 4, it can be seen that of 54 samples observed, All of the boarding houses 54 (100%) had latrines and were used by all residents of boarding room.

### 5) Temperature

**Table 5: Boarding House Temperature**

Temperature	n	%	Inf
18 <sup>0</sup> C – 30 <sup>0</sup> C	0	0	Eligible
> 30 <sup>0</sup> C	54	100%	Ineligible
Total	54	100%	54

Based on table 5, it is known that of 54 samples observed, all of boarding houses have ineligible temperature where all boarding houses had temperature more than 30<sup>0</sup>C.

### 6) Humidity

**Table 6: The Humidity of Boarding House**

Humidity	n	%	Inf
40% - 60%	0	0	Eligible
> 60%	54	100%	Ineligible
Total	54	100%	54

Based on table 6 shows that of 54 samples observed, there were 54 boarding houses (100%) that had humidity > 60%, where all of humidity level in boarding houses is ineligible.

### 7) Ventilation

**Table 7: Boarding House Ventilation**

Ventilation	n	%	Inf
Available	9	16, 7	Ineligible
Available > 10% of floor area	45	83, 3	Eligible
Available < 10% of floor area	0	0	Ineligible
Total	54	100	54

Based on table 7 shows that of 54 samples observed, there were 9 (16.7%) boarding houses that had no ventilation and there were 45 (83.3%) boarding houses that had ventilation >10% of the floor area.

### 8) Lighting

**Table 8: Lighting**

Lighting	n	%	Inf
< 60 lux	22	40, 7%	Eligible
> 60 lux	32	59, 3%	Ineligible
Total	54	100%	54

Based on table 8 shows that of 54 samples observed, there were 22 (40.7%) boarding houses that had a light intensity < 60 lux and there were 32 (59.3%) boarding houses that had no light intensity > 60 lux.

### 9) Noise

**Table 9: Noise**

Noise	n	%	Inf
< 45 dB	48	88,9	Eligible
> 45 dB	6	11,2	Ineligible
Total	54	100	54

Based on Table 9 shows that of 54 samples observed, there were 48 (88.9%) boarding houses that had a noise level <45 dB and there were 6 (11.1%) boarding houses that had a noise level > 45 dB.

### 10) Health Complaints

**Table 10: Distribution Frequency of Health Complaints of Boarding House Residents**

Health Complaints	Yes		No	
	n	%	n	%
Diarrhea	20	37,0 %	34	63 %
Cough > 3 weeks	25	46,3 %	29	53,7 %
Skin diseases	15	27,8 %	39	72,2

Based on Table 10 shows that of 54 samples observed, most of the health complaints complained by boarding houses residents were cough > 3 weeks 25 (46.3%), diarrhea 20 (37.0%) and skin diseases 15 (27.8%).

## 4. Discussion

### 1) Water Supply

Based on the data research obtained showed that the majority of clean water sources used in boarding houses in Akehuda Village, North Ternate Sub-district was PDAM water where the physical conditions of the water were colorless, tasteless and odorless. Water supply was in sufficient quantities all day. In conclusion, the clean water facilities were eligible based on Permenkes 416 in 1990 and Permenkes 907 in 2002. According to Delmi (2013) stated that of 100 respondents of boards, 49 people (49.0%) had skin health complaints due to water.

### 2) Sewerage

Household wastewater is wastewater that comes from the bathroom, kitchen activity, laundry containing harmful pathogenic microorganisms, and can cause disease i. e diarrhea (Nugraheni, 2012). Based on the results of the study, it can be seen that there were 22 (40.7%) boarding houses that had eligible sewerage and there were 32 (59.3%) ineligible sewerage. There were 32 boarding houses that had ineligible sewerage due to the open sewerage so that it smelt bad and became a nest of disease-causing vectors. According to Marthia (2010), in her research, it was described that of

157 houses observed, 62 houses (39.5%) had ineligible sewerage and 95 houses (60.5%) had ineligible sewerage.

### 3) Rubbish Bin Facilities

Rubbish is all substances or objects that are no longer used either from homes or remnants of industrial processes (Alfriandri, 2011). Based on the results of the study stated that there were 38 (70.4%) boarding houses that had rubbish bin, but most of the rubbish bin had no lid, and 16 (29.6%) boarding houses had no rubbish bin or ineligible. This causes rubbish being accumulated around the boarding house, thus giving rise to an unpleasant odor. Alfriandri (2011), in his research on the description of household waste management at RT 03 RW 01 Tegal Gede urban Village, Jember city, illustrated that from 83 houses there were 69 houses (83.14%) eligible and 14 houses (16.86%) were ineligible.

### 4) Latrine Ownership

According to Notoatmodjo (2007), to prevent fecal contamination to the environment, human waste disposal must be managed properly. A latrine called healthy must be eligible. From the research results, it was concluded that all of boarding houses had latrines and the majority were public toilets used by all boarding houses with a type of flat toilet without a lid.

Musfiana (2011) in his research, on factors related to latrine ownership illustrated that from 180 samples obtained, 115 houses (63.9%) had latrines and 65 (36.1%) had no latrines. Open latrines will be accessible to the vector that can cause diarrheal disease which will indirectly pollute foods and drinks. In addition, the distance between the pit of the manure and the source of clean water or wells that are less than 10 meters, will cause germs of diarrhea contaminating the source of clean water used by people for everyday purposes (Mafazah, 2013).

### 5) Temperature

Based on the results of the study, it can be seen that all boarding houses were ineligible, the temperature is > 30 ° C. Meanwhile, based on the Minister of Health decree of the Republic of Indonesia No. 829 / Menkes / SK / VII / 1999 which states that comfortable air temperature ranges from 18° C to 30° C. The high temperature of boarding houses in Akehuda Village was caused by the habit of boards who rarely open windows, do not use fans and close ventilation with paper so that there is no chance of air entering and exiting boarding house.

### 6) Humidity

The humidity of 54 boarding houses was ineligible because of a high humidity level where all houses had humidity > 60%. The high level of humidity is due to the ineligible construction of boarding house building, where the height of the ceiling was less than 2.7 meters, the floor area was less than 8 m<sup>2</sup> and the habit of boarders who rarely open windows and doors. According to the Regulation of the Minister of Health No. 1077 / Menkes /

Per / V / 2011 concerning Guidelines for Indoor Air Sanitation, eligible humidity is around 40-60%.

### 7) Ventilation

There were 45 (83.3%) boarding houses that had eligible ventilation (> 10% of the floor area) and there were 9 (16.7%) boarding house that had ineligible ventilation. It was stated ineligible because the boarding house had no ventilation. Lack of ventilation will decrease O<sub>2</sub> in the room which means that the level of CO<sub>2</sub> will increase. On the other hand, inadequate ventilation will cause humidity in the room because of evaporation of the skin. This humidity will be a good medium for pathogenic bacteria (disease-causing bacteria) (Kusno Waluyo 2004).

### 8) Lighting

Good light in the house is a human health need. This lighting can be obtained by using artificial light or natural light. Natural lighting is obtained by entering sunlight into the room through windows, cracks and parts of buildings. Based on the results of the study, it can be seen that there were 22 (40.7%) boarding houses with eligible lighting intensity and there were 32 (59.3%) houses with ineligible lighting. Overall, Lighting is from natural source, but the lighting intensity on the boarding house is measly because of boarders habit who rarely open windows. According to Mustika (2015), out of 62 houses studied, there were 50 (80.6%) houses that had eligible lighting intensity and the rest were not eligible.

### 9) Noise

There were 22 (40.7%) boarding houses with eligible noise and there were 32 (59.3%) boarding houses with ineligible noise. Noise pollution continues to grow and is accompanied by an increasing number of complaints from people exposed to the noise. The growth in noise pollution is unsustainable because it involves direct, as well as cumulative, adverse health effect (Oyedepo, 2013).

Traffic noise is a major environmental source of pollution in the whole planet, both in developed and in developing nations. The present study focuses on the traffic noise assessment and its negative health effect on road side residents. Five different locations were selected along a National Highway of Burdwan having a day time noise level was 60 to 89.5 dB (Srimanta, 2011).

### 10) Health Complaints

Health complaints felt by boarders during their stay in boarding houses were asked by using interview method. Based on the interview results, most of the health complaints stated by residents were a cough > 3 weeks 25 (46.3%), diarrhea 20 (37.0%) and skin diseases 15 (27.8%).

This shows that some of boarding houses do not have eligible sanitation facilities. This study also showed ineligible temperature, humidity, lighting, ventilation. This

means that the risk of getting Tb disease is greater. It was characterized by symptoms or health complaints complained by residents.

According to Putri (2012), it illustrated that there was a significant correlation between temperature with the incidence of pulmonary tuberculosis, and it was estimated that a bad room temperature has a 27.5 times greater transmitted risk than a room that has good temperature. There was a significant correlation between lighting with the incidence of tuberculosis, and it was estimated that the risk of having tuberculosis was greater 9.33 times in homes with poor lighting compared to houses that have good lighting.

Furthermore, research conducted by Andhani and Mahastuti (2007) showed, houses with poor ventilation had a risk 3.68% greater of getting pulmonary tuberculosis than houses that had eligible ventilation. According to the Regulation of the Minister of Health No. 1077/ Menkes / Per / V / 2011 concerning Guidelines for Indoor Air Sanitation, eligible humidity is 40-60%.

Meanwhile, boarders complaining of getting diarrhea were 20 (37.0%). Household wastewater is wastewater that comes from the bathroom, kitchen activity, laundry containing harmful pathogenic microorganisms, and can cause disease i.e diarrhea (Nugraheni, 2012). The uncovered latrine is also a cause of diarrheal disease where the vector will reach food and drink then contaminate it.

In addition, the distance between the pit of the manure and the source of clean water or wells that are less than 10 meters will cause germs of diarrhea contaminating the source of clean water used by people for everyday purposes (Mafazah, 2013).

There were Complaints of skin disease complained by residents of boarding houses such as itching and bumps on the skin. According to Delmi (2013) in his research entitled hygiene sanitation and skin health complaints of boarding houses residents, Padang Bulan Selayang I, Medan Selayang District in 2013 stated that of the 100 boarding house residents, 49 people (49.0%) had skin health complaints.

## 5. Conclusions

Based on the results obtained, it can be concluded that the temperature and humidity of boarding houses 100% are ineligible, most of the lighting and waste management of boarding houses are ineligible. There were Complaints of skin disease complained by residents of boarding houses such as itching and bumps on the skin.

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